**A-1**

**Highly Oxygenated Bioactive Flavonoids From *Nicotiana plumbaginifolia* (Solanaceae)**

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**Abstract:** *Nicotiana plumbaginifolia* Viv. is an annual herb which belongs to the Solanaceae family and found in the weedy lands of Bangladesh. The herb is used for the treatment of toothache, cuts, and wounds in ethnomedicine. It has been found to possess substantial amount of flavonoids and promising analgesic and anti-anxiety activities. The present study was aimed to isolate the bioactive compounds from the methanol extract of *N. plumbaginifolia* (MENP). The separations of compounds from MENP were performed by column chromatography over Kieselgel 60 followed by preparative thin layer chromatography (PTLC). The structures of the isolated compounds were elucidated by extensive analysis of their UV, high-resolution 1H-, 13C-NMR, DEPT, HSQC, HMBC, and HR-MS data as well as comparison with previously reported values where applicable. Analgesic activity of the plant isolates was determined by thermal (hot plate and tail immersion tests) and chemical (acetic acid and formalin-induced writhing tests) methods in mice. Anxiolytic activity of the isolated compounds was assessed by the elevated plus-maze test. Four highly oxygenated flavonoids were isolated and their structure was established as: 3,3',5,6,7,8-hexamethoxy-4',5'-methylenedioxylavone (1), 3,3',4',5',5,6,7,8-octamethoxyflavone (Exoticin) (2), 6,7,4',5'-dimethylenedioxy-3,5,3'-trimethoxylavone (3) and 3,3',4',5,5',8-hexamethoxy-6,7 methylenedioxyflavone (4) where exoticin (2) is relatively rare to be found in nature. These compounds have been isolated from *N. plumbaginifolia* for the first time. Oral administration of compounds 1, 3 and 4 (12.5-25 mg/kg b.w.) demonstrated significant (*p < 0.01*) and dose-dependent analgesic activity in both chemical and thermally-induced pain models in mice. Flavonoids 1-4 (12.5 mg/kg b.w.) also showed significant (*p < 0.05*) anxiolytic-like activity in elevated plus-maze test.

**A-2**

**Antioxidant, Antimicrobial, Anti-diarrheal and Analgesic Activities of *Diospyros malabarica* (Desr.) Kostel**

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**Abstract:** The present study was designed to evaluate the antioxidant, antimicrobial, antidiarrheal and analgesic activities of the methanol extract of *Diospyros malabarica* (Desr.) Kostel buds growing in Bangladesh. The total phenolic content of methanol extract of *D. malabarica* and its Kupchan fractions was determined and expressed in gallic acid equivalent (GAE). In the DPPH free radical scavenging assay, all the test samples displayed prominent antimicrobial activities against the test organisms under *in vitro* conditions. Among these, the carbon tetrachloride soluble fraction was found to exhibit the highest activity against *Bacillus cereus*, *Salmonella* Typhi, *Salmonella* Paratyphi, and *Candida albicans* with the zone of inhibition as 32.0, 30, 28, 30mm, respectively. In evaluation of antidiarrheal activity, the *D. malabarica* extracts showed significant anti-diarrheal potential in a dose dependent manner. During the evaluation of analgesic activity by radiant heat tail-flick method, the plant extract at 400 mg/kg b.w. exhibited highest elongation (373.04%) as compared to morphine (472.48%). On the other hand, in acetic acid-induced writhing test, the extract at 200- and 400-mg/kg b.w. showed 61.11% and 66.67% inhibition of writhing in mice model, respectively as compared to 68.06% inhibition produced by the standard diclofenac-Na. The findings of this study justify some of the traditional uses of *D. malabarica* and reveal the bioactivity of the plants. Further studies are required to isolate and identify of the bioactive compounds.
Expression, purification and characterization of the recombinant cysteine-rich antimicrobial peptide snakin-1 in *Pichia pastoris*

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Abstract: Snakin-1 (SN-1) is a small cysteine-rich plant antimicrobial peptide with broad spectrum antimicrobial activity which was isolated from potato (*Solanum tuberosum*). Here, we carried out the expression of a recombinant SN-1 in the methylotrophic yeast *Pichia pastoris*, along with its purification and characterization. A DNA fragment encoding the mature SN-1 was cloned into pPIC9 vector and introduced into *P. pastoris*. A large amount of pure recombinant SN-1 (approximately 40 mg/1L culture) was obtained from a fed-batch fermentation culture after purification with a cation exchange column followed by RP-HPLC. The identity of the recombinant SN-1 was verified by MALDI-TOF MS, CD and 1H NMR experiments. All these data strongly indicated that the recombinant SN-1 peptide had a folding with six disulfide bonds that was identical to the native SN-1. Our findings showed that SN-1 exhibited strong antimicrobial activity against test microorganisms and produced very weak hemolysis of mammalian erythrocytes. The mechanism of its antimicrobial action against *Escherichia coli* was investigated by both outer membrane permeability assay and cytoplasmic membrane depolarization assay. These assays demonstrated that SN-1 is a membrane-active antimicrobial peptide which can disrupt both outer and cytoplasmic membrane integrity. This is the first report on the recombinant expression and purification of a fully active SN-1 in *P. pastoris*. 
Biochemical Investigations of *Cerbera odollam* Gaertn

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Abstract: *Cerbera odollam* (Family: Apocynaceae) have a long history as a poison, particularly in Madagascar and India (Kerala) and are responsible for 10% of the total plant poisoning cases in Kerala. It is both used for suicide and homicide. Apart from poisoning, the plant is also used traditionally as emetic, cathartic, in curing hydrophobia and rheumatism. Biological activity evaluation also revealed its potential in anticancer, antinociceptive, antibacterial, diuretic, cytotoxic, neuropharmacological and antioxidant activities of this plant. Several bioactive compounds have also been reported from this plant. To find out its unexplored efficacy and to rationalize its medicinal use, *C. odollam* (leaves and barks) was investigated for its chemical constituents and biological activities. The powdered leaves and barks were extracted with methanol at room temperature and the concentrated methanic extract (CME) was fractionated by the modified Kupchan partitioning protocol into petroleum ether (PESF), carbon tetra chloride (CTSF), chloroform (CSF) and aqueous (AQSF) soluble fractions. Successive chromatographic separation and purification of the methanolic extracts provided total seven compounds: four from leaves and three from barks. The structures of the isolated compounds were elucidated as: β-amyrin, lupeol, β-sitostenone, triticusterol (from leaves) and 2,6-dihydroxy-4-methoxy benzoic acid, 2-hydroxy-4-methoxy-6-methyl benzoic acid and triticusterol (from barks) by extensive analyses of their high resolution 1H- and 13C-NMR spectroscopic data as well as comparison with published values. For biological investigation, the crude methanolic extract (CME) and its Kupchan fractions were subjected to assays for antioxidant, cytotoxic, antimicrobial, thrombolytic and membrane stabilizing activities. In antioxidant activity evaluation, the CME and CTSF of leaves displayed significant free radical scavenging activity with IC50 value of 75.02 ±1.00- and 72.01 ±1.00- μg/mL, respectively as compared to standard BHT with IC50 value of 23.50 ±1.00-μg/mL. But in case of barks, the CSF and CTSF showed the highest antioxidant activity with IC50 value of 21.00 ±1.25- and 26.00 ±1.33-μg/mL, respectively as compared to standard BHT with IC50 value of 14.50 ±0.32-μg/mL. In case of brine shrimp lethality bioassay, the CME, PESF, CTSF, CSF, and AQSF of leaves demonstrated significant activity with LC50 values of 10.77- , 12.80- , 8.49- , 7.67- and 6.28- μg/mL, respectively. In thrombolytic assay, the CME, PESF, CTSF, CSF and AQSF fractions of leaves revealed inhibition of lysis of human RBCs by 8.88%, 0.41%, 14.10%, 11.80% and 8.34%, respectively as compared to the standard streptokinase (65.50%). In membrane stabilizing activity study, all the extractives of leaves prevented the lysis of erythrocytes induced by hypotonic solution. The CME, PESF, CTSF, CSF and AQSF fractions inhibited 55.43%, 58.63%, 42.42%, 47.03% and 36.87% respectively of haemolysis of RBC at normal condition where as the standard Acetyl Salicylic Acid inhibited 71.90%. But in case of heat induced membrane stabilizing activity, the CME, PESF, CTSF, CSF and AQSF fractions inhibited 35.41%, 38.74%, 23.34%, 23.76% and 14.81% respectively of haemolysis of RBC where as the standard inhibited 42.20%. Finally, the antimicrobial activity was assessed by disc diffusion method and all of the fractions showed mild activity against some gram positive bacteria. Thus, by considering the potential bioactivity, this plant can be studied extensively to find out its uninvestigated active constituents and to rationalize its traditional uses.

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Abstract: Increased industrial activities have amplified the risk of pollutants in our ecosystem. According to recent report by WHO in world’s top 20 polluted cities 14 cities belong to India. With this increasing industrialization the threat factor from different carcinogenic pollutants have tremendously increased and in this regard the most lethal entity is polycyclic aromatic hydrocarbons (PAH) which are released as byproducts of carbon-based fuel combustion. Atmospheric emission of PAHs from coal-fired power plants and their subsequent deposition on soil/water-bodies/vegetation are known to significantly alter the environmental quality of the surroundings. There are agricultural lands located in close vicinity of these power plants and the edible plants grown in these lands are highly susceptible to the stress induced from exposure due to PAHs. Evaluation of accumulation of PAH and its intensity of oxidative damage in selected edible plants caused due to stress induced from exposure to polycyclic aromatic hydrocarbons (PAH). Extraction of sample and enrichment, Quantitative estimation of nutraceutical principles (TPC, TFC, DPPH, HPTLC Phenolic fingerprinting) Antioxidant enzyme assay, in-vivo localization of oxidative markers by staining technique, Quantification of PAH accumulation on leafy vegetables by GC-MS. Quantification of sample analysis reveals that presence of 16 carcinogenic PAH pollutants are present as compare to control sample. Decrease in nutraceutical content (40%-60%) in polluted sample. Histocytology reveals the presence of pollutants polluted sample. Taken together it can be concluded that generation of ROS due to oxidative stress created by accumulation of PAH on edible plants which degrade the nutraceutical entity and secondary metabolites.

Documentation of Medicinal plants successful Effort from Gadchiroli District of Maharashtra.

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Abstract: Gadchiroli is tribal Naxal affected south east district of Maharashtra. Major geographical area of district covered with forest and dominated by tribal population. Due to lack of facilities, transportation major population depends on forest and forest products for livelihood. Area is botanically not more explored but shows good potential of medicinal plants. With participation of local people area is vigorously explored for traditionally used medicinal plants. Methodology for this study includes Field visits, Survey, Questionnaire survey, Semi-structured interviews and group discussion. Interactions were carried out with 20 knowledgeable villagers between ages 18-74 and Total number of genera recorded was 104 with 112 species. Total 59 families including 50 dicots and 9 monocots were documented. Fabaceae, Euphorbiaceae, Caesalpiniaceae, Acanthaceae, Apocynaceae and Poaceae were among the major families of medicinally important plants. Total 49 herbs (44%), 34 shrubs (30%) and 29 trees (26%) were found. Among which 71 perennial (63%) and 41 (37%) were recorded. Percentages of wild and cultivated plants were found to be 68% and 32%. All these plants have important values to livelihood of local peoples medicinal values of these plants were documented.
Oxidative, Biochemical and Histochemical Changes of White Radish (*Raphanus sativus*) Exposed to Polyaromatic Hydocarbons.

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**Abstract:** Polyaromatic hydrocarbons (PAH) are ubiquitous products of combustion from carbon-based substances with two or more fused aromatic rings. Increased industrialization and urbanization has led to persistent increase in PAH content in air which can even be transported to distant places. These Pollutants create menace on leaves especially edible plants which cause changes in their ultrastructure, nutraceutical content oxidative stress. White radish which is used as dietary vegetable by Indians especially rural people. Impact assessment of accumulation of PAH on white radish vegetable and evaluation of its oxidative and histochemical changes. Extraction of sample and enrichment, Quantitative estimation of nutraceutical principles. Antioxidant enzyme assay, in-vivo localization of oxidative markers by staining technique, Quantification of PAH accumulation on leafy vegetables by GC-MS Quantification of sample analysis reveals that presence of PAH pollutants are present as compare to non-polluted sample. Decrease in nutraceutical content (50%) in polluted sample. Histocytology reveals the presence of pollutants polluted sample. Taken together it can be concluded that generation of ROS due to oxidative stress created by accumulation of PAH on edible plants which degrade the nutraceutical entity and secondary metabolites.

Bacopa monnieri abrogates chronic unpredictable mild stress-instigated depression-like behavior by arresting neuroinflammation in mice.

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**Abstract:** The coexistence of depression arises due to inflammatory diseases has long been endorsed. Currently available drugs have their own limitations and side effects. *Bacopa monnieri* Linn. (Scrophulariaceae), popularly known as “Brahmi”, has enormous medicinal properties. However, the influences of ethanolic extract of herb with roots of *Bacopa monnieri* Linn. (BME) on proinflammatory cytokines linked negative effects on monoaminergic neurotransmission in depression have not been explored yet. Therefore, this study intended to investigate the influences of BME on neuroinflammation, and chronic unpredictable mild stress (CMS)-instigated depression behavior in mice. BME was first standardized for the presence of bacoside-A and bacopaside-I and toxicological profile were also evaluated. The effect of oral administration of BME (20, 40, and 60 mg/kg) and standard drug fluoxetine were monitored using the forced-swimming test, sucrose preference test, and while CMS-induced changes in the locomotion count was noted employing actophotometer and open-field test. Biochemical alterations, serotonin as well as noradrenaline levels were measured using commercial kits and HPLC method respectively. The results demonstrated that no observed adverse effect level was higher than dose 2000 mg/kg of BME. The augmented levels of liver biomarker ALT, AST, ALP and proinflammatory cytokines were also significantly attenuated by one-week BME (40, and 60 mg/kg), and fluoxetine treatment in CMS mice. BME treatment also remarkably restored the norepinephrine and serotonin concentrations in the hippocampal and prefrontal cortex brain region in CMS mice.BME markedly improved CMS-persuaded depression via reducing elevated liver biomarkers, neuroinflammation and improving monoaminergic responses in the stressed mice.
Effect of Nettle root extract (*Urtica dioica*) on benign prostatic hyperplasia

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Abstract: Benign Prostatic Hyperplasia (BPH) is the nonmalignant enlargement of the prostate gland. It occurs in the prostate’s transitional zone, where stromal and epithelial cells interact and growth of these cells is affected by sex hormones and cytokine responses. It is clinically demonstrated as lower urinary tract symptoms (LUTS) consisting of irritative and obstructive symptoms. The frequency of LUTS increases due to BPH with increasing age. Effect of Nettle Root Extract on Benign Prostatic Hyperplasia (BPH) in rats. To evaluate the effect of Nettle Root Extract on BPH in rats. Testosterone (10 mg/kg i.m.) was used as inducing agent and Finasteride (10mg/kg p.o.) was used as the standard drug. The various groups of animals received Aq. Nettle Root Extract alone (50 mg/kg), Alc. Nettle Root Extract alone (50 mg/kg), Aq. Nettle Root Extract (25 mg/kg) & Finasteride (5 mg/kg) in combination and Alc. Nettle Root Extract (50 mg/kg) & Finasteride (5 mg/kg) in combination respectively once daily per orally for 28 days and various parameters of BPH viz. body weight, prostate weight, determination of hormones and histopathology of prostate were recorded. The present study revealed that Alc. Nettle Root Extract & Finasteride showed significant decrease in body weight, prostate weight, testosterone level and significant increase in prolactin level as compared to control group. The present study is the evidence that Nettle Root Extract alone and in combination with the Standard has potential effect on various symptoms of Benign Prostatic Hyperplasia.

Antilithiatic potential of *Kalanchoe pinnata* and *Emblica officinalis* against ethylene glycol and ammonium chloride induced nephrolithiasis on rat.

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Abstract: Nephrolithiasis is common worldwide, with increasing prevalence due to environmental cause and genetic predisposition on an average 6% woman and 12% men. *Kalanchoe pinnata* and *Emblica officinalis* were selected for exploration of antilithiatic activity based on the literature review and ethnopharmacological uses. The study aims at exploration of *K. pinnata* and *E. officinalis* ethyl acetate fractions (EAKP and EAEO) separated from hydro-methanolic extract for anti-nephrolithiatic potential based on their traditional uses and some scientific research study. Rats were divided into nine groups comprising five animals in each group treated daily for 10 days with EG 0.75% (v/v) and ammonium chloride 2% (w/v) per oral in drinking water. The parameters assessed were body weight; relative organ weight; serum sodium, chloride, potassium, calcium, phosphates, blood urea nitrogen (BUN), uric acid, creatinine, SGOT and SGPT; urine volume, pH, sodium, chloride, potassium, calcium, phosphates, magnesium, creatinine, uric acid and protein; anti-oxidant enzyme level of kidney with histopathology. EAKP and EAEO showed 65.00 and 53.75% of total flavonoid and 72.39 and 66.37% of total polyphenol content. EAKP at 50 and 100 mg/kg and EAEO at 50 and 100 mg/kg dose showed significant (P < 0.01–0.001) decrease in elevated levels of sodium, chloride, potassium, calcium, phosphates, BUN, creatinine, uric acid, SGOT and SGPT. EAKP and EAEO significantly (P < 0.001) decreased malondialdehyde, superoxide dismutase and calcium level and increased glutathione level of kidney. Rats treated with EAKP at 100 mg/kg showed kidney architecture almost similar to healthy control rats. EAEO treated animals showed decreased calcium oxalate deposits and less degeneration of epithelial cell lining. The present findings demonstrate the efficacy of EAKP and EAEO in EG-induced urolithiasis, which might be mediated through antioxidant effect and potential to inhibit biochemical parameters involving in impairment of renal function.
A-11  Design, Development and Evaluation of Nateglinide crystallo co-agglomerates

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Abstract: Nateglinide is anti-hyperglycemic drug with poor dissolution and poor flow properties. The aim of the study is to prepare the crystalloco-agglomerates of Nateglinide with the objectives to develop pharmaceutically equivalent, stable, and quality improved agglomerate of Nateglinide with enhanced wettability, solubility, dissolution rate, flow properties and mechanical properties using hydrophilic polymers. Crystallo-co-Agglomerates of Nateglinide were prepared using three solvent system i.e good solvent, bad solvent and bridging solvent comprising of methanol-water-dichloromethane. Agglomeration was carried out using different concentrations of PEG 6000, Polyvinyl alcohol (PVA) and Talc. Prepared crystals of Nateglinide were evaluated by X-Ray Diffraction study, the compatibility studies were done by DSC, FTIR and surface morphology by SEM. Drug release studies were performed in phosphate buffer 6.8 for 6 hrs. SEM revealed the formation of sphere-shaped Nateglinide agglomerates with jagged surfaces. X-ray diffraction exhibited the disparity in the crystallinity of particles of agglomerates. DSC thermogram demonstrated the crystalline environment and purity of the agglomerates. FT-IR results recommended that the drug did not endure any change throughout its conversion into agglomerates. The results of dissolution data demonstrated that the rate of drug release is dependent upon the nature and concentration of polymer used in the agglomerates. No residual solvents were detected in the prepared agglomerates by head space gas chromatography. Zeta potential was determined by Malvern zetasizer and was found to be -50 mv with uniform distribution of particles. This method is proficient for creating spherical agglomerates of Nateglinide with enhanced micromeritics, mechanical and compressional properties in outline of numerous unit particulate drug delivery frameworks.

A-12  Solid State Characterization of Daclatasvir dihydrochloride

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Abstract: The use of different solvents in the process of synthesis and purification of the drug could be the origin of differences in the crystalline form of the same molecule which possibly affect the stability of each form under the effect of temperature and humidity. They exhibit different melting points, solubilities, X-ray crystal and diffraction pattern. This study aims with the formation and characterization of various solid-state forms of Daclatasvir dihydrochloride. The drug was subjected to polymorphic screening using different solvents to explore the possibility of existence of different solid forms and to investigate the factors affecting Daclatasvir dihydrochloride polymorphic transformations. The polymorphs of Daclatasvir dihydrochloride were prepared using methanol, ethanol, dimethyl formamide and dimethyl sulphoxide as a crystallization solvents. The prepared polymorphs were characterized by differential scanning calorimetry (DSC), X-ray powder diffraction (XRPD), scanning electron microscopy (SEM), fourier transform infrared (FTIR) spectroscopy and measurement of aqueous solubility and melting point; the effect of temperature and humidity was also investigated. Polymorphs prepared from various solvents exhibited differences in melting point when compared with the actual procured drug. The DSC thermograms for bulk drug showed single endothermic peak at 273.50oc while crystals recrystallized from ethanol and DMF exhibited broad endothermic peak at 97.08oc. X-ray diffractogram of crystals obtained from ethanol and DMF exhibited diffused peak when compared with bulk drug confirming the amorphous form of recrystallized polymorph. According to microscopic study, bulk drug exhibited spherical thin plate crystals while ethanolic crystals had rough surfaces of plates with irregularities in the crystals and crystals obtained from DMF showed aggregates of irregularly shaped particles.
Pharmacognostical evaluation of *Tephrosia purpurea* and its whole plant extract for Anti-bacterial activity

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**Abstract:** The aim of the study is to assess phytochemical analysis and to determine zone of inhibition of extract on different bacterial strains. This study was carried out with an objective to evaluate phytochemical screening and to investigate antimicrobial potential of Whole plant extract of *Tephrosia purpurea*. Different parameters were evaluated for phytochemical screening using both qualitative and quantitative analysis which includes Macroscopical and microscopical characterization, phytochemical tests, Thin layer chromatography, fluorescence analysis, Foaming index, Ash and acid insoluble ash value, moisture content, extractive values. Determination of total tannin, flavonoid and phenolic content was also evaluated. The antimicrobial activity of extract was determined using agar disc diffusion method against *Bacillus subtilis* (MTCC 441), *M. luteus* (MTCC-106), *Klebsiella pneumonia* (MTCC-3384), *Pseudomonas aeruginosa* (MTCC-424), *Escherichia coli* (MTCC-443). Zone of inhibition of extract was compared with that of control DMSO and standard chloramphenicol. The Pharmacognostical investigation revealed comparative macroscopical, microscopical characteristics, phytochemical screening, Fluorescence analysis, Physicochemical, Chemical, quantitative and biological evaluation of plant *Tephrosia purpurea*. These results are very encouraging and indicate this herb should be studied more extensively to confirm these results and reveal other potential therapeutic effects. The results showed the remarkable inhibition of the bacterial growth against the tested strains. Plant extract has great potential as antimicrobial compound against microorganisms. Thus they can be used in the treatment of infectious disease caused by microbes. The microbial activity of the *Tephrosia purpurea* was due to the presence of various secondary metabolites. Hence, the plant can be used to discover bioactive natural products that may serve as leads in the development of new pharmaceuticals research activities.

Role of saponins as adjuvant in veterinary vaccines

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**Abstract:** Potent adjuvant and novel vaccine strategies are required to make the vaccine sufficiently immunogenic to initiate a potent immune response. Mostly aluminum or oil adjuvants are used in vaccine, but these chemical adjuvants have many disadvantages, such as strong local stimulation and carcinogenesis, complicated preparations or failure to increase immunogenicity of weak antigen. Saponins are one of the most important plant secondary metabolites getting global attention for R & D in the area of immunomodulatory and adjuvant activities in veterinary vaccines. A major component of new and improved vaccines will be more potent vaccine adjuvants. Therefore, there is an urgent need for the development of potent and safe adjuvants that can be used with either killed vaccines or newer generation vaccines, including DNA vaccines. There is a need to identify a novel adjuvant capable of enhancing both humoral and cellular immune responses. There has not been synergy of chemistry and in vitro/in vivo bioactivity evaluation in the research on saponins in India. The western Himalayas have a rich biodiversity of saponins-rich plants, which remain rather unexploited for various bioactivities listed above. In our laboratory, work is being carried out on the potential role of saponin-rich fractions from *Asparagus adscendens* Roxb. (fruit), *Sapindus mukorossi* Gaertn. (seed coat), *Silene inflata* Sm. (leaves and flowers, and stem) and *Chlorophytum borivilianum* (leaves) as an adjuvant in veterinary vaccines.
Phytochemical screening and anti-filarial studies of green tea extract

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Abstract: Filariasis is a parasitic disease caused by an infection with roundworms of the Filarioidea type. This disease belongs to the group of diseases called helminthiasis. The present work evaluated the phytochemical and anti-filarial activities of the green tea extracts from different commercially available tea brands. The main aim of this study is to determine the pharmacological significance and medicinal values of green tea extract apart from the listed ones. To study the anti-filarial activity in different brands of green tea and to detect various classes of chemicals present in it. The commercially available various tea brands were extracted by using 70% v/v Methanol. Each methanolic extracts from various commercial brands were studied for anti-filarial activity in micro-filarae and adult worms. Out of which, extract of the green tea obtained from Tata Global Beverages Ltd. showed prominent anti-filarial activity against micro-filarae and adult worms. Further this extract was phytochemically screened to detect various classes of chemicals present and was then fractionated by Flash chromatographic method. The methanolic extracts (70% v/v) of green tea obtained from Tata Global Beverages Ltd. showed the prominent anti-filarial activity in micro-filarae and adult worms. Phytochemical screening of the methanolic tea extract showed the presence of wide range of chemicals. Since the Wardha district is more prone to filariasis, the work was performed to spot the anti-filarial activity of the green tea from various commercially available tea brands. And it was concluded that, the methanolic extract of green tea procured from Tata Global Beverages Ltd. showed maximum anti-filarial activity against micro-filarae and adult worms and hence, can be used in its management.

Pharmacological evaluation of PARP inhibitors in neurodegenerative diseases.

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Abstract: Activation of Poly ADP robos polymerase ( PARP ) plays a key role in process of neurodegeneration and its inhibition can be beneficial for treatment of neurodegenerative diseases. To evaluate the lab scale synthesized 3 Aminobenzamide for its role in Neurodegenerative disorder like Parkinsonism. Antiparkinson activity is done by Haloperidol induced catalepsy (Dose 4 mg/kg ) and catalepsy behavior was assessed by metal bar test by scoring method. Animals were divided into four groups control, standard and 2 test groups, treated with saline, Haloperidol, Aminobenzamide and Levodopa respectively. Cataleptic posture were checked at time intervals 30, 60, 90, 120, 150, 180 mins. Animal treated with Aminobenzamide decreases cataleptic posture as comparable to Haloperidol at 120 min at the dose of 120mg/kg. 3 Aminobenzamide is non-toxic and may be effective in decreasing the symptoms of Parkinson’s disease.
Ameliorative effects of polyherbal extract on High fat diet induced hyperlipidemia in rats

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Abstract: Hyperlipidemia is major risk factor for atherosclerosis and other complications such as heart disease, ischemic cerebrovascular disease, hypertension, obesity, diabetes mellitus (type 2). Although, many efficacious lipid-lowering synthetic drug exist, but none is effective for all lipoprotein disorder and are associated with some adverse effect. Therefore it is need of the day to search natural materials which are less toxic and less expensive with better safety and effect. The hypolipidemic effect was observed in plant such as commiphora mukul, hibiscus rosa sinensis, embilica officinalis, terminalia arjuna, trigonella foenum graecum. The purpose of study is to establish the traditional use of the polyherbal formulations for anti-hyperlipidemic activity. The crude drug were collected, extracted, screened and evaluated. The high fat diet model was standardized and pharmacological studies were done on experimental animal and biochemical data was estimated. Animal were divided into 6 groups; group 1 of normal diet (control), group 2 of high fat diet, group 3 of positive control (HFT + 10 mg/kg atorvastatin), group 4 low dose (HFD + polyherbal extract 500 mg/kg), group 5 of moderate dose (HFD + polyherbal extract 1000mg/kg), and group 6 of high dose (HFD + polyherbal extract 1500mg/kg). The drug atorvastatin and polyherbal extract given once a daily. It was observed that administration of polyherbal extract decrease blood lipid level in HFD induced hyperlipidimic rats by decreasing synthesis of tryglycerides and also decrease body weight significantly. The study concluded that polyherbal extract exhibit significant hypolipidemic activity in experimentally induced hyperlipidemic rats and help to maintain good lipidemic and metabolic control.

Preparation of herbal formulation using natural extract

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Abstract: Butea monosperma is traditional important medicinal plant used in Ayurvedic, Unani, & Siddha medicine for various ailments. Antibacterial activity was studied using ethanolic extract of flowers of Butea monosperma by agar well diffusion method against E.coli & S. aureus. And also Psidium guajava is small medicinal tree. Popularly known as guava. Antibacterial activity was studied using methanolic extract of leaf of Psidium guajava by agar well diffusion method against E.coli.& S.aureus. The present investigation was to evaluate the antibacterial activity of flower of butea monosperma plant & Psidium guajava leaves. And to prepare the herbal gel formulation from the combined extract of butea monosperma flower and Psidium guajava leaves. a) First the extraction of these species was done by Soxhlet apparatus using the solvent system of ethanol for butea monosperma& methanol for Psidium guajava.b)Antibacterial activity of the E.coli &S.aureus was carried out by agar well diffusion method. c)The gel was Prepared by Carbopol 940,Propylene glycol, methyl paraben, propyl paraben, Triethanolamine, natural extracts, Distilled water. the prepared gel was evaluated for colour[yellow], Appearance[translucent],feeling on application[smooth], homogeneity [no aggregates or clumps],PH, Viscosity and Spreadability. The gel was translucent,smooth,homogenous & it showed effective antibacterial activity against E.coli & S. aureus. The ethanolic extract of butea monosperma& methanolic extract of Psidium guajava found effective antibacterial agent & gel formulation by taking the combined extract conc.[24.6 mg/ml] showing good antibacterial activity against E.coli & S.aureus.
Evaluation of therapeutic potential of polyherbal preparation against cyclophosphamide induced thrombocytopenia

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Abstract: Thrombocytopenia is a condition characterized by abnormally low levels of thrombocytes (platelets) in blood. Current conventional therapies are not always feasible since it is associated with many side effects and problems. Hence this study focused on exploring the role of polyherbal formulation in management of thrombocytopenia. The aim of our study was to evaluate platelet augmentation ability of poly herbal preparation EuD01 in Cyclophosphamide (CPX) induced thrombocytopenia in Wistar rats. EuD01 consists of Tinospora cordifolia (Guduchi), Carica papaya (Erandkarkati), Elettaria cardamomum (Sukshma Ela) and Ocimum sanctum (Tulsi) with array of pharmacological effects like antioxidant, anti-inflammatory, hepatoprotective and immunomodulatory etc thus possessing vital therapeutic potential to treat thrombocytopenia. CPX being a myelosupressant was selected for induction of thrombocytopenia. 24 male wistar rats (180-230g) were divided into three groups each containing 08 rats and were treated as follows: Group I (vehicle control): Treated with distilled water(2ml/kg/day p.o.) for a period of 18 days. Group II (Toxicant.): Treated with Cyclophosphamide(50 mg/kg/day s.c.) for initial three consecutive days. Group III (EuD01 504) Treated with Cyclophosphamide(50 mg/kg/day s.c.) for initial three consecutive days followed by EuD01 (504 mg/kg/day p.o) for period of 15 days. Complete blood count was determined on 4th, 7th, 11th, and 15th day of treatment. Bleeding and clotting time were determined on 15th day of treatment. Treatment with EuD01 demonstrated significant (p˂0.001) increase in platelet count along with significant (p˂0.001) reduction in bleeding and clotting time as compared with toxicant group. EuD01 was also able to significantly (p<0.001) reverse neutropenia and leukopenia induced by cyclophosphamide. No significant perturbations in levels of monocytes, eosinophils, lymphocytes, RBC and haemoglobin were observed. EuD01 exhibited significant platelet augmenting activity along with decreased coagulopathy hence, might play beneficial therapeutic role in treatment of thrombocytopenia.


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Abstract: Conventional hormonal therapies are associated with serious side effects which arises the need to explore role of ayurvedic medicines in treatment of post-menopausal osteoporosis. Asthiposhak was evaluated for their anti-osteoporotic activity in ovariectomized rat model of osteoporosis. Fourty female rats (180-220 gm) were randomly divided into four groups (n=8). All groups except sham control were ovariectomized to induce osteoporosis. Treatment with Asthiposhak (405 mg/kg, p.o) to ovariectomized rats started from 60th day post-ovariectomy for duration of 45 days thereafter. Serum biochemical parameters [Alkaline phosphatase (ALP), calcium, inorganic phosphorous] were estimated on 1st and 45th day of treatment. Biomechanical parameters [Bone mineral density (BMD), bone weight, length and thickness, bone ash calcium content] and histopathology were performed at end of treatment. Elevated levels of serum ALP, calcium and phosphorous due to ovariectomy were significantly attenuated (P<0.01, P<0.05) on treatment with Asthiposhak. Post-ovariectomy rise in body weight was prevented in treatment groups. After administration of Asthiposhak total femur BMD and biomechanical strength were significantly (P<0.001) improved, confirming re-mineralization of bones Histological results exhibited increased trabecular thickness and decrease osteoclast formation thus indicating protective activity of Asthiposhak through promotion of bone formation and suppression of bone resorption. These results suggest that Asthiposhak has remarkable anti-osteoporotic activity due to rich content of polyherbal formulation and thus, may prove a promising candidate in treatment of post-menopausal osteoporosis.
Pharmacognostic Evaluation Of *Moringa oleifera* Flowers

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**Abstract:** *Moringa oleifera* (belonging to family *Moringaceae*) commonly called a drumstick, Horseradish or tree of life. *Moringa oleifera* is a highly valued plant, distributed in many countries of the tropics and subtropics. It has an impressive range of medicinal uses with high nutritional value. Different parts of this plant contain a profile of important minerals, and are a good source of protein, vitamins, β-carotene and various phenolics. The different part of plant show different types of medicinal activities. The leaves, stem, seeds, roots of *Moringa oleifera* plant is known for their medicinal activity. But along with these plant part the flowers of *Moringa oleifera* shows medicinal activity. A lot of research has been done on leaves, stem, bark and seeds but a very little research has been done on flowers. The flowers are used in different disease conditions. The objective of present study is to provide a microscopical characteristics of *Moringa oleifera* flower and their medicinal importance. A flower of *Moringa oleifera* is collected from adjoining part of Nagpur. After collection the flowers are decolourised by using 10% KoH and various section can be taken and observed under the microscope. The study shows the different sections of different flowers part. The flower is white in color consist of Ten petals, Five anther, Stigma, Ovary and Ovules. Along with these the flowers contain nine amino acids, sucrose, D-glucose, traces of alkaloids, wax, quercetin and kaempferol. The microscopical section shows the different arrangement of cells and their medicinal use.

Evaluation of anti-urolithiatic activity of leaves of *Alstonia scholaris* by ethylene glycol induced urolithiasis in rats

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**Abstract** :Urolithiasis is the pathological condition of genitourinary system which is characterized by formation of calculi in urinary tract. Globally 1-15% of population are affected by it and no conventional treatment for it is available. To explore antiurolithiatic effect of *Alstonia scholaris* and triterpenoids present in it. Albino wistar rats of either sex were divided into 6 groups. Except, vehicle all were fed with 0.75% ethylene glycol in drinking water from 1st to 28th day to induce urolithiasis. Along with treatment of Standard 400mg/kg cystone, and extract 200 and 400mg/kg extract and isolated triterpenoid in combination of lupeol (1.24mg/kg) and ursolic acid (9.36mg/kg) from 4th day of administration of ethylene glycol for period of 28 days. On 28th day serum creatinine, uric acid and BUN levels were determined. Urinary electrolytes, urine volume, serum levels of IL-6 and TNF-α were estimated. Cardiovascular parameters like blood pressure, heart rate, and mean arterial pressure were determined invasively using PowerLab instrument. Animals were sacrificed, kidneys were isolated, one kidney was used for histopathology and another to prepare kidney homogenate for determination of antioxidant levels. Treatment with ethylene glycol resulted in significant increase in serum nitrogenous wastes, urinary electrolytes, serum inflammatory levels and perturbations in cardiovascular parameters. Treatment with extract and isolated triterpenoids significantly attenuated these perturbations as compared to toxicant. The study revealed nephroprotective potential of leaves of *Alstonia scholaris* and its isolated pentacyclic triterpenoids.
Pharmacological Evaluation of PARP Inhibitors in Neuropathic Disorders.

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Abstract: PARP (Poly ADP Ribose Polymerase) are emerging family of enzymes that catalyze the transfer of ADP ribose to target protein responsible for DNA repair and programmed cell death. PARP plays a key role in the development of diabetic neuropathy, induce cell death processes, and promotes inflammatory response, cardiovascular diseases and multiple organ failure which is preventable by PARP inhibition. The purpose of the study is to evaluate and explore simple and cost effective PARP inhibitors and its role in Neuropathy. The PARP inhibitors i.e 3-Amino Benzamide(3-AB) obtained at laboratory scale was evaluated for its toxicity studies and effect on neuropathic pain induced by sciatic nerve ligations and evaluating Heat Hypaeralgesia, Hot plate, tail Thermal Hyperalgesia. Cold Chemical Allodynia, and Acetone drop method. The inhibition of neuropathic pain activity was significant by 3-Aminobenzamide at the dose of 30mg/kg in all models of neuropathic pain. PARP inhibitors i.e 3-AB was found that it can be used for the treatement of Neuropathy and also showed nontoxic effect, analgesic effect on chronic constriction induced neuropathy.

Phytochemical Screening and Antibacterial Activity of Crude Leaves Extract and Fractions of Parkia biglobosa (Jacq.)

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Abstract: The emergence of widespread drug resistant microorganism has led to the search of new antimicrobial agents mainly among plant extracts. As part of our ongoing research to isolate, purify and characterized antibacterial agents from the extracts of some Nigerian medicinal plants, the extract and solvent fractions of Parkia biglobosa (Jacq.) were screened for their phytochemical constituents and antibacterial activity. The preliminary phytochemical screening was carried out using standard methods while the antibacterial activity was done using Agar well diffusion method. The results for the phytochemical screening showed the presence of most of the phytochemicals tested. The results for the antibacterial activity of the crude methanolic extract and fractions of the leaf of Parkia biglobosa showed varying degree of antibacterial activity against the bacterial isolates. However, crude methanolic extract, ethyl acetate and aqueous fractions showed relatively high zone of inhibition (mm), minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC). They were found to inhibit the growth of most of the test bacterial isolates comprising of both Gram-positive and Gram-negative organisms. On the other hand, hexane and butanol fractions showed little or no activity against tested isolate. The result of the present study signifies the potential of Parkia biglobosa leaf as a source of therapeutic agents, which may provide leads in the ongoing search for antimicrobial agents from plants.
SCIENTIFIC ABSTRACTS

A-25

Development of Phyto-Antivenom from Some Medicinal Plants against *Naja nigricollis* Venom Using Albino Rats

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**Abstract:** Snakebite remains an important cause of morbidity and mortality in Nigeria. Its official means of treatment is parenteral administration of serum-based antivenins. But due to the limitations of these antivenins, snakebite victims are mostly treated with herbal antidotes. This research was aimed at evaluating the antivenom activities of some selected medicinal plants against *Naja nigricollis* venom with a view to complementing the conventional antivenins. Five (5) plants were obtained through ethno-medicinal survey, comprising *Parkia biglobosa* stem-bark, *Calotropis procera* root, *Azadirachta indica* leaf, *Sterculia setigera* stem-bark and *Diospyros mespiliformis* stem-bark. Methanol extracts were screened against venom-induced lethal effect in albino rats using standard methods. The most potent plant was subjected to solvents fractionation, and the most active fractions were used to test for the mechanisms of action. The LD50 of the venom was 0.389mg/kg b.w. The plants exhibited antivenom activities with varying degrees of efficacy. *Azadirachta indica* methanol leaf extract and its hexane and ethylacetate fractions were the most potent with animal mean survival time of 22.51 ± 2.38h, 23.68 ± 0.89h and 21.98 ± 1.36h respectively against LD100 of the venom. The fractions’ antivenom mechanisms of action were via inhibition of venom enzymes (phospholipase A2, acetylcholinesterase, L-amino acid oxidase, phosphomonoesterase and hyaluronidase); inactivation of venom cytotoxins leading to hepatic, renal and haemoprotection; adjuvant action by potentiating the antivenin activity and antioxidant activity by significant reduction in the levels of venom-generated free radicals. These findings suggest that the tested plants have potent antivenom activities and the isolated active compounds can serve as leads for the development of safe, readily available and affordable antivenoms.

A-26

Anti-stress activity of *Olea europa*

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**Abstract:** The present study was aim to anti stress potential of ethanolic extract of *Olea europa* on swimming endurance, anoxia tolerance test in mice, cold and Immobilization stress in albino rats. The effect was assessed by swimming survival time and anoxia tolerance test in mice, estimation of glucose, cholesterol, triglycerides and BUN, weight organ such as, liver, spleen, testes, adrenal gland, WBC and DLC count in cold and Immobilization stress , at a dose of 300mg/kg and 500 mg/kg body weight (po), compare with Gerifort Syrup (2ml/kg b.w). It was found that *Olea europa* significantly (p<0.001) increases swimming time and anoxia tolerance time. *Olea europa* showed significant (p<0.001) decrease in blood glucose, cholesterol, triglyceride (TG), plasma cortisol and BUN levels and also decreased the weight of organs. It also showed a significant (p<0.05) decrease in weight of adrenal gland. A significant (p<0.01) decrease in WBC count, polymorphs and monocytes and decrease in lymphocytes (p<0.05) and eosinophils it was observed, compared to control and gerifort group. Thus the obtained results revealed that the *Olea europa* has a significant anti stress activity.
A-27 Analgesic Effect of Methanolic Leaves Extract of *Crateva Adansonii* in albino Rat

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Abstract: Pain is the most common reason for physician consultation in most developed countries but treatment is becoming complex because of the side effects of analgesic pharmaceutical drugs. This has led to an increase in the used of medicinal plants for pain and pain related conditions. Previous studies have demonstrated that *Crateva adansonii* stem-bark produced analgesic and anti-inflammatory effect but no data are available concerning the antinociceptive effect on the leaves. This study was aimed at investigating the analgesic effect of methanolic leaves extract of *C. adansonii* in albino rat. The analgesic activity of *C. adansonii* leaves extract was evaluated using tail-flick and acetic acid-induced writhing methods in albino rats. The results showed that the pain reaction time (tail withdrawal) following administration of *C. adansonii* leaves was significantly increased (p<0.05) in a dose-dependent manner compared to the control. Also the extract at all doses caused a significant (p<0.05) dose-dependent reduction in the number of writhing when compared to the control. However, rats receiving 400mg/kg leaves extract showed no significant (p>0.05) difference in the pain reaction time and number of writhing respectively compared to the standard drug aspirin treated rats. In conclusion, *C. adansonii* leaves exhibited antinociceptive activity against central and peripheral mediated pain sensation. This further justifies the folkloric claim of this plant in pain treatment.

A-28 *Garcinia indica* fruit extract modulate salt induced left ventricular hypertrophy in rats

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Abstract: Cardiovascular disease is the principle cause of death in developed and developing countries, about 17.1 million lives a year. Left ventricular hypertrophy is an adaptive response of the heart to hypertension or cardiovascular disease. The present study was designed to evaluate the effect of hydroalcoholic extract of *Garcinia indica* fruit (HEGIF) in salt induced left ventricular hypertrophy (LVH) in animals. Healthy Sprague dawley rats of either sex were used and divided into 6 groups having 6 in each. LVH was induced in rats by feeding 2.4 and 6% extra salt in normal diet for 1st, 2nd and 3rd week respectively and 8% extra salt in diet from 4th to 6th week. Group I were normal untreated rat, Group II untreated salt induced LVH rats, Group III salt induced LVH rat treated with amlodipine (10mg/kg). Group IV, V and VI salt induced LVH rat treated with 200,400 and 800mg/kg of HEGIF respectively for 28 days. On 29th day ECG was recorded and blood was collected in anaesthesized animal from retro orbital plexus puncture for estimation of serum biomarkers. Treatment of HEGIF in salt induced LVH rat shows significant dose dependent reduction in heart rate, QRS complex, R-R interval and CK-MB. Further there is significant increase in R-wave and antioxidant biomarkers viz. SOD, CAT and GSH were observed. The result obtained from the present study showed HEGIF had significant cardio protective potential in salt induced LVH rats. The observed effect could be due to ROS scavenging property of *Garcinia indica* fruit. Further study is required to isolate the lead molecules responsible for cardio protective potential as well as clinical studies is needed to evaluate its safety and efficacy in humans.
Phytochemical Investigation of Petroleum ether extract and Screening for Antiinflammatory activity of Phyllanthus lawii

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Abstract: Phyllanthus lawii Grah. is a glabrous shrub usually growing along the bank of rivers towards the Konkan Ghats. Some species of Phyllanthus L. (Euphorbiaceae) are reported to be bitter, astringent, stomachic, diuretic, febrifuge, and antiseptic and have been used as hepatoprotective agents in Ayurvedic medicine. The present study was made to carry out the phytochemical investigation and to screen the antiinflammatory activity of Petroleum ether extract of Phyllanthus lawii. The chemical investigation of the whole plant of Phyllanthus lawii was carried out by successive extraction of ethanolic extract with different solvents using column chromatography. These constituents were characterized by IR, 1H NMR, 13C NMR and Mass spectral analysis. Anti-inflammatory activity was evaluated by carrageenan – induced rat hind paw oedema using plethysmograph apparatus to measure the paw volume. The chemical investigation of P. lawii led to the isolation of two steroids β-Sitosterol, Stigmasterol and a triterpenoid α-amyrin acetate. The results of carrageenan induced rat hind paw method showed significant reduction in oedema volume in petroleum ether extract of P. lawii which was comparable to standard drug diclofinac sodium. The activity of P. lawii may be due to steroids or triterpenoid from petroleum ether extract.

Ameliorative activity of Polygonum Bistorta and its active principle against hepatorenal toxicity.

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Abstract: To study the herbal plant and its active compound for the prevention of hepatoprotection against the toxicity of liver. Polygonum bistorta plant locally known as a bistort is used in the Siddha system of medicine. The goal of the present work is to evaluate and compare the efficacy of root extract of Polygonum Bistorta and tannic acid against CCl4-induced damage in liver and kidney. The hepatotoxicity produced by the administration of CCl4 at the dose of (1.5 and 0.15 ml kg-1 b.wt.) for once only (Acute exposure) and 21 days (Sub chronic exposure), was found to be inhibited by simultaneous oral administration of aqueous extract of P. bistorta (100 mg kg-1 b.wt.) and its active principle as tannic acid (25 mg kg-1 b.wt.) after 24 h of CCl4 administration. The enzymatic activities of AST, ALT and SALP in serum where as LPO and GSH contents in liver and kidney were estimated and histopathology of liver and kidney was performed after acute and sub chronic exposure of CCl4 and treatment and compared to the control. Severe alterations were noticed after CCl4 administration with evidence of increased level of serum AST, ALT and SALP. The significant changes were noticed in LPO and GSH contents with the concurrent administration of plant extract and its active principle after CCl4 administration. The histopathological changes were reversed after the treatment of plant extract and its active principle. This plant possesses a broad spectrum of antibiotic, antibacterial and anticancer activity. The observations of this study indicated that aqueous extract of P. bistorta roots and tannic acid could afford a better protection against CCl4- induced sub chronic hepatotoxicity in rats.
A-31 Phytochemical evaluation and HPTLC profiling: *Sapindus emarginatus* Vahl. and *Morinda pubescens* J.E.Sm. bark extracts

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Abstract: Plants of medicinal importance though are quite well known among the traditional drugs practitioners since years, yet many of them have not been standardized, validated and documented completely. Among such medicinally valuable plants, *Sapindus emarginatus* Vahl. (Sapindaceae) and *Morinda pubescens* J.E.Sm. (Rubiaceae) are in use as ethno-botanical. The present study reports the phytochemical evaluation and High Performance Thin Layer Chromatography (HPTLC) profiling of *S. emarginatus* and *M. pubescens* bark extracts, through various biochemical and chromatographic methods. To identify the tannin phytoconstituents by HPTLC profiles from bark of *S. emarginatus* and *M. pubescens* water extracts. The powdered drug barks of *S. emarginatus* and *M. pubescens* macerated each separately with water for 48 hours. Both these water extracts were subjected to preliminary phytochemical analysis. Based on phytochemical studies, the extracts obtained were subjected to HPTLC profiles for identify and confirmation tannin component, both these samples was compared with standard (Gallic acid). HPTLC analysis performed with silica gel G 60 F254 plates with mobile phase toluene : ethyl acetate : formic acid (5:5:1). Detection of tannins compound was performed by scanning the developed plate at 254 / 366 nm. Result of both bark extracts shows positive tests for tannins, steroids, flavonoids, glycosides, etc. Water extracts bark of *S. emarginatus* and *M. pubescens* were each shows bands of different Rf values with range 0.10 - 0.85 and standard shows bands of 0.51 Rf values with Indigo, violet, purple colored. Bark of *S. emarginatus* and *M. pubescens* water extract contain tannin moiety i.e. gallic acid is confirmed. It can be concluded that the gallic acid constituent presents in each bark of water extracts. It has effective components which can be utilized as useful herb for alleviation of various illness and disorders.

A-32 Analytical Method Development and Validation of Simultaneous Determination of Lidocaine and Prilocaine in Pharmaceutical Formulation by Gas Chromatography

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Abstract: A simple, specific, accurate, and precise gas chromatographic method with flame ionization detector (FID) was developed for simultaneous estimation of Lidocaine (LDC) and prilocaine (PLC) in a topical local anaesthetic cream. The mixture of PLC and LDC was separated using zebron DB drug column, The column temperature and flow rate was 230°C and 14 mL/minutes respectively. The retention time was found to be 5.1 minutes for PLC and 5.4 minutes for LDC, respectively. Linearity was observed in the concentration range of 10-50 μg/mL for PLC and 20-100 μg/mL for LDC. The method was validated according to International Conference on Harmonization guideline and values of linearity, precision, accuracy, limit of detection, limit of quantitation were found to be in good accordance with the prescribed value. The proposed method can be useful in the quality control of Lidocaine and Prilocaine in their topical formulation.
Optimization of culture medium for commercial astaxanthin production derived by green algae – *Haematococcus Pluvialis*

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Abstract: The freshwater green microalgal strain *Haematococcus pluvialis* is the richest source for the production of astaxanthin. Astaxanthin is member of the xanthophyll family of carotenoids and constitutes the highest value product derived by microalgae. So far, algal astaxanthin amounts to 1% of the global market, since the synthetic alternative involves lower production costs. In this study, the technical and economic performance throughout large scale astaxanthin production. The growth rate of *H. pluvialis* is controlled or regulated by the physical and chemical parameters. The aim of this study was to investigate and compare the effect of various culture media and light intensities on the growth of *H. pluvialis* in batch culture. The experiments were achieved by five different culture media and three different light intensities. The maximum cell concentration of 9.50 x 10^5 cells ml^-1, which corresponds to the growth rate of 0.195 d^-1, was obtained in RM (Rubics Medium) culture medium at the light intensity of 40 μmol photons m^-2 s^-1. The cell concentration decreased by only 7% in Basal culture medium compared to RM culture medium under the same light intensity.

Role of Probiotics and Prebiotics in Human Healthcare: A Review

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Abstract: There is a saying “You are what you eat”. Most of the times, food is not given importance for maintaining good health. Human gut has a huge number of microorganisms especially bacteria. These microorganisms create a microbiome or microbiota which in turn plays an important role in our health. Probiotics are scientifically defined as live microorganisms present in fermented food or supplements that provide health benefits to the human host. Prebiotics are defined as non-digestible carbohydrates that stimulate the growth and activity of healthy bacteria species in the large intestines. Probiotics and Prebiotics play a very vital significant role in human health. To review the importance of Probiotics and Prebiotics in human health care system. Probiotic products are generally manufactured by certain species of Lactic Acid Bacteria (LAB) and Bifidobacteria spp., because of their well-known beneficial to health and are Generally Recognized as Safe (GRAS). Probiotics can stimulate the immune system, decrease serum cholesterol, alleviate lactose intolerance, decrease diarrheal incidence and also control infections. They may act as antibiotics, suppress tumors and protect against colon/bladder cancer. Prebiotics are employed to promote both beneficial bacteria which are already established in the colon as well as externally administered probiotic bacteria. Inulin, FOS, Galacto-oligosaccharides and Lactulose are the important Prebiotics. Much of the information is available on Probiotics but lacks in Prebiotics. Clinical or therapeutic trials of Probiotics and Prebiotics are has presented in this review. This review shows evidence based benefit of Probiotics in specific diseases and the importance of Prebiotics in dietary intervention in preventing IBS and cancer.
**A-35**

*In vitro* anti-arthritic activity of sulforaphane from broccoli extract


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**Abstract:** Arthritis is the inflammation of joints, and is the leading cause of joint pain. Arthritis mainly affects the joints (e.g. your wrists, knees, hip, and fingers etc.), but some types of arthritis can also affect other connective tissues and organs, including the skin. Sulforaphane is a phytochemical belonging to the family of isothiocyanates, containing an -NCS group. Sulforaphane is reported to have numerous pharmacological and therapeutic effects like anti-oxidant, anti-cancer, anti-diabetic, anti-arthritic, anti-ulcer, anti-viral. The objectives of the present study are as follows. To study the Anti-arthritic activity effect of Sulforaphane by Bovine serum protein denaturation and egg albumin protein denaturation methods. Anti-Arthritic activity of sulforaphane was determined by protein denaturation methods using Bovine Serum Albumin (BSA) and Egg Albumin. In these studies diclofenac was used as the reference drug. Here, various concentrations (10,50,100,250,500 g/ml) of test drugs and standard drug dilutions were prepared.Incubated at 370C ± 20C in a BOD incubator for 15-20 minutes. And heated at 570 C & 700C for 5 minutes respectively. After cooling their absorbance was measured by using U. V-Visible Spectrophotometer at 225 nm & 660 nm respectively. The results were compared with Diclofenac Sodium. The percentage inhibition of protein denaturation was calculated. Sulforaphane exhibited a significant inhibition of protein denaturation at concentration 500μg/ml. Dose dependent effects were observed with 10,50,100,250,500μg/ml. Sulforaphane also shows possible anti-arthritic activity when compared to standard diclofenac. From the result, it is concluded that Sulforaphane 500 μg/ml showed significant Anti-arthritic activity when compared with the standard Diclofenac sodium drug. However further in-vivo studies are needed to confirm this.

**A-36**

Formulation and Evaluation of PolyHerbal Ointment Containing Anti-Inflammatory Activity


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**Abstract:** Though modern medicine is available, the interest on herbal medicines and their utilization have been escalating rapidly in recent years. Plant derived substances and herbal medicines have recently fascinated the great interest towards their multipurpose application, also medicinal plants are the wealthy source of bioactive compounds. Inflammation is a pathological condition that includes a wide range of diseases like rheumatic, immune mediated conditions, diabetes, cardiovascular problems etc., Since the treatment of inflammation is not a one dimensional remedy, a suitable formulation using herbs is a necessary therapeutic approach to inflammation. So we planned to develop a polyherbal ointment for inflammation. Objectives were 1) To prepare and Evaluate Herbal Ointment for inflammation, 2) Collection and authentication of plants, 3) Preparation of suitable extracts, 4) Preparation of Ointment, 5) Evaluation of ointment, 6) Evaluation of *In vivo* Anti-inflammatory activity of formulated Ointment. The Methanolic Extracts of Vilvam (*Aegle marmelos*), Nithyakalyani (*Vinca rosea*) and Murungai (*Moringa oleifera*) were prepared by using Triple maceration method(72-48-24 hrs). Ointment was prepared by levigation method and it was evaluated for physicochemical parameters such as colour, odour, pH, spreadability, extrudability, consistency, diffusion study, solubility, washability, and stability. The Anti-inflammatory efficacy was carried out using carrageenan induced paw edema model in rats with the standard drug Diclofenac sodium. The formulated ointment was Physicochemically stable and shows significant reduction in carrageenan induced...
paw edema (p<0.001) with that of control. The Ointment made by using Vilvam, Nithyakalyani and Murungai may be one of the effective formulation for the treatment of inflammation.

A-37  Evaluation of Bioenhancing property of a Solid Oral Dosage form using a natural mucilage - an ex-vivo approach

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Abstract: A bioenhancer is an agent capable of enhancing bioavailability and efficacy of a drug with which it is co-administered, without any pharmacological activity of its own at therapeutic dose used. Bioenhancers do not show synergistic effect with the drug. Modern researchers show increased interest in the enhancement of bioavailability of most of the drugs by addition of various herbs with bioenhancing property. *Portulaca quadrifida* is a prostate herb distributed in tropical and subtropical regions of the world. It has been known since ancient times for its curative properties. The everted gut sac technique was first described by Wilson and Wiseman in 1954 to study the transport of sugars and amino acids. The everted sac technique offers a simple and inexpensive method without any specialised equipment. It can provide information on the mechanism of absorption and affords to investigate the differences in absorption of compounds along the length of the gastrointestinal tract and an interspecies comparison. To evaluate the bioenhancing property of a solid oral dosage form using a natural mucilage. The isolated mucilage was incorporated with the selected NSAID (Aceclofenac) at different ratios and formulated as capsules and its invitro drug release is determined in accordance with the chicken intestine method or Everted Sac method. The capsule formulated with various ratios of mucilage and drug was evaluated by invitro drug release incorporating chicken intestine technique or everted sac method. The results obtained are satisfactory and within the limits. Thereby we conclude that the mucilage isolated from *Portulaca quadrifida* imparts bio enhancing property and can be used to reduce the dose of the drug to combat dose induced adverse effects.

A-38  Anti-lithiatic activity of some traditionally used medicinal plants

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Abstract: The present investigation of *Abutilan indicum* and *Amaranthus spinosus* leaves of traditional plants aims to give data highlighting the present trends in research with anti-lithiatic activity by Ethylene glycol induced lithiasis screening model. The various fractions of plants extracts were prepared using solvent Ethyl acetate, methanol and ethanol. Fractions of *Abutilindicum* and *Amaranthus Spinusus* leaves contain steroids, glycosides, tannins, alkaloids, carbohydrates and flavonoids. Acute toxicity study of leaves fractions of *A.indicum* and *A. Spinusus* was carried out. Ethylacetate, methanol and ethanol fractions 100,400 and 200 mg/kg dose were selected and Cystone (750 mg/kg) is used as reference Standard. These fractions reduce the stone forming constituents in urine system and could contribute to its anti-lithiatic property. The urine pH, urine output, kidney weight, serum and urine parameters are examine for antiurolithiatic studies. Histopathological studies were also carried out. This may help to identify and develop appropriate lead compounds or plant products beneficial in the management of urolithiasis, Inflammation and low urine output in pathological conditions.
Antioxidant and antifungal activity of *Lagenaria siceraria* (Molina) Standal leaf extract

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**Abstract:** The antioxidant and antifungal properties of phytochemical extracts makes them attractive alternative complementary medicines. Therefore, this study evaluated the phytochemical constituents of *Lagenaria siceraria* Standal (Cucurbitaceae) leaf extract and their antioxidant and antifungal activities. To evaluate the antioxidant and antifungal activity of leaf of *L. siceraria*. The leaf of *L. siceraria* was extracted with hydro-alcohol. The extract was subjected to phytochemical evaluation. Antioxidant activity was assayed by the DPPH radical scavenging activity mechanism and the reducing power test. The reducing power assay of extract was carried out with ascorbic acid as a standard reducing agent. All the analysis was made with the use of UV-Visible spectrophotometer. However, in the antifungal activity, the extract was tested by agar well diffusion method by against fungi (*Aspergillus niger*, *Aspergillus flavius* and *Candida albicans*). The leaf extract is compared with standard antifungal drug Amphotericin B. Qualitative phytochemical analysis of hydro-alcohol extract of *L. siceraria* leaf showed a majority of the compound including tannins, alkaloids, flavonoids, saponins and sterolterpenoids. The hydro-alcohol extracts showed moderate to potent antioxidant activity, among which the leaf extract demonstrated the strongest antioxidant activity with the IC50 value of 26.55 μg/mL. Hydro-alcohol extract of leaf possessed antioxidant activity and compared with ascorbic acid and thus could be a potential source of natural antioxidant. In case of antifungal screening, crude-extract of *L. siceraria* leaf showed notable antifungal activity against tested microorganisms. The leaf extract showed the highest mean zone of inhibition ranging from 9.0-11.0 mm against tested microorganisms, at a concentration of 100 mg/mL. The present finding suggests that the hydro-alcohol leaf extract of *L. siceraria* could be developed as pharmaceutical products.

**Formulation and evaluation of transdermal patch using Calotropis procera** leaves

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**Abstract:** Novel herbal drug delivery system opens new vistas for delivery of herbal drugs at right place, at right concentration, for right period of time and also gives scientific angle to standardization of herbal drug. Transdermal delivery of drugs through the skin to the systemic circulation provides a convenient route of administration for a variety of clinical indications. Inflammation is a process by which the body's white blood cells and substances they produce protect us from infection with foreign organisms, such as bacteria and viruses. The aim of the present study is to prepare and evaluate a transdermal patch using *Calotropis procera* the white variety which is commonly called as Vel erukku in tamil for inflammation. The leaves of *Calotropis procera* the white variety was collected, extracted by maceration and was used to prepare the transdermal patch. The patch was prepared by using standard methods and was evaluated for its weight, thickness, folding endurance, tensile strength and for its invitro drug release and anti-inflammatoryatory potential. The prepared transdermal patch was evaluated for its weight, thickness, folding endurance, tensile strength, invitro drug release, anti-inflammatoryatory potential and the results were found to be satisfactory. The transdermal route, besides being convenient and safe, offers several advantages over conventional ones, such as avoidance of GI incompatibility, variable GI absorption, avoidance of first-pass metabolism, improved bioavailability, reduced frequency of administration, improved patient compliance, and rapid termination of drug input. Thus the present work satisfies the above parameters using a herbal ingredient.
Acoustic Analysis Using Artificial Intelligence: A future tool for Early Detection of Tuberculosis

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Abstract: India, being one of the high burden Tuberculosis (TB) countries accounted for 27% of the world’s TB patients. The current diagnostic techniques are not only time exhaustive but also have low efficacy rates. With many scientific groups attempting to develop new diagnostic methods, future trends has started evaluating the use of “Artificial intelligence (AI)” as a revolutionary tool in the management of various disorders including tuberculosis. The aim of this paper is to present Voice sample analytics using artificial intelligence as an effective diagnostic tool for early detection of tuberculosis. Heart, lungs, liver and brain contribute in audible range of frequencies. In general people voice can change with time and health condition and voice parameters values change according to the medical conditions of individual. There are 12 parameters in voice which can be used to analyzed using artificial intelligence tools for the early detection of tuberculosis. As response of the organ is specific to the words being pronounced, a specialized sentence was developed to get frequency modulation of the 12 parameters of voice. In all 600 healthy people and 325 TB patients were used as Standard control and standard reference group after their consent. Subjects were moved to an acoustic room and were made to sit on a comfortable chair with elbows forming a 90° angle, the arm placed on a front table, in a relaxing condition. As per the pre-defined script, the subjects were asked to “read and speak” or “listen and speak”. The voice was recorded and later used for analysis using “Audolysis” software. On comparing the acoustic signatures based on 12 voice parameters of healthy control group with that of disease (TB) group, it revealed significant changes in six sets that can be used as the diagnostic marker frequency for early detection of the disease. The present study suggest significant rationale to use voice analysis as one of the major tool for detecting tuberculosis in early stages.

Attenuation of dermal wounds through antioxidant and antimicrobial activities by phenol enriched fraction of Caesalpinia mimosoides Lam.- A traditional medicinal plant in wistar albino rats

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Abstract: Caesalpinia mimosoides Lam. is a folklore wound healing medicinal plant used specially by tribal healers of Uttara Kannada district, Karnataka state (India). The present study was aimed to evaluate the wound healing potentiality of phenol enriched fraction through in vitro and in vivo experiments. The alkaloid and phenolic compounds were enriched from the ethanol extract of the plant through sequential liquid-liquid extraction. Enriched fraction was subjected to preliminary phytochemical analysis followed by in vitro antimicrobial activity against bacterial and fungal skin pathogens. The fraction with significant antimicrobial activity was further investigated for in vivo wound healing activity using circular excision and linear incision wound models. Antioxidant parameters were also assessed through DPPH, nitric oxide, antilipid peroxidation and total antioxidant activity methods. Possible bio-active constituents were identified and quantified by GC-MS and RP-UFLC-DAD techniques. The results of the antimicrobial activity revealed that the phenol enriched fraction (PEF) was effective against all the microbial pathogens except Epidermophyton floccosum in comparison with alkaloid fractions. Hence PEF was subjected to in vivo wound healing activity. The efficacy of topical application of PEF at 5% concentration evidenced by the complete re-epithelization of the epidermal layer, elevated hydroxyproline content with increased percentage of wound contraction in a shorter period. Meanwhile, PEF showed effective scavenging activity against DPPH and nitric oxide free radicals with an expressive amount of phenolic contents. The major bioactive constituents are found to be gallic acid, ethyl gallate and pyrogallol evidenced by GC-MS and RP-UFLC-DAD analysis. Results showed PEF has the potentiality to act as effective wound healing agent.
Formulation and Evaluation of Solid Oral Dosage Form with *Trianthema decandra* Mucilage for Enhancing Bioavailability

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**Abstract:** A bioenhancer is an agent capable of enhancing bioavailability and efficacy of a drug with which it is co-administered, without any pharmacological activity of its own at therapeutic dose used. Modern researchers show increased interest in the enhancement of bioavailability of most of the drugs by addition of various herbs with bioenhancing property. In Ayurveda, the concept of bioenhancer is termed as Yogvahi. It is used to enhance bioavailability, tissue distribution, increase efficacy of drugs especially drugs with poor bioavailability. *Trianthema decandra* is a small diffused, succulent, annual herb found throughout the tropical parts of India. It is used as a vegetable and also used for various curative purposes. *Trianthema decandra* is an edible plant rich in mucilage. To formulate and evaluate a solid oral dosage form by incorporating *Trianthema decandra* mucilage for enhancing bioavailability. The isolated mucilage was incorporated with the selected NSAID (Aceclofenac) at different ratios and was prepared as capsule which was evaluated for weight variation, content uniformity, lock length, dissolution and disintegration. The capsule formulated with various ratios of mucilage and drug was evaluated for their weight variation, content uniformity, lock length, dissolution and disintegration. All the results were found to be satisfactory and it was within the limits. We conclude that the mucilage isolated from *Trianthema decandra* imparts bioenhancing property and can be used to reduce the dose of the drug to combat dose induced adverse effects.

Questionnaire based survey of ethnobotanical supplements' usage for maternal care in Indian women

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**Abstract:** Ethnical knowledge of using various plant products is well practiced in India during pregnancy and postpartum by women for healthcare of mother and healthy development of new-born. However, the reports of such knowledge are very few to conclude on its effectiveness. To survey the usage pattern of ethnobotanical supplements in Indian women for maternal care. A questionnaire based survey was conducted for n=67 participants, recruited from selected maternity clinics of Vadodara city. The average age of the participants was 26.9 years (range 21 – 36 years) and was all belonging to upper middle socioeconomic class. It was found that 88% women participating in study was using ethnobotanical products. All women were found to get information of such practices from their Family and had procured such herbs from local market shops in loose packages. The data suggests that laddu (56%) was primary form of supplements taken and before delivery and for postpartum, usage of herbs was varied. Acacia gum, ganthoda, dried ginger powder, and fenugreek seed powder was of a few most frequently answered herbs in survey. The period of usage ranges from fifth month of pregnancy upto second month postpartum. It is evident from results that usage of ethnobotanical products is more common during maternity and this work provides more detailed insights on its usage pattern.
**A-45**

**In silico screening of active constituents of Bael against inflammation**

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**Abstract:** Aegle marmelos (linn) Correa commonly known as Bael (or Bel) belonging to the family rutaceae. It is an indigenous tree of India. The tree is held sacred. All parts of Aegle marmelos are medicinally useful like leaves, fruits, stem bark, root bark, etc. Extensive investigations have been carried out on different parts of A. marmelos and as a consequence, varied classes of compounds. Coumarins (Marmelosin, marmesin, imperatorin), alkaloids (Aeglin, aegelenine), Tannins (skimmianine), Carotenoids and seed oils and other miscellaneous compounds have been isolated from this plant. So, it has been used in ethnomedicine to exploit its medicinal properties including antidiabetic, antiulcer, antioxidant, antimalarial, anti-inflammatory, anticancer, radioprotective, antihyperlipidaemic, antifungal, antibacterial and antiviral activities. The aim of the present work is to dock 15 compounds against target cyclooxygenase PDB ID [1CX2]. Methodology includes 1) Ligand preparation, 2) Protein preparation, 3) Docking using Glide, 4) Analysis of docking. Fifteen compounds were chosen as ligands. They are Aurapten, marmelosin, luvangetin, marmelide, aegelin, eugenol, psoralen, 4 isopropyl benzaldehyde, skimmianine, fagarine, citronellal, citral, marmarin and marmestinin. The target protein is 1CX2 the cyclooxygenase enzyme downloaded from protein data bank. The docking score obtained is aurapten -8.96, marmelosin -8.66, luvangetin -7.54 and marmelide -7.37. The protein is validated before docking compound the already binded ligand S58 with score of -9.358 and standard celecoxib with value of -7.09 and diclofenac with the docking score of -8.43. The compound aurapten and marmelosin having good docking score than the standard diclofenac. Auraptenand marmelosin is present in the fruit of bael which will be having a good docking score than the standard. The fruit itself can be screened against the inflammation.

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**In silico screening of active constituents of Basil oil against lung cancer**

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**Abstract:** Ocimum tenuiflorum commonly known as holy basil, wonder herb, tulasi or tulsi (lamiaceae). The major uses of tulsi are healing fever, common cold, respiratory disorder, stress, skin disorder and prevents inflammation. Tulsi consists of a wide range of chemical composition, its availability and use are also has a wide range, which shown interest for it. The anaplastic lymphoma kinase (ALK) is a receptor tyrosine kinase that is unusually found in various type of sarcomas, is also found in anaplastic large cell lymphoma, colorectal, ovarian, and non-small cell lung cancer. Almost 3–7% of lung tumor are contributed by ALK fusions, is a good target for anticancer drug development. To perform in silico screening of active constituents present in basil oil [Tulsi] against lung cancer using glide software. Methodology involves 1) Ligand preparation, 2) Protein preparation, 3) Analysis of docking. The active constituents present in basil oil [Tulsi] are linalool, methylchavicol, citral, neral, thymol, camphor, deltacadineneetc, 3-carene, trans caryophyllene, 1,8 cineole, geraniol, cinnamyl acetate, methyl cinnamate, beta ocimene, beta elemene, terpineol. The target protein is the anaplastic lymphoma kinase (ALK)5FTO downloaded from protein data bank. The top docking score obtained is thymol – 7.04, eugenol-6.64, cinnamyl acetate – 6.14, delta cadenine-6.13, citral -5.73. The protein is validated before docking compound the already binded ligand YMX with score of -12.26 and standard dauxorubicin with value of -8.35. The compound thymol and eugenol having good docking score nearer to standard dauxorubicin. The compounds present in basil oil exhibit nearby activity to the standard hence the work can be extended with the other constituent present in the plant. The results signify that these compounds could serve as potential leads in the drug discovery process for the treatment of ALK targeted lung cancer.
Preparation and evaluation of a gel for the relief of arthritic pain using *Brassica oleracea* extracts

**A-47**

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**Abstract:** Herbal remedies cost less than medicines and are more convenient. The importance of traditional use of medicinal plants has a long history. Ancient people as well as our ancestors mainly depended on plants for their recovery against disease. But, the recent tendency to avoid natural sources rather than artificial sources against disease is frustrating. Because continuous reports of antibiotic resistance as well as the side effects of synthetic drugs all over the world are indicating a global health alert. The higher occurrence rate of worldwide diabetes, cancer, obesity, hypertension, and neurodegenerative diseases becomes alarming to all. Huge researches are carried out to find the causes and remedies of them. Therefore, to search for a better alternative than synthetic drug becomes the demand of time. To prepare and evaluate a gel for the relief of arthritic pain using extracts from cabbage of red variety. *Brassica oleracea* var capitata f. rubra belonging to the family Brassicacea commonly called as cabbage, the red variety was selected for the study. Early research shows that applying cabbage leaf wraps to the knees for at least 2 hours per day for 4 weeks reduces pain in people with knee osteoarthritis. Gel was prepared using the extract and evaluated by using standard methods. The prepared gel was evaluated for its organoleptic properties like colour, odour and other properties like viscosity, spreadability, consistency and for its antiarthritic potential. The gel was prepared and evaluated for the above mentioned properties and was found to be satisfactory. This paper focuses on providing baseline information on exploring nutritional, nutraceutical properties of regularly used vegetable for its medicinal property.

Formulation and evaluation of a cosmetic scrub

**A-48**

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**Abstract:** Fruits and vegetables are an important component of a healthy diet. Some fruits like bananas offer great medical benefits. Banana peels come with loads of high nutrients which include carbohydrates, magnesium, vitamin B6 and vitamin B12. In this 21st century everyone wants to stay young and since we cannot afford the plastic surgeries, lasers and all the other scientific methods there is a natural way for everyone. In traditional era people were used to various lepa, Alepa, Pralepa, Udavartan, Prakshalan etc for saundrya prasadan karma. Nature has offered the way to keep up that parity. Herbs! Yes herbs are one such means. The present work is to prepare a cosmetic scrub for young looking skin using banana peels. The extract was prepared by cold maceration process. Methyl paraben was weighed and dissolved in a beaker containing water. To this carbopol was added and stirred continuously for few minutes until it forms a gel. Sodium lauryl sulfate was weighed, dissolved separately with water and was added into the above gel. Followed by this propylene glycol was added. Drop wise triethanolamine added into gel to neutralise the pH. The active ingredient mixture was then added into the prepared gel and stirred. The prepared gel was evaluated for appearance, pH, consistency, Spreadability, extrudability, viscosity, irritability, washability, grittiness, foamability. The prepared scrub gel was evaluated using various parameters and was found to be satisfied. The present study was attempted to prepare a polyherbal scrub for the application on the skin to make it healthy and glowing without any side effects. The prepared scrub is planned to carry out with in vivo studies for its irritancy.
Formulation and evaluation of an anti-diabetic solid oral dosage form using *Momordica cymbalaria* fruits

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**Abstract:** Athalakkai has been used in various Asian traditional medicine systems for a long time. The plant is traditionally used for the treatment of diabetes mellitus, rheumatism, ulcer, skin disease, and diarrhoea. The plant belongs to the family Cucurbitaceae, originating in tropical regions of India and South East Asia. *M. cymbalaria* Hoof is commonly known as Karchikai (Kannada) or Athalakkai (Tamil) or Kasarakayee (Andra Pradesh) and Kakrol (India). The fruit of this plant have been reported to possess hypoglycaemic, hypolipidemic, cardio protective, hepatoprotective, nephroprotective and antioxidant properties. The aim of the present work is to explore one of the medicinal property (anti-diabetic) of the fruits of *Momordica cymbalaria*. The fruits were collected from local market and was extracted by maceration and stored for further use. The extract was dried and was used to formulate a capsule using excipients and the prepared capsule was evaluated for its weight, locked length, disintegration, dissolution. The prepared capsule was evaluated for its weight, locked length, disintegration, dissolution and was found to be within the limits. Depending on the folklore claims that fruits of *Momordica cymbalaria* can be used as an effective remedy for diabetes. Thus the present work was aimed to prepare and evaluate a solid oral dosage form for diabetes.

Formulation and evaluation of transdermal gel using *Calotropis procera* leaves

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**Abstract:** Conventional drug delivery system has many problems so bulk of research has now shifted from synthetic drugs to herbal drugs. This is possible because of the vast variety of bioactive molecules in the plants and their higher safety margin. Now a days there is a greater global interest in non-synthetic, natural drugs derived from plant/herbal sources due to better tolerance and minimum adverse drug reactions. Herbal drugs, used in Indian systems of medicine are however claimed to be effective and safe. The aim of the present study is to prepare and evaluate a transdermal gel using *Calotropis procera* the white variety which is commonly called as Vel erukku in tamil for inflammation. The leaves of *Calotropis procera* the white variety was collected, extracted by maceration and was used to prepare the transdermal gel. The gel was prepared by using standard methods and was evaluated for its colour, odour and other properties like viscosity, spreadability, consistency and for its anti-inflammatory potential, *in-vitro* drug release. The prepared transdermal gel was evaluated for its colour, odour and other properties like viscosity, spreadability, consistency and for its anti-inflammation potential, *in-vitro* drug release and the results were found to be satisfactory. From the present work it can be claimed that this gel can be used for immediate relief of inflammation.
SCIENTIFIC ABSTRACTS

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In vitro Antidiabetic evaluation of leaves of Stereospermum suaveolens (Roxb.) DC

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Abstract: Stereospermum suaveolens (Roxb.) DC, family Bignoniaceae, commonly known as Padiri, is a large deciduous tree traditionally used for the treatment of inflammation, pain and asthma. Literature reported that bark of Stereospermum suaveolens have anti diabetic activity. However, there is no scientific report regarding the antidiabetic potential of the leaves of the plant. Hence an attempt was made to explore the antidiabetic potential of the leaves of Stereospermum suaveolens. To evaluate the antidiabetic potential of the leaves of Stereospermum suaveolens, the leaves of Stereospermum suaveolens were collected and authenticated. The collected, sade dried and powdered plant material of Stereospermum suaveolens was extracted with 50% ethanol and subjected to preliminary phytochemical analysis. The antidiabetic potential of hydro alcoholic extract of Stereospermum suaveolens was investigated using alpha amylase inhibition assay and glucose uptake by yeast cell method. The yield of the hydro alcoholic extract was found to be 10.25 % w/w. Preliminary phytochemical analysis revealed the presence for terpenes, flavonoids, steroids, carbohydrates, glycoside, quinones, phenols, tannins, saponins, proteins. The hydro alcoholic extract of Stereospermum suaveolens exhibited remarkable α-amylase inhibitory activity beside significantly enhances the glucose uptake by yeast cells. Based on the results it was concluded that the leaves of Stereospermum suaveolens has the potential to be used as a medicinal agent for the control and treatment of Type II diabetes mellitus. Furthermore, this study has opened opportunities for future research in searching for novel effective drugs for diabetic.

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Anti inflammatory studies of Kokilaksham kashayam on RAW 264.7 cell line.

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Abstract: Chronic inflammatory conditions involve the production of pro inflammatory cytokines, tumour necrosis factor (TNF-α) and interleukin (IL-1B) by cells like monocytes, macrophage and dendritic cells. Several biochemical components such as lipid, protein, DNA and RNA also show variation in diseased condition. Ayurveda provides immense number of anti inflammatory molecules to combat chronic inflammatory state and here Kokilaksham kashayam, an ayurvedic herbal decoction is scientifically validated for its efficacy in regulating oxidative stress related conditions. TNF-α and IL-1B were quantified using ELISA whereas Raman spectral analysis was carried out in WITec alpha300RA (WITec GmbH, Ulm, Germany) confocal microscope. The results were further studied using qRT-PCR in order to compare the anti inflammatory properties of the different fractions obtained from Kokilaksham kashayam. Raman spectral analysis revealed that all peaks characteristic of proteins, nucleic acid, lipids and carbohydrates were observed to be intensified upon LPS stimulation and were brought down upon Kokilaksham Kashayam extract pretreatment. The levels of proinflammatory cytokines were also lowered in the pretreated macrophage cells. The results highlighted the anti-inflammatory potential of Kokilaksham kashayam fractions with respect to inhibition of pro-inflammatory cytokines production whereas the Raman spectroscopy studies also add to the effectiveness of the herbal drug being used as a folklore medicine. This part of the work reveals the therapeutic potential of bioactive molecules of the herbal decoction on chronic inflammatory conditions.

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Phytochemical Standardization of Ashtavarga: An Endangered Ayurvedic Himalayan Herb

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Abstract: Ashtvarga is a group of eight medicinal plants namely Jeevak (Malaxis acuminata), Rishbhak (M. muscifera), Meda (Polygonatum verticillatum), Mahameda (P. cirrhifolium), Kakoli (Roscoea procera), Kshirakakoli (Lilium polyphyllum), Vriddhi (Habenaria edgeworthii) and Ridhi (H. intermedia) distributed in North West Himalayan region in small patches at an altitudinal range of 1600–4000 m asl. This group is well known for rejuvenating health promoting activity, strengthening vital force of the body and improving immunity system. Isolation and characterization of marker compounds: The isolation would be achieved by using appropriate chromate graphic techniques (Column Chromatography and HPLC) followed by structure elucidation using different NMR (1D and 2D NMR), Mass and other spectroscopic techniques. Standardization of extracts: Plant extracts will be standardized with the help of isolated marker compounds using HPTLC and HPLC. These are modern adaptations of chromatography with better and advanced separation efficiency. HPTLC can be utilized to identify as well as quantify the phytoconstituents, expected to be present in a medicinal plant. In this study we isolated four marker compounds from each of four ashtavarga plants viz. R.purpurea, P.verticillatum, C.acuminatum, and L.polyphyllum. The crude plant extracts were standardized with the help of isolated marker compounds bu using HPLC and HPTLC. As these herbs are rare and endangered, the ayurvedic formulation companies mostly substituted these with commonly known medicinal plants. Phytochemical standardization is necessary for herbal formulations because these composed of many constituents and capable of variation. Hence for the first time we isolated marker compounds and standardized the extracts of Ashtavarga plants.

Physicochemical and quantitative phytochemical analysis of aerial parts of Trichodesma indicum

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Abstract: Trichodesma indicum commonly known as Adhaphushpi belongs to the family boraginaceae. It is an important medicinal herb traditionally used in the treatment of skin diseases, allergy, arthritis, wound healing, dysentery and arthralgia. This present study was undertaken to evaluate the physicochemical, qualitative and quantitative phytochemicals present in the aerial parts of the plant Trichodesma indicum. The physicochemical constants were determined using standard procedures. Successivesolvent extractions was carried out using n- hexane, ethyl acetate, methanol and water. The preliminary phytochemical screening was done and quantitative (total phenolic and flavonoid Content) phytochemical estimations were determined by folin ciocalteu and aluminium chloride colorimetric method. The physicochemical constants such as total ash, acid insoluble and water soluble ash was found to be 15.30, 7.50 and 3.99%w/w. The moisture content, water soluble and alcohol soluble extractive values were 5.0, 14.04 and 2.70%w/w. The preliminary phytochemical screening revealed the presence of flavonoids, phenols, glycosides, saponins, terpenoids and phytosterols. The phenolic and flavonoid content of n- hexane, ethylcetate, methanol and aqueous extract was found to be 24.64, 54.08, 45.70, 17.25μg of Gallic acid per mg of extract and 13.87,76.12, 44.48, 11.22 μg of Rutin per mg of extract. These results obtained from the study can be used for identification or standardization of the plant and also suggested that the useful phytochemicals present in the plant might be useful to treat the diseases.
Validation of a spectrophotometric method for the determination of Ramipril in solid dosage form

Abstract: A simple and selective spectrophotometric method has been developed for the quantification of Ramipril in pure form of pharmaceutical formulation (tablets) by measuring the wavelength maxima at 208 nm. Stability indicating method has been validated as per ICHQ2R1 for the parameters specificity, linearity, range, accuracy and precision. accuracy has been performed from 50 % to 150% for the formulation and the percentage of Recovery was found to be more than 98%.Linearity was performed over the range of 0.2 mg/ml to 0.6 mg/ml. The regression coefficient was found to be 0.9960. The method was found to be precise & accurate. The reliability of the method in formulation is ascertained by performing the stability studies.

Ethosomes as a novel drug delivery system for herbal drugs

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Abstract: Phytomedicines are used worldwide by human being from ancient times. Herbal drugs are becoming more popular in the modern world for their application to cure variety of diseases with less toxic effects and better therapeutic effects. However these medicines suffer from certain limitation such as toxicity, stability issues, poor bioavailability and patient compliance. To minimize these problems various novel drug delivery systems (NDDS) such as phytosomes, ethosomes, transfersomes, herbal transdermal patches, nanoparticles and biphasic emulsions are used nowadays. Novel drug delivery system is valuable in delivering the bioactive at controlled rate and delivery of bioactive at the target that reduces the adverse effects with the increase in bioavailability of the bioactives. Ethosomes are lipid based elastic vesicles containing phospholipids, alcohol (ethanol and isopropyl alcohol) in relatively high concentration and water. High concentration of ethanol enhances the topical drug delivery and prolongs the physical stability of ethosomes with respect to liposomes. It has been shown that the physicochemical characteristics of ethosomes allow this vesicular carrier to transport active substances more efficaciously through the stratum corneum into the deeper layers of the skin than conventional liposomes. Ethosomes entrap drug molecule with various physicochemical characteristics i.e. of hydrophilic, lipophilic, or amphiphilic. Ethosomes possess many advantages when compared with transdermal or dermal drug delivery system. Large molecules like proteins, peptide molecule is possible, increased skin permeation, non toxic, in comparison to oral drug delivery system as it eliminates gastrointestinal interference & first pass metabolism of drug. Herbal ethosome technology has been effectively used to enhance bioavailability of many popular herbs including Sophora alopecuroides, Cannabis sativa, Glycyrrhiza glabra etc. can be developed for various diseases.
The future of nanomedicine in cancer diagnosis and therapy
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Abstract: Nanotechnology is the science and manufacturing of regulatory materials, in order to generate manoeuvres with innovative chemical, biological and physical properties at molecular level. The multifunctional nanoparticles is been used as drug delivery vehicle for cancer diagnosis and treatment. The therapeutic efficacy can be improved by using nanoparticles to deliver the chemotherapeutic drugs. Certain nanoparticles like liposomes, quantum dots, silica nanoparticles, gold nanoparticles, magnetic nanoparticles and dendrimers get highly accumulated in the malignant tissues than in the normal tissue, this is due to the critical characteristics of these particles. Nanomedicine can be used as a powerful tool to forecast and monitor the therapeutic outcome and also to visualize the release of the drug from a nanoparticle. The nano devices, nanomaterial’s and nanoparticles with different applications are continuously been developed by researchers. At the present time successful cancer therapy is still challenging. Nanomedicine are now considered as suitable vehicle which lead to an incorporated, personalized method to diagnosis and therapy in healthcare, most particularly where upcoming cancer disease controlling is concerned.

Evaluation of anti-oxidant activity and detection of antioxidant biomarkers in Homalium zeylanicum Benth
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Abstract: Antioxidant properties play an important role for cure various diseases because during disease stage oxidative stress and free radicals were produced. Phenolic and flavonoids has potent antioxidant properties among other phytochemicals. Flavonoids and phenol compounds namely rutin, gallic acid and quercetin were commonly used antioxidant markers. The objective of the present study was to evaluate the Total phenols, total Flavonoids, in vitro anti-oxidant activity and high-performance liquid chromatography (HPLC) analysis of the extracts of the whole plant of Homalium zeylanicum Benth (Family: Flacourtiaceae).

Preliminary screening involved the quantitative methods to detect the presence of Total phenol and flavonoids contents were estimated. Total phenolic content was estimated by Folin–Ciocalteau method and flavonoids content was estimated by Aluminium chloride colorimetric method . In vitro antioxidant activity of petroleum ether, ethyl acetate, ethanol extracts was evaluated by studying 1, 1-diphenyl-2-picrylhydrazyl radical scavenging activity, Nitric oxide radical scavenging activity and Iron chelating activity using the standard procedure. The whole plant extract was screened for a major metabolite compound using HPLC. All the three extracts have shown higher values in total phenol and flavonoids content. The ethanolic extract of had showed significant radical scavenging activity. The results of -HPLC analysis in the plant extract of proved the presence Homalium zeylanicum Benth of the active principle namely butylinic acid. It can be concluded that plant Homalium zeylanicum Benth extract can be used as a potent source of natural antioxidant and thus could prevent many free radical mediated diseases. The validated HPLC method can be used for routine quality control analysis.
SCIENTIFIC ABSTRACTS

A-59 Evaluation of anti-oxidant activity of Adiantum incisum Forsk ethanolic extract in STZ induced type 2 diabetic rats

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Abstract: Antioxidant properties play an important role for cure various diseases because during disease stage oxidative stress and free radicals were produced. Phenolic and flavonoids has potent antioxidant properties among other phytochemicals. Flavonoids and phenol compounds namely rutin, gallic acid and quercetin were commonly used antioxidant markers. The present study is aimed to evaluate the anti-oxidant activity of Adiantum incisum Forsk ethanolic extract (AIEE) in STZ induced type 2 diabetic rats. Diabetes was induced by administration of STZ (60 mg/kg, i.p.). The diabetic rats were treated with AIEE (100 and 200 mg/kg, p.o., respectively) for 21 days. At the end of the study all animals were sacrificed and isolated livers were used for estimation of antioxidant levels. Total phenolic and flavonoid contents were estimated in AIEE and invitro antioxidant activities like DPPH scavenging assay, Nitric oxide scavenging assay and Iron chelating activity also performed. The antioxidant biomarkers in AIEE were quantified using HPTLC. After treatment with AIEE reduced glutathione (GSH), superoxide dismutase (SOD) and catalase (CAT) were significantly decreased in diabetic rats. AIEE has potent nitric oxide and DPPH free radical scavenging activity and it was compared with the standard ascorbic acid and also AIEE shown potent iron chelating capacity compared with EDTA. HPTLC analysis confirms the presence of antioxidant biomarker quercetin in AIEE. From the results of the current research it can be concluded that AIEE has potent antioxidant capacity.

A-60 Formulation and evaluation of Nanogel by using Centella asiatica leaves

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Abstract: Centella asiatica is a perennial plant belonging to the family Apiaceae. Gotu kola contains a constituent called triterpenic fraction of Centella asiatica (TTFCA). Literatures have been reported that TTFCA is particularly beneficial for varicose veins since it stimulates the production of collagen and elastin. Also help with venous insufficiency by reducing swelling and improving blood flow. Study reports 13.5 for 1,000 people per year (8.5 for men and 19.2 for women). They also tend to occur more in women who have had more than two pregnancies, the overweight (women) and in people over 50. Varicose veins are caused by stretching that occurs in veins of the legs that are close to the skin surface, allowing blood to pool in the legs. They may bulge and may cause pain or discomfort, but severe varicose veins may also cause poor circulation which carries medical risks. The present study is to investigate the preparation and evaluation of nanogel using Centella asiatica which is commonly called as vallarai keerai in tamil. The leaves of Centella asiatica was collected, extracted by maceration and was used to prepare nanogel. The nanogel was prepared by using solvent evaporation technique. The prepared nanogel was evaluated for its penetration enhancer, viscosity, Drug content, spreadability, Determination of pH, in-vitro drug release, Skin irritation study and stability studies.
Formulation and Evaluation of Herbal cream for burns.

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Abstract: Loss of skin with all its protective and homeostatic functions exposes the body to variety of stresses which are not seen in any other type of injury. The topical anti-microbial agents are of at peek importance in this regard. To evaluate the efficacy of the Ayurvedic preparations in the management of Burn wounds. Chandanadi Yamakam compound was formulated to semisolid form and evaluated for physicochemical parameter, with view to inspect it from quality point of view. Formulation and Optimization of Herbal cream with wound healing property. Organo-leptic and Physico-chemical evaluation of optimized formulation. The herbal formulation was carried out on trial and error bases, the seven formulation were carried out with varying concentration of gel bases and the optimized formulation (VII) out of the seven formulations Carbapol gel preparation: Carbapol gel is prepared by mixing 10g of carbapol-934 in 50ml of 1N (one normality) solution of Sodium Hydroxide to form 20% Carbapol gel, this mixture is kept overnight to swell. Tween-20,propylene glycerol, Herbal oil are mixed together to form oil phase and then the Carbapol gel phase is added to the oil phase in small quantities with stirring till it forms semisolid dosage form. Formulation VII was found to be the best optimised amongst all the formulation based on evaluation parameters physical appearance, spreadability, pH, homogenicity, ease of removal, determination of smear type and viscosity. The preparation of semisolid cream was carried out using various ingredients and concentrations. The formulation was carried out by trial and error method and the best formulation was optimized and was subjected to room temperature accelerated studies.

Development and standardisation of polyherbal formulation for management of rheumatism by in-vitro method

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Abstract: To develop a polyherbal formulation containing anti-arthritis activity and to standardise its therapeutic activity by in-vitro method using protein denaturation assay. The anti-arthritis activity of the formulation is estimated by this method. The 5ml of reaction mixture comprised of 0.2ml of bovine serum, 2.8ml of phosphate buffer saline (pH-6.4) and 2ml of varying concentration of formulation extracts. Then the mixture was incubated at 37°C in BOD incubator for 15minutes and then heated at 70°C for 5minutes after cooling, their absorbance was measured at 660nm by using pure blank. Diclofenac sodium (standard drug) was used as reference drug and treated as such for determination of absorption.
Angiogenesis And Wound Healing Property Of Marine Glycosaminoglycans Mimetics.

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Abstract: Angiogenesis is the process of formation of new blood vessels and therefore helps in the development and regeneration of the tissues and therefore helps in wound healing activity in case of osteoarthritis and other conditions. Glycosaminoglycans are heteropolysaccharides present in the body as a component of connective tissue. Several types of GAG are present like chondroitin sulfate, hyaluronic acid etc. These glycosaminoglycans are usually extracted from chicken cartilage or from animals. In our study we extracted a sulphated polysaccharide called fucans which is composed of α-L-Fuc units that mimics the action of glycosaminoglycans. They were extracted from a brown algae called Sargassum ilicifolium. The angiogenic property of fucans were studied using an in-vitro method that is Chick embryo- Chorioallantoic membrane model and related with the wound healing activity. To find the angiogenic and wound healing properties of glycosaminoglycan mimetics using chick embryo- chorioallantoic membrane model. Dry algae was suspended in HCL for 2 hrs and centrifuged for 20min and the supernatant was filtered. Then the filtered fraction was neutralized with NaOH and the crude polysaccharide was precipitated in two volumes of ethanol. Then the crude polysaccharide was concentrated and freeze dried. These were then seeded in a chick egg by making a small hole, incubated 37±2°C and monitored for angiogenic activity. The angiogenic and wound healing activity for the crude sulphated polysaccharides were obtained from CAM model and found to be satisfactory. We conclude that the sulphated polysaccharides extracted from Sargassum ilicifolium has angiogenic and wound healing activity.

In-Vitro Antioxidant Activity Of Samanea Saman (Jacq.) Merr Pods

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Abstract: Several studies have suggested that plants are potential sources of natural antioxidants that play important roles in human health such as preventing oxidative damages and reduce the risks of chronic disease. Hence, in the prevention and cure of free radical associated disorders, antioxidants with the power of free radical scavenging activities should have immense applications. Since the plant possess free radical scavenging properties and there are no indications of its usage as antioxidants, the present work has been taken to investigate the in-vitro Antioxidant activity of pods of Samanea saman (Jacq.) Merr using various models. 70% ethanolic extract of pods of Samanea saman (Jacq.) Merr at the concentrations of 10, 20, 30, 40 and 50μg/ml. were subjected to DPPH assay, Superoxide anion scavenging activity and Nitric oxide radical scavenging activity. Whereas at 50% ascorbic acid has showed 81.20%, 84.84% and 60.55. However, test extracts even at 50%g showed 62.57%, 52.38 and 54.50 respectively inhibition near to standard in these models.
Physicochemical studies of Natural polymers

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Abstract: Sodium Alginate and Xanthan Gum are water-soluble natural polymers; which are used for food packaging, biomedical and pharmaceutical applications. In the development of the polymer blends, the miscibility between polymers is a very important spect. This work focuses on the miscibility studies between natural origin polymers. The miscibility study of Sodium Alginate/ Xanthan Gum blends prepared in variable concentrations in water which was carried out for viscosity data, FTIR, ultraviolet spectroscopy techniques at variable temperatures.In this study it showed that the Sodium Alginate / Xanthan Gum blends are miscible at all compositions at (20°C, 40°C and 60°C) by calculating viscosity parameters, comparing FTIR and UV spectra of the blends with homopolymer solutions. Hence, simple and efficient method in exploring the miscibility windows of sodium alginate and xanthan gum blend was developed.

Role of probiotic in gut dysbiosis associated cognitive decline in mice

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Abstract: Recent studies indicate that imbalance in gut microbiota (dysbiosis) may lead to cognition decline via Gut-Brain-Axis. Dysbiosis is common adverse effect of many antibiotics and antibiotics are most frequently used pharmaceuticals. Probiotics are live microorganisms, when ingested in adequate amounts can enrich gut flora. The objective of this study is to determine the use of probiotic as therapeutics against gut dysbiosis associated cognitive decline. Gut dysbiosis was induced in Swiss albino mice by administering Ampicillin for 2 weeks. Behavioral studies including elevated plus maze (EPM), passive avoidance test, morris water maze (MWM) and novel object recognition (NOR) were performed to analyze cognition changes. In the treatment group probiotic (Bifilac-Manufactured by Tablets India Ltd.) was administered for 3 weeks in conjunction with antibiotic (2 weeks). Biochemical studies including reduced glutathione (GSH), and AchE were also measured in cortico-hippocampal lysates for all the groups. Probiotic treatment to antibiotic administered animals led to significant increase (p<0.001) in transfer latency and decrease (p<0.001) in step down latency over antibiotic treated animals. Similarly, time spent in the target quadrant in MWM test and preference for novel object was significantly higher (p<0.001) for probiotic + antibiotic animals compared to animals on ampicillin. The above results show antibiotic associated cognitive decline which was reversed after probiotic treatment. Biochemical studies showed increase in AchE and decrease in GSH levels respectively upon antibiotic treatment which was again partially reversed by probiotics. Neurobehavioural and biochemical studies show that administration of probiotic may reverse the antibiotic associated cognitive decline in mice. This suggests that gut dysbiosis may be responsible for cognition decline while probiotics prevented the above process in mice.
Electronic Drug Delivery: Bioelectronic Devices

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Abstract: Electronics is deemed to have tremendous scope in the improvement of diagnostic and drug delivery devices. Miniaturization of microprocessors, along with development of biocompatible semiconductor materials can offer breakthrough in drug therapy tomorrow. Controlled drug delivery systems based on polymeric materials have captured the market replacing the conventional formulations. The author discuss the current development in the field of bioelectronics towards electronic drug delivery systems (EDDS) proposing the emergence of new subject specialties in the field of electronics and pharmaceutics that may be termed as ‘pharmacoelectronics’ and ‘electro pharmaceutics’. Many technological advancements like ActipatchTM, Intellicap®, Smart bandages etc are discussed. The basic electronic components incorporated in an electronic drug delivery device may be the drug reservoir, a power source, pumping system, microcontroller, various sensors for ambient temperature, pH, osmotic pressure, light, ion concentrations etc. The study of basic electronics and these electronic components may be an integral part of training for a future pharmaceutical formulation scientist.

Development Of Porous Osmotic Pump Tablets Of Ropinirole For Anti Parkinson Therapy

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Abstract: In the present study, our objective was to develop porous osmotic pump tablets of an anti-Parkinson’s agent, ropinirole. It also aimed to demonstrate the applicability of factorial designs and there by a statistical optimization in developing a controlled drug releasing device. Tablets were prepared by direct compression using varying amounts of microcrystalline cellulose (MCC) and sodium chloride, followed by coating with semi permeable membrane of cellulose acetate (CA) containing polyethylene glycol (PEG) 400 as a pore former. The plasticity of the membranes was adjusted using castor oil. All the formulations were evaluated for various physical parameters including in vitro drug release and the effect of osmogent and pore former were also studied. Drug release kinetics studies such as zero order, first order and Korsmeyer Peppas were carried out and compared. ANOVA in drug release of all the formulations were determined. Formulations were optimized to achieve a controlled zero order release of ropinirole for 12 hours. Drug release from the optimized formulation containing 20%w/w of PEG, without osmogent was not significantly affected by change in pH or agitation of the dissolution medium. The mechanism of drug release was further confirmed by studying the effect of osmotic pressure on drug release. The porous osmotic pump tablets of ropinirole can provide prolonged, controlled and GI environment-independent drug release.
Regulatory Requirements for Registration of Herbal Medicinal Products in European Union and Australia

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Abstract: Herbal materials are either whole plants or parts of medicinal plants in the crude state. Herbal preparations are the basis for finished herbal products and may include comminuted or powdered herbal materials, or extracts, tinctures and fatty oils, expressed juices and processed exudates of herbal materials. Medicinal products containing as active substances exclusively herbal drugs or herbal drug preparations. They may consist of herbal preparations made from one or more herbs. The herbal preparations contain more than one constituents having distinct individual pharmacological/therapeutic effects hence it is necessary to check its safety and efficacy. Different countries have different regulatory requirements for herbal medicinal products. The main regulatory body is the European Medicines Agency (EMA) but each Member State also has their own regulatory agency. The Medicines and Healthcare products Regulatory Agency (MHRA) in the UK. To date, there is no separate regulation for the registration of Herbal Medicines. The Therapeutic Goods Administration (TGA) is the main regulator for Herbal Medicines product sponsors must register or list their products in the Australian Register of Therapeutic Goods (ARTG). The TGA maintains the ARTG, a database that includes details of all therapeutic goods that are imported into, supplied in, or exported from Australia. Once a product is successfully listed or registered, TGA will issue a certificate of listing/registering to sponsors who can then make the logistic arrangement for shipping these products.

In-Vivo Anti Genotoxic Studies Of Nigella Sativa In Mice

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Abstract: The present study was aimed to investigate in-vivo antigenotoxic effect extract of Nigella Sativa. Two dose extract of 200 and 300 mg/kg were administered to mice twice daily for 7days, induction of genotoxicity by Cyclophosphamide (CP-40 mg/kg), 24 hours before sacrifice. Animals were sacrificed, bone marrow & liver extracted for various estimations. Studies such as bone marrow chromosomal aberration assay; micronucleus test, and hepatic antioxidant enzymes were conducted for standard and treated mice. Results showed that CP produced a significant increase in average percentage of aberrant metaphases, chromosomal aberrations (CAs), formation of micronuclei (MN) in polychromatic erythrocytes (PCE) and confirmed genotoxicity of CP in mouse bone marrow cells. CP also markedly inhibited the activities of glutathione (GSH) and increased malondialdehyde (MDA). Pretreatments with SP significantly inhibited the frequencies of aberrant metaphases, MN formation, CAs and reduced genotoxicity in mouse bone marrow cells induced by CP. SP also improved CP-induced GSH activities and reduced MDA content in the liver. studies revealed that Nigella Sativa has protective effect against genotoxicity and oxidative stress induced by CP.
Investigation of nitric oxide scavenging activity of whole plant Ethanolic extract of *Boerhavia erecta*

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Abstract: An antioxidant is a molecule capable of inhibiting the oxidation of other molecules. Oxidation is a chemical reaction that transfers electrons or hydrogen from a substance to an oxidizing agent. These oxidation reactions produce free radicals that are harmful to the body. Free radicals have the ability to produce more free radicals by initiating chain reactions. Antioxidants terminate these chain reactions by removing free radical intermediates and inhibiting other oxidation reactions. *Boerhavia erecta* belongs to the family *Nyctaginaceae*, is a native shrub distributed in unites states, Mexico and Asia which is used in the treatment of anthelmintic, diuretic, febrifuge, laxative, diaphoretic, emetic and expectorant. To scientifically investigate the nitric oxide scavenging activity of whole plant of ethanolic extract of *Boerhavia erecta* The Petroleum ether, Chloroform, Ethyl acetate, Ethanol and Hydro alcoholic extract of the whole plant of *Boerhavia erecta* were subjected to *in vitro* antioxidant activity by Nitric oxide scavenging method in various concentration i.e. 10,50,100,200,400,800,1000 μg All the extracts showed positive response as compared to standard Curcumin. The Ethyl acetate and Ethanol extracts showed maximum activity. The order of effect of different extracts were represented as follows Ethanol > Hydroalcohol > Ethyl acetate > Chloroform > Petroleum ether. The *Boerhavia erecta* extract scavenged nitric oxide radicals in dose dependent manner which predict that the extract has a potent antioxidant activity.

In *vitro* antidiabetic activity by Glucose uptake assay for poly herbal churna

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Abstract: Diabetes is a group of metabolic diseases in which a person has high blood sugar the pancreas does not produce enough insulin or cells do not respond to the insulin that is produced. Skeletal muscle is a major tissue involved in insulin induced stimulation of glucose uptake. Natural plants have possessing anti diabetic potential with less or no side effects. To investigate the antidiabetic activity by Glucose uptake assay for poly herbal churna (*Aristolochia indica, Bombax ceiba, Caesalpinia crista, Enicostemma axillare, Ficus microcarpus, Trigonella foenum graecum*) L6 cells were prepared and cultured on 6 plates, incubated for 48 h at 37°C in the incubator. The cells were treated with insulin, standard drug and plant extract and added glucose (1M) and incubated for half an hour. Glucose uptake was calculated as the difference between the initial and final glucose content in the incubated medium by GOD-POD method. Effect of different concentrations of formulation on glucose uptake using GOD POD method in L6 skeletal muscle cells. The glucose uptake was increased by about 85-90% compared to control (P< 0.01). The stimulatory effect of formulation was dose independent at dosages ranging from 10 to 1000 μg/ml. At the doses of 20, 80 μg/ml of the uptake extract was 28.90%, 43.21% respectively, compared to control.
Formulation and evaluation of a gel for glowing skin

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Abstract: Papaya leaf juice has a rich content of vitamin C and A, which boost skin health and lend a healthier and radiant skin. Papaya leaf juice suppresses the activity of free radicals. The presence of karpain compounds checks the growth of excess micro-organisms, and cleanses the skin of the toxins, providing protection against skin problems like pimples, freckles and acne. Most parts of the papaya tree have benefits for our skin including the fruit itself, the seeds and the leaves. All contain Papain, an enzyme that fights the signs of aging with gentle exfoliating compounds. The leaves contain potent nutrients such as Vitamins A, B1, C & E, Proteins, Calcium, Phosphorus and Iron. The Papaya Leaf contains over 50 active compounds that inhibit micro-organisms such as fungi, parasites and bacteria. For skincare, the leaf actually contains even more Vitamin C than the fruit does, which fights free radicals, wrinkle formation and reduces pigmentation. Those that struggle with chronic skin conditions like Eczema and Dermatitis find Papaya Leaf very beneficial as an anti-inflammatory. The present work is aimed to prepare a gel for the treatment of skin problems and also as a cosmetic gel using the papaya leaf extract.

Physicochemical and phytochemical evaluation of whole plant of Boerhavia erecta

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Abstract: Boerhavia erecta belongs to the family Nyctaginaceae, is a native shrub distributed in unites states, Mexico and Asia which is used in the treatment of diuretic, anti-inflammatory, emetic, jaundice and cardiac stimulant. In tamil called as Seemai mookarattai. To evaluate various physicochemical and phytochemical parameters of whole plant Boerhavia erecta. Dried plant material was used for evaluation physicochemical parameters such as ash values (total, water soluble and acid insoluble ash), extractive values, loss on drying and foreign organic matter. In addition, phytochemical screening and quantitative estimations of various phytoconstituents (carbohydrates and proteins) were carried out using spectroscopic method. Ash values of plant material were found to be Total ash 10.7%w/w, water soluble ash 5.32 %w/w and acid insoluble ash 1.63 %w/w while the extractive values observed were Petroleum ether 1.52%w/w, Chloroform 2.84%w/w, Ethyl acetate%w/w 2.18%w/w, Ethanol 3.76%w/w and Hydro alcohol 5.36 %w/w. Phytochemical study revealed mainly the presence of carbohydrate 73.6 μg/mg and protein 31.45 μg/mg. The Physicochemical and phytochemical parameters evaluated will be helpful in developing a standard monograph of Boerhavia erecta.
A-75 Ethnopharmacological Approaches On Wound Healing

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Abstract: Wound healing is an integrated cellular and biochemical process of restoring normal structural functions of damaged tissue. Healing is a natural phenomenon by which body itself overcomes the damage to the tissue but the rate of healing is very slow and chances for microbial infection is high. Improvement in healing process can be accomplished either by shortening the time required for healing or by minimizing the undesired consequences. Wound healing is still a great challenge for the medical community including the pharmaceutical industry. Due to the complexity involved in the pathophysiology of wound healing and wound management, coming up with efficient strategy is somewhat a test. Traditional medicines have been used by humans since ages and are taking the advantages of wide spread of medicinal plants available for the same, which are also a valuable source to deal with wound management. Therefore, this review focuses on brief about the wound management and exhaustive literature coverage to deal with the same.

A-76 Evaluation Of The Anti-Arthritic Activity Of Combined Methanolic Extracts Of Allium Sativum (Garlic) And Urginea Indica (Squill) By In Vitro Method

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Abstract: Rheumatoid arthritis is a chronic systemic disease that affects joints, connective tissues, muscle, tendons and fibrous tissue. It is an autoimmune disease. India being a rich source of herbal drugs many polyherbal formulations are emerging against arthritis. Hence it is indeed to investigate the anti-arthritic activity of various herbs for further development. To evaluate the anti-arthritic activity of the individual and combined methanolic extracts of Allium sativum (Garlic) and Urginea indica (squill) by egg albumin protein denaturation assay. The bulbs of Allium sativum and Urginea indica were collected, cleaned, de-skinned and chopped, dried and pulverised separately. The methanolic extracts of both the bulbs were prepared by adding 1:3 ratio of powdered crude drug and methanol respectively. It was subjected to Soxhalet extraction for 72 hours. Then the extract is then separated. The 5ml of reaction mixture comprised of 0.2ml of egg albumin (hen’s egg), 2.8ml of phosphate buffer saline (pH-6.4) and 2ml of varying concentration of extracts. Then the mixture was incubated at 37°C in BOD incubator for 15 minutes and then heated at 70°C for 5 minutes after cooling, their absorbance was measured at 660nm by using pure blank. Diclofenac sodium (standard drug) was used as reference drug and treated as such for determination of absorption. The percentage inhibition of protein denaturation was determined. It is observed that both the bulbs possess significant anti-arthritic activity. Allium sativum is found to contain more anti-arthritic activity than Urginea indica. The combined extract shows potent anti-arthritic activity than the individual extracts.
Role Of Panchtikta Guggulu Ghrita In Skin Ailments And Osteoarthritis

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Abstract: Panchatikta guggulu ghrita has been mentioned in ancient texts like Ashtanga Hridaya, Bhaishajya Ratnavali, Sahasrayoga and Bharata Bhaishajya Ratnakara. It is indicated in many diseases like Tumour, Fistula-in-ano etc. It is mainly used in cases of Osteoarthritis and Skin ailments. Panchatikta Guggulu Ghrita has Panchatikta dravya’s as main ingredients which have anti-histaminic, anti-inflammatory and anti-oxidant action. Hence it is useful in management of Skin ailments and Osteoarthritis. Kwatha is prepared using Panchatikta dravya’s and added with Shuddha Guggulu and Ghrita. It is heated till Paka lakshanas are obtained. After attaining Paka lakshanas, prakshepaka dravyas are added and stored in air tight container. All drugs in the formulation have properties which act mainly at cellular level of skin by decreasing keratinization of cell layer, thus improving cell cycle. Hence, helpful in Kushtha. For treatment of Asthi Dhatu Dushti, tikta dravya ghrita should be given. Hence, it helps to cure SandhigataVata and Skin ailments. Understanding the absorption of Panchatikta Guggulu Ghrita by Liposomal system of drug delivery. All ingredients in Panchatikta Guggulu Ghrita have Tikta Rasa and Laghu, Ruksha Guna. So it has anti-itching property. Due to Tikta rasa it also acts on Asthi and makes it stable. Tikta rasa has Deepana, Pachana and Rochana property, which helps in improvement of general condition of the body and also strengthening the joints. Almost all the ingredients have anti-histamine, anti-inflammatory and anti-oxidant action. Hence helpful in Skin ailments and Osteoarthritis.

Cytotoxicity effect of poly herbal formulation against L6 cell line by MTT Assay method

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Abstract: Diabetes is a chronic disorder linked with the metabolism of carbohydrate, protein and fat due to absolute or relative deficiency of insulin secretion with or without varying degree of insulin resistance. Skeletal muscle is a major tissue for blood glucose utilization and a primary target tissue for insulin action. L6 cell lines are derived from the skeletal muscle and are used in Antidiabetic research to study cytotoxicity. To scientifically investigate the cytotoxic effect of poly herbal formulation(Aristolochia indica roots, Bombaxceiba leaves, Caesalpinia crista seeds, Enicostemma axillare whole plant, Ficus microcarpus bark, Trigonella foenum graceum seeds) against L6 cell line by MTT assay method. Cytotoxicity effect was performed in poly herbal formulation against L6 cell line. Growth inhibition of the extract of the different concentration after 24 hrs and incubated at 37⁰c of the formulation was determined by MTT Assay. The viable cells was dissolved in 200μl of dimethyl sulfoxide. The absorbance was read by using an ELISA plate reader. From the tabulated records, it clearly shows that the dose dependent response for the inhibition of cells. The ethanolic extract was found to possess cytotoxic property in L-6 cell line. The maximum concentration of the plant extract 1x108pg/ml was found to be effective. MTT cleaves tetrazolium in the presence of mitochondrial reductase enzyme and forms formazan crystals that accumulate in viable cells.
In Vitro Anti-Diabetic Activity Of The Medicinal Plant *Abelmoschus Esculentus* Via Inhibition Of Dpp-4 Enzyme

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Abstract: Diabetes mellitus is the most common chronic disorder caused by partial or complete insulin deficiency. Plant of *Abelmoschus esculentus* belonging to the family Malvaceae (Mallow family) is used traditionally for anti-diabetic activity. To evaluate the anti-diabetic activity of the medicinal plant *Abelmoschus esculentus* via inhibition of dpp-4 enzyme by in vitro studies DNSA Assay: Concentrations of plant extract were prepared by dissolving in double distilled water. It contains 500 micro litre of plant extract and 500 micro litres of 0.02M sodium phosphate buffer containing alpha amylase solution and incubated for 10mins. After incubation, 1% starch solution and sodium phosphate buffer were added at 5s interval and again incubated for 10mins. DNSA reagent was added to stop the reaction. These test tubes were incubated in a boiling water bath and cooled. Finally it is diluted with 10ml distilled water and absorbance is measured. It was observed that the plant extract of *Abelmoschus esculentus* were found to have antidiabetic Activity *Abelmshus esculentus* have effective anti-diabetic activity by inhibiting dpp-4 enzyme.

Investigation Ofhepatoprotective Activity OfAlcoholic And Aqueous Extracts Of *Mentha Arvensis* And *Ocium Sanctum* By Invitro Method.

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Liver is the principal site for metabolism and excretion in body. The human liver metabolism substances by various biochemical pathways including oxidation, hydrolysis, reduction, hydration, condensation, conjugation or isomerization. Disorder of any of the afore mentioned process may lead to liver cell injury, what we call as hepatotoxicity which in turn leads to many disease. This can be due to medicines, chemicals, dietary disturbances or herb induced live damage via hepatotoxins. A number of herbal and herbomineral preparations are available in the Ayurveda, the traditional Indian medicine which have been investigated for their hepatoprotective potential to treat different types of liver disorder. There is a lack of reliable hepatoprotective drugs in modern medicine to prevent and treat drug-induced liver damage. Leaves of Tulsi (*Ocimum sanctum*) and Mint (*Mentha arvensis*) belonging to family Lamiaceae are used traditionally for their hepatoprotective property. To evaluate the hepatotrotective activity of alcoholic and aqueous extracts of *Mentha arvensis* and *Ocimum sanctum* by liver slice culture method. The fresh leaves were cleaned and shade dried. The powdered leaves were subjected to hot continuous extraction with ethanol (alcoholic) and water (aqueous). Both the extracts were concentrated. The Goat liver slice was homogenated. Liver toxicity was initiated by CCL4, after 30mins it was treated with 0.67% of thiobarbituric acid in 50% acetic acid. The mixture was heated in water bath. The intensity of pink complex was measured at 535nm. The extracts were evaluated in CCL4 induced toxicity cells. It was compared with standard *silymarin*. It was observed that both aqueous and alcoholic extracts of Tulsi (*Ocimum sanctum*) and Mint (*Mentha arvensis*) were found to contain *Mentha arvensis* and *Ocimum sanctum* contain effective hepatoprotective property.
Investigation of antibacterial activity of *Azadirichta indica* extracts against some common bacterial pathogens.

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Abstract: Antibiotic resistance in pathogens causing important communicable diseases has become a matter of great public health concern globally including India. Widespread use and availability of practically all the antimicrobials across the counter, incompleteness of the dose is supposed to be one of the major reasons for this. Some plant extracts have been shown to potentiate the activity of antibiotics against resistant bacterial strains. So the objective of the study was to use some natural products as an alternate to the conventional treatment against antibiotic resistance. The effects of crude extracts of leaves of *Azadirichta indica* against pathogenic *S. aureus, E. coli* and *K. Pneumoniae* were investigated using the agar well diffusion method. The growth of all the isolates were inhibited, though to varying degrees, with gram-positive more susceptible than gram-negative bacteria. Hexane extracts were more effective, producing larger zones of growth inhibition sizes and smaller MIC, than the aqueous and ethyl acetate extracts. The MIC values ranged from 0.5 - 4 mg/ml. The ability of the crude extracts to inhibit the growth of such pathogenic bacteria that are used in this study is an indication that the neem leaves extract has the potential and can be used as a source for new broad spectrum oral antibiotics. The result obtained in this study validates the use of the neem leaves extract in traditional medicine to treat infectious conditions.

Evaluation of Anti proliferative activity of whole plant of Ethanolic extract of *Boerhavia erecta* L against MCF-7 Breast cancer cell line

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Abstract: Cancer is one of the most life-threatening diseases, with more than 100 different types occurring due to some molecular changes within the cell. It is the third leading cause of death worldwide following cardiovascular and infectious diseases. Anticancer agents mainly exhibit a preventative or curative role in a damaged system. One such plant is the *Boerhavia erecta* belongs to the family *Nyctaginaceae*, is a native shrub distributed in unites states, Mexico and Asia which is used in the treatment of diuretic, anti inflammatory, emetic, jaundice and cardiac stimulant. To scientifically evaluate the Anti proliferative activity of whole plant Ethanolic extract of *Boerhavia erecta* L against MCF-7 Breast cancer cell line. The effect of ethanolic extract to destroy the cancer cells was studied in human breast cancer cell line (MCF-7) by MTT Assay method. The cells were treated with different concentrations of the extract. Preparation of cell line was done using the reagents under standard protocol. Effect of plant extract on the cancer cells were recorded at 24 hrs. Using 96 well plates the cells were seeded and studied for the viability. From the tabulated records, it clearly shows that the dose dependent response for the inhibition of cells. The Ethanolic extract of *Boerhavia erecta* L was found to possess cytotoxic property in MCF-7 cell line and the IC50 value was found to be 63.74μg/ml *Boerhavia erecta* Ethanolic extract could be promising alternative natural sources of chemotherapeutic agent.
Anthocyanins from flowers of *Hibiscus rosa-sinensis* modulate biomarkers of oxidative stress via up-regulation of antioxidant responsive genes

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**Abstract:** Flowers of *Hibiscus rosa-sinensis* Linn. are globally used for ornamental as well as various medicinal purposes. Anthocyanins are the major class of flavonoids present in *Hibiscus* flower. Anthocyanins are widely acclaimed antioxidant against pathogenesis of oxidative stress and various diseases including cancer. This study was aimed to characterize the anthocyanins extracted from flowers of *Hibiscus rosa-sinensis* (Malvaceae) and investigating its potential against markers of oxidative stress at biochemical and molecular level. Anthocyanins were extracted with acidified ethanol. Total anthocyanin content (TAC), total phenolic content (TPC) and total flavonoids content (TFC) of the extract was measured. UHPLC-ESI-MS/MS was employed to characterize and identification of anthocyanins. In-vitro antioxidant property was assessed by several in-vitro antioxidant assays like NO radical scavenging assay, DPPH assay and metal chelation assay. in-vivo antioxidant property was studied in t-BHP induced hepatotoxicity in rats whereby levels of enzymatic biomarkers (like ALT, AST, GSH, MDA etc.) were measured. Further, expression levels of NQO1, HO-1 and GSTα in liver were also studied using qRT-PCR technique and compared relatively with expression of housekeeping genes like GAPDH and β-actin. The anthocyanin extracts (AEs) showed presence of cyanidine-3-glucoside and peonidin as major anthocyanin. The AEs exhibited excellent antioxidant properties assessed by several in-vitro antioxidant assays. The AEs showed marked hepatoprotection after oral administration evident from the enzymatic biomarkers and histopathology of liver tissues. Relative expression of antioxidant genes showed significant dose-dependent upregulation in anthocyanin treated rats. The study revealed that *Hibiscus rosa-sinensis* is repository of a variety of anthocyanins. The increased expression of antioxidant enzymes and genes after AE administration conferred hepatoprotection, inducing Nrf2 nuclear translocation activation pathway. Thus anthocyanins from *Hibiscus* shows promise as a novel phytochemical against oxidative stress.

**ETHNOPHARMACOLOGY IN DRUG DEVELOPMENT**

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**Abstract:** Ethnopharmacology is a highly diversified approach for drug discovery which involves the observation, description and experimental investigation of indigenous drugs and their biologic activities that is based on botany, chemistry, biochemistry, pharmacology, and other disciplines (anthropology, archaeology, history, and linguistics) contributing to the discovery of natural products with biologic activity. Many modern drugs have origin in traditional medicine and ethnopharmacology. Traditional Indian Medicine - Ayurveda has a long history and is one of the great living traditions. Considerable research on pharmacognosy, chemistry, pharmacology and clinical therapeutics has been carried out on Ayurvedic medicinal plants. Several preclinical and clinical studies have examined cytoprotective, immunomodulatory and immunoadjuvant potential of Ayurvedic medicines. The ethnopharmacology knowledge, its holistic and systems approach supported by experiential base can serve as an innovative and powerful discovery engine for newer, safer and affordable medicines. The ultimate goal of ethnopharmacology should be to identify drugs to alleviate human illness via a thorough analysis of plants alleged to be useful in human cultures throughout the world. Currently, research centers and pharmaceutical industries have driven the search for new drugs of plant origin with effective activity to fight several diseases that today present a limited treatment, including gastrointestinal ailments.
Traditional Practices In Diabetes Management From Belagavi District, India

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Abstract: Diabetes is one of the lifestyle disorders causing an economic burden to a larger portion of community around the globe. The affected community is looking for a cure as well as a management practice for this illness. The available literature throws light on the herbal formulations or its anti-diabetic properties. However, the proper documentation on its management practices used by traditional healers is not available, at least in Belagavi region of Karnataka. Therefore, the present study was undertaken to document the non-codified traditional practices in diabetes management from Belagavi district, Karnataka, India. With proper Ethical approval and consent, identified non-codified traditional practitioners treating diabetes were interviewed in detail using open-ended semistructured questionnaire. Information with respect to diabetes management was documented including herbal formulations used. A total of 25 traditional practitioners found to treat diabetes. The socio demographic information indicated varied education level, work profile, and age group. Total 51 plant species were documented in the process, belonging to different families. 90% of the practitioners have the knowledge of laboratory analysis and diagnose the diabetes based on these reports. However, the understanding about the diabetes varies largely and does not correlate with the modern medical definition. 70% of the practitioners’ opinion is that cure for diabetes is possible only in early stages, whereas rest claim permanent cure for diabetes. The management practice involve proper intake of herbal formulation with stringent diet, physical work, pranayam or meditation and suggested change in lifestyle. Treatment remuneration is in the form of money varies from Rs. 20 to Rs. 500. Over all documentation of practices with respect to diabetes management use by the practitioners form Belagavi district showed that a holistic approach is required to cure or manage an illness. Detailed proper documentation may give new insights for scientific validation of herbal formulations and traditional practices.

Antinociceptive action of Aerva javanica Linn. Floral top extract and study on involvement of opioid receptors

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Abstract: Study on antinociceptive activity of Aerva javanica Linn. floral top extract was done owing to its traditional use for the same. Along with it, involvement of opioid receptors was investigated for the same. To study the potential of Aerva javanica Linn. floral top extract against nociception and to investigate the role of opioid receptors involvement wherein. Hydroalcoholic extract of dried flower tops of Aerva javanica Linn. (AJCE) was prepared using maceration method. Pharmacological investigation of extract was made on Wistar rats (IAEC approval ref no: BV/3632/2017-2018) using formalin induced edema. 5 mg/kg s.c. morphine (standard), 5 mg/kg i.p. naloxone (receptor blocker) or 5 mg/Kg of morphine and naloxone both are used along with 500mg/kg p.o. dosage of AJCE. AJCE showed significant (p<0.001) antinociceptive potential in both phases, with 34.99% inhibition in acute phase as compared to morphine standard (91.85%) while 71.20% inhibition (significant at p<0.001) was shown in chronic inflammatory phase comparing to morphine with 98.81% inhibition. Further antinociceptive effect was reversed with use of naloxone only in phase-1 (acute) whereas no significant impact was seen in chronic phase. AJCE possess significant antinociceptive potential in which may be mediated by opioid mechanism as denoted in acute phase. Whereas in chronic phase, no antagonism was shown which suggests that opioid pathways may not be involved in the chronic phase which possibly represents inflammatory component.
Wound parameters in dexamethasone challenged murine excision wounds and impact of Calligonum polygonoides Linn. floral top extract

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Abstract: Folklore usage of herbs in various ailments motivates research of traditional drugs in modern system. Traditional use of Calligonum polygonoides flower tops in wound healing is the basis of present study. To evaluate wound parameters in dexamethasone challenged murine excision wounds and impact of Calligonum polygonoides Linn. floral top extract. Hydro-alcoholic extract of dried flower tops of C. polygonoides Linn. (CPCE) was prepared using maceration method. Pharmacological investigation was made on Wistar rats (IAEC approval ref no: BV/3632/2017-2018) challenged with dexamethasone using excision wound model. CPCE used in two doses viz. 250 and 500 mg/kg body weight and compared with established herbal extract of Vitex nirgundo (VNCE). Wound contraction and period of epithelialization were studied with dexamethasone challenge. Effects were compared with sham dexamethasone, control and VNCE. CPCE showed no significance in wound contraction at low dose (250 mg/kg b.w. orally) while very little significant (p<0.05) at high doses (500 mg/kg b.w. orally) in dexamethasone challenged rats when compared to sham dexamethasone group and no significance with control group animals at 4 hours. Significance level toggle during whole study duration. This finally, at 16 hours, shown very little significance (p<0.05) at low dose (250 mg/kg b.w. orally) while very high significance (p<0.001) at high doses (500 mg/kg b.w. orally) when compared to sham dexamethasone group and little and moderate significance with control group animals. When compared with VNCE, comparable values were obtained with no significant difference. Period of epithelization was reduced (12.82 and 11.71 days at both doses compared to 19.35 days of control) and very significant (p<0.001) at both doses. When compared with VNCE (12.86 days) epithelization period, no significance at low dose (250 mg/kg) while significant difference (p<0.01) was reported at higher dose (500 mg/kg). (Results were analysed using one/two way ANOVA followed by post hoc Tukey’s multi-comparison test.) CPCE possess significant wound healing potential in case of excision wounds but overall effect toggled with dose as indicated by percentage wound contraction and period of epithelization.

Pharmacological evaluation of abroma augusta L. in migraine

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Abstract: Migraine is common cause of chronic pain and the most prevalent neurologic disorder, affecting over 16% of adult women and 7% of adult men. The present study aimed to evaluate of antimigraine activity of methanolic extract of Abroma augusta leaves in laboratory animals. Antimigraine activity evaluated against nitroglycerine (NTG, 10 mg/kg i.p) and bradukinin (BK 10 mcg intra aretrial) induced hyperalgesia in rats. Rats were divided randomly into six groups: normal, control standard (supatryptan) and abroma augusta for 14 days. Tail flick latency (post-NTG treatment) and the number of vocalization (post BK treatment) were recorded as a measure of hyperalgesia. Abroma augusta showed significant elevation in reduced latency. It showed significant reduction in elevated glutamate level and increase in body weight in NTG induced hyperalgesia model. It also showed significant reduction in elevated diastolic blood pressure. However, it failed to show its effect on heart rate, systolic blood pressure and PR interval in BK induced hyperalgesia. It is concluded that methanolic extract of abroma augusta L. possessed antimigraine activity in NTG induced hyperalgesia and BK induced Hyperalgesia model in rats.
Pharmacological Evaluation of Betaine for its Applications in Parkinsonism.

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Abstract: Parkinson’s disease is a progressive neurodegenerative disorder clinically characterized by motor symptoms and non-motor symptoms. Motor complications include motor fluctuations and dyskinesia, which are associated with severity of PD and to dopaminergic treatment. The study was undertaken to evaluate the effect of betaine in animal Model of Parkinson’s disease. Haloperidol induced catalepsy: The test drug betaine was administered Orally to the rats. After haloperidol was given i.p to induce catalepsy. Once the Experiments were over, the animals were rehabilitated. 2.6-OHDA: Rats received Unilateral 6-OHDA lesions medial fore brain bundle to destroy DA neurons. Two week After the surgery rats were challenged with Apomorphine HCl (0.2mg/kg, s.c) and Contralateral rotations was monitored. After two weeks surgery rats were divided into Six groups based on no. of contralateral rotations after Apomorphine administration and standard group received L-Dopa 10mg/kg along with Benserazide 2.5mg/kg orally. While test groups received 12.5mg/kg, 25mg/kg, 50mg/kg betaine for 21 days. Betaine at 12.5, 25 mg/kg p.o significantly reduced cataleptic dose Depending (p<0.001) at 30 and 60 min. Significant increase in locomotion count was Observed from day 1 onwards in betaine treated rats (p<0.001). Decrease in Cataleptics core was observed in betaine treated rats on day 0 and 7 (p<0.001). Decent latency – significantly (p<0.001) increase in decent latency was observed in Betaine treated rats on day 0 onwards up today 21 at 12.5, 25mg/kgp. Except at 50 mg/kgp. On day 14.5. GSH (Glutathione) level decreased in betaine treated rats (p<0.001). In present work, neuroprotective activity of Betaine is attributed to its Potent antioxidant potential. Inhibition of haloperidol-induced catalepsy can be Correlated with improvement in muscle rigidity and dyskinesia in rats. Anti-inflammatory Effect of betaine is attributed to reduction in level of proinflammatory cytokines viz: TNF-α, IL-6, and IL-1β. The present study provides proof of concept for potential use of Betaine as an adjuvant in pharmacotherapy of PD. Parkinson’s disease, Catalepsy, Betaine, 6-OHDA, Apomorphine Hcl, Benserazide, L-Dopa.

Conceptual And Critical Analysis Of Local And Global Need Based Medicinal Plant Research With Crucial And Contemporary Issues With Special Reference To Tulsi – A Retrospective Meta-Analysis Study

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Abstract: Due to drug resistant, drug interactions, adverse events, tissue toxicity and other related issues, the synthetic medicine industry is facing troubles globally. Therefore, to come out of the limitations the modern drug research has entered into medicinal plant research which is the need of the time. However, to address the local and global need the pharma industry is working hard. In this background the present paper is conceptually discussing the crucial and contemporary issues with special reference to Ocimum sanctum. To know the crucial and contemporary issues of medicinal plant research based on local and global need with special reference to Ocimum sanctum. Retrospective data survey based conceptual postulation. Analytical and experimental research data along with invivo invitro study data will be collected from global source. The meta analysis will be done regarding the outcome of medicinal plant research and ethno pharmacology of Ocimum sanctum. Based on the data it will be critically analysed and discussed whether it is based on local or global and also an attempt will be made to know the relevance crucial/contemporary issues related to research carried upon Ocimum sanctum. Anti cancer activity- ethanolic Tulasi leaf extract has been observed to reduce the incidence of cancer. Anticoagulant activity- fixed oil prolonged clotting time, response being similar to aspirin. Biochemical composition and ethno pharmacology of Tulasi. Secondary metabolite enhancement, presence of alkaloid, glycoside, tannins etc. are the markers for understanding ethnomedicalology. Thus Tulasi has anti-microbial, immune modulatory, anti-inflammatory, ant diabetic, antipyretic and antifungal activity.


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Abstract: Diabetes mellitus (DM) is one of the most serious disease affecting millions across the world. Diabetic nephropathy (DN) is one of the most serious microvascular complications of DM and a leading cause of end-stage renal (ESRD) disease across the world. The purpose of the study is to evaluate the renoprotective activity of ethanolic extracts of Oroxylum indicum leaves in streptozotocin-induced diabetic nephropathy rats. Renoprotective activity evaluated against streptozotocin (45mg/kg, i.p.) induced diabetic nephropathy in rats. The animals with blood glucose 250-300mg/dl were considered to be diabetic and animals having microalbuminuria > 30 mg/24h were taken for experiment. Rats were divided randomly into six groups: normal, control, standard (Metformin 10mg/kg, p.o.) and Oroxylum indicum (100, 200, 400 mg/kg, p.o.). After 4 weeks of treatment animals were blood was withdrawn by using R.O.P. for biochemical estimation. Oroxylum indicum ethanolic leaf extract significantly reduced the levels of urine output (p<0.001). it also significantly reduced the levels of triglyceride, cholesterol, LDL, creatinine, micro-protein (p<0.001). kidney and body weight was also decreased. Oroxylum indicum ethanolic extract significantly increased the levels of albumin, total protein, HDL, SOD & Glutathione (p<0.001). Four weeks treatment in early diabetic nephropathy in rats Attenuate serum glucose, micro-protein, creatinine, total cholesterol, triglycerides, and LDL and urine volume. Body weight was brought back to normal and increased urine creatinine. Restore level of SOD and GSH The dose 400mg/kg has more beneficial effects in diabetic nephropathy rats.

Development of chromatographic signature and metabolomics profile of Ocimum tenuiflorum (Krishna Tulsi) for the purpose of quality control

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Abstract: Ocimum tenuiflorum (Krishna Tulsi) is one of the most popular Indian traditional medicinal herbs. For centuries, it is also used globally to cure several health complications. The current study was focused to develop the quality standards by using various analytical techniques to obstruct the chances of quality deterioration from unwanted adulteration. The leaf, stem and inflorescence were segregated and dried in shade. Each part was macerated in methanol repeatedly for 3 times. Extracts were concentrated and prepared for analytical, chemical as well as biological standardization. Total phenolic, flavonoid, tannin and anthocyanin content were estimated. The antioxidant activity was also investigated using DPPH assay. HPTLC and 1H NMR (1D and 2D) fingerprinting was performed to get the chemical signature of Ocimum tenuiflorum. Volatile and non-polar compounds were analyzed in GC-FID/MS as well as UHPLC-ESI-MS/MS was performed to identify the polar metabolites. Furthermore, in-vitro enzyme assay (α-glucosidase, acetylcholinesterase) was also performed to evaluate the biological potential of the extracts. Metabolomic analysis revealed the presence of diverse ranges of compounds like eugenol, bieugenol, lemonene, quercetin, cyanidin, rutin, apigenin, orientin, rosmarinic acid, syringic acid, isovitexin, tulsinol etc. Excellent total antioxidant properties were obtained from different parts of Ocimum tenuiflorum. All the extracts exhibited significant inhibiting potential against α-glucosidase enzyme and acetylcholinesterase. It can be concluded from the promising results that the fingerprints and metabolomics profile will serve as an authenticity signature and quality control profile of Ocimum tenuiflorum for safe and effective consumption as an herbal medicine.
Evaluation of impact of Calligonum polygonoids Linn. floral top extract on excision wounds

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Abstract: Folklore usage of herbs in various ailments motivates research of traditional drugs in modern system. Traditional use of Calligonum polygonoides flower tops in wound healing is the basis of present study. To evaluate the impact of Calligonum polygonoides Linn. floral top extract on excision wound. Hydro-alcoholic extract of dried flower tops of C. polygonoides Linn. (CPCE) was prepared using maceration method. Pharmacological investigation of extract was made on Wistar rats (IAEC approval no: BV/3632/2017-2018) using excision model. CPCE used in two doses viz. 250 and 500 mg/kg body weight and compared with established herbal extract of Vitex nirgundo (VNCE). Full thickness skin was excised to get a wound measuring 79 mm2 from the dorsal thoracic central region. Wound contraction and period of epithelization were studied without dexamethasone challenge. Effects were compared with control and VCNE. Results were analysed using one way ANOVA followed by post hoc Tukey’s multi-comparison test. CPCE showed significant wound contraction (p<0.01) at low dose (250mg/kg b.w. orally) while very significant (p<0.001) at hight doses (500mg/kg b.w. orally) in nondexamethasone challenged rats at 4 and 8 hours when compared with control. Significance level was very high (p<0.001) at both doses with increase in duration (at 12 and 16 hours). When compared with VCNE comparable values were obtained with no significant difference. Period of epithelization was reduced (12.51 and 10.21 days at both doses compared to 17.26 days of control) and very significant (p<0.001) at both doses. When compared with VCNE (11.42 days) epithelization period, very little significant difference (p<0.05) was reported. CPCE possess significant wound healing potential in case of excision wounds at both selected doses as indicated by percentage wound contraction and period of epithelization.

In-vitro Pharmacological Investigation of Desmodium Triforum for Anti-diabetic and Anti-urolithiatic studies

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Abstract: The effects of diabetes mellitus include long term complications include heart disease, stroke, dysfunction and failure of various organs. Similarly, nowadays herbal medicine has gained much popularity because, as they are more effective and have less side effects and reduce recurrence rate of stone formation, hence search of anti-urolithiatic activity of drug from natural source has resumed greater importance and is promising. Stone formation is mainly due to phase change whereby dissolved salts condenses into solids because of super saturation In the recent years, there is lot of research on medicinal plants, since many plants have showed very potential pharmacological activities. The aim of the current study was to screen the ethanolic extract of root Desmodium Triforum for its In Vitro anti diabetic and anti urolithiatic activities. In the present investigation antidiabetic and anti urolithiatic activities of Desmodium Triforum were carried out. In-vitro evaluation of anti-diabetic activity was carried out by α-glucosidase and α-Amylase inhibition methods and In-vitro evaluation of anti urolithiatic activity was carried out by nucleation and aggregation methods. In-Vitro α-amylase and α-glucosidase inhibitory studies demonstrated that Desmodium Triforum has significant anti-diabetic activity. The percentage inhibition at 100-500 μg/ml concentration has shown concentration dependent increase in the percentage inhibition in both the methods. In the α-amylase method at concentration of 500 μg/ml, the extract showed percentage inhibition of 89% and Acarbose (standard) showed 94% and in α-glucosidase method at 500 μg/ml concentration showed 86% Acarbose showed 89%. In the anti-urolithiatic activity the extract showed almost equal activity (78%), when compared to the standard cystone (79.91%) in both the methods. These findings demonstrate that the Ethanolic extract of Desmodium Triforum have excellent anti-diabetic and anti urolithiatic activities.
Tite: Formulation and evaluation of herbal gel for promoting the hair growth

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Abstract- Herbal medicines has edge relatively to allopathic medicines and they are safer than synthetic medicines because the phytochemicals present in the plant extract are nontoxic have less side effect and easily available. Zingiberaceae contains Gingerol (6-gingerol) as the active constituent responsible for stimulating the hair growth. Ginger (Zingiber officinale) is a common plant found throughout India. It majorly contains alkaloids and flavonoids and various active constituents use for the hair growth. Ginger shows the various properties like antiseptic, antibacterial, anti-inflammatory, antioxidant. To formulate and evaluate the herbal gel of extract of Zingiber officinale to promote the hair growth. To obtain different extracts of Zingiber officinale by using different solvents. To evaluate the hair growth activities of obtained extracts. To develop and evaluate a hair growth promoting gel. The pH value for the herbal promoting gel formulation was found to be 6.7 ± 0.01. Viscosity of prepared formulated gel was found to be 4731 Cps. The spredability of finalized formulation was found to be 44.41 ± 0.12 %(g.cm/sec). The drug content of the gel preparation was found 96.32%. The in-vitro drug release of the prepared gel formulation was performed using Franz-diffusion cell for 8 hr. and the drug release was found to be 44.77±0.52. The effect of Zingiber officinale on hair length treatmet was observed 9±0.2, 20±0.2, on 10th day, 20th day, respectively on animal study of mice. In this study, several hair growth gel were formulated and evaluated for their potential as an effective topical use systems for the hair growth promoting activity. All the results are observed assured by doing animal study for effective hair growth promoting activity. Thus it can be concluded that the herbal plant could be the promising choice for future formulations.

Phytopharmacological Review Of Ingredients In Spice Box

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Abstract: The simple, basic and easily available ingredients spices such as mustard seed (kadugu), cumin seed (siragam), coriander seed (kothamalli vithai), fenugreek (venthayam), black pepper (karumilaku), dry red chilli (ular civapu milakai), urad dhal (ulutham parupu), turmeric powder (manjal dhool) present in the spice box at kitchen has a wide variety of bio-function and their additive or synergistic action are likely to protect the human body against diseases and upcoming disorders. It could have beneficial effect on some of the important human disease such as CVD type 2 diabetes, digestive disease and cancer. It improve digestion, boosts energy, strengthens nerve system and to manage diabetes. The objective of the present study to perform phytopharmacological review of ingredients in spice box. To generate awareness and to improve healthy living by traditional ingredients. The reviews of literature of the ingredients in spice box were collected using pubchem search database. The therapeutic, pharmacological, traditional and medicinal uses of 8 well-known and regularly used spices were reviewed for a period of 15 years. The spice plays a vital role in human health. Today the spice are used around the globe in Complementary and alternative medicine (CAM). The great Greek physician Hippocrates, father of medicine insisted words has been collected “Let food be the medicine and the medicine be the food” is the basic principle in siddha system of medicine.
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**Evaluation And Characterization Of Flavanoid Rich Nanoparticle By Validated Hp-Tlc Method**

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**ABSTRACT:** Advantage of the transdermal drug delivery system includes avoidance of first-pass effect in liver, non-invasive administration, possibility of self-administration, easy withdrawal of medication when not required. The primary objective of research is to formulate a flavanoid rich transfersome containing Resveratrol and physicochemical stability studies by DSC thermograms and FTIR spectrums and secondary objective is development and validation of flavanoid rich nanoparticle by HP-TLC method. Transfersomes were prepared by rotary evaporation sonication method in this different proportions of Lecitin-Lipid (soya phosphatidylcholine), Span 80 and resveratrol. Then 2:1 v/v chloroform and methanol was added to dissolve the component thoroughly. This organic solvent, subjected to rotary evaporation which leads to film formation and the remaining solvent was removed by vaccum overnight. After complete removal of solvent traces, 20 ml of pH 7.4 phosphate buffer were added to the thin film for homogenous distribution of vesicles followed by subject to hydration and then sonicated with probe sonicator. Transfersome were prepared by rotary evaporation method and a batch of 5 formulations was prepared i.e T1 to T5 were prepared with different ratio of lipid and edge activator(w/w) ratio and characterizations of formulation was done for the Particle Size, Polydispersity Index, Entrapment efficiency %, Zeta Potential, In-vitro and Surface Morphology. The DSC thermograms of drug, edge activator, polymers individually and combination of all, revealed that, the recorded heat flows associated with transitions in materials as function of temperature and time, no significant curves were observed. The individual FTIR spectrums of drug, EDGE activator, Polymer and combination of all revealed that there was no significant changes observed pre and post transfersome formulation. An effort was made to formulate a topical drug delivery carrier (Transfersome) which is rich in flavonoids (Resveratrol) and it was further evaluated to analyse for parameters like particle size, Polydispersity index, Entrapment efficiency %, Zeta potential, In-vitro and Surface morphology was studied, optimixed HPTLC method developed and validated proved that the study parameters were well within ICH guidelines.

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**Osteogenic potential of Resveratrol on hFOB**

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**Abstract:** Resveratrol (RSV) is a phenolic phytomolecule reported in the skin of grapes fruits. because of the structural similarity of resveratrol with that of stilbesterol and 17-beta-estradiol it was recognised as phytoestrogen. Hence, we have evaluated for possible osteogenic potential of osteoblast through estrogen independent pathway. The current study focusses on investigation of in vitro evaluation of RSV on proliferation and differentiation of immortalized human fetal osteoblastic cells 1.19 (hFOB). In the first step we evaluated the effect of RSV on cells by MTT cell viability assay, we have also evaluated alkaline Phosphatase (ALP) activity, total protein content and alizarin staining for the mineralization assays to evaluate osteoblastic differentiation potential. All the data were expressed as a mean ± SEM (n=3). It was statistically analyzed by using one-way ANOVA and post comparison was carried out with using Dunnett's multiple comparison tests with control. The cell viability assay indicated that RSV was found to be safe at higher concentrations as 62.25 μM concentrations. The concentrations of 500 nM and 1 μM were selected for the further assays. RSV at 500 nM and 1 μM concentration treatment for on hFOB did not show a significant effect on ALP activity (p≤0.05). Alizarin staining indicates a stimulatory effect on the mineralization phase and time dependent manner (p≤0.05). In mature osteoblasts, ALP activity is expressed in early stage while mineralized nodules are formed in late stage of differentiation. It suggests that RSV stimulated the process of bone formation through activation of late differentiation phase and may in part explain the positive effects on osteoblastic differentiation potential.
**Abstract:** Alzheimer’s disease (AD) is characterized by profound memory loss sufficient to interfere with social and occupational functioning. It is the most common form of dementia, affecting more than 20 million people worldwide. AD is characterized by an insidious loss of memory, associated functional decline, and behavioral disturbances. Patients may live for more than a decade after they are diagnosed with AD, making it the leading cause of disability in the elderly. The incidence of AD ranges from 1 to 4 percent of the population per year, rising from its lowest level at ages 65 to 70 years to rates that may approach 6 percent for those over the age of 85 years. Traditional Alzheimer’s medications treat cognitive symptoms of the disease, such as memory loss, confusion, and problems with language and judgment. These drugs target protein fragments (beta-amyloids) that build up as plaques in brain cells. This buildup causes the damage that leads to Alzheimer’s. Physicians will prescribe a drug regimen based on the stage of the disease. While traditional drugs can’t cure Alzheimer’s or stop brain cells from deteriorating, they can delay the disease’s progress for a certain period of time. To evaluate the green leaves extract of *Alternanthera sessilis* against Alzheimer’s disease by *in vitro* using SH-SYSY cell cultures. The plant was collected from the local market, authenticated and extracted. The ethanolic leaves extract of the plant was prepared and characterized. The extract was subjected to evaluate Alzheimer’s using SH-SYSY cell cultures The *in-vitro* neuroprotective effect of ethanol leaves extract of *Alternanthera sessilis* were studied by the cell viability analysis. The cell viability of human SH-SYSY were determined by MTT assay method and found to have significant neuroprotective activity against the human SH SY5Y Neuroblasma cell lines with IC50 value of 20μg/ml in a concentration dependent manner. The *in-vitro* neuroprotective study of ethanol leaves extracts *Alternanthera sessilis* have Significant neuroprotective against the human SH-SY5Y.

**Abstract:** Recent studies suggest that virgin coconut oil (VCO) has been identified as a potential cognitive strengthener associated with AD. Unlike most other dietary oils that are high in long-chain fatty acids, coconut oil comprises medium chain fatty acids (MCFA). MCFA are unique since they are easily absorbed and metabolized by the liver and can be converted to ketone bodies. Ketone bodies are then transported across the blood brain barrier through monocarboxylic acid transporters and converted to acetyl co-A which enters the citric acid cycle and is oxidized in the mitochondria to provide ATP and also serve as the precursors of acetylcholine in neurons (Fernando et al. 2015). Sunflower oil contains polyunsaturated fatty acids which have anti-inflammatory effects and neuroprotective functions and may benefit prevention of dementia. N-3 PUFA may improve AD by increasing the clearance of amyloid beta by its neuroprotective factors (Yanai 2017). Thus, present study is to evaluate the neuroprotective and memory enhancing effects of coconut oil in comparison with sunflower oil through diet in dementia. To evaluate the role of VCO and sunflower oil enriched diet against colchicine-induced dementia in rats. To optimize the extraction process involved in the preparation virgin coconut oil To compare the memory enhancement effects of VCO and sunflower Oil enriched diet in normal rats. To compare the effect of VCO and sunflower oil on biochemical parameters involved in the cognitive dysfunction induced by colchicine through intra-cerebro-ventricular route. Post weaned male and female Wistar rats weighing 150-200g were used for this study [IAEC/KMC/77/2018]. Animals were divided into six groups. Diet enriched oil was given 30 days prior to the animals and continued till the end of the study. Donepezil was the chosen standard. Sham control received artificial cerebrospinal fluid. On day 22, after colchicine i.c.v. administration, animals were sacrificed. Biochemical parameters and histopathological examination will be done.
SCIENTIFIC ABSTRACTS

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RECENT ADVANCES ON ANTIDIABETIC MEDICINAL PLANTS

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Abstract: Diabetes has become the most common metabolic disease worldwide; in particular type 2 Diabetes is the most common encountered type of diabetes. There are multiple therapies available to treat diabetes but total recovery from diabetes may not possible. In addition, modern medicine drugs have some adverse effects; these associated problems demand the search for newer drugs with fewer side effects. This presentation highlights the most popular medicinal plants with potential antidiabetic significance, their modes of action together with the method used for their assessment. A thorough review of classical and modern texts, literature and published articles in reputed journals will be made to collect necessary data in reference to diabetes mellitus and medicinal plants material having hypoglycemic activity through either increased secretion of the insulin from pancreas or similar action to the insulin reported in different source of literature. It has been reported that antidiabetic herbal medicines like coccinia indica, Gymnema sylvestre, etc have a similar mechanism of action as allopathic drugs but negligible side effect with low cost. These plants have polyphenols, alkaloids, glycosides, polysaccharides, terpenoids, steroids, and flavonoids. These constituents are helpful in the treatment of diabetics. Natural compounds may be feasible alternatives for the treatment of diabetes or reinforcements to currently used treatments. Medicinal plants considered potent candidates for new drug discovery. Further investigations are required, and more attention should be drawn to explore the biological activity of hundreds of traditionally used medicinal plants both in vitro and in vivo to assess the claimed activity with the aim of finding potent antidiabetic candidates from the natural resources.

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IN-SILICO AND IN-VITRO INVESTIGATION OF A NATURAL LIGNAN - SESAMOL AS ANTI-ANDROGEN

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Abstract: Sesamol, (SM) is a well-established antioxidant molecule. SM has been shown to possess neuroprotective, hepatoprotective, anti-inflammatory, anti-ageing properties. SM, the plant lignan is generally categorized as phytoestrogens. The in-silico molecular docking studies were performed by using protein from protein data bank. The androgen receptor protein with PDB id 1E3G was used for same. In-vitro cytotoxic potential of SM was carried out on LNCaP androgen positive cells. Western blotting and qPCR to show antiandrogenic potential was performed on LNCaP cells. The in-silico studies were performed by using Schrodinger software. The in-vitro studies on LNCaP cells as IC50 experiment, western blotting assay and qPCR experiment was carried out. The antibodies of PSA and AR was used for blotting and PSA, AR, FKBP5 and TMPRSS2 mRNA was used for the qPCR studies. The drug showed significant decrease in level of PSA in blotting experiment. It also reduced the downstream genes of androgen signalling in qPCR studies. As docking studies claimed SM to be anti-androgen. The SM was found to be effective anti-androgen molecule. SM can be used in as an adjuvant or preventive therapy for the prostatic diseases.
Seborrheic dermatitis as opportunistic disease in immunosuppressive patients

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Abstract: Seborrheic dermatitis (SD) is closely associated with the deterioration of a person’s immune system. Approximately 83% of patients suffering from AIDS, 52-59% of patients suffering from Parkinson disease are more prone to SD. Regardless of wide research, detail understanding and treatment modalities, it still remains to be a cause of concern due to its recurring nature. To evaluate the distribution, pathogenicity & causes of Seborrheic dermatitis in immunosuppressive patients and analyse the effect of immunomodulator drugs in treatment of Seborrheic dermatitis. A systematic review was undertaken to identify the various studies that described causes of SD in immunosuppressive. Research was conducted through interviews of 20 healthcare professionals including expert physicians, dermatologists & gynaecologists to evaluate the correlation and understand the pathogenicity of SD in immunosuppressive patients. The results suggested that nearly 75-80% of patients are diagnosed with SD in patients suffering from immunosuppressive diseases such as leukaemia, hepatitis C, anaemia, AIDS or organ transplant recipients. One of the main finding of this study is that patients who are on immunosuppressive drugs are more susceptible to SD. Further, the research revealed that another probable cause of SD may be a change in lymphocyte function. As immune-suppression is one of the major causes of its recurrence, possible treatment with immuno-modulatory drugs along with antifungal agents may lead to effective and novel treatment approach. The above hypothesis was analysed using the expert opinion. Results of expert opinion suggested the probable role of immunomodulator drugs along with antifungal agents in such patients. The finding from expert opinion have proven that the said approach that targets the host by conditioning or modulating its immune response are proving helpful in complementing deficiencies and minimizing some of the drawbacks of conventional therapy. More has to be done to determine the immunological impact of fungal interactions in humans, which will pave the way for future therapies to modulate the immune system through modified antifungal therapy.

Formulation and validation of antidandruff hair emulsion of Azadirachta indica, Pongamia glabra and Semicarpus anacardium oil

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Abstract: Dandruff is condition of scalp characterized by an increase in rate of shedding of dead epidermal cells without any clinical sign of information. Dandruff is a scaly disease the sebaceous gland surrounds the hair and secretes their oil along with the hair shaft. At times, this oil secretion is mixed with decomposition matter from honey cells is forced to the scalp surface. Thus the dandruff scales are usually a little oily. The objective of the study was to formulate an anti-dandruff emulsion of oil of neem, karanja and semicarpus fruit and to study its antidandruff activity and stability. The formulation of Azadirachta indica, Pongamia glabra and Semicarpus anacardium were formulated by using the dry gum method. The stability study results of the emulsion showed that at the temperature 10°C, 25°C, and 45°C showed no change in appearance of emulsion. In the formulation of Azadirachta indica, Pongamia glabra and Semicarpus anacardium oils using concentration 10%, 10% and 0.05% respectively showed optimum antimicrobial activity. In the present research work, the attempt was made to study antidandruff activity of the Azadirachta indica, Pongamia glabra and Semicarpus anacardium oils in combination and above mention proportion showed optimum antidandruff activity.
The Introduction and Distribution of "Arabic" Medicinal Substances after the Arab Conquest and their Impact on Medieval Mediterranean Medicine and Pharmacology

Zohar Amar

Abstract: For more than one thousand years’ Arab medicine held sway in the ancient world, from the shores of Spain in the West to China and India. This paper addresses one aspect of medieval medicine - the relative significance of the Greek in comparison with the Indian medical heritage on the evolution of Arab medicine and pharmacology. This issue is investigated in our work from the angle of materia medica, which, we maintain, is ultimately a reliable indication of the "specific weight" contributed by either of these medical legacies. Most of these “new” medicinal substances from South East Asia (India, China and the Indian Ocean Islands) were brought by the Arabs to the Mediterranean and Western Europe through the Middle East via various trading routes. Not all of them were new in the domain of the Islamic empire. Some of them were already in use in Mesopotamia in the pre-Islamic period and were widely distributed by the Arabs. Our research aims to assess the significance and the extent of the phenomena of the distribution of the new drugs and spices. It deals mainly with the following issues: reconstruction of a complete list as possible of all the ‘new’ medicinal substances that were distributed by the Arabs (about one hundred); study the contribution and influence of these substances on the theoretical and practical medieval medical legacy, and understand how, and to what extent, these substances merge with the strong medieval demands and fashions regarding spices, drugs, perfumes, ornaments, foodstuffs etc.

In vivo Evaluation of Sedative and Tranquillizing effect of Ethno medicinal Sterculia urens Roxb. Root.

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Abstract: The current fast paced life-style and stressful working conditions have surged in prevalence of psychiatric problems, stress disorders and insomnia. The dominance of sleep and anxiety problems is found to be 30.5% in ladies and 19.2% in men. The disorders are remarkably high in younger people with 15.4% occurrence rate leading to alterations in motor control, hearing loss, headaches, and changes in cognitive ability and autonomic functioning. Extensive literature survey carried suggested the ethnomedicinal use of Sterculia urens roots as a cure for insomnia in Ayurveda in the book titled “Chikitsa Prabhakar” by Prabhakar Balaji Ogele. The aim of this research was to evaluate the role of Sterculia urens Roxb. roots in treatment of insomnia, anxiety and stress. Plant material [Sterculia urens root (SUR)] was collected from the Keshav Srushti Botanical garden and authenticated from Blatter Herbarium, St. Xaviers College, Mumbai. Dried and coarsely powdered SUR was defatted using petroleum ether and extracted using 95% Ethanol. Ethanolic extract was filtered and evaporated to dryness to get dried ethanolic extract (EESU). Phytochemical evaluation of EESU were made using preliminary chemical test and further analysing using HPTLC. The preclinical in-vivo studies were conducted with the approval from the Institutional Animal Ethics Committee. Physiological behaviours as well as neuropharmacological effect of drug extract was evaluated using rota rod, actophotometer, Irwin test and thiopental sodium induced sleep time using wistar albino rats. Sterculia urens Roxb. EESU root extract showed the presence of alkaloids, tannins, and flavonoids. The HPTLC analysis indicated the presence of scopoletain as the major active constituent in ethanolic extract of SUR. The pharmacological evaluation demonstrated that treatment with EESU at 100 and 200mg/kg doses markedly increased the falling latency of the animals from the rotating rod, increased sleeping time and also reduced the motor activity in experimental animals. Sterculia urens showed wide potential of sedative, hypnotic and muscle relaxant properties. The effect has medium onset and duration and is statistically significant at experimental doses of 100 mg/kg and 200 mg/kg body weight. Further studies are required to isolate bioactive compounds and elucidate precise molecular mechanisms in order to establish safe and effective dosage and additionally verify the possible use in prevention and cure of diseases.
In vitro evaluation of antiproliferative activity of *Portulaca quadrifida* L. using HCT-116 cell line

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**Abstract:** *Portulaca quadrifida* L. belongs to the family Portulacaceae (Tamil:Passlaikkirai) is a small diffused, succulent, annual herb found throughout the tropical parts of India. It is used as a vegetable and also used for various curative purposes. It is said to be useful in asthma, cough, urinary discharges, ulcer, inflammation and reduces tumors. To screen the antioxidant and antiproliferative activity of ethanolic extract of *Portulaca quadrifida* on HCT-116 (human colorectal cancer) cell line is investigated by MTT assay. The ethanolic extract of whole plant of *Portulaca quadrifida* was prepared by cold maceration and subjected to phytochemical analysis and screening of in vitro antiproliferative activity on HCT-116 (human colorectal cancer) cell line by MTT assay. The ethanolic extract showed the presence of flavonoids, carbohydrates, phenols, tannins, glycoside and proteins. The MTT assay revealed at the extract exhibited maximum inhibition (52.56%) at the concentration of 300 μg/ml and the inhibitory concentration (IC50) was found to be 269.1μg/ml. The anticancer and antiproliferative potential of *Portulaca quadrifida* may be due to the presence of flavonoids and tannins in the ethanolic extract. The present study concludes that the plant *P. quadrifida* selected for this study is an edible plant used as vegetable found to possess anti-proliferative property against HCT-116 (human colorectal cancer) cell line. The investigation clearly demonstrated the antiproliferative and thereby confirms the traditional claim of *Portulaca quadrifida*. So it can be recommended as as a medicinal agent for the treatment of colorectal cancer.

Comparative phytochemical analysis and antioxidant activity of leaves of *Stereospermum colais* and *Stereospermum suaveolens*

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**Abstract:** *Stereospermum colais* (SC) and *Stereospermum suaveolens* (SS) are known as “Patala” has a sound traditional and rational background in Ayurvedic system of Medicine. The Leaves are reported to have similar uses such as useful in otalgia, odantalgia, rheumatalgia, malarial fever and wounds. The juice of the leaves, mixed with lime juice is used in maniacal cases. Decoction of the leaves is used for treating chronic dyspepsia and also has antipyretic properties. So far no comparative study has been carried out to confirm the similarity between the two species. Hence an attempt was made to compare the phytochemical composition and antioxidant potential of the leaves of both the plants. To compare the phytochemical composition and antioxidant potential of the leaves of *Stereospermum colais* and *Stereospermum suaveolens*. Hydroalcoholic extract of SC and SS were prepared by cold maceration and subjected to phytochemical screening and in vitro antioxidant study. The antioxidant potential was evaluated using 1,1- Diphenyl -2- picrylhydrazyl (DPPH) and nitric oxide radical scavenging methods. The leaves of SC and SS showed the presence of flavonoids, glycosides, phenols, tannins, carbohydrates, proteins and aminoacids. The results revealed that the extracts showed a concentration dependent free radical scavenging activity compared to the standard ascorbic acid in both the methods. The comparative study to reveal the phytochemical composition and antioxidant potential of the two species helps in identification of the species besides suggesting the best species with respect to antioxidant potential.
FORMULATION AND EVALUATION OF HERBAL GEL FOR ANTI-ARTHRITIC ACTIVITY

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Abstract: The haematogenous infectious joint involvement is more often monoarticular rather than polyarticular. The process begins with hyperaemia, synovial swelling and infiltration by polymorphonuclear and mononuclear leucocytes along with development of effusion in the joint space. Herbal medicine provides another approach for treatment of RA and currently a number of medicinal plants are under scientific evaluation to develop a novel drug. Commiphora mukul is a known anti-inflammatory agent used by Ayurveda physicians worldwide. Boswellia serrata have been traditionally used in folk medicine for centuries to treat various chronic inflammatory diseases. The aim of present investigation was to evaluate anti-rheumatic activity of some herbs and to formulate a topical gel dosage form. To carry out extraction of selected herbs such as Commiphora mukul, Boswellia serrata. To evaluate anti-rheumatic activity of the herbal extracts. To formulate and evaluate suitable stable gel dosage form of the herbal extract. Simple Gel Formulation Method. Results of crude drug analysis, Preliminary phytochemical screening of petroleum ether extract, Pre-formulation studies, Thin layer chromatographic study of extract, Formulation development, Evaluation of gel and Stability study. In the present work, the attempt was made to formulate and evaluate a gel for anti-arthritis activity, using extracts of Boswellia serrata and Commiphora mukul. The results showed that the content of Gel components had significant effect on their physical, rheological and in vitro drug release characteristics.

Invitro Phytopharmacological activities of Punica granatum root(s)

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Abstract: Punica granatum (PG) root(s) commonly known as pomegranate is a member of the monogeneric family, Punicaceae. Its phytocompounds possess numerous biological properties including anti-inflammatory, anti-cancer & anti-microbial activities. To investigate the anti-inflammatory, anti-oxidant & anti-bacterial activity of hydroalcoholic extract of Punica granatum root(s). Phytocompounds present in the extract was analyzed and identified by HPTLC & GC-MS chromatographic techniques. The extract was evaluated for anti-oxidant activity by Hydrogen peroxide and DPPH free radicals scavenging method. Invitro cell viability screening of PG root(s) was done in L6 cell lines & invitro anti-inflammatory activity by LPS induced inflammation in RAW 264.7 cell lines using MTT colorimetric assay method. Anti-microbial activity was carried out by cup plate & disc diffusion method. HPTLC analysis revealed the presence of Quercetin and GC-MS showed the presence of ethane-1,1,1-triethoxy-o-acetic acid, 1,1,3-triethoxybutane etc., The PG root(s) significantly reduced the LPS induced inflammation in RAW 264.7 cell lines and increase the cell viability in L6 cell lines. The amount of free radicals decreased was done by DPPH and Hydrogen peroxide method. The extract exhibited anti-microbial property against both gram positive and gram-negative organisms. The hydroalcoholic extract was found to be selectively contains anti-inflammatory, anti-oxidant and anti-bacterial activity.
Chemical profiling and nutraceutical potential of aromatic rice (Joha) effective against metabolic disorder

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Abstract: Joha is the indigenous aromatic rice grain from North-Eastern region (NER) of India. It is one among the 40000 varieties of Oryza sativa, prevalent for its great aroma and/or equally noteworthy taste, have a premium value in national as well as in international market. The current study was planned to investigate the chemical composition of scented (Joha) rice grain indigenous to NER and their effects on the key regulator enzymes involved in the glucose metabolism and also the effect on glucose utilization in skeletal tissue. Bioactivity guided fractionation and isolation was performed in silica gel gradient column. HPLC-MS and MS/MS analyses of the isolated compounds were performed for the characterization and quantification. The column purified fractions were screened for α-glucosidase enzyme inhibition activity and 2-NBDG uptake method was used to study the effect of active column fraction/metabolites on L6 myotubes. Joha rice extract and metabolites significantly inhibits the α-glucosidase enzyme and improves peripheral glucose utilization in L6 myotubes significantly in a dose dependent manner when compared with the standard drug. Activity guided isolation yields two compound confirmed by HR-MS and MS/MS spectral data as linoleic (C-18, ω-6 fatty acid) and linolenic (C-18, ω-3 fatty acid) acid. From the results it can be concluded that, the scented rice (Joha) has a significant antioxidant, enzyme inhibitory capacity and improves peripheral glucose utilization. Distinctive quantity of bioactive metabolites present in Joha rice which is essential to human health. Hence, Joha rice can be used as a nutraceutical for the management of metabolic disorder.

Supercritical Fluid Technology as an Emerging Technique in Herbal Research

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Abstract: Supercritical fluid (SCF) technology is widely used in pharmaceutical field for extraction from naturals, particle formation, synthesis, analysis and in novel drug delivery systems. The aim of this review is to introduce and understand the importance of supercritical fluid technology in herbal research. The benefits and limitations of supercritical fluid technology based techniques for the extractions are focused under this review. SCF have gained the importance in the recent past. Many studies have utilized this technique for several purposes. Extraction from naturals is the major among all. This technique requires relatively short processing times, produce extracts with little or no organic solvents and are able to extract active constituents without minimising degradation of compounds. Supercritical fluid extraction (SFE) provides a range of benefits as well as offering routes to overcome some of the limitations that exist with the conventional methods of extraction. SCF technology utilizes supercritical fluids in which the substances to be processed in the supercritical state, where the solvent property of SCF at their specific temperature and pressure is above their critical point, forming a homogenous phase with liquid like property for the extraction of natural products and solubilization of therapeutic constituents and gas like property with low viscosity and high diffusivity that facilitate the mass transfer process. SCF technology is considered to be highly effective and beneficial technique for extraction from naturals.
Amelioration of temozolomide-induced cognitive impairment in glioma rats by catechin

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Abstract: Temozolomide (TMZ) is a standard chemotherapy drug used for the treatment of glioblastoma multiforme. Similar to the other chemotherapy regimens the long term side effect is listed as cognitive impairment. Present study was designed to evaluate the protective effect of catechin against TMZ-induced cognitive impairment in male Wistar rats with C6 glioblastoma. Glioma was induced in the cortex of male Wistar rats by intracerebral injection of 50000 C6 glioma cells. TMZ (18mg/kg i.v once in 5 days over 32 days) was administered to treat glioma and to induce the cognitive impairment. Catechin was given 100 mg/kg p.o. daily. The cognitive function was assessed for episodic memory by Novel object recognition (NORT) test and spatial memory by Morris water maze (MWM) test were assessed. A part of the hippocampus and frontal cortex was subjected to glutathione estimation and remaining for the assessment of neuronal integrity by histopathology. Induction of glioma was confirmed by histological evaluation of cortex. MWM test showed a significant decrease (p<0.05) in path efficiency and escape latency while NORT showed a significant (p<0.05) decrease in recognition and discriminative index in C6 injected control animals as compared to normal control. TMZ treatment further worsened them as compared to C6 control. These changes were correlated with histopathological features. The elevation of glutathione levels in the brain was observed after TMZ treatment, which is considered to be a reason for its resistance in glioma. However, the treatment with Catechin significantly reversed the changes in GSH levels and restored the memory component significantly compared to TMZ treatment. The result confirmed the role of TMZ in worsening the memory component in glioma induced rats and catechin in reversing it.

Experimental Studies on methanolic extract of Ficus racemosa in high fat-high fructose diet induced non-alcoholic fatty liver disease

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Abstract: Non-alcoholic fatty liver disease (NAFLD), is most common liver disease now a days. It is asymptomatic at presentation and is frequently identified among individuals with metabolic syndrome but no specific treatment has been developed for it. Many secondary plant metabolites have been shown to possess antioxidant, antidiabetic and hepatoprotective activities which can be effective for the treatment of NAFLD. The present study was aimed to investigate the role of Ficus racemosa (methanolic fraction - FRM) on high fat-high fructose diet induced Non-alcoholic fatty liver disease in male Wistar rats. Model was developed using high fat-high fructose based diet (HFFD) over a period of 10 weeks. In treatment groups, Different doses of FRM (100mg/kg, 200mg/kg and 400mg/kg respectively) and standard atorvastatin (20mg/kg) was administered for 6 weeks after initiation of HFFD and continued for another 4 weeks. Liver, lipid and antioxidant parameters tests were carried out to detect effectiveness of FRM in fatty liver, which was supported with histopathological analysis. 100mg/kg FRM treated rats did not showed any significant changes in biochemical parameters compared to HFFD fed group while 200mg/kg and 400mg/kg treated rats showed significant reduction (p<0.01) in elevated levels of body weight, liver coefficient, alkaline phosphate, aspartate phosphate, serum uric acid, triglyceride and total and low density lipoprotein cholesterol in dose dependent manner compared with atorvastatin treated group. FRM treated rats also showed improvement in serum HDL and liver damage compared to HFFD fed group. Administration of FRM in NAFLD is effective and beneficial may be due to the presence of different polyphenolic compounds in the extract.
Formulation and validation of antidandruff hair emulsion of *Azadiracta indica*, *Pongamia glabra* and *Semicarpus anacardium* oil

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**Abstract:** Dandruff is condition of scalp characterized by an increase in rate of shedding of dead epidermal cells without any clinical sign of information. Dandruff is a scaly disease the sebaceous gland surrounds the hair and secretes their oil along with the hair shaft. At times, this oil secretion is mixed with decomposition matter from honey cells is forced to the scalp surface Thus the dandruff scales are usually a little oily. The objective of the study was to formulate an anti-dandruff emulsion of oil of neem, karanja and semicarpus fruit and to study its antidandruff activity and stability. The formulation of Azadarichita indica, Pongamia glabra and Semicarpus anacardium were formulated by using the dry gum method. The stability study results of the emulsion showed that at the temperature100C, 250C, and 450C showed no change in a appearance of emulsion. In the formulation of Azadiracta indica, Pongamia glabra and Semicarpus anacardium oils using concentration 10%, 10% and 0.05% respectively showed optimum antimicrobial activity. In the present research work, the attempt was made to study antidandruff activity of the *Azadiracta indica, Pongamia glabra* and *Semicarpus anacardium* oils in combination and above mention proportion showed optimum antidandruff activity.

Anticancer effect of alcoholic leaf extract of *Annona reticulata* on 1,2-Dimethylhydrazine induced colon cancer in wistar rats

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**Abstract:** World-wide the herbal medicine is one of the most important aspects in the field of traditional medicine. *Annona reticulata* is one of the traditionally important plant and it belonging to *Annonaceae* family. It used for the treatment of various ailments such as anti-inflammatory, antimicrobial, antipyretic, wound healing and cytotoxic effects. Present study has been conducted in attempts to focus on anticancer aspects of A.reticulata against colorectal cancer. This study was conducted to find out the screening of cytotoxicity by MTT 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium assay and find out anticancer activity of A.reticulata in colon cancer. After obtained ethical approval from institutional animal ethics committee this study was conducted in department of biochemistry KMC-Manipal. Leaf extract was done using Soxhlet apparatus. Cancer was induced in female wistar rats using 1,2 Dimethylhydrazine (DMH). Screening of anticancer activity of leaf of *Annona reticulata* was performed by MTT assay and aberrant crypt foci (ACF), histopathology, hematology and antioxidant assays were estimated. According to the OECD guidelines the safe dose of leaf extract was found to be 98.11mg/kg. and do not have any lethality or serious visible toxicity. A significant (P≤0.05) decrease in ACF count in treatment group compare to DMH control group. In hematological parameters significant (P≤0.05) difference was observed in hemoglobin, platelets and red blood cells. There was a decrease in inflammation and colon structure was observed to be normal in treated groups compare to DMH control group. In antioxidant parameters there were significant (P≤0.05) alterations in levels of SOD and MDA compare to DMH control group. Alcoholic leaf extract of *Annona reticulata* has anticancer activity & prevent the development of colorectal carcinoma and dysplasia formed due to DMH.
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New flavonoid conjugates from adventitious root cultures of wild ginseng and their anti-inflammatory activity

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Abstract: The wild ginseng (Panax ginseng), also called mountain ginseng in Korea, has been reported to have enhanced biological activities. However, short supply and consequent high price of wild ginseng has limited its usage despite of beneficial biological activities. Sufficient production of wild ginseng is required for the development as products. Plant cell cultures have been exploited to provide stable production and new secondary metabolites for better pharmacological activity. Wild ginseng adventitious root cultures were prepared by elicitation using methyl jasmonate and investigated further to find new secondary metabolites. Chromatographic fractionation of wild ginseng adventitious root cultures was used for the isolation of compounds. The structures of isolated compounds were determined by extensive spectroscopic analysis.

The anti-inflammatory activity was evaluated using lipopolysaccharide-stimulated RAW 264.7 macrophages. Chromatographic fractionation led to the isolation of eleven compounds from wild ginseng adventitious root cultures. The chemical structures of isolated compounds were identified as four known flavanone derivatives (1-4), one new curcubinoyl derivative, jasmogin A (5) and six new curcubinoyl-flavanone conjugates, jasmoflagins A-F (6-11). Newly isolated curcubinoyl derivatives showed weak inhibitory activity against lipopolysaccharide-stimulated nitric oxide production in RAW 264.7 macrophages. Taken together, plant cell cultures are useful not only for efficient production of active compounds but also development of new secondary metabolites.

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ISOLATION AND EVALUATION OF TRITERPENOID FROM SHOREA ROBUSTA RESIN AND VALIDATION OF IT’S ANTIPROLIFERATIVE ACTIVITY

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Abstract: Herbal medicines include herbs, herbal material, herbal preparation and finished herbal product contain as active ingredient, part of plant or other material. In the present work, attempt was made to study the antimitotic and antiproliferative activity of extract and isolated compound of shorea robusta resin. From the results, it is clearly proved that extract and isolated compounds of resin of shorea robusta showed promising antimitotic and antiproliferative activity. Preliminary phytochemical screening showed that the isolated compounds were triterpenoids in nature, which was responsible for antiproliferative activity. The antiproliferative activity of extract and isolated compounds A and B was carried out on onion cell line and yeast cell line model. The result of antiproliferative activity showed better activity compared to methotrexate, which was used as standard. So in future, attempt will be made to screen on human cell line models and performing human trials for these isolated triterpenoids for antiproliferative activity. The aim of present investigation was to isolation and evaluation of triterpenoid from shorea robusta resin and validation of it’s antiproliferative activity. The triterpenoids shows anti-proliferative activity and shorea robusta resin is found to contain different triterpenoids. Hence the objective of proposed work is: To isolate the triterpenoids from shorea robusta resin and validation of its anti-proliferative activity. Isolation of compound. Method for determination of in-vitro antioxidant activity. Preliminary phytochemical screening. Thin layer chromatography. Isolation of compound. Quantitative estimation of total phenolic contents. Method for determination of in-vitro antioxidant activity. In the present work, attempt was made to study the antimitotic and antiproliferative activity of extract and isolated compounds of shorea robusta resin. The antiproliferative activity of extract and isolated compound A and B was carried out by onion cell line and yeast cell line model. The results of antiproliferative activity showed better activity compound to methotrexate, which was used as standard.
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Evaluation of in vitro antidiabetic, antioxidant activities and phytochemical analysis of leaf extract of wild musk melon (Cucumis melo var agrestis)

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Abstract: Diabetes is a group of metabolic diseases characterized by high levels of blood sugar (hyperglycemia). Antioxidants acts in different stages, stopping the formation of reactive oxygen species or scavenge the free radicals or increase the antioxidants protection enzyme abilities. The present study is aimed to that evaluation of phytochemical analysis, in vitro antioxidant and antidiabetic activities of leaf extract of Cucumis melo var agrestis (CMA). Qualitative phytochemical tests were performed using chemical tests, total phenolic content and total flavonoid contents were quantified by standard curve of Gallic acid and Quercetin. The antioxidant activities were evaluated by DPPH assay, ABTS assay, FRAP assay and Phosphomolydnum assay. Antidiabetic activity was evaluated by hemoglobin glycosylation. Inhibition assay, Alpha amylase inhibition assay, alpha glucosidase inhibitory assay, Glucose uptake in yeast cells, Glucose diffusion assay and glucose adsorption capacity. Our results revealed that hydroalcoholic leaf extract of CMA (HALEC) have the phytochemicals like alkaloids, flavonoids, tannins, carbohydrates, saponins, glycosides, proteins and amino acids; HALEC has potent antioxidant potential and it was compared with the standard quercetin and ascorbic acid and HALEC has potent antidiabetic activities it was compared with standard acarbose and metformin. From the results of this research the HALEC has the potent antioxidant potential and antidiabetic activity.

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Bioactivity-Guided Isolation of Antihyperlipidemic Terpene from Viburnum cotinifolium D.Don

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Abstract: Hyperlipidemia is a metabolic condition that determines the onset of chronic degenerative diseases such as atherosclerosis. Currently available hypolipidemic drugs have been associated with a number of side effects and there is always a need for developing novel drugs with higher efficacy and fewer side effects. Herbal drugs are well known for their cost effectiveness and minimal side effect profile, and there is always a need for developing novel drugs with higher efficacy and fewer side effects. Viburnum cotinifolium. D.don is one such plant with known traditional claim in the treatment of hyperlipidemia. The focus of the current study was to evaluate the antihyperlipidemic effect and isolation of active phytoconstituents from methanol extract of Viburnum cotinifolium. Hyperlipidemia was induced in male albino rats by high cholesterol diet. Methanol stem extract of Viburnum cotinifolium (200 and 400 mg/kg/bw) was administered as test drug. Atorvastatin (10 mg/kg/bw) as the standard. Serum lipid profile, Enzyme analysis and Cardiac risk factors were estimated. The results revealed that methanol extract of Viburnum Cotinifolium (200 and 400 mg/kg/bw) showed significant decrease in total cholesterol (64.66; 61.5 mg/dl), triglycerides (92.66; 92.33 mg/dl), LDL (17;16 mg/dl), VLDL (23.26; 18.5 mg/dl), SGOT (216.83; 163.833), SGPT (78.83; 59.5), total bilirubin (0.633; 0.366 mg/dl) and significant increase in HDL (26; 26.33 mg/dl) as compared to standard Atorvastatin. The isolation of terpene from methanol extract of Viburnum Cotinifolium. D.don leads to isolation new compound olean-11-en-3β-ol-3-O-hexadec-5β-en-1β-oate which has been reported first time from Viburnum Cotinifolium. D.don which was characterised by using different spectroscopic techniques. Viburnum Cotinifolium. D.don has a hypolipidemic potential and its effectiveness is comparable to that of standard atorvastatin. Further hypolipidemic effect need to be confirmed on -11-en-3β-ol-3-O-hexadec-5β-en-1β-oate by using in-vivo/ in-vitro models for its effective utilization as therapeutic agent for the management of hyperlipidemia.
**PROTECTIVE ROLE OF HINOKITIOL AGAINST AZATHIOPRINE INDUCED OXIDATIVE STRESS**

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**Abstract:** Hinokitiol (β-thujaplicin) is a natural monoterpenoid found in the wood of *Juniperus communis* trees belongs to the family Cupressaceae. It has a role as an antifungal, antibacterial, antiplasmodial and antineoplastic agent. The main objective of the study is to evaluate the marker stabilization and antioxidant defense mechanism. The primary culture of rat hepatocytes and treatment with Hinokitiol Azathioprine and subjected to Assay of Marker Enzymes and Antioxidant status. Assessment of liver function can be made by estimating the activities of clinical marker enzymes such as AST, ALT and LDH. It has been reported that these enzymes are released from the liver into the blood stream when the liver cell membrane is damaged. The treatment of Hinokitiol showed a significant (P < 0.05) decrease in AST, ALT and LDH levels in a dose dependent manner and the cytoprotective effect was observed at the concentration of 100 μg/ml. Azathioprine is an immunosuppressant drug that is used to suppress the immune system. But in a higher dose, azathioprine cause toxicity in the liver hepatocytes. Hinokitiol (β-thujaplicin) is a natural monoterpenoid. The tendency of Hinokitiol to suppress the enzyme levels is a clear manifestation of its antihepatotoxic effect in a concentration dependent manner. Thus, Hinokitiol has hepatoprotective activity of natural substances is often associated with their capability of suppressing the effects of oxidative damage.

**Hepatoprotective activity of Ehretia microphylla extract and characterization of its phytoconstituents**

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**Abstract:** Natural antioxidants and anti-inflammatory agents have the ability to restore normal balance to destructed liver cells. *Ehretia microphylla* (EM) have been used to cure hepatitis by folk medicinal practitioners in the Wayanad hills of Western Ghats of India. The present study was undertaken to evaluate the antioxidant and hepatoprotective activities of various extracts (Petroleum ether, Chloroform, Ethyl acetate and Methanol) of plant using in vitro and in vivo models. The total phenolic and total flavanoid contents of extracts were determined by standard methods. HPTLC method was used for identification of antioxidant biomarkers. In vitro antioxidant effect of extracts was ascertained by the ability of selected extracts to scavenge DPPH and ABTS using standard protocols. In vivo antioxidant and hepatoprotective potential of extracts different doses 100 mg/kg; 200 mg/kg for EM was studied by paracetamol induced hepatotoxicity in Wistar albino rats. The isolation of phytochemical was done by column method and isolated compounds were characterized using MASS, NMR, UV and IR spectroscopic methods. Plant extracts was effective in normalizing the serum levels of hepatic enzymes SGOT, SGPT, ALP, TP and billurubin in paracetamol intoxicated rats. The extracts significantly enhanced the levels of hepatic antioxidant enzymes SOD, CAT, GPx, glutathione and reduced the TBARS level in paracetamol intoxicated rat liver. Histopathological studies of experimental animal liver tissues also confirmed the hepatoprotection exerted by plant extracts. The observations of this study concluded that selected extracts possess significant in vitro and in vivo antioxidant and hepatoprotective effects. 11-Oxo Amyrin a novel Triterpenoid was isolated from Chloroform extract of Ehretia microphylla along with Bauerenol and β – Sitosterol. From the results of current research, we concluded that plant extract of *Ehretia microphylla* promote the antioxidant and hepatoprotective defense system.
Cytotoxic and IL-6 inhibitory activities of purified fractions of herbal extracts in HL-60 Cells and in BAL Fluids of OVA sensitized albino rats


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Abstract: Medicinal Plants have been the major source of drugs in traditional as well as in modern system of medicine throughout the world. Now-a-days, about 80% of the world populations residing in 3rd world countries including India also still rely almost entirely on plant products for its primary health care needs. The remaining 20% of individuals living in the 1st world use more than 25% of the herbal drugs which have been derived directly from plant products. Generally, plants extracts are prepared and screened to detect various secondary metabolites in its purified fractions. Therefore, in the present study, various fractions from the selected plants extracts were obtained to observe its Cytotoxic and Interleukin-6 inhibitory activity against HL-60 Cells and BAL fluids of OVA sensitized albino rats. These are following in the present study: To isolate the extract from the plants and their parts by Soxhletion and Cold percolation. To purify the extract by applying TLC and Column chromatography to obtain its purified fraction. To see the effect of fractions in-vitro and in-vivo for its anti-asthmatic and anti-inflammatory potential. In the present study, plants were selected on the basis of folklore information and traditional uses for anti-asthmatic and anti-inflammatory potential. These plants and its useful part were collected from surrounding areas during survey after identification and authentication from BSI, Allahabad, UP, India. Shade dried plant materials were pulverized to powder and after weighing were subjected for Soxhletion and Cold percolation by using various solvents in increasing order of polarity to get various extracts and its purified fraction by applying preliminary phytochemical screening, thin layer and column chromatography techniques. For in-vitro study, MTT assay test was performed at APT Research Foundation Laboratory, Pune. HL-60 cells (SP-03/ATC-03/16-17) were procured from Cell Repository, National Centre for Cell Sciences, Pune and were cultured in RPMI1640 medium with antibiotics and 10% FBS and after getting the adequate number of cell lines. For in-vivo study, Wistar albino rats were procured from Govt. Veterinary College, Mhow, Indore (M.P.) which were kept in to the Animal House of Barkatullah University after approval of protocol from IAEC of Barkatullah University affiliated to CPCSEA, New Delhi for Histopathology and BAL fluid study for Interleukin (IL)-6 which was estimated by using “Raybio® Rat-TNFα-ELISA kit” with its protocol. The findings of the present study are as under: The percentage yields of extracts of Curculigo orchioides, Phyllanthus fraternus, Ocimum basilicum, and Clitorea ternatea were reported 11.90%, 3.0%, 7.74% and 15.02% in methanol, respectively and thin layer and column chromatography was performed for getting purified fractions of the extracts. Maximum Cytotoxic activity 40.10% was reported in methanolic extract’s purified fraction of Phyllanthus fraternus whole plant material. Maximum Inter-leukin-6 inhibitory activity with 2.22 pg/ml inhibitory concentration was reported in Ocimum basilicum 100mg/kg body weight of albino rats. From the results, it can be concluded that the purified fractions of the above mentioned plants extracts possess HL-60 cells and IL-6 inhibitory activities.
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Preliminary phytochemical investigations and standardization of North-East India’s traditionally acclaimed plant *Enhydrafluctuans* Lour.

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Abstract: *Enhydrafluctuans* Lour. (Asteraceae) is a marshy herb belonging to North-East India and consumed as vegetable. It has nutritional importance due to presence of various active phytoconstituents in it. There are several traditional claims for the treatment of variety of disorders including gastro-intestinal disorders. However, scientifically it has been reported to possess anti-inflammatory, cytotoxic, hepatoprotective, antiulcer and anthelmintic activities which are attributed to presence of phytoconstituents. The aim of present study was preliminary investigations of primary and secondary metabolites along with the standardization of active phytoconstituents of *Enhydrafluctuans* Lour. Standardization includes determination of gallic acid equivalent total phenolic content (TPC), rutin equivalent total flavonoid content (TFC), glucose equivalent total carbohydrate content (TCC) and Total flavonol content. The antioxidant activity was also performed using 2,2-diphenyl-1-picrylhydrazyl (DPPH) and hydrogen peroxide assay with ascorbic acid as a standard. The plant showed IC50 values of 328.46µg/ml and 417.51µg/ml respectively. The gallic acid equivalent (GAE) total phenolic content, rutin equivalent (RuE) total flavonoid content, glucose equivalent (GluE) total carbohydrate content and quercetine equivalent (QE) total flavonol content were found to be 60.17 ± 0.636 mg/g, 28.58 ± 0.133 mg/g, 31.5 ± 0.577 mg/g and 18.73 ± 0.066 mg/g. in *Enhydrafluctuans* Lour.

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FORMULATION AND EVALUATION OF ANTIMICROBIAL ACTIVITY OF HERBAL MOUTHWASH

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ABSTRACT: Mouthwash is a liquid accessory to clean and maintain the health of our teeth for oral hygiene. Nowadays, we use commercial mouthwash which contains many chemical compounds like sodium lauryl sulfate, thymol, methyl salicylate, benzalkonium chloride, hydrogen peroxide, alcohol which are harmful to our buccal cavity. That’s why herbal Mouthwashes are in high demand, because they act on oral pathogens and relieve the pain instantly and are also less side effective. To formulate and evaluate herbal mouthwash from Pomegranate, Guava, Liquorice, and Durva. A Methodology includes collection and authentication of plants namely *Punica granatum* Linn (Pomegranate), *Psidium guajava* (Guava), *Glycerrhiza glabra* L (Liquorice) and Cynodon dactylon L (Durva). For the preliminary phytochemical screening obtained crude drugs were gone through extraction by maceration process. After that formulation was done by sonication process than evaluation of antimicrobial activity was done by cup-plate agar well diffusion method i.e. zone inhibition acts against the oral pathogens— *Staphylococcus aureus*, *Psedomonas aeruginosa*, *Escherichiacoli*, etc. The results were compared with the marketed herbal formulation and standardize Chlorhexidine. The formulated herbal mouthwash F1 and F2 were evaluated using standard method of general characterization i.e.color, odour, pH, specific gravity and density. The results of stability studies indicate that the formulation is stable at room temperature over a period of three months. The formulated herbal mouthwash showed the antimicrobial activity greater than each individual extract tested. Hence from this study it was concluded that instead of using individual extract, mixture is more effective with their synergistic action. The formulation can also be routinely used for improving oral hygiene of healthy children and adults as well as in patients with dental caries and gingivitis.
SCIENTIFIC ABSTRACTS

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HERBAL HAIR FORMULATION: A SOLUTION FOR GRAY HAIRS

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Abstract: Hair plays a vital role in making your younger or old and also plays an important role in the personality in humen. The increase in environmental and health hazards in the manufacture of dyes and its use throughout world is a major concern. Loss of colours in hair is due to various reasons like genetic influences, effect of environmental factors, use of alcoholic preparations etc. Through the permanent synthetic hairs dyes are available in different ranges and retain natural luster, they have the chief disadvantages of producing hypertensive reaction in some individuals. This work was made possible while alternative to the synthetic and semisynthetic dyes. We have formulated a herbal hair dye a solution for gray hairs using Henna, Curry leaves, Amla, methi seeds, Zendu with perporated claims of better growth of hairs and diminution in loss of hairs, colouring and shining hairs. Different plant material was extracted and it was confirmed that hair treated with our formulatio

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PHYTOCHEMICAL AND PRECLINICAL EVALUATION OF DOLICHANDRONE FALCATA TRADITIONALLY USED IN TREATMENT OF HAEMORROIDS (PILES)

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Background: Dolichandrone Falcata (Bignoniaceae) is a marshy herb belonging to Marathwada and Vidarbha region, Maharashtra. Traditionally it has been claimed to treat various diseases, scientifically it is reported to have anti-allergic, anti-inflammatory, anti-cancer, antiestrogenic, anxiolytic, antidiabetic and abortifacient activity. Traditional healers of Vidarbha are using it for management of piles. Our focus is to evaluate the potential of Dolichandrone falcata in the treatment of piles, which will scientifically validate the traditional claims of local health practitioners. The Main Objectives of present study is based on the preliminary phytochemical investigation of primary and secondary metabolites and standardization of the active phytoconstituents of extract with respect to the standards. The collected leaves of the plants (250 g) were shade dried, coarsely powdered and successively extracted with ethanol (1.5 L) using Maceration method. The yield of the extract was 7.7% w/w. Quantitative estimation, chromatographic estimation like TLC and HPLC are performed. Standardization of ethanol extract of D. falcata includes determination of gallic acid equivalent as total phenolic content (TPC), Quercetin equivalent as total flavonoid content (TFC), Dextrose equivalent as total carbohydrate content (TCC), Tannic acid equivalent as total Tannin content. The gallic acid equivalent (GAE) total phenolic content was found to be 37.98 mg/g, Quercetin equivalent (QE) total flavonoid content was found to be 8.33 mg/g and dextrose equivalent (DeE) total carbohydrate content was found to be 86.26 mg/g. In present research work, attempts were made for standardizing the leaves of Dolichandrone falcata using present preliminary phytochemical screening and quantitative estimation of phytoconstituents.
PHYTOCHEMICAL AND PRECLINICAL EVALUATION OF CLERODENDRUM INFORTUNATUM LEAVES EXTRACT FOR ITS BONE FRACTURE HEALING PROPERTY

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Abstract: Although there is enormous progress in modern medical system, about 80% of the world population still depends on traditional systems of medicine for primary health care, which is true in Indian scenario. Bone is a connective tissue that provides for internal support in higher vertebrates, and its fracture is a medical condition in which there is a break in the continuity of the bone. Bone fracture is one of the more common injuries, and is associated with treatment costs exceeding billions of dollars, societal productivity loss, and individual disability. Present investigation was designed to scientifically explore and validate such medicinal plants from Vidarbha region i.e. Clerodendrum infortunatum which have been traditionally used for bone fracture healing properties by the traditional healers of this area. This study is to investigate, standardize and explore pharmacological potential of Clerodendrum infortunatum leaves extract for its bone fracture healing property, along with biochemical estimations and histopathological studies. The Extraction was done in the ethanol, the chromatographic tech like HPLC, HPTLC, was performed, to prepare gel of Clerodendrum infortunatum and Bone fracture animal model was used to determine the bone healing property. The Plant Clerodendrum infortunatum is the potential of bone healing activity. In present research work, attempts were made for standardizing the leaves of Clerodendrum infortunatum along with evaluation of its preclinical potential for bone fracture healing properties.

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Ethnic Medicines and Ethnic Practices in Pharmacy Practice

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Abstract: The Allopathic medicines in are the forefront of therapies due to patronage it enjoys being scientific and quick in action. Despite being heading the therapeutic, has its own drawbacks in terms of ADR and side effects. On contrary the Natural medicines like Ayurveda, Unani, Siddha and Herbal medicines are getting popular due to the fact that basic medicines are natural products and are not synthetic. They are not very infamous unlike allopathic medicines. They are not known to cause serious ADR as most of them are made up of natural products. The Natural drugs are also used as food items to make food palatable, preserving food and flavor. Hence it is well said as kitchen medicines or grandmother quick remedies. The kitchen medicines are true alternatives to over the counter medicines, but in some cases known to work alternatives to prescription medicines. For example Garlic for management of Hypertension, Ginger for Ondenserton, Turmeric for antibacterial, antioxidant and many more medicines with application. There is a need to validate scientifically and prove its worth scientifically. They also need to be evaluated in terms of economic and quality of life. Unfortunately well-established Allopathic medicine system does not accept and adopt this system of medicine. They believe in synthetic medicine is the only scientific approach to cure all ailments and herbal and traditional medicine are fake medicines. There is need to establish credibility of ethnic medicine in terms of ECHO model.
ROLE OF MEDICINAL PLANTS IN TREATMENT OF THE PSORIASIS

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Abstract: Psoriasis is a chronic skin inflammatory condition caused due to overactive immune response resulting in rapid cell growth and formation of thick, white or silvery plaques and red patches. Nowadays psoriasis is one of the commonly observed skin diseases. It affects mental, physical and also social health of the patient. Modern medicines which are used for treating this condition might cause adverse effects like skin irritation, dry skin, etc. due to its use for longer duration and also may result in the relapse of the disease. The aim of this article is to discuss the role of medicinal plants like Aloe vera, Curcuma longa, Wrightia tinctoria, Nigella sativa, Ulmus rubra, Silybum marianum, Angelica sinensis, etc. in treating the psoriasis and their advantages over the allopathic medicines.

CURCUMIN liposomes as CURE-cumin in Cancer

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Abstract: Curcumin ( diferuloylmethane) is a yellow polyphenolic compound derived from the turmeric (Curcuma longa). The hydroxyl groups of the benzene rings, the double bonds in the alkene section, and the diketone moiety have been said to play crucial role in the beneficial activities of curcumin. It is widely used to treat many types of diseases, including cancers such as those of lung, cervixes, prostate, breast, bone and liver. However, its effectiveness has been limited due to poor aqueous solubility (11 ng/ml), low bioavailability and rapid metabolism and systemic elimination. Curcumin bioavailability is dependent on its hydrolytic instability and low aqueous solubility at physiological pH. To solve these problems, researchers have explored novel drug delivery systems such as liposomes, Niosomes, Proniosomes, solid dispersion, microemulsion, and dendrimers. Among these, liposomes are extensively studied. Liposomes have been reported as an important tool that improved pharmacokinetic properties and greater growth inhibitory and pro-apoptotic effects on cancer cells. This presentation mainly focuses on the application of liposomes containing curcumin in cancer therapy.

USE OF NUTRACEUTICALS IN TREATING ALOPECIA

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Abstract: Alopecia is a condition of sudden hair loss that starts with one or more circular bald patches leading to partial or complete absence of hair from areas of the body where it normally grows. The known cause for this condition is the abnormality in the immune system resulting in autoimmunity, where the immune system tends to attack its own hair follicles. Currently the treatment option for alopecia is limited and there is no specific therapy available which provides complete cure from the disease. Nutraceuticals in broad are food or part of food that play a prominent role in modifying and maintaining the normal physiological functions of the healthy human beings. Some natural home remedies and herbs are used in different formulations which provide the cure with very minimal side effects. In this article, we discuss and understand the use of nutraceuticals in the treatment of alopecia. The previous literature shows that the role of nutraceuticals is crucial in treating alopecia. Onion juice, rosemary oil, garlic gel, procyanidin, pumpkin seed oil, are few of the examples under this category.
Herbal Medicines in Cancer Treatment: Novel Approaches and its pros and cons.

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ABSTRACT: Herbal medicines are an emerging sector in the field of pharmaceuticals. Ethnic, spiritual and traditional values of the natural products have made maximum population believe in herbal treatment like Ayurveda. Plants are being used for various disease conditions most commonly fever, allergies and minor wounds. Plant derived phytoconstituents have proved to be promising anticancer agents. Phytoconstituents have very good water solubility, but the limitation of larger size has led to problem in penetrating the lipoidal membrane. Absorption and stability of these phytoconstituents are the parameters which need to be addressed. Hence, Novel Approaches like liposomes, phytosomes, ethosomes, transfersomes, microspheres, microemulsions and solid-lipid nanoparticle, are undertaken to increase the rate of absorption without altering its stability and thus achieving greater bioavailability and cell targeting. The poster presents some of these novel approaches, their mechanism of drug release, its effect in tumour cells and the advantages and disadvantages of each of these novel approaches.

Phytochemical standardization of traditionally acclaimed plant *Amaranthus spinosus*

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Abstract: *Amaranthus spinosus* (Amaranthaceae) is native to tropical regions and is consumed as part of diet. Traditionally it is highly acclaimed for its nutritional and medicinal properties. In traditional systems of medicine its uses have been reported for treatment of variety of diseases and disorders like febrifuge, antipyretic, laxative and diuretic, antioxidant, antiulcer activity. The above activities are due to presence of flavonoids, phenols and carbohydrates along with the other phytoconstituents in *Amaranthus spinosus*. The aim of present study was to standardize *Amaranthus spinosus* with reference to its phytochemicals specifically responsible for bioactivities such as total phenolic content (TPC) with gallic acid, total flavonoid content (TFC) with rutin, total carbohydrate content (TCC) with glucose and Total flavonol content with quercetine of plant extract. RP-HPLC analysis of rutin in plant extract was performed with the mobile phase methanol: water (1:1). The gallic acid equivalent (GAE) total phenolic content was found to be 51.90 ± 1.099 mg/g, the rutin equivalent (RuE) total flavonoid content was found to be 21.8 ± 0.133 mg/g, the glucose equivalent (GluE) total carbohydrate content was found to be 56 ± 0.28 mg/g and quercetin equivalent (QE) total flavonol content was found to be 34.23 ± 0.003 mg/g. The retention time of rutin standard and extract was found to be 3.88min. and 3.82min. respectively. The IC50 value of the hydroethanolic extract revealed that *A. spinosus* having moderate 2,2-diphenyl-1-picyrylhydrazyl (DPPH) and hydrogen peroxide(H2O2) scavenging activity with values 661.37µg/ml and 469.33 µg/ml respectively.
Evaluation of Humoral response (HA titer) activity of Roscoea procera (Kakoli) and Lillium polyphyllum (Kshirkakoli) plants

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ABSTRACT: Roscoea procera Wall. and Lillium polyphyllum Don. Commonly known as Kakoli and Kshirkakoli plants of astavarga group having a long history of use in traditional system of indigenous medicine as a immunomodulator. The present study has been designed to investigate basic parameter such as humoral response (HA titer) to validate the aforementioned claim. The study aims to investigate the effect of Roscoea procera (Kakoli) and Lillium polyphyllum (Kshirkakoli) extracts on Humoral response. Different extracts of Roscoea procera (Kakoli) and Lillium polyphyllum (Kshirkakoli) obtained through successive extraction process were screened for immunomodulatory activity for humoral antibody titer assay method. Also, the quantification of secondary metabolites for these extracts were done to determined and correlated with HA titer activity. The experimental data indicated that the administration of chloroform extract of Kakoli (CHEK) produced significant increase in humoral antibody (17.33 ± 7.18; *p<0.05) when compared to control (8.00 ± 4.0), while Kshirkakoli extract did not show any significant change for HA titer. The significant increase in Haemagglutination titer with administration of chloroform extract of Kakoli (CHEK) might be due to presence of flavonoids which can augment the humoral response by stimulating the microphages and B lymphocytes involve in antibody synthesis as well as primary metabolite like protein which helps in binding antigen antibody to form lattice of agglutinated cell.

A REVIEW ON: PHYTOCHEMICAL AND PHARMACOLOGICAL STUDY OF ANNONA SQUAMOSA

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Abstract: This paper gives the information about the Annona Squamosa Linn. (Family:Annonaceae).Phytochemical and pharmacological studies of medicinal plant were performed. The plant is highly used traditionally for curing diverse diseases and disorders. It is actually known as “Sitaphal” in Hindi. Macroscopical and microscopical studies of leaves have been studied. The phytochemical studies showed the presence of amino acids, terpenes, lipids, steroids, flavonoids, ascorbic acid, tannins, vitamins and alkaloids. The plant has various pharmacological actions such as insecticidal, purgative, laxatives, astringent, anti-inflammatory, antidiabetic, anti-ulcer, anti-oxidant, antimalarial and antibacterial. The review specifically deals with the phytochemical and folkloric medicinal importance of plant.
FIG FRUIT AS A NUTRACEUTICAL

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Abstract: Nutraceuticals the concept of generating utility of food as health promoting factors beyond its nutritional value is gaining acceptance within public arena and scientific community. The Nutraceuticals have evolved from the recognition of the link between food and health. Nutraceuticals is defined as substance which can be consider a food or it's part which, in addition to its normal nutritional value, in provides health benefits including prevention of disease or promotion of health. There are different fruits and plants available for giving Nutraceutical value among them Fig (Ficus carica. Moraceae) is one of the oldest fruit species cultivated in the Mediterranean basin. Nowadays, it is widespread in warm and dry climates around the world, with Turkey as the primary producer. The fig tree can bear up to two crops per year, depending upon the fig type, but the crops may differ in quality. Figs can be eaten fresh, dried, or processed into different products. They are a sweet-tasting fruit because of high amounts of sugars and a low organic acid content. Their phenolic content is intermediate, and higher in red cultivars, which contain high levels of anthocyanin’s. In comparison with other fruits, the level of total carotenoids in the fig is quite low and mostly concentrated in the fruit’s peel. Fruit drying is the easiest way of fig fruit preservation. The traditional sun-drying method yields produce with diverse quality. Meanwhile, automated air dehydration has several advantages and generates fruit with high sugar content and high total phenolics. On the other hand, some pigments are lost during the drying process, especially anthocyanin’s and carotenoids. Because of the high content of beneficial compounds in fresh or dried fig fruits, their consumption should be encouraged as a potential healthy alternative for sweets.

REVIEW ON THE CHEMICAL CONSTITUENTS AND USE OF VARIOUS SPECIES OF THE GENUS THERIOPHONUM

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Abstract: In India, medicinal plants have made a good contribution to the development of ancient Indian Material Medica (Prajapati N.D.2003). All the recent and previous review article are found the genus Theriophonum (Araceae), represented by seasonally dormant tuberous perennials is endemic to India and Sri Lanka. This genus Theriophonum consist of wide various varietie species in which few are accepted by Ethpharmacology, WCSP. The appraisal of the constituent species support existence of only five species, viz. T.infaustum, T.fischeri, T.minutum, T.dalzalli, T.sivaganganum, and all are with restricted distribution in India. Theriophonumminutum is the only species with extended distribution in Sri Lanka. WHO estimate that 65-80% of the world’s population uses traditional medicines as their primary form of the health care. The review article shows the physiochemical characteristic and medicinal value in the regular human and traditional medicines as a valuable and readily available resources for primary healthcare and conservation of traditional medicinal and for identification. The review article also shows the various activities of the genus theriophonum such as anti-microbial, anti-cancer and others activities which can reduce cost related to medicine in traditional society.
A REVIEW ON: NATURAL PLANTS EFFECTIVE IN TREATMENT OF SEXUAL DYSFUNCTION

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Abstract: Sexual dysfunction is very serious problem in human being. Inability to achieve normal sexual intercourse called sexual dysfunction, which include premature ejaculation, retrograded, retarded or inhibited ejaculation, erectile dysfunction, arousal difficulties (reduced libido), compulsive sexual behavior, orgasmic disorder, failure of detumescence in males and Desire disorders, Arousal disorders, Orgasmic disorders, Sexual pain disorders in females. The trends of herbal medicine is running in the market to cure specific diseases due to its less adverse drug reaction, toxicity and other injurious effects. There is huge variety of plant which capable to cure and treat specific type of disease. Researchers further studying to identify plant activity. Many plants have ability to correct sexual dysfunction in male and female. Among them some plants Panax quinquefolius L. (American giseng), Eurycoma longifolia, Corynanthe yohimbe, Maca, Ginkgo biloba, Turnera diffusa (Damiana), Terminalia catappa L., Tribulus terrestris, Euphorbia Hirta L., Passiflora incarnata L., Ptychopetalum olacoides, Cnidium monnier have discussed in this article.

HERBAL DRUGS USED IN THE TREATMENT OF POLYCYSTIC OVARY SYNDROME (PCOS)

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Abstract: Polycystic Ovary Syndrome (PCOS) is one of the most common endocrine disorder. It affects the woman's hormones level. This hormones skip and change the menstrual periods and it causes a problem for them to get pregnant. WHO estimated that PCOS has affected 116 million women (3.4%) worldwide. In India, the prevalence of PCOS in an adolescent is 12.14%. In which 80% women are Obese. The Ovulation is disturbed in PCOS the matured eggs are not released from the ovaries and they form very small cysts in the ovary. Because it is due to the increase of estrogen and androgen level. This change causes infertility and also cause type-2 diabetes. This is due to hormone imbalance. Most of the synthetic drug is used for the standard treatment of PCOS but the drawback is side effects like bloating, hot flushes, blurred vision, malnutrition, heavy menstrual periods, yellow coloration of eye and skin. To avoid this some medicinal plant used to treat PCOS like Liquorice, Ginseng, Spearmint tea, Flax seed, Milk thistle, Aloe-vera, Astragalus, Chamomile, Chaste Berry, White pervy, Kasip Fatimah, Ashwagandha etc This are very useful herbal drug which is used in the treatment of PCOS. Therefore, the aim of the presentation is to provide an insight into the various medicinal plant that are used in treatment of PCOS in their respective abstract and their probable mode of action. Thus, the present review will helpful and will act as a general awareness for common people and researcher having interest in this respective area.
QUALITY ASSESSMENT OF SELECTED MARKETED AYURVEDIC PRODUCTS

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Abstract: To carry out quality control testing of selected marketed Ayurvedic products. To check the physical parameters, to check the heavy metal contaminants and to check the microbial load. Several Ayurvedic products are available in market but there were no determined or particular standards are available for these products. The quality assessment of Ayurvedic product is of chief importance in order to justify their acceptability in modern system of medicine. Standardization and quality control have remained grey areas in the preparation of Ayurvedic medicines. Incomplete understanding of process coupled with insufficient evidence for some of the preparation steps have been partly responsible for lack of standardization and quality control. So, there is needed to be establishment of protocols for quality control in preparation of Ayurvedic medicines. Selection and procurement of Ayurvedic product and Quality assessment (Preliminary screening, Microbial load determination and Heavy metal detection. From the elemental study it is shown that many of the Ayurvedic products are heavily contaminated with toxic metals like lead and mercury more than the limits as per the guidelines given by WHO and Ayurveda formulary of India which is hazardous to human health and many of these products contaminated with microbial load which shows serious risk for human consumption. It is necessary to take string steps towards the regulation and control of quality parameters of Ayurvedic medicines/ products.

PHYTOCHEMICAL AND PRECLINICAL EVALUATION OF EHRETTIA LAEVIS ROXB. LEAF EXTRACTS FOR ITS BONE FRACTURE HEALING PROPERTY

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ABSTRACT: Ehretia aevies Roxb is commonly known as Khanduchakka in Marathi, Family: Boraginaceae. Traditionally, the plant used for the bone fracture healing in the tribes of Wardha and Nagpur region respectively of Maharashtra, India. However there is no scientific justification of traditional claims of the tribes regarding their use. Thus, the main objective of this study was to investigate, standardize and explore pharmacological potential of Ehretialaevis leaves extract for its bone fracture healing property, along with biochemical estimations and histopathological studies. Collection and authentication of Ehretialaevis leaves. Preparation of ethanolic extracts then Macroscopical and Macroscopical evaluation. Physicochemical evaluation of crude drug followed by qualitative phytochemical Screening and quantitative estimation of phytoconstituents. Chromatographic evaluation using TLC, HPLC. Lastly, Preparation and evaluation of EEL gel and oral suspension. In present research work, The physicochemical parameter of Ehretia laeviswere evaluated and was found to be in prescribed range as per standard values. The results from the phytochemical analysis revealed the presence of alkaloid, flavonoids, phenols, carbohydrates, tannins and saponins. The HPLC analysis confirmed the presence of Rutin which was found to be 5.67 %. In the present study, the treated animals showed significant increase in the bone fracture healing process. In conclusion, The study demonstrated a potent bone healing activity of EEL. However, further studies are required to isolate new lead molecule from EEL which may be used in preparation of herbal formulation with potent bone fracture healing activity. Positive outcome of the present study may be helpful in discovery of a new lead molecule from natural origin and to develop the formulation that may be used as a potent bone fracture healing agent.
THE ETHNOPHARMACOLOGY, PHYTOCHEMISTRY AND PHARMACOLOGY OF ANGELICA BISERRATA

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Abstract: Angelica biserrata, a species of the genus Angelica, family Apiaceae is a widely used traditional Chinese medicine. The roots are widely used as the important traditional Chinese medicine 'du huo' especially as an analgesic and anti-inflammatory in the treatment of rheumatism and rheumatoid arthritis. A. biserrata relieves pain caused by metal-inflicted wound, stops convulsion of epilepsy, treats disease caused by wind-cold. Biological effects, such as neuroprotective, anti-tumour, anti-arthritis, anti-inflammatory, and sedative, were also validated in vitro and in vivo studies. Therapeutic effects are attributed to the bioactivities of the naturally occurring compounds in this herb. Angelica biserrata has been proven as a valuable medicinal sources from traditional herb. Some conventional uses have been evaluated by pharmacological investigation. In addition, A. biserrata is not fully assessed regarding its safety. Further studies are essential to investigate its toxicity on human. It’s useful to provide identify its underlying therapeutic remedy and economic value of developing new medicine in the future. Its concomitant use with conventional drugs in patients with underlying disorders might cause the risk of herb-medicine interaction.

Effective treatment of lumbar radiculopathy with lashuna (Allium sativum Linn) rasayana

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Abstract: Rasayana is a unique method of treatment practiced in Ayurveda for effective accomplishing of promotion of health, prevention of disease as well as treatment of illnesses. The procedure differs from other methods of shamana / alleviating illness and panchakarma / purification of the body. Adaptation of the body for the larger doses of medicine which is administered for a short stipulated duration is the method of rasayana treatment. Beginning the medication in smallest dosage and then making standard increment for period of 7 days or more is the procedure of adaptation of the body for large dosage of medicines. This large dose of the medicine is then maintained for a stipulated period of one to three months. This form of rasayana treatment is mostly planned in chronic lingering diseases. Lashuna / Allium sativum Linn is one such medicine administered in the form of rasayana in a variety vatavyadhi / neurological diseases. Full rasayana dose of garlic is 100 g / day and is best administered in a single dose before breakfast. Alternatively, the freeze dried garlic may be given in a dose of 50 g. As rasayana; capsules of freeze dried lashuna is administered in a dose of 12 veg capsules during the initial four days, increasing by 12 capsules for every four days and completing the course by 16 days with 48 capsule completes the course. This rasayana is found to be very effective in many neurological conditions like sciatica syndrome, GB syndrome, motor neuron disease, multiple sclerosis, hemiplegia, and Parkinsonism. In a clinical trial the therapeutic effect of lashuna rasayana in patients suffering from radiculopathy due to lumbar IVDP was studied and is found to effective in reducing pain and numbness and thereby improving the functional ability of the patients.
IN VIVO ANTIMALARIAL ASSESSMENT AND TOXICITY EVALUATION OF GARLIC (ALLIUM SATIVUM)

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Abstract: Garlic or Allium sativum is widely applied as alternative medicine and in ethnopharmacological studies. This study was done to evaluate the antimalarial properties of aqueous extract of garlic against Plasmodium berghei NK65. The groups of male ICR mice were intraperitoneally (i.p) infected with 0.1 mL of 1 × 10^7 parasitised red blood cells (RBC) before being orally given pre- and post-infection treatments with 0.2 mL of 100 mg/kg body weight (bw) of freeze-dried aqueous garlic extract. Parasitemia was microscopically examined and measured by Giemsa stained thin blood smear. There was a positive correlation (p<0.05, n = 6) for all assessed parameters; parasitemia density (%), survival time (day) and the ability to inhibit parasite growth (%) between pre-treated infected mice with the other groups. However, the value recorded was still lower compared to the mice treated with commercial antimalarial drug primaquine and chloroquine. However, biochemical parameters of treated animals were in the normal range indicative of no toxicity. Histological examination showed no abnormalities and injuries on the selected vital organs. This study proved garlic has potential as alternative antimalarial drug.

DRUG DESIGN TECHNIQUES FOR FORMULATION OF HERBAL MEDICINES

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ABSTRACT: Since Ancient Times, Herbal Medicines have been widely used worldwide for their better therapeutic values as compared to modern Medicines. NDDS is an approach to drug Delivery that surpasses the limitation of Traditional drug delivery system. India is a country with a vast Knowledge base of Ayurveda whose potential is only being realised in recent years. Due to the lack of Scientific justification and processing difficulties, herbal medicines were not considered for the development of novel formulations for a long period of time. However, the drug delivery system uses to administer the herbal medicines to the patient is traditional and outdated. But Now, Modern Phytopharmaceutical research can solve the scientific needs of herbal medicines in developing Drug Delivery System. The use of liposome, ethosome, phytosomes, emulsion, microsphere, solid lipid nanoparticles of herbal formulation has enhanced the therapeutic effects of plant extracts. This forms the basis behind operating Novel methods of drug delivery in herbal medicines.
A REVIEW ON: NEUROTOXINS FROM PLANT ORIGIN

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Abstract: The main aim of our study was to have an overview on plant toxins mainly Neurotoxins. Poisonous chemicals found in plants are normal bio-chemicals. They have been developed as an evolutionary response for self-protection. Therefore, plants are deliberately poisonous and their toxicity to humans and other animals is an example of natural selection. The surviving plants, therefore, have not been subjected to selective pressures which might influence them to produce toxins. The alkaloids are by far the most predominant of plant toxins and because of their enormous structural diversity and various modes of action, examples may be chosen from among them to serve as paradigms for virtually every type of plant herbivore interaction. Since plant toxins show many useful effects they can be used in treating respective diseases. They can be modified to show better affinity and efficacy. Regardless of the structure of a particular toxin, it is likely to have evolved and been be nontoxic to the consumer (at least when eaten in reasonable quantities) but sufficiently great to repel or limit pests. Commercial crops for human food usage must therefore have optimal concentration of biologically active natural product.

Development of nutritional animal food products with lakhodi dal (Lathyrus sativus)

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Abstract: *Lathyrus sativus* is a food plant cultivated traditionally as the major source for protein and energy since time immemorial in many parts of the world and an important crop of economic significance in India, Bangladesh, Ethiopia, Nepal, Pakistan and Spain. In view of general world shortage of food and high quality protein the world is looking for cheap sources of protein and *L. sativus* is easily cultivated with many health benefits exclusive to it. Pulses of *L. sativus* contains L-homoarginine, a non-toxic ODAP has been much studied & patented in USA & China to have medical benefit in relation to bone health & pancreatic function. The use of *L. sativus* for the development of food product was not on the prime agenda of any of the researchers. So, the present study was started with the aim to highlight the importance of *L. Sativus* and to study the feasibility of adding pulses of *L. sativus* to animal food products and assessing their nutritive value through animal studies. Proximate composition of *L. sativus* and the products prepared by incorporating *L. sativus* was estimated. Growth rate, protein digestibility and proteins in kidney and liver were estimated with toxicological effects of developed food products on experimental animals using standard protocols. The results of animal study suggest that, the level of Lakhodi dal in the food products should not exceed 20% in animal feed. The animal feed developed with incorporation of Lakhodi dal may be useful as alternative and cost effective feed for the livestock. This product can be scaled up for industrial production and will be helpful for livestock industry.
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AN OVERVIEW ON ROLE OF *ALLIUM SATIVUM* LINN. FOR HUMAN HEALTHCARE: REVIEW

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**ABSTRACT:** Medicinal plants can be used for the treatment of many diseases associated with folk medicine from different parts of the world. There is a great variety of compound that can be extracted and characterized from plants, herbs and roots. Extensive scientific research on natural compound *Allium sativum* Linn. Family Liliaceae also known as garlic has been reported. The natural product allicin, Diallylthiosulfinate obtained from the spice Garlic exhibit numerous biological activities. Its major constituents are allicin, alliin, ajoene, S-allylcystein, saponins, flavonoids. Garlic which is commonly used as spice is also well documented for its medicinal properties in Indian and Chinese system of medicine. It is extensively used as carminative, amphrodisac, expectorant, stimulant and disinfectant in treatment of pulmonary conditions. It is largely used as condiment. Allicin is an antibacterial and antifungal. Oil of garlic is used as anthelmentics and rubefacient. Fresh garlic is prophylactic against amoebic dysentery. The main ingredient of garlic oil were sulfide mainly including disulfides (36%), trisulfides(32%), monosulfides(29%) which were estimated as dominant antifungal factors. It is indicated that garlic oil firstly penetrate hyphae cells and then destroy the cellular structure, finally leading to the leakage of both cytoplasm and macromolecules. The high antifungal effects of garlic oil make it a broad application prospect in antifungal industries. The present review will discuss an overview of phytochemical and pharmacological properties, which may help the researchers to set their minds for approaching the efficacy and potency of herb.

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EFFECT OF ETHANOL EXTRACT OF CINNAMOMUM CASSIA BARK IN ACETIC ACID-INDUCED ULCERATIVE COLITIS IN MICE

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**Abstract:** Sweet wood (*Cinnamomum cassia*, Family:Lauraceae) is commonly used for its therapeutic and flavoring properties during cooking in India. The bark of *C.cassia* used traditionally for its antioxidant, antiulcer, anti-capillary-fragility, anti-diabetic, anti- microbial, immunity boosting anti-cancer and for the treatment of heart diseases. Cinnamic acid in *C. cassia* is reported to possess anti-inflammatory activity. Due to its anti-ulcer and anti-inflammatory activities, we were interested investigate its therapeutic potential in the treatment of ulcerative colitis. In the present study, we have investigated effect of ethanol extract of *C. cassia* in acetic acid induced ulcerative colitis in mice. The study involved phytochemicals estimation, quantitative estimation of cinnamic acid in ethanol extract of *C. cassia* by HPTLC and HPLC, estimation of inflammatory mediators (MPO, TNF-αand IL-6) and oxidative stress markers (GSH, MDA, Catalysts), liver function tests (SGOT and SGPT), weight loss and stool consistency in Colitic mice. Colitis was induced by colonic administration of 150 µl acetic acid (5%) once, intra rectally on 8th day. *C. cassia* extract was administered orally (100, 200, 400 mg/kg; suspending in distilled water) for 11days, followed by euthanasia and biochemical investigations to assess the effect of the treatment. *C. cassia* extract significantly ameliorated the symptoms of colitis in dose dependent manner. The probable mechanism of *C. cassia* can be attributed to the modulation of oxidative stress and inflammation at colorectal site may be due to presences of cinnamic acid, polyphenol and other phyto constituents in ethanol extract.
Herb-Drug Interaction Prospects and Challenges In Global Healthcare Scenario

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Abstract: In the last decade, a number of herbal products have attracted growing interest as a complementary and alternative medicine for the prevention and treatment of various diseases. Herbal products have been generally considered as natural and safe. However, some of their constituents can modulate various xenobiotic metabolism and transport systems which play a significant role in the absorption and disposition of prescription drugs. Therefore, drug metabolizing enzymes and drug transporters-mediated herb-drug interactions can occur frequently in drug- and/or herb-based therapies. Research in Herb Drug Interaction is not extensively reported. Cytochrome P450 (CYP) monooxygenase is a super family of hemoproteins responsible for the phase I metabolism of various xenobiotics and some endogenous substances such as steroids. Although CYP is ubiquitously expressed in a number of organs, most of drug metabolizing CYP isoforms are expressed at the highest level in the liver. Approximately 70–80% of all currently prescribed drugs are metabolized by the CYP system and P-glycoprotein (Pgp), also known as multidrug resistance protein, is an ATP dependent efflux pump with broad substrate specificity. Therefore, the inhibition or induction of CYP and/or P-gp by concurrent herbs may result in pharmacokinetic interactions which need to be explored. This presentation elaborates the above concept with evidence from some of such studies carried out in our laboratories.

Opium and its Alkaloids: An Indian Perspective

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Abstract: Alexander the Great introduced Opium to India as early as 330 BC. During the Mughal era, it was cultivated throughout North India, especially in the Malwa region in the west and along the river Ganges in UP, Bihar and Bengal. In 1773, Warren Hastings, the first Governor-General of British East India Company (BEIC) brought all the opium cultivation and processing under the British control. BEIC traded Indian opium with China through the Calcutta port in exchange for tea, silk and porcelain consumed by Britain. The opium trade eventually financed the British Raj in India. The trade also resulted in “Opium wars” between Britain and China. The British needed morphine for its army. Hence British set up first factory, Government Opium & Alkaloids Works (GOAW), in Ghazipur, UP in 1820, later two more factories at Neemuch, MP and Patna. GOAW adopted Robertson-Gregory process, an old process using calcium chloride for obtaining morphine and codeine as their hydrochloride salts. Other minor alkaloids which were listed in British Pharmacopoeia were also produced in these factories. Opium alkaloids were the first alkaloids produced in India in industrial scale. After independence, National Chemical Laboratory (NCL) developed a more efficient Solvent Extraction process. The new process was tested at pilot plant of IDPL, Hyderabad. Based on the NCL process a new factory was set up in Ghazipur in 1976 with a capacity to process 70 tons of opium. India is the only country in the world permitted by UN to cultivate poppy and for making opium legally. India accounts for 98% of opium produced globally.
Ethnomedicinal Practices by Traditional Healers from Belagavi Region

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Abstract: The traditional practitioners give the information of healthcare approaches of the local community health which are a source of knowledge with extensive attention that has been used as a foundation for many allopathic medications in various branch of medicine. The traditional information is rapidly shrinking due to various factors. Hence, there is a need of documenting the knowledge in addition to this stringent quality control of medicinal plant based medications, along with disparity among the species or alternatives need to be addressed for their quality declaration of the ethnomedicinal plants. The presence of rich ethnomedicobotanical knowledge in this region appears to be at cross roads with the threat of extinction and decreasing interest towards traditional medicine amongst the new generation has to be addressed and as well as deforestation emerges for the cause of depletion of these ethnomedicinal plants. The ethnomedicinal remedies are used by more than 70% of the population and there has been resurgence in scientific assessment of medicinal plants with their therapeutic activity and newer techniques have been developed for such exploration. The ayurvedic pharmacoepidemiology, reverse pharmacology and observational therapeutics paths have led to significant leads, hits and drug candidates for several diseases.

Phytosomes: Emerging Strategy in Delivery of Herbal Drugs.

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Abstract: Phytosomes are novel approaches for the delivery of phytoconstituents. The term “phyto” means plant while “some” means cell-like. Phytosomes are generally prepared by reacting one or two moles of polyphenolic phytoconstituents and phospholipid (phosphatidylcholine). The bioavailability of phytoconstituents present in herbal extract or herbal preparations can be improved by formulation as phytosomes. They also can be used in the treatment of various fatal diseases without denaturing the active phytocompounds which are mainly acid labile. These delivery systems have improved the pharmacotherapeutics and pharmacokinetics of herbal drugs. There are number of products available in the market that contains phytosomal drug delivery system such as Ginkgo biloba, Silybum marianum, and Camellia sinensis, which can be administered peroral as well as topically. This poster is an overview of preparation techniques, characterization, Advantages, Disadvantages and differences over other vesicular carrier systems.
Ethnopharmacological Approach for Alzheimer’s Disease and Significance of Herbal Nutraceuticals.

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Abstract: Alzheimer’s Disease (AD) is a progressive mental deterioration that can occur in middle or old age, due to generalized degeneration of brain. Although there are semi-synthetic drugs used in the management of AD, most of them have several adverse effects. Thus, traditional medicine provides various plants derived lead molecules that may be useful for further medicinal research. Objective is to understand the important strategy to prevent this brain impairment and it is based on use of traditional medicine and use of nutraceuticals, dietary changes. Herein worldwide use of ethinomedicinal plants and complex B vitamin used for AD are reviewed. A number of recognized database were explored by using keywords and phrases such as “Alzheimer’s,” “traditional medicine,” “ethinopharmacology,” “nutraceuticals,” or other suitable terms. Several drugs of plant origin may serve promising therapeutics for the treatment of AD. Nutrients, herbal and dietary supplements are major constituents of nutraceuticals against various diseased condition and improve quality of life.

Anticancer Potential of Boswellic Acid Rich Fraction from Boswellic serrata Against Hepatocellular Carcinoma
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Abstract: Hepatocellular carcinoma (HCC) is one of the most common cancers and the major leading cause of cancer related mortality globally. Doxorubicin (DOX), the widely used anticancer drugs in the treatment of various malignancies including HCC. However, the objective response rate with DOX as single agent is less than 20% whereas the median survival is only 4 months. Boswellic acids from B. serrata have also been proposed to provide antineoplastic activity through their antiproliferative and proapoptotic properties in multiple human cancer cell lines. The present study aimed to investigate the growth-inhibiting and apoptosis mediating effects of B. serrata extract alone as well as in combination with DOX in order to provide a new adjuvant therapy for HCC. Boswellic acid rich fraction of B. serrata extract was prepared. MTT assay on HepG2 and Hep3B cells was carried out using B. serrata alone and in combination with DOX. Further, caspase-3 activity, TNF-α level, and IL-6 level were estimated. Isobolographic analysis was carried out to evaluate the effect of combination therapy. Additionally, protective effect of B. serrata extract on DOX induced hepatic toxicity was also evaluated in Wistar rats. B. serrata extract inhibited growth of HepG2 (IC50 value of 21.21 ± 0.92 μg/mL) as well as HepG2 (IC50 value of 18.65 ± 0.71 μg/mL). DOX inhibited growth in HepG2 and Hep3B cells with an IC50 of 1.06 ± 0.04 μg/mL and 1.92 ± 0.09 μg/mL. Isobolographic analysis showed combination index (CI) of DOX and B. serrata extract of 0.53 ± 0.03 to 0.79 ± 0.02 suggesting synergistic behavior against the two cell lines. B. serrata extract also caused dose dependent increase in caspase-3 activity, TNF-α level, and IL-6 level which was higher (P < 0.001) with DOX (1 μM) and B. serrata extract (20 μg/mL) combination. B. serrata extract also protected Wistar rats against DOX induced hepatic toxicity. The use of synergistically acting B. serrata extracts and DOX combination therapy has potential to become a novel strategy for the treatment for HCC.
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A-157 Ethno botanical study of medicinal plants with special reference to digestive system.

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Abstract: The digestive system is demonic and complex process in human being which includes a series of hollow organs joined in a long twisting tube runs from mouth to anus. In present Era, the number of occurrences of digestive system disorders are increasing countlessly and many have no permanent cure. Local people have a wide range of knowledge of traditional uses of medicinal plants through personal experience and ancestral prescription. The chronicle of the medicinal plants started from Vedic era (4500-1500BC). Rig-Veda explored foremost knowledge regarding medicinal use of plants. In the past for alleviation of disease people approached nature before any visit to healthcare system. Wittingly if we understand the custom it will be helpful for the cure and mitigating many ailments. Here an attempt is made to explore most commonly used traditional drugs in and around Kottayam and are selected and discussed in depth which may be of helpful to mankind in reliving from diseases of digestive system like IBS, Gastric ulcer.

A-158 Antipyretic activity of various kariyat extracts in experimental animals

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Abstract: Fever is a common medical sign characterized by an elevation of body temperature. Above the normal range. It is a complex physiologic response to disease mediated by Pyrogenic cytokines and characterized by a rise in core temperature. It serves as body's Natural defense against bacteria and viruses which cannot live at a higher temperature. Kariyat is an annual herbaceous plant and is extensively cultivated in Southern Asia. In Traditional medicine is used to get rid of body heat, dispel toxins from the body. Male wistar rats weighing 150–200g were used for the study. For acute toxicity study female albino mice were used. Aspirin and Formaldehyde were procured from SigmaAldrich. Brewers Yeast, Tragacanth and Tween80 from Himedia and Diethylther, Glacial acetic acid Ethyl alcohol from S.D Fine chemicals. Plant of kariyat. The kiryat plant extracts were orally administered to mice at the doses of 50, 300, 1000 and 2000mg/kg.b.w respectively. The kiryat plant extracts were found to be devoid of mortality of animal sat the dose of 2000mg/kg bodyweight. Hence the 1/10th(200 mg/kg,p.o.) and1/20th(100mg/kg,p.o.)of the doses were selected. The present study reveals the aqueous and ethanolic extract of kiryat possesses a significant antipyretic effect in yeast provoked elevated body temperature. The ethanol and aqueous extract at higher dose caused a significant reduction in body temperature, with the effect being comparable to that of aspirin. Oral administrations of aqueous and ethanolic extracts of plant of kiryat have suppressed the fever and pain. Significant anti-pyretic activities by reducing elevated temperature in Brewer’s yeast induced pyresia in rats and it can be concluded that the plant of kiryat is endowed with antipyretic properties.
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Insulino-mimetic and islet protective potential of a saponin isolated from the fruits of Momordica dioica*

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**ABSTRACT:** β-cell destruction in Type I DM is prominent that lead to insulin deficiency and it has to be managed throughout the life. There may not be any better drug if one can stimulate the regeneration/protection of islet. Isolated phytoconstituent(s) of the plants, if found promising in ameliorating the severity of diabetes. The objective of this study is to isolate of the islet of rat and assessment of islet functionality and insulin assay protective properties of pure isolated saponin from fruits of Momordica dioica. Isolation of saponin from methanolic extract of fruits of Momordica dioica, purification and identification was achieved through fractional method of TLC that yielded a pure saponin. And After the optimized the best method of the isolation of rat pancreatic islets and Islet viability, functionality, insulin secretion, intra islet contents were performed and also insulin assay protective properties were assessed. The most optimum method was found to be the pancreas mincing and Collagenase Type XI digestion followed by cell straining (500µm), Ficoll gradient centrifugation and cell straining (70µm). Glucose stimulated insulin secretion showed the islets secreted insulin in a dose dependent manner with respect to the different concentrations of glucose (p<0.05) compared with the normal control indicating its functionality. MDA and NO results in STZ and high glucose conditions help in establishing the beta cell protective activity of Saponin Momordica dioica. All of these results are a promising sign of the anti-hyperglycaemic activity. Thus, conclude that the saponin of Momordica dioica may be considered for effective treatment in Type I DM.

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HPTLC-MS bioautography, Quality control and stability analysis of Arq-e-Ajwain and Arq-e-Badiyan, traditionally used Unani formulation

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**Abstract:** Arq is an Unani Formulation, prepared by using drugs of various origins in which the distilled matter of the drug is obtained in vapors through condensation process. Preparation of arq, its quality control, stability analysis and bioautographic evaluation of its antioxidants metabolites. Arq-e-Ajwain (AEA) and Arq-e-Badiyan (AEB) were prepared through hydrodistillation of seeds of Trachyspermum ammi and Foeniculum vulgare, respectively. Quality control analysis of arq has been done through HPTLC and GC-MS. The developed HPTLC plate was subjected to DPPH bioautography for the identification of antioxidant metabolites. Stability analysis has been done through GC-MS. Dichloromethane extract of Arq was separated through HPTLC using hexane and acetone (8:2, v/v). Developed plates were scanned at 254nm and after derivatization with anisaldehyde at 540nm. A total of eight metabolites in AEA, while in case of AEB ten metabolites. Yellow spots against the purple background were identified as metabolites possessing DPPH scavenging potential. Two metabolites in AEA and four metabolites in AEB were found as antioxidant. GC-MS analysis of methanolic dilution of AEA resulting the identification of four major metabolites and thymol are major compound. Five major metabolites were identified in AEB in which L-fenchone followed by anethol is the major compound. The stability analysis of AEA and AEB at room temperature and 2-4ºC upto 3 months using did not show any significant change in contents of major metabolites. This study proves helpful in the Quality Assurance of Pharmacopoeial Formulation prescribed in the Unani system of medicine as no Standard Operating Procedures is available so far. Stability studies proved that AEA and AEB stored at room temperature in sealed and air tight container at least three months.
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**Cardioprotection by honokiol in palmitic-acid induced toxicity via mitochondrial biogenesis**

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Abstract: Sirtuins are class III histone deacetylases (HDACs) which were studied extensively in the past decade. They need NAD for their deacetylation reactions. There are seven sirtuin isoforms (sirt1 to sirt7) expressed in mammalian cells. Honokiol (HKL) is a lignan isolated from magnolia leaves and identified as a sirtuin activator. Here, we found that HKL is an activator of sirtuins which protects cardiac cells from mitochondrial dysfunction. We treated rat myoblasts, H9C2 and neonatal cardiomyocytes with palmitic acid at different time interval from 0 hrs, 2hrs, 4 hrs, 8hrs, 16hrs and 24 hrs. We overexpressed mentioned cells with GFP-tagged ad.sirt3 and ad.sirt6 and incubated for 24 hours. Western blot analysis was done at the end of the experiment to understand the changes at protein levels related to sirtuins and other mitochondrial biogenesis related proteins. We found that palmitic acid-induced cardiotoxicity is associated with increased mitochondrial changes including their dynamics of fusion and fission. It affects fragmentation of mitochondria and cell death as well. We found that HKL helped in inducing mitochondrial fusion and decreased palmitic acid induced toxicity by increasing expression of mitochondrial proteins. We found that treatment with HKL blocked palmitic acid-induced toxicity. This was associated with reduced mitochondrial DNA damage and improved mitochondrial function. Our results suggests that HKL-mediated heart protection might be due to increased expression of sirtuins which gets downregulated after palmitic acid treatment. More research work related to HKL is needed further to explore the mechanism in depth and it might represent a potentially novel adjunct for cardioprotection in future.

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**Effectiveness of Ayurvedic oral medication for the treatment of Type 2 diabetes mellitus - A narrative review.**


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Abstract: Diabetes mellitus is the World's largest growing metabolic disorder. As the knowledge on the heterogeneity of this disorder is advanced, the demand for appropriate therapy is increased. The Ayurvedic oral medication is one of the treatment mode for diabetes mellitus which have been reported to be useful as antidiabetic and antihyperlipidemic remedies. Thus there is a need to review the literature which focuses on Ayurvedic oral medication in type 2 diabetes mellitus. To review the available data from the literature on relationship between the efficacy and safety of Ayurvedic oral medication in type 2 diabetes mellitus. A narrative review was done on relevant articles in literature focusing on effectiveness of Ayurvedic oral medication in type 2 diabetes mellitus. Many studies have showed the beneficial effect of Ayurvedic oral medication in lowering blood. Most of the studies have proved the treatments are antihyperglycemic and nthyperlipidemic in nature. There are studies also inculcated liver function test and renal function test to prove the safeties of the treatment. In conclusion, Ayurvedic oral medication is safe and have favourable effect on hyperglycaemia and hyperlipidaemia. Even though many studies reveal the significant antidiabetic effect of Ayurvedic oral medication, there is limited evidence and documentation of researched studies. The main limitation of many studies being smaller sample size and shorter study duration. Therefore, more number of clinical trials are needed, attributing to larger study in order to validate potential benefit and effectiveness of Ayurvedic oral medication and to innovate better treatment of type 2 diabetes mellitus.
Effect of Moringa Oleifera Leaf Aqueous Extract on Doxorubicin Induced Mitochondrial Dysfunction

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Abstract: Generally, chemotherapeutic drugs of choice for a wide variety of cancers results in cardiotoxicity later in life. Similarly, doxorubicin which is a drug of choice, used widely and cardiotoxicity is one of the major side effect. In an attempt to resolve this problem we used Moringa Oleifera leaf aqueous extract in this study. We treated female wistar rats with or without i.p injection of doxorubicin (2.5 mg/kg) per week. We selected three groups in this study which were divided as follows: (1) Vehicle control (saline), (2) Doxorubicin treated, (3) Moringa Oleifera leaf aqueous extract + Doxorubicin treated. At the end of the study, rat were sacrificed and hearts were isolated for biochemical estimation of antioxidant parameters and mitochondrial complex estimations. Our results had shown improvement in antioxidant levels after treatment with Moringa Oleifera leaf aqueous extract. It includes, increased levels of catalase, glutathione and SOD and decreased levels of lipid peroxidation. We found overall significant improvement in the group of rats after treatment with Moringa Oleifera leaf aqueous extract. These finding suggests that doxorubicin treated rats improved their activities with decreased depression after treatment with Moringa leaves aqueous extract and this might be useful in preserving heart functions.

HPTLC Fingerprinting and Metabolic Profiling of Carica papaya Ripen Fruit using GC-MS

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Abstract: Carica papaya is a tropical fruit, all parts of which are rich in various secondary metabolites owing to its antioxidant, anti-inflammatory, abortifacient, anti-diabetic and anthelmintic properties. To characterize and identify the different secondary metabolites present in fruit pulp, peel and seeds of C. papaya. Methanolic, aqueous and hydro-alcoholic extracts of fruit pulp and peel were prepared along with hydro-alcoholic and hexane extracts of papaya seeds using reflux. By performing TLC, toluene: ethyl acetate: formic acid (6:3:1, v/v/v) solvent system was developed, followed by HPTLC to quantify and identify different compounds using markers. All the extracts, except aqueous, were then analyzed by gas chromatography-mass spectrometry to discern and characterize the compounds present in them. After scanning at 254 nm, 366 nm and 540 nm, 21, 9 and 20 compounds were found in methanolic, aqueous and hydro-alcoholic extracts of fruit pulp, respectively. A total of 22, 18 and 18 compounds were found in methanolic, aqueous and hydro-alcoholic extracts of peel, respectively and a total of 28 compounds were found in hydro-alcoholic extract of seed. Out of them, five compounds were common in all the samples, which were compared with standards myricetin, quercetin, trans-ferulic acid and gallic acid. GC-MS analysis identified many compounds, which were characterized into different classes of secondary metabolites. Metabolic profiling provides an insight to the compounds present in a plant, which could be further utilized in therapeutic drugs.
**A-165 In vivo pharmacokinetics and in silico docking studies of Carica papaya leaf juice in cyclophosphamide induced thrombocytopenic animals**

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**Abstract:** In Asian system of medicine, *Carica papaya* leaf juice is widely used as a promising platelet enhancing remedy in the treatment of dengue fever. In the recent past extensive research has been conducted on this subject, there are no scientific reports available on pharmacological uses and pharmacokinetics in orally treated thrombocytopenic animals. Present study was aimed to systematically evaluate the role of orally administered fresh papaya juice and its fractions on platelet count (PC) and related hematological factors followed by pharmacokinetics analysis and *in silico* docking studies. Cyclophosphamide (CP; 50 mg/Kg body wt.) induced thrombocytopenic balb/c mice were treated with papaya juice and its bioactive fraction (3.42 mg/Kg body wt.) on day 0, 3 and 10 to measure PC, total leukocyte count (TLC) and aPTT. Validated UPLC method was developed to evaluate flavonoids and phenolic acid in bioactive fraction. In addition, *in silico* docking and UPLC-MS/MS were performed for studying drug (juice phytoconstituents) receptor interactions and pharmacokinetics profile, respectively. All the hematological parameters were significantly (p ≤ 0.05) improved in bioactive fraction treated group as compared to CP control group. Metabolites were screened by UPLC-MS chromatograms of bioactive fraction and plasma. Myricetin and kaempferol exhibited the highest docking scores, suggested that these might act as anti-thrombocytopenic agents. Collectively, our obtained data suggested that the bioactive fraction reversed acute thrombocytopenia by enhancing the platelets regeneration from megakaryocytes, providing strong rational for its use in the treatment of dengue fever-related thrombocytopenia.

**A-166 Rapid Identification of antidiabetic enzyme inhibitors and antioxidant potential of Carica papaya Linn. by TLC-bioautography**

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**Abstract:** In Asian system of medicine, traditional plant treatment for diabetes has shown a surging interest in the last few decades. Several studies have reported that some parts of the *C. papaya* plant exert hypoglycemic effects in both animals and humans but very limited scientific reports available on the action. Present study was aimed to systematically isolate and identify antidiabetic and antioxidant compound by TLC bioautographic method to detect alpha-amylase and alpha-glucosidase inhibitors in plant extracts. The enzymes α-amylase and α-d-glucosidase were dissolved in sodium acetate buffer for determination of antidiabetic potential whereas 2,2-diphenyl-1-picryl-hydrazyl-hydrate (DPPH) was used for antioxidant activity. After development of the samples, the TLC plate was sprayed with enzyme solution and incubated. The developed bands were scraped and its mass was identified through mass spectrometry for its specific tentative identification. Enzyme inhibitors were visualised as white and brown spots on the TLC plates. Different extracts of *C. papaya* Linn. leaves after development on TLC gave enzymatic inhibition when applied with α-amylase, α-d-glucosidase and with DPPH. The screening test was able to detect inhibition of α-amylase, α-d-glucosidase and DPPH by compounds present in plant extracts.
Evaluation of Antiobesity Activity Of Cardiospermum Halicacabum Linn. Leaf Extract In Rats

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Abstract: Nowadays obesity has emerged as a major health problem and risk factor for various disorders worldwide. Obesity is defined as abnormal or excessive fat accumulation triggered by disproportion in energy intake and expenditure. The present study was designed to evaluate the antiobesity potential of aqueous leaf extract of Cardiospermum halicacabum Linn.(ACHL). The aim of the present investigation was to determine whether aqueous leaf extract of Cardiospermum halicacabum Linn. has an effect on body weight in high fat diet and MSG induced obesity model. The study was conducted using normal, control and three test groups. In HFD induced obesity model, all groups fed with high fat diet for 12 weeks except normal group. In monosodium glutamate induced obesity model, control group treated with MSG (1gm/kg BW) orally as bidose for 10 weeks. ACHL was orally administered (100,200 and 400mg/kg) to treated group rats to determine its antiobesity potential as compared to normal and obese control groups. The effect was evaluated on the basis of various parameters such as body weight, organ weight and lipid profile. The extract showed significant (p<0.05) dose dependent reduction in lipid profile, body weight and organ weight when comparing treatment group with normal and control group. Based on the results we can conclude that the use of Cardiospermum halicacabum as an anti-obesity agent and need further investigation.
Evalution of Antiamnesic effect of *Colocasia esculenta* leaves in mice.

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**Abstract:** Amnesia is a neurodegenerative disease and its common symptom is memory loss. Anterograde amnesia and Retrograde amnesia are type of amnesia. Amnesia also refers to an inability to recall information that is stored in memory. *Colocasia esculenta* is a tropical plant having anti-inflammatory and antioxidant activity. It is very usful in inducing the neurons. The aim of the present study was “Evaluation of Anti-amnesic effects of *Colocasia esculenta* leaves in Mice”. Screening for anti amnesic activity of the *Colocasia Esculenta* using exteroceptive and interoceptive behavioural models in mice. Exteroceptive models: Elevated plus-maze Morris water maze (MWM) Interoceptive behavioral model: Diazepam induced amnesia, Scopolamine induced amnesia Effect on transfer latency using elevated plus maze Transfer Latency (TL) of second day (day 9th of drug treatment) reflected retention of learned task or memory. The young animals treated with CE (250 and 500 mg/kg, p.o.) showed dose-dependent reduction in TL on 9th day, indicating significant improvement in memory when compared with control group. Effect of *Colocasia esculenta* on Escape latency time using Morris water maze. Escape latency time (ELT) of second day (15th day of drug treatment) reflected the long-term memory of animals. Various concentrations of CE (250, 500 mg/kg, p.o.) administered to young and older mice for 15 days, showed dose-dependent increase in ELT values as compared to respective control groups. Effect on brain cholinesterase activity: CE (250, 500 mg/kg, p.o.) showed a remarkable reduction in brain cholinesterase activity in young and older mice, as compared to respective control groups by using Ellman’s kinetic colorimetric method. CE (250, 500 mg/kg, p.o.) reduced cholinesterase activity in young and older mice as expected. In the present study, we observed that *Colocasia esculenta* lowered serum cholesterol levels of mice, inhibited acetylcholinesterase enzyme, thereby elevating acetylcholine concentration in brain homogenate and ultimately improved memory of both young and older mice. Therefore we can conclude that the leaves plant *colocasia esculenta* is effective against amnesia.
SCIENTIFIC ABSTRACTS

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TLC-bioautography based antioxidants determination of aqueous extracts of various herbs of NEERI KFT

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Abstract: A rising prevalence and uses of the natural products for the various ailments effect is on peak because of their low toxicity and comparatively higher safety. Where, the herbal formulation NEERI KFT is a poly herbal formulation mainly used for the renal disorders by exerting its nephroprotective action. The various herbs included in this formulation are Boerhaavia diffusa, Cichorium intybus, Solanum nigrum, Tinospora cordyfolia, Nelumbo nucifera, etc, along with classical ayurvedic formulations like Panchtrin mool, shwait parpati etc. TLC-bioautography based antioxidants determination of aqueous extracts of various herbs of NEERI KFT using DPPH method. In this method, the antioxidant potential of standard antioxidants and different aqueous extracts of medicinal herb of NEERI KFT was determined by spectrophotometry at 517 nm followed by TLC-bioautography using 2,2-diphenyl-1-picrylhydrazyl (DPPH) to screen and separate the main active constituents responsible for the antioxidant activity. The phytoconstituents of various categories were present in the aqueous extract of various herbs of NEERI KFT showed yellow spot against violet background, hence tentative identification of specific compound were carried out. The herbs present in the formulation showed potential antioxidant activity. The TLC-DPPH assay could be used for determining the antioxidant potential of crude herbs as well as the formulation containing the same herbs.

A-170

Mass spectroscopy hyphenated HPTLC bioautography of Tinospora cordifolia for the identification of antidiabetic and antioxidant metabolites

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Abstract: In Indian traditional system of medicine, Tinospora cordifolia is reported to possess various therapeutic activity specially anti-diabetic potential. The objective of our study was to identify the bioactive metabolites. To carry out the HPTLC fingerprinting of Tinospora cordifolia and bioautography activity for identification of antioxidant and antidiabetic compounds. Aqueous, alcoholic and hydroalcoholic extract of T. cordifolia stem were prepared through reflux and subjected to in vitro evaluation for antioxidant, α-amylase and glucosidase activity. The best bioactive extract was characterized through HPTLC. TLC bioautography based mass spectrometry was performed to identify the metabolites with antioxidant and anti-diabetic properties. Maximum yield was obtained in the aqueous (AQ) extract, followed by hydroalcoholic (HA) and alcoholic (ALC). AQ extract exhibit marked antioxidant activity as compare to HA and ALC. While, HA extract passes significant antidiabetic activity comparably. The HA extract was chromatographically separated using toluene, ethyl acetate and formic acid (4:5:1, v/v/v) on HPTLC plate. Densitometric scanning was performed at wavelength of 254 and 366 nm and found 18 and 13 metabolites respectively. There are 6 metabolites were found common in both the wavelengths. Bioautographic analysis showed, tinosporaside at Rf value of 0.8 found as antioxidant whereas tinosporine at Rf value of 0.32 found both as antidiabetic and antioxidant activity. Obtained results from this study supports the traditional claim of T. cordifolia for its antidiabetic activity. The newly developed HPTLC-bioautography methods can be used for screening lead compounds and to predict mechanism of herbal drugs.
A-171  
Antioxidant potential of 5-flourouracil and silymarin in antitumor combination nano-formulation by HPTLC-DPPH method  
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Abstract: Cancer nanotechnology is a rapidly growing field and has made a remarkable contribution to treatment strategies by enabling site-specific release of chemotherapeutic agents, based on their physicochemical characteristics and biological attributes. Combined therapy of two or more drugs promotes synergism among the different drugs against cancer cells with less toxicity and suppresses drug resistance through distinct mechanisms of action. The main objective of the study was to determine antioxidant potential of 5-flourouracil and silymarin in antitumor combination formulation by HPTLC-DPPH method. The solid nanoparticles of 5-flourouracil and silymarin were prepared separately and combined together. The concentration of both the drugs in the combination nano formulations was determined by developed HPTLC method. Antioxidant activity was carried out on HPTLC plate by DPPH bioautographic method. Solid lipid nanoparticles of both the drugs were prepared successfully. The assay of drugs was found more than 95% by developed HPTLC method. The two drugs present in the nano-formulations was found to be antioxidant. The spots were found yellow in color on purple background on plate. Herbal drugs could be good candidates for combination anticancer therapy by increasing the efficacy and decreasing the toxicity of chemotherapeutic drugs.

A-172  
Evaluation of estrogenic activity of Valeriana wallichii  
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Abstract: In females, estrogen and progesterone are the two hormones secreted from the endocrine glands which are responsible for the reproductive health. A balanced concentration of both is required to maintain the normal reproductive cycle in women. Variation in the level of estrogen results in various complications like irregular menstrual cycles, post-menopausal disorders, and other secondary complications like, osteoporosis, cardiovascular diseases and strokes. Hence, people depend on Hormonal Replacement Therapy (HRT) which leads to the undesirable effects like mammary gland carcinoma, uterine cancers etc. Due to increase risk, HRT is not desired as the first line treatment and phyto-estrogenic therapy is the good alternative for this. The study aimed at the in vitro analysis of the estrogenic activity of the Valeriana wallichii for the treatment of menopausal disorders using HPTLC bioautographic technique. The extraction of plant was done using methanol in a reflux condenser and extractive yield was calculated. The estrogenic activity of the prepared extract was carried out on Saccharomyces cerevisiae cells containing human estrogen receptor (hER) using yeast estrogen screen assay. Extract was further subjected to HPTLC bio-autography yeast assay to identify the active compounds. The plant extract was prepared successfully with an extractive yield of 10.72 %. Extract showed significant estrogenic activity. The result was supported by HPTLC bioautographic metabolomics for identification of compounds. The data showed that Valeriana wallichii could be used as a potential phytoestrogen, which can be further used for the treatment of menopausal women.
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Phytochemical Characterization and Determination of Anti-Hyperlipidemic Potential of Traditional Formulation (LAGGH)

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Abstract: Hyperlipidemia occurs mainly due to high level of lipids in blood. Most antihyperlipidemic drugs are beneficial over the short period of time but promotes long term side effects. Herbal formulation can be quite acceptable as these drugs are known to cause lesser adverse effects or no side effect. Herbal medicine is oriented toward prevention, health maintenance and treatment of diseases. To Prepare the herbal extract and its formulation, and evaluation of its antihyperlipidemic activity. Phytochemicals screening of the formulation was tested on the basis of their total ash value, carbohydrate, phenol, flavonoid and protein contents. The contents of amino acid in formulation was tested by HPTLC. The anti-hyperlipidemic effect of traditional formulation was tested in high fat diet (HFD) induced hyperlipidemic rat models. Hyperlipidemia was induced by feeding HFD for 50 days to rats. Treatment with formulation (20 mg/kg, body weight orally). Determination of antihyperlipidemic potential of formulation was tested by analysis of lipid profile, liver function test (LFT) and kidney function test (KFT) in blood sample. Fatty acid analysis of blood sample was tested by GC-MS. The total ash, carbohydrate, phenol, flavonoid and protein content in the formulation were found 2.23%, 22.75%, 6.96%, 16.42% and 7.35% respectively. Significantly reduced the hyperlipidemia i.e., decreased levels of serum total cholesterol, triglycerides, low density lipoprotein cholesterol (LDL-C), very low-density lipoprotein cholesterol (VLDL-C), SGOT and SGPT, increase of serum high density lipoprotein cholesterol (HDL-C) were found when compared to control and standard drug Atorvastatin (9 mg/kg body weight orally). The results demonstrated that traditional formulation (LAGGH) showed significant antihyperlipidemic activity.

HPTLC-MS bioautographic evaluation of Citrullus colocynthis for highthroughput screening and its identification of bioactive compounds.

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Abstract: Bioautography is biological detection method hyphenated with planer chromatography. Citrullus colocynthis is the traditional medicine used separately or with other compound to treat various ailments. It is traditionally used as an antidiabetic medication in tropical and subtropical countries. Preparation of extract of Citrullus colocynthis and development of HPTLC fingerprint for bioautographic evaluation and its identification by mass spectroscopy. Citrullus colocynthis was successively extracted through soxhlet by dichloromethane, ethyl acetate, methanol, toluene and water. HPTLC-bioautography based mass spectrometry was performed to identify the bioactive metabolites with antioxidant and anti-diabetic properties. The maximum yield was found in the aqueous extract and lowest in the toluene extract. Dichloromethane extract (toluene: methanol: formic acid; 8.5: 01: 0.5 v/v/v/), Ethyl acetate and methanol extract (chloroform: formic acid; 8.5: 01: 0.5 v/v/v/v/), toluene extract (chloroform: methanol: formic acid; 09: 01: 0.5 v/v/v) and water extract (n-butanol: GAA: water; 04: 0.5: 05) were chromatographically separated using HPTLC. Further, the plates were scanned at 254 and 366 nm. Out of these five extract, water extract was not showing any antidiabetic compounds and there were no antioxidant compounds detected in methanol extract through bioautography. Our study supports the traditional claim of Citrullus colocynthis for its antioxidant and antidiabetic activity. The developed HPTLC-bioautography with no doubt is an effective method for detection and identification of bioactive compound from crude drugs.
Simultaneous HPTLC method development for quantification of 5-Fluorouracil and andrographolide

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Abstract: 5-Fluorouracil a pyrimidine analogue, is a chemotherapeutic drug used in the treatment of cancer. It is Andrographolide is a diterpene lactone and is isolated from plant Andrographis paniculata Nees. It is anticancerous in nature, soluble in acetone, methanol, chloroform, ether and sparingly soluble in water. Herbal drugs are used in combination with chemotherapeutic drugs to reduce the side effects and increase efficacy. It is important to develop a simultaneous method for anticancerous drug in combination with herbal drug and characterize these two compounds and find out a quantification method to quantify them so that these compounds can be utilized for anticancerous studies. To develop a simultaneous solvent system for the quantification of 5-Fluorouracil (5-FU) and Andrographolide (AD). TLC was used first for the development of solvent system for 5-FU and then simultaneously with AD. In order to develop a better solvent system many combinations of the solvents were used and finally a better solvent system was developed for the quantification of both AD and 5-FU. After finalizing the solvent system, HPTLC (High performance thin layer chromatography) was performed. The solvent system having chloroform:methanol:Formic acid (9:1:0.5) was finalized. It gave a better quantification of these two components AD and 5-FU. AD and 5-FU were well separated and showed sharp and compact peaks, when detected under UV-Vis detector. A simultaneous HPTLC method for AP and 5-FU was developed and can be further utilized for other scientific studies.

Comparative metabolomic profiling by UPLC-MS and anticancer potential of terpenoid rich fraction of Ganoderma lucidum fruiting bodies

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Abstract: Terpenoids composed of “isoprenoid” units constitute one of the largest group of natural products accounting for more than 40000 individual compounds, with several newcompounds being discovered majorly from medicinal plants every year. The diverse array of terpenoid structures and functions has provoked increased interest in their commercial use. Microbial secondary metabolites of Ganoderma lucidum P. Karst (Curtis) have enormous range of other biological activities antioxidation, hepatoprotection, suppresses angiogenesis, anticancer, hypoxia and blood glucose level. Fruiting bodies were pulverized and extracted with 95% ethanol and immersed in boiling water. The extract was concentrated and extracted with dichloromethane. Further it was extracted with sodium bicarbonate, pH was adjusted to 3-4 at 0 ºC. The resulted precipitate was dissolved in dichloromethane and terpenoid rich fraction (TRF) was prepared. TRF was screened for their cytotoxicity potential on HCT116 cancer cell line by using MTT dye-based assay. Defined dose of TRF was administered to albino wistar rats. The valuable metabolites were identified by m/z based database through UPLC-QTOF-MS analysis. The percentage yield of TRF was found to be 0.5% w/w. The cytotoxic potential of TRF was done on HCT116 cancer cell-line. Results of MTT assay has shown that the TRF has significant (P < 0.05) cytotoxic potential. The comparative metabolomic profiling of TRF was clearly showed some valuable metabolites in terms of before and after absorption in blood. Overall results supported that TRF is considerable source of natural bioactive metabolites and gave vast information with significant antiproliferative activity that could be used for further drug development for cancer treatment.
**Formulation, development and in vivo assessment of skin cream containing hydroalcoholic extract of spirulina to improve wound healing potential**

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**Abstract:** Wound healing agents support the natural healing process, reduce trauma and likelihood of secondary infections and hasten wound closure. The wound healing activities of oil in water skin cream of the hydroalcoholic extract of *Spirulina major* Kiitz.ex Gomon (Oscillatoriaceae) was evaluated in rats with superficial skin incision and excision wound models. The extract was evaluated for in vitro antioxidant effect by DPPH radical scavenging activity. The preliminary investigation of extract was also evaluated for confirmation of the presence of carbohydrates, proteins, amino acids, flavonoids, phenolic compounds. The extract demonstrated antioxidant properties (IC50 = 406) and cream formulation possess slightly more potent activity than extract. Animals treated with *Spirulina major* cream formulation showed significance decrease (P<0.001) in wound area, epithelization period and scar width whereas rate of wound contraction significantly increased (P<0.001) as compared to control group animals in excision wound model. In incision wound model there was significant increase (P<0.001) in tensile strength. This was further supported with histopathological observations. The final formulation was also evaluated for parameters like consistency, texture, spreadability, washability, change in pH, viscosity, organoleptic characteristics, microbial growth and found to be stable as no significant variation with respect to these parameters and no degradation was observed.

**Chromatography based metabolomics of Tylophora indica leaves extract and its anticancer potential**

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**Abstract:** *Tylophora indica* (Burm f.), is a medicinal climber from milk-weed family Asclepidaceae. In Ayurveda, it has extensive history of use in global folk medicine for various biological disorders such as asthma, dermatitis, osteoarthritis pain and dysentery. It is reported to have important phenanthroindolizidine alkaloids which have shown various therapeutic properties. The present study is planned to explore the metabolomics analysis of phytoconstituents present in leaves extract of *T.indica* and anticancer potential in terms of MTT based cytotoxicassay on hepatocellular carcinoma HepG2 and breast carcinoma MCF-7 cell lines. *T. indica* dried leaves was extracted through sonication using methanol comprising 2% acetic acid. Chromatographic techniques for quality control analysis of the plant drug was carried out by High performance thin layer chromatography and ultra-performance liquid chromatography/quadrupole-time-of-flight mass-spectrometry using acetonitrile and 0.5% formic acid as mobile phase in gradient elution mode. The MTT assay of extract was carried out on MCF-7 and HepG2 cell lines for determination of cytotoxicity. A total of 32 metabolites were screened by UPLC-MS. Tylophorine, tylophorineB, tylophorinine, tylophorinidine, isotylocrebrine and stigmasterol were the major metabolites found in the *T. Indica* leaves extract. The inhibitory action against HepG2 and MCF-7 cell lines were observed with IC50 values 75.71 and 69.60 μg/mL, respectively. Collectively, our obtained data suggested that the *T. Indica* leaves clearly showed presence of several secondary metabolites with potent cytotoxic effects and can be considered as an important herbal anticancer drug and a promising substitute for the improved and less toxic cancer therapy.
**SCIENTIFIC ABSTRACTS**

**A-179** Biotransformation of minor ginsenoside in in adventitious root cultures of *Panax ginseng* by co-cultivation with lactic acid bacteria

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**Abstract:** Recent studies have suggested that LABs produce β-glucosidase catalyzing ginsenoside bioconversion by removing the glycosyl group of major ginsenosides. In ginseng, which is one of the representative medicinal herbs in Korea, minor ginsenosides (Rg3, Rh2, Rh1, F2, CK etc.) are known to have a greater pharmaceutical potential than major ginsenosides, and they are mostly deglycosylated forms. In this study, we investigated the effects of three kinds LAB (*Lactobacillus rhamnosus*, *Lactobacillus sanfranciscensis*, *Leuconostoc citreum*) on minor ginsenoside production by biotransformation of ginsenosides in *Panax ginseng* adventitious root culture. Three kinds of LAB (L. *rhamnosus*, L. *sanfranciscensis*, Leu. *citreum*) were co-cultured with ginseng adventitious roots. After one-week of co-culture, the biomass, pH, and electric conductivity (EC) of the culture medium were measured and total saponin and 12 ginsenoside contents were also analyzed. There has no significant difference in biomass (FW and DW) production among treatments except Lc 0.2% treatment (12.3%). EC was gradually decreased in all treatments while the pH increased until day-2 and then decreased. Total saponin content was higher in all treatments than in the control, especially in Lr 0.2% treatment (35 mg·g-1 DW). In addition, β-glucosidase activity was lower in all treatments than non-treatment and stress signal molecular factor (catalase, peroxidase, malondialdehyde) was also analyzed to understand its relationship between physiological stress and ginsenoside synthesis. Ginsenoside content was analyzed by HPLC. The content of total ginsenoside the highest in Lc 0.02% (v/v) treatment (4.5 mg·g-1 DW) and productivity also the highest in the treatment. In addition, the content of PPD type ginsenoside was highest Lc 0.02% treatment (2.8 mg·g-1 DW) but PPT type was the highest Lr 0.02% treatment (1.8 mg·g-1 DW). This study will be provided the methods to increase pharmaceutical ginsenosides by co-culture with the LAB in adventitious root cultures of *Panax ginseng*.

**A-180** Isolation and identification of bioactive fraction from root extract of *Cimicifuga racemosa* for the development of a novel herbal formulation

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**Abstract:** In spite of having high prevalence rate, menopause is an ignored segment throughout the world affecting the quality of life of elderly female. Although standard hormonal therapy is available, *Cimicifuga racemosa* having non-estrogenic activity is an extensively used botanical for the symptomatic relief of menopausal symptoms. This botanical is having safety, efficacy and can be suitably formulated by increasing the patient compliance. For this purpose it is essential to identify and characterise the plant extract besides isolation and identification of the bioactive fraction. Keeping in view of the above criteria, the objective of our study is to isolate and identify the bioactive fraction of *C. racemosa* extract with appropriate techniques for the development of a novel herbal formulation. The root of the plant was subjected to extraction with alcohol-water mixture and then undergone various identification techniques like UV, IR and NMR and followed by chromatographic characterisation techniques like High performance thin layer chromatography (HPTLC) and to liquid chromatography coupled to mass spectrometry (LCMS). The analytical and chromatographic platform was able to identify the triterpenes and phenolic compounds, which represent the most abundant constituent in the root extract. Triterpenes, which are supposed to be the bioactive marker in this plant are identify by Liebermann-Burchard reagent, isolated by suitable technique and then confirmed by LC-MS after preparative thin layer chromatography (TLC). The HPTLC method was used successfully to develop a chemical fingerprint for the authentication of bioactive fraction from *Cimicifuga racemosa*. 

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HPTLC-MS based bioautography and Quality control analysis of sharbat-e-bazoori traditionally, used Unani formulation

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Abstract: Drugs from Unani medicine are usually used in treating or preventing ailments or diseases, and it is considered to play a valuable role in health care. Sharbat-e-bazoori is used as an effective medicine for the treatment of kidney problems and one of the important medicine used clinically and therefore has been included in essential drug list in Unani system of medicine but there is no scientific data available for sharbata-e-bazoori for its use in clinical aspect. Preparation of formulation and development of its HPTLC finger printing for bioautography evaluation antioxidant properties. Formulation and phytochemical screening of Sharbat-e-bazoori on the basis of its total phenolic and flavonoid content was carried out. HPTLC based mass spectrometry was performed to identify antioxidant compounds. Total phenolics and flavonoid content in the formulation were found in significant amounts. The formulation was separated through HPTLC using (n-butanal:water:acetic acid). Develop plate was scanned at 254 and 366 nm. Bioautographic analysis revealed that compound separated through HPTLC showed antioxidant activity. The result demonstrated that traditional Unani formulation showed antioxidant activity. The developed method can be used for quality control of the crude drugs as well as the Unani formulation.
A Comparative Study on The Effect of Mustadi And Devadarvadi Upanaha Sveda In Sandhigatavata

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Abstract: Svedana is the prime modality of treatment for number of disorders especially Vata and kapha predominant diseases. Sandhigatavata is characterised by Vata purna Driti Sparsha Shotha (swelling), Prasarana Aakunchanaya Pravruttsiha Savedana (pain during flexion and extension) and Atopa (crepitus). Osteoarthritis is a condition of synovial joints where, focal loss of articular hyaline cartilage with proliferation of new bones and remodelling of joint contour. Joint pain especially with movement, pain after over use, joint swelling and joint fluid accumulation are the features of Osteoarthritis. Osteoarthritis is second commonest musculoskeletal problem in the world population (30%). Due to the resemblance in signs and symptoms Sandhigatavata can be correlated to Osteoarthritis. Upanaha governs its own importance due to its systemic application and unique way of drug combination. Devadarvadi Upanaha is a folklore combination comprising Devadaru, Rasana, Catamansi, Kustha, Kalattha, Masha, Yava, Godhuma, Eranda and possess Shothahara, Sulaprasamana, Swedanajaya and Vata-kaphahara action. Mustadi Upanaha comprising Musta, Kinva, Tila, Kusta, Devadaru, Lavana, Tagara, Dadhi, Kshira, Chatu Sneha (Ghritha, Taila, Vasa, Majja) is mentioned. These drugs have dominance of Tikta, Katu, Madhura rasa, Usna Virya, Katu and Madhura Vipaka and has Vata-Kapha kara properties. In Mustadi Upanaha, the homologous paste is prepared by adding Chatu sneha along with Dadi, Ksheera as a drava dravya medium. Chatu Sneha has three Dosha Shamaka property and promotes physical strength over Asthi and Sandhi. It is considered as best Sneha Dravyas among all. So, this may enhance the action on Sandhigatavata. Hence, this study is intended to compare the effect of Upanaha Sveda performed with Mustadi churna and Devadarvadi churna in Sandhigatavata (Osteoarthritis of Knee joint). All the Ayurveda and contemporary texts including websites about the procedure, disease and drugs were reviewed and documented for the intended study. Patient suffering from Sandhigata vata were selected from the Panchakarma OPD and IPD of Alvas Ayurveda Medical College and Hospital, Moodbidri. The drugs were properly identified and collected from Alvas Pharmacy, Mijar. Choorna’s and Moorchita Tila Taila was prepared in Alva’s Pharmacy, Mijar. A Comparative clinical study, a minimum of 40 patients fulfilling the diagnostic and inclusion criteria of Sandhigatavata of either sex were selected for the study and randomly assigned into 2 equal groups. Group-MU (Mustadi Upanaha) and Group-DU (Devadarvadi Upanaha) using Lottery method. The cases were selected as per Signs and Symptoms of Sandhigata vata. The patient was diagnosed based on the following clinical features. • Sandhi Shoola - Pain in knee joints. • Sandhi Shotha - Knee joint swelling • Sandhi Atopa-Crepitation • Prasarna and Aakunchanayo Pravruttsiha sa vedana-Pain during flexion and extension. • Tenderness. Inclusion Criteria: Patients fulfilling the diagnostic criteria of Sandhigatavata, patient’s age group between 30 to 70 years of either sex. Patients fit for Upanaha sveda. Exclusion Criteria: • Patients with Tuberculosis, Secondary arthritis, Rheumatoid arthritis, Psoriatic arthritis, Gouty arthritis, Congenital bony deformity of Knee joint. • Patients having history of joint trauma, secondary and other systemic illness. From the conceptual study, clinical trials, observation and discussions it can be concluded that Mustadi Upanaha Sveda provided relief in all the signs and symptoms. Both Mustadi and Devadarvadi Upanaha Sveda provides statistically highly significant result in all the signs and symptoms within the group. Between the groups there was statistically highly significance seen in tenderness and Womac Score in Mustadi Group. Application of medicaments, heat and massage definitely helps in eliminating the number of noxious element through skin. The application of heat in different forms of Svedana promotes local circulation and metabolic activities and also opens the pores of the skin to permit transfer of medicaments and nutrients towards to needed sites and elimination of vitiated Doshas and Malas through skin and perspiration. Mustadi Upanaha Sveda has better effect than Devadarvadi Upanaha Sveda in Sandhigata Vata.
A Single Case Study on Mediastinal Lymphoma Treated With Rasayana And Shamana Aushadi

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Abstract: Mediastinal Lymphoma a variety of extra nodal lymphoma. Initially asymptomatic and may be detected incidentally on radiological investigation. Depending on severity of compression over Mediastinal structures, symptoms like dyspnoea, cough, stridor, wheezing, obstructive pneumonia and other symptoms are seen. Here an attempt is made to tackle this condition by RASAYANA THERAPY. A Female patient presented herself with the complaints of dyspnoea and productive cough, underwent radiological investigation which was suggestive of interstitial lung disease with Mediastenial lymphadenopathy. Further Transbronchial needle aspiration study suggestive of Mediastinal lymphoma and was advised for Mediastinoscopy for lymphnode biopsy for which patient was reluctant. The patient was treated with pippali rasayana and dhupana with shamana aushadi. After a treatment of 60 days there was a reduction in the size of lymphoma by 33% as suggested by radiological investigation and further treatment shows complete remission. The present study clearly indicates that the RASAYANA THEPRAPY are more effective in treating Mediastinal lymphoma without any relapse in the general condition of individual.

Dehydrozingerone ameliorates Cognitive impairment induced by temozolomide in normal Wistar rats

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Abstract: Temozolomide (TMZ) is an alkylating agent, commonly used in the treatment of glioma. Like another chemotherapeutic agent of cancer, it is reported to induce cognitive impairment in the survivors. Dehydrozingerone is a half analogue curcumin. It is a potent antioxidant and chemopreventive agent. Present study was designed to evaluate the ameliorative potentials of dehydrozingerone against TMZ-induced cognitive impairment in male Wistar rats. Animals were grouped in normal control, TMZ control and dehydrozingerone (DHZ) treatment groups. TMZ was administered in TMZ control and DHZ group at a dose of 18mg/kg i.v once in 5 days over 32 days. DHZ was given 100 mg/kg p.o. daily. Spatial memory was assessed by the Morris water maze test (MWM). A part of the hippocampus and frontal cortex was subjected to antioxidant evaluation and remaining for the assessment of neuronal integrity by histopathology. MWM test showed a significant decrease in total zone entry and escape latency in TMZ treated the group as compared to normal control. Similar changes were observed in the histopathological and antioxidant examination. In the antioxidant analysis, GSH showed abnormal elevation in TMZ treated group which was reversed by DHZ treatment group. This was an important finding as an elevation in glutathione is a reason behind TMZ resistance. The result showed a neuroprotective effect of DHZ in TMZ induced cognitive impairment.
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Is there any need of Nutraceuticals in the prevention of atherosclerosis?

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Abstract: Ethnopharmacology focuses on the use of traditional medicine in local communities, including its commercial applications. Nutraceuticals are natural nutritional compounds that are beneficial for the prevention or treatment of disease and, therefore, represent a possible therapeutic avenue. Atherosclerosis is a chronic, inflammatory disease affecting large and medium arteries and is considered to be a significant underlying cause of cardiovascular disease (CVD). Effect of novel Nutraceuticals on the prevention and treatment of Atherosclerosis. A brief review was done on the therapeutic effect of Nutraceuticals on the prevention and treatment of CVD. Different nutraceuticals are studied to lower the plasma cholesterol level, and it can be effectively used to prevent and cure atherosclerosis solely in the early stage or as an adjunct to the drug in the process of treatment. There are reviews as well as studies supporting polyunsaturated fatty acids like omega -3 and omega -6, flavonoids and other polyphenols ameliorate atherosclerosis and even cause plaque regression in mouse model systems. A major advantage is that they can be taken safely over the lifetime of an individual, whereas pharmaceutical strategies are only administered once an atherosclerotic risk has been identified and can result in adverse effects with prolonged use. Advances in our understanding of evidence about nutraceutical actions of cardiovascular protective effects, will lead to the identification of novel treatment and prevention strategies to reduce the global prevalence of CVD. Further studies required to fully evaluate the effectiveness of nutraceuticals on CVD reduction and prevention.

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In search of natural product hits as potential E6 inhibitors using In-silico Methods

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Abstract: Virtually in 100% of cases, HPV DNA has been found to be associated with cervical cancer and the most prominent among various strains of HPV is HPV 16 and HPV 18. The viral E6 and E7 genes are regularly maintained and expressed in cervical cancer. So, the functional inhibition of E6 can be a promising therapeutic target for HPV associated cervical cancer. (a) Development of an e-pharmacophore hypothesis for virtual screening of a natural product database. (b) Identification of best ten hits and understand the amino acid residue interactions based on molecular docking. Sitemap analysis was done to identify a promising binding pocket and based on the key amino acid residues in the pocket, a six-point e-pharmacophore model (AADHRR) was built. Natural product activity and species source (NPASS) database was used to download a library of natural product and a total of 219 compounds, which are grouped as active against HPV positive cell lines, were screened. CID208022 and NPC279121 were identified as the best hits. Interestingly, NPC279121 (Luteoline) has been reported as a potent E6 oncogene inhibitor at 20 μM concentration. We identified best ten hits which have shown good interaction with the E6 protein and can be tested for its in vitro E6 inhibition activity. These can become new therapeutic agents against cervical cancer.
Chemopreventive potential of *Citrus limonum* against DMBA induced skin papillomagenesis in Swiss albino mice

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**Abstract:** The present study evaluated the chemopreventive potential of *Citrus limonum* juice and peel extract in 7,12-dimethylbenz(a)anthracene (DMBA)/croton oil induced skin papilloma in mice. The mechanistic pathway for the chemopreventive potential of *Citrus limonum* was evaluated by analyzing the status of lipid peroxidation, antioxidants like catalase and glutathione during DMBA-induced skin carcinogenesis. The significant reduction in the average number of skin papilloma per animal of *Citrus limonum* treatment group was observed against the control group. The oral administration of peel extract ($P<0.05$) while topical application of juice ($P<0.01$) and peel extract ($P<0.001$) during post-initiational phases of papillomagenesis showed significant reduction in tumor burden as compared to DMBA/croton oil treated control animals. Further more, a significant increase in glutathione level treated by juice and peel extract orally ($P<0.001$) while peel extract topically ($P<0.01$), catalase ($P<0.001$) level in skin was observed in the juice and peel extract administered orally and applied topically as compared to carcinogen treated control, whereas MDA formation in lipid peroxidation was inhibited significantly by administration of juice topically ($P<0.05$) and peel extract applied topically ($p<0.01$). Also the expression of biomarkers like TNF-alpha and IL-6 were reduced in *Citrus limonum* treated groups as compared to that of control group. The result suggest the significant chemopreventive effect of *Citrus limonum* against DMBA induced skin papillomagenesis in Swiss albino mice.

Anti Amnesic and Anti Cholinesterase Potential of Dodonaea Viscosa Linn. Leaf in Mice

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**Abstract:** Amnesia is a general term that refers to a serious memory deficit typically associated with medial temporal. Nootropics or cholinesterase inhibitors are agents that enhance the cognitive skills. Donepezil, tacrine, piracetam, galantamine, and rivastigmine are commonly generic drugs used for improving memory and treatment of amnesia. Dodonaea viscosa L. (DV) is a traditional medicine worldwide used to treat a great variety of ailments such as throats colds, fever, malaria, itching, fevers swellings, antispasmodic, soothe toothaches, headaches, sprains, bruises, burns, wounds, ulcers and etc. The study was aimed to investigate the potential effect of ethanolic extract of Dodonaea viscosa L. on memory and whole brain acetylcholinesterase inhibition activity in young and aged mice. In the present study, memory enhancing activity of (100 and 200 mg/kg, p.o.) ethanolic extract of leaves of DV was estimated in mice. Elevated plus maze and Morris water maze were employed to evaluate learning and memory. Transfer Latency (TL), Escape Latency (EL) and Time Spent in Targeted Quadrant (TSTQ) were observed respectively in young and aged mice. Scopolamine (0.4 mg/kg, i.p.) and diazepam (1 mg/kg, i.p.) were used to induce amnesia in young mice and nootropic agent (piracetam 200 mg/kg, i.p.) was being used as standard control. Anti acetylcholinesterase activity of DV was estimated in mice whole brain. The whole brain AChE activity was measured spectroscopically using the Ellman method. DV (100 and 200 mg/kg, p.o.) significantly ($p<0.001$) attenuated amnesic deficits induced by scopolamine, diazepam and natural aging. Furthermore, it also reversed aging induced amnesia due to natural aging of mice. DV profoundly increased whole brain acetyl cholinesterase inhibition activity. The ethanolic extract of DV might prove to be a useful memory restorative agent in the treatment of amnesia. The underlying mechanism of action can be attributed to its anti acetyl cholinesterase inhibition properties.
**UV-Spectrophotometric Determination of Trapidil in Formulation**

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**Abstract:** A rapid, simple, selective and precise UV-Visible Spectrophotometric method has been developed for the determination of Trapidil in bulk forms and solid dosage formulations. The spectrophotometric detection was carried out at an absorption maximum of 304 and 225 nm for method I (standard absorptivity) and method II (Comparison with standard), and 293.8, 316.4 for method III (First order derivative method) using 0.1N NaOH as a solvent. The method was validated for accuracy, precision, Intraday and Interday study. The detector response for the Trapidil was linear over the selected concentration range 2 to 10 μg/ml with a correlation coefficient of 0.9956 and 0.996. The accuracy was 100.46 and 100.36 % for method I, 100.72 and 100.85% for method II, and 99.24% & 100.21% for method III. The results demonstrated that the excipients in the commercial tablets did not interfere with the method and can be conveniently employed for routine quality control analysis of Trapidil in bulk drug, marketed tablets and other formulations.

**Indigenous Medicine System and Climatic Conditions - a Correlation Studies.**

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**Abstract:** Indigenous medicine is an important component of indigenous (traditional) knowledge system, which is the sum total of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health, as well as in the prevention, diagnosis, improvement or treatment of physical and mental illnesses. Practices of indigenous medicine vary greatly from country to country, and from region to region, as they are influenced by factors such as culture, history, personal attitudes and philosophy. Traditional medicine provides health care for more than half the world's population, but no one has really looked at how the environment affects traditional medicine. The environment plays a huge role in shaping traditional knowledge. This traditional medicine utilises plants and animals to make natural remedies. Despite a lot of these species being under threat due to ongoing climatic changes and other human effects on the environment, the effect that these changes can have on traditional medicine is not thoroughly understood. By understanding the relationship between environment and traditional knowledge, we can then understand how cultures have responded to changes in the environment. Climate change has become most critical issue at the global level, regional and local level to such an extent that climate change is considered as a challenge for the mankind in the present century. No person, no country or no region of the world is immune to climatic changes.However, increasing integrating mitigation and adaptation strategies in terms of climate changes are not completely new idea in India. This region is characterised by severe and frequent droughts from centuries, given the rich cultural values of north-western region, local population through their indigenous knowledge systems, have developed a unique from of skills to reduce their vulnerability to variability in local climate.
Bio-piracy in Herbal Medicinal System

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Abstract: India is a hotspot for bio-resources and traditional knowledge. Indian traditional knowledge reflects community traditions. It is a body of knowledge which needs to be sustained through inter-generations. Therefore, protecting traditional knowledge is the need of the hour. Traditional medicine usually involves biological resources and the knowledge of indigenous people regarding their medicinal use; thus, it has a multi-faceted interface with bioresource conservation and indigenous peoples' rights over their knowledge and resources. The current Intellectual Property Right (IPR) system does not protect the traditional knowledge easily because of its limited validity and lack of novelty or inventiveness. Traditional knowledge from the indigenous community has fallen prey to the misappropriation and commercialization from companies or researchers without the consent or the agreements to share the benefits. Turmeric, neem and basmati rice are well known examples of bio-piracy. The positive and defensive IPR protection along with Sui generis law is important because its ratification allows developing countries like India to seek remedies against the misuse. Traditional Knowledge Digital Library (TKDL) is a pioneer initiative of CSIR and Department of AYUSH to prevent misappropriation of India’s traditional medicinal knowledge. Due to the multiple and diverse objectives of IPR of traditional knowledge, Government must adopt integrated approach at national and international level to promote traditional resource wealth.

Nano-phytomedicines – Advances and Limitations

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Abstract: Nanophytomedicine is the novel technique which combines nanotechnology and herbals. This is a prominent upcoming area in the field of herbal medicine drug delivery. The combination of plant extracts with the novel formulation tools like liposomes, niosomes, nanoemulsions, microspheres and transfersomes, etc is the basic principle for development of nanophytomedicines. The nanotechnology based medicines have various advantages such as enhanced solubility, target specific drug delivery, decreased toxicity, increased shelf life and reduced duration of treatment. These advantages can be used to deliver the medicines that are expected to have various side effects. The recent development of scientific approach for the formulation of novel herbal medicines has increased their bioavailability. The replacement of nanophytomedicine in the treatment of serious disease like cancer is beneficial. The side effects of chemotherapy used during cancer outweighs the advantages since there a lot of damage and destruction of healthy tissues along with the carcinogenic tissues. The nanophytomedicine therapy may improvises this situation by providing tissue specific delivery along with reduced side effects. Nano-sized herbal drugs have a potential future for enhancing the activity and overcoming problems associated with plant medicines. This poster attempts to explore the recent advances and limitations of nanophytomedicine.
SCIENTIFIC ABSTRACTS

A-193 Neuroprotective Activity of Terminalia chebula against Global Cerebral Ischemia
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Abstract: Traditionally, the plant is used for various diseases, including neuronal disorders. To evaluate the neuroprotective activity of Terminalia chebula. Against global cerebral ischemia. Neuroprotective activity was carried out by global cerebral ischemia on Sprague-Dawley rats. Global cerebral ischemia induced by Bilateral Carotid Artery (BCA) occlusion for 30 min followed by 4 hr reperfusion. The antioxidant enzymetic and nonenzymatic levels were estimated along with cerebral infraction area and histopathological studies. The Terminalia chebula methanolic extract showed dose dependent neuroprotective activity by significant decrease in lipid peroxidation (LPO) and increase in superoxide dismutase (SOD), catalase (CAT), glutathione (GSH) and total thiol levels in extract treated groups as compared to ischemia/reperfusion group. Cerebral infraction area was significantly reduced in extract treated groups as compared to ischemia/reperfusion group. The methanol extract of Terminalia chebula showed neuroprotective activity against global cerebral ischemia.

A-194 Evaluation of Hepatoprotective and Nephroprotective Activity of Gossypin Against Drug Induced Liver and Kidney Damage In Rats
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Abstract: Gossypin was isolated from Hibiscus vitifolius is used for the treatment of various diseases, including Liver and Kidney disorders. In present study, Gossypin was evaluated for hepatoprotective and nephroprotective activity against drug induced liver and kidney damage in rats. Hepatoprotective activity of Gossypin was evaluated on isoniazid, rifampicin and pyrazinamide induced hepatotoxicity in rats, by measuring levels of biochemical enzymes in serum and tissue homogenate and histopathology studies, Nephroprotective activity of Gossypin was evaluated on Gentamicin induced nephrotoxicity in rats, by measuring levels of biochemical enzymes in serum and tissue homogenate, urine analysis and histopathology studies. The Gossypin at 5mg/kg & 10mg/kg doses and sylimarin 50mg/kg showed hepatoprotective activity against isoniazid, rifampicin and pyrazinamide induced hepatotoxicity in rats by significant decreasing the biochemical enzymes in serum and tissue homogenate such as SGOT (p<0.001), SGPT (p<0.05), ALP (p<0.001), Total bilirubin (p<0.001), LDL-cholesterol (p<0.001), Catelase (p<0.001), lipid peroxidase(LPO) (p<0.001), and increasing Glutathione (p<0.001), superoxide dismutase (p<0.001) levels as compared to the control group. The Gossypin at 5mg/kg & 10mg/kg doses and Selenium 2mg/kg showed nephroprotective activity against Gentamycin induced nephrotoxicity in rats by significant decreasing the biochemical enzymes such as lipid peroxidase(LPO) (p<0.05), superoxide dismutase (p<0.05), Catelase (p<0.001), Glutathione (p<0.05) and Creatinin(p<0.01), BUN(p<0.01), Uric acid(p<0.05) levels in urine and serum as compared to the control group.Further this protection is supported by histopathological findings. In conclusion Gossypin possesses a significant hepatoprotective and nephroprotective activity against Isoniazid, Rifampicin and Pyrazinamide induced hepatotoxicity and gentamicin induced nephrotoxicity in rats.
A Case Study On Obsessive Compulsive Disorder.

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Abstract: People of all age can get caught in web of OCD. People with obsessive compulsive disorder (OCD) feels compelled to have obsessive thoughts or urges or compulsion which is repetitive behaviour. To evaluate the efficacy of ayurvedic line of management in OCD. A female patient aged 17yrs presented with complaints of repeated washing of genitals on urination, extreme consciousness about hygiene since 3 years. Patient was diagnosed as obsessive compulsive disorder (OCD) about contamination. Patient was treated with cap. Ashwagandha 2 tid tab sarpagandha ½ bd, saraswathari sht for a period of 7 days. By next 3 visits followup with span of 15 days she found significant decrease in frequency of compulsion. Ayurvedic line of management have shown significant improvement in reduction of symptoms.

Case Study- Cerebro Vascular Disorder (Pakshaghata) Treated With Pipali.

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Abstract: Cerebrovascular accident (CVA/stroke)-when blood flow to a part of your brain is stopped either by a blockage or the rupture of a blood vessel leads to damage of brain. Common complications resulting from a stroke include unconsciousness, difficulty in speaking, swallowing, moving or thinking. Ayurveda explains the pathology under the heading pakshaghata. As per Ayurveda, pippali is a herbal medicine which can be used for regaining the conciousness. To evaluate the efficacy of pippali capsule in a semiconscious patient. A male patient named Basavaraj G, aged 60 years k/c/o of DM and HTN. Since 7-8 years developed with weakness of left half of body associated with deviation of mouth and loss of speech since 20 days. The diagnosis CVA was confirmed with CT Brain. He was admitted in SDM Ayurveda Hospital Udupi for further management. The consciousness was analysed with GCS Score. The patient was treated with pipali rasayana as internal medicine and Abhyanga and Veshtana as external medication. After 7days the patient shows significant improvement in terms of consciousness, orientation, memory, speech and swallowing. Photographs and video shows improvement before and after treatment. GCS score was 8 and 15 before and after treatment respectively. Pipali is one among the drug mentioned in the treatment of mada and moorcha and is shirovirecana and urdwabahara (cure ailments in upper part of body) drugs. The hot potency and penetrating power of pipali helps in regaining the conciousness of the patient.
SCIENTIFIC ABSTRACTS

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A Case Study on Attention Deficit Hyperactive Disorder.

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Abstract: Attention deficit hyperactive disorder (ADHD) is a neurodevelopmental disorder that affects children and teens. It is the most commonly diagnosed psychiatric disorders of children. It is characterised by problems paying attention, excessive activity or difficulty controlling behavior which is not appropriate for a person’s age. Although it causes impairment, many children with ADHD have a good attention span for tasks they find interesting. Holistic approach of ayurvedic medications in improving the quality of life in children with ADHD. A male baby aged 12 years presented with complaints of running around, unable to concentrate, hitting fellow students since 9 years. He was diagnosed as attention deficit hyperactive disorder. He was treated with cap. Yashtimadhu 2tid, tab smritisagara rasa 1/2 bd, t.sarpagandha ½ bd for a span of 6months with regular follow up in every month. There is significant change in attitude and reduction in complaints like hyperactivity, impulsivity and inattention. Yashtimadhu which is a one of the prime nootrophic drug thus helps in treating the condition.

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A Case Study on Primary Insomnia (Nidranasha) Treated With Sarpagandha Vati

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Abstract: Insomnia is the most common of all sleep disorders in which there is difficulty in initiating or maintaining the sleep. Improper sleep can increase the risk of developing obesity, high blood pressure and heart disease. Sarpagandha is considered important drug in manasika vyadhi and it is being said to have nidra janana karama because of its prabhava. To evaluate the efficacy of sarpagandha vati in nidranasha (primary insomnia). A Female patient aged 34 years resident of kaup, Udupi, visited OPD of SDM hospital. Udupi, with the complaints of loss of sleep since 8 months associated with heaviness of body and headache, with marked impairment in Quality of Life. Case was diagnosed as Primary Insomnia (nidranasha) on the basis of INSOMNIA SEVERITY INDEX. Sarpagandha vati was given 500mg in BD dosage for 15 days, Patient was called for follow up, remarkable change was seen in the patients sleep pattern and quality of life (QOL). The symptoms of Primary Insomnia match with nidranasha, was treated with sarpagandha vati which is said to be vatahara and nidranasha to be a vatanantamaja vyadhi hence the study showed relief in symptoms of nidranasha.
A Single Case Study on Ischemic Limb Disease Treated With Haritaki Rasayana

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Abstract: Peripheral arterial disease of the lower extremity is an important cause of morbidity, irrespective of elimination of risk factor, conservative treatment and surgical interventions, the illness progresses over a period of years causing loss of the affected limb. So an attempt is made to show the evidence based study in regard to the effective management of ischemic limb disease is taken up. A Male patient with complaints of calf intermittent claudication since 10 years, cyanosis of right lower limb, hair loss reduced skin temperature, on examination revealed absent of pulsation in dorsalis Pedis artery, saturation was not identified, underwent radiological investigation which shows abnormal monophasic flow pattern in various arteries, and no Doppler signal in superficial femoral artery and peroneal artery. The patient was treated with Haritaki rasayana. After a course of treatment of administering Haritaki rasayana for 30 days there was reduction in the intermittent claudication, skin color changed to normal Saturation level increased to 93%, arterial Doppler study shown improved circulation in the peroneal artery initially nil increased to 13cm /sec. The present study clearly indicates the use of Haritaki rasayana is more effective in treating PAD.

Parkinson’s Disease (Kampavata) Treated With Kapikachu – An Ayurvedic

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Abstract: Parkinson’s disease is a degenerative disorder of the central nervous system that mainly affect the motor system, the most obvious early signs of the disease are shaking, rigidity, slowness of movement and difficulty with walking. Parkinson’s disease known in Ayurveda as “KampaVata”, is a neurological disorder affecting 1% of population over the age of 65 and 4th most common neurological degenerative disorder. To evaluate the efficacy of kapikachu in parkinson’s disease (kampavata). A male patient aged 48yr resident of kumta, uttara kannada, visited opd of SDM Hospital, Udupi, with the complaints of tremors in upper and lower limb associated with instability while walking and standing since 20 years. Case was diagnosed as parkinsons disease on the basis of positive findings like positive glabellae tab, retropulsion test, resting tremor. Cog-wheel rigidity in upper limb and rigidity in lower limb bilaterally, dysarthria, bradykinesia and masked face. Patient was treated with 2 capsules of kapikachu in TID dosage and kapikachu ksheera pakan50ml BD dosage (1 hr before food ) was given for 1&1/2 months and on follow up the symptoms like rigidity, slowness of movement, dysarthria, Bradykinesis were reduced and marked improvement was seen. The above said symptoms matches with kampavata and treatment selected was kapikachu which has vatahara property according to charaka and is said to have a high amount of L-dopa.
Phenolic acids profiling and antioxidant potential of different varieties of white mulberry (Zagtlul, Brentul Kashmir, Chattatual, Chattatual Zaingir) leaves and fruits grown in Jammu & Kashmir

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Abstract: Mulberry (Morus alba L.) belongs to the Moraceae family and is widely planted in India. Jammu and Kashmir is the country’s fourth largest silk producing state. Almost 70 varieties of mulberry are grown in J&K. To study the phenolic and antioxidant potential of different varieties of white mulberry leaves and fruits grown in Jammu and Kashmir. In this study antioxidant properties total phenolic content, total flavonoid content of water extracts of mulberry leaves and fruits were examined. Dried fruits and leaves of mulberry plant species were extracted by cold maceration method. Antioxidant activity, total phenolic content and total flavonoid content were determined using spectrophotometric assays. The total phenolic content in different varieties was determined by the Folin-Ciocalteu method. Different concentration of standard (gallic acid) in place of the sample was used to prepare calibration curve which was further used for the calculation of total phenolic content. The total flavonoid content was determined by the aluminum chloride colorimetric method. The total flavonoid content was calculated from a calibration curve of standard (rutin), and the result was expressed as mg rutin equivalent to per gram dry weight. This study concluded that aqueous extract of mulberry leaves and fruits contain significant antioxidant properties. Antioxidant properties are correlated well with the level of oxygen radical scavengers, such as phenolic compounds. Among all the varieties studied Chattatual Zaingir had highest antioxidant activity. This is the first report on identification of phenolic acids and antioxidant activity in the extracts of four cultivars of mulberry plants grown in Jammu and Kashmir. This suggests that there are many opportunities for the food and health care industry to explore the health benefits of mulberry fruits and leaves.
**SCIENTIFIC ABSTRACTS**

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**Role of ethanomedicobotanical survey in advancement of ayurveda w.r.t to the evaluation of the krimighna action of the folklore plant (MELASTOMA MALABATHRICUM LINN.) in diarrhoea causing organisms**

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**ABSTRACT:** There are over 750,000 plants on earth. Relatively speaking, only a very few of the healing herbs have been studied scientifically. The present day need is to bring such herbs again into Ayurvedic Pharmacopoeia. Therefore, this study was taken to enrich the folklore wisdom. Melastoma malabathricum is one such plant, where classical reference is not found, but is used in Folk practice. It is locally called as dodda nekkare, nekkarike seen growing abundantly in South canara. It is commonly being used by folk practitioners for the treatment of diarrhoea, dysentery and fever by which the antibacterial action of the plant can be inferred. The present study aims at the evaluation of Krimighna action of kwatha(aqueous extract) and Pramathya of Melastoma malabathricum Linn against Shigella flexneri, Salmonella typhi, Salmonella paratyphi A and Vibrio cholera O1 in vitro. To 1 part of the thoroughly washed and ground leaves, 4 parts of water was added, and heated, and was reduced to ¼ of the total volume, filtered and was used for testing the krimighna activity. 1 part of the thoroughly washed leaves are grinded and made into kalka, to this 8 parts of water was added, and heated, and was reduced to ¼ of the total volume and was used for testing the krimighna activity.

**AGAR DILUTION METHOD:** This method was adopted to determine the minimum inhibitory concentration (MIC) of the leaf extract. **TIME-KILL ASSAY (TKA):** This method was used to assess the bactericidal activity of the antimicrobial agents. Folklore drug Melastoma malabathricum which is used in treating fever and diarrhoea is taken to carry out the in vitro study against diarrhoea causing organisms. Before doing this the organoleptic study was done in detail, as it was a new drug to Ayurveda. Varieties of this plant have been mentioned based on the color of the flower, but in the coastal region only one species is noted. This plant also resembles to two other local plants; they are also used for the same disease. Since the plant is not found in the Ayurvedic classics, an attempt was made to name the plant depending on its characteristics, as Jaleshani, Tamravrinta, Neela phala, Rekha patra, Supushpa, Kharapatra and Atisarghni. Organoleptic study revealed that it is Amla rasa pradhana, with katu tikta kashaya anurasa, having katu vipaka, ushna veerya, grahi as chief action and also deepana and pachana. Kwatha and Pramathya showed good antibacterial action in the same concentration as mentioned in the classics.

**A-203**

**Study of synergistic anti-inflammatory activity of Erythrina variegata linn, Jatropha glandulifera roxb, and Aloe barbadensis mill.**

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**Abstract:** Steroidal and nonsteroidal drugs are generally used as a part of drug therapy in inflammation. However, these drugs have severe side-effects like nausea and vomiting. Therefore, there is a need to identify anti-inflammatory compounds that will be effective with a better safety profile. To study the synergistic anti-inflammatory of Erythrina variegata Linn, Jatropha glandulifera Roxb and Aloe barbadensis Mill, crude extracts and also synergistic formulations. The anti-inflammatory activity of these extracts was investigated using the egg albumin induced paw edema model in rats individually and combination. It was observed that extracts of dried leaves of Erythrina variegata showed more anti-inflammatory activity than latex of Jatropha and leaf juice of Aloe vera. All the extracts showed maximum anti-inflammatory activity at 200 mg/kg dose. Combination of 2:1:1 of the three extracts at 200 mg/kg dose showed maximum anti-inflammatory activity. Percentage inhibition of three extracts in combinations is higher than the individual plant extracts. This showed that the plant extracts were synergistic in nature.
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Antiproliferative potential of *Achyranthes coynei* on Burkitt’s Lymphoma (*Daudi*) cells

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Abstract: In the present study, *Achyranthes coynei* (Family: Amaranthaceae), an ethnomedicinal plant was evaluated for validation of anticancer potential. This study was intended to provide the scientific validation to ethnomedicinal plant for their medicinal effect. The plant extract was extracted using hydro alcoholic solvent by using maceration method. Further, phytochemical investigation was performed followed by brine shrimp lethality assay, dye exclusion assay, MTT assay, RBC aggregation assay, CAM assay to evaluate the anti-proliferative effect of crude extract. The decrease in cell viability in dye exclusion assay, MTT assay, cytotoxicity against brine shrimp lethality assay and CAM assay suggested that *A. coynei* sensitised the cell proliferation. Hence, there was observed decrease in the cell viability which was due to the presence of bioactive moieties, tri-terpenoidal constituents which was confirmed through various phytochemical investigations.

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Development of quality control markers for crude drug identification

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Abstract: *Coelogyne cristata* Lindley and *Pholidota articulata* Lindley (Family- Orchidaceae), locally known as ‘hadjojen’ (bone jointer) are the most effective folk-lore remedies for healing fractures in Uttarakhand Himalaya, India. Recent pharmacological investigations of crude extracts and isolated compounds from these orchids revealed rapid fracture healing properties and osteogenic potential. Both the orchids are known with similar vernacular name/local name, therefore, during procurement and identification of plant materials is troublesome and always have a threat to get non-genuine and adulterated material. This study was aimed to standardize quality control markers for crude drug identification and pharmacognostical investigations to check adulteration in herbal formulation of both the species. we have done chemical fingerprinting and HPTLC profiling of both the species as quality control markers for identification and authentication of their genuine drug formulations. This study also involves morpho-histological, powder microscopic characteristics and physico-chemical parameters like ash and extractive values to determine their quality control markers. Microscopic studies of leaf, pseudobulb and powder showed collateral vascular bundles containing large number of mucilage cells, parenchymatous cells with pitted banded lignified or beaded with mesh-like network, septate and aseptate fibers, rhomboidal crystals of calcium oxalate and pitted parenchyma. Comparative HPTLC profile showed blue and pink florescent band at different Rf values with the distinct characteristic bands at Rf 0.31, 0.47 and 0.62 corresponding to the analytical marker compounds: Ursolic acid, δ-sitosterol and Lupeol, respectively in both CC and PA. Quality control markers for *Coelogyne cristata* and *Pholidota articulata* has been developed which can be used for identification and authentication of their genuine herbal drug formulations as well as plant material from wild.
Evaluation of memory enhancement activity of *Coccinia grandis* leaves and stem extracts

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**Abstract:** The *Coccinia grandis* is having antibacterial activity and every part of this plant is valuable in medicine and various preparations in indigenous system of medicine for various skin disease, bronchitis, psoriasis, smallpox, ulcers and it is having the antilithic hypolipidemic, antimutagenic and hypoglycemic activities. The present study was undertaken to investigate the memory enhancement activity of the *Coccinia grandis* in mice by using the elevated plus maze. Ethyl acetate and ethanol extracts of *Coccinia grandis* (100mg/kg) administered for 5 successive days to mice. Piracetam (200mg/kg I.P) was used as standard enhancement agent Diazepam (1mg/kg I.P) as an amnesic agent. *Coccinia grandis* has shown significant memory enhancement activity in mice when compared to other groups.

HPTLC Bioautographic high throughput screening and identification of anticholinesterase compounds of *Bacopa monnieri*

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**Abstract:** Alzheimer’s disease (AD) accounts for 60-80 percent of cases and is also the most common neurodegenerative disorder. One of the neurochemical alterations that occur in AD is the cholinergic deficit, which is caused either due to the reduced production of acetylcholine or due to the abnormal increase in the activity of the enzyme AChE. Due to the adverse effects associated with ChE inhibitors, it is worthwhile to explore the utility of traditional medicines and plants for the treatment of various cognitive disorders. The aim of the present study was to identify the anticholinesterase activity of *Bacopa monnieri* for the treatment of AD using bioautographic technique. Hydro-alcoholic and aqueous extracts of *B. monnieri* were prepared. Measurement of anticholinesterase activity of the same was carried out by *in vitro* method, and HPTLC bioautography was done for isolation of the pharmacologically active phytoconstituents. The *in vitro* assay exhibited a significant anticholinesterase activity for both the extracts. Further, the metabolites showing antocholinesterase activity were identified by HPTLC bioautography followed by mass spectrometry (MS). Collectively, our obtained data suggested that the extracts of *B. monnieri* successfully enhanced memory and learning by abating acetylcholinesterase levels, providing strong rationale for its use in the treatment of dementia and Alzheimer’s disease.
**Evaluation of antifertility activity of Cissampelos pareira leaf extract**

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**Abstract:** World population is rising at an alarming rate and it adversely affects various sectors like education, healthcare, economy, literacy etc. All the existing female antifertility drugs have effects ranging from mild to as severe as increasing the risk of endometrial and ovarian cancers. There is a need to screen for safer and effective molecules as antifertility agents. In India, use of medicinal plants is being practised since centuries. One of such plants is *Cissampelos pareira* which is being traditionally used as an antifertility agent. The aim of the study is to evaluate the methanolic leaf extract of *Cissampelos pareira* for its antifertility activity.

The leaves were collected and shade dried at room temperature, ground into coarse powder and extraction was carried out using soxhlet apparatus with methanol. The methanolic extract was further partitioned with ethyl acetate, petroleum ether and diethyl ether. SRB assay was performed on Ishikawa cell line to establish the IC50. Total flavonoid and phenolic content of fractions were estimated by AlCl₃ and Folin-Ciocalteau methods respectively. Total protein content of each fraction was estimated and western blotting was performed using estrogen receptor α antibodies.

After partitioning with the solvents of varying polarity the IC50 was found to be 64.76±3.58, 94.81±11.29 and 111.7 ±1.55 μg/ml for petroleum ether, ethyl acetate and diethyl ether fractions respectively. The total flavonoid and phenolic contents of ethyl acetate fraction were found to be 893.8046 mg quercetin equivalent per gram of the fraction and 129.52±3.55 mg gallic acid equivalent per gram of the fraction respectively. Western blotting has shown that the fractions could activate the ER α receptors. The fractions were able to act by activating the estrogen receptors. Hence, further studies like *in silico* and *in vivo* evaluation and isolation of the active compounds have to be performed.

**Effect of Camellia sinensis plant extract against Alzheimer’s Disease**

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**Abstract:** Alzheimer’s syndrome/disease is known for its progressive Neuro-degenerative illness. Considered pathologically by the deposition of β-amyloid peptide and senile plaques (a pathological accumulation of paired helical filament composed of abnormally formed tau protein in the hippocampus of our brain. Previous studies for camellia sinensis showed that it is efficient in prevention of deposition of senile plaques responsible for neurodegeneration. The present study focused on effect of camellia sinensis extract on memory deficit and anti-Alzheimer’s activity. Alzheimer’s syndrome induced through aluminium trichloride (4.2 mg/kg intraperitonial) continues for 28 days. The albino Wistar rats were divided into 5 groups (n=6 in each group) then weighed for 28 days of induction of disease. Extract of dried leaves of Camellia sinensis (200 mg/kg and 400 mg/kg) along with standard drug (Donepezil 2mg/kg) given by oral route through 1% CMC suspension. Camellia sinensis extract along with standard drug after treatment showed a significant decreased escape latency. The main result of this study is that treatment with epigallocatechin 3-gallate containing camellia sinensis can avoid spatial memory deficits in a model of Alzheimer’s Disease in rats by inhibiting amyloid plaque formation. Therefore, drinking tea every day could be an effective habit to prevent the onset of Alzheimer’s disease and to improve memory deficits in the early stages of the disease.
A single case study on Pemphigus vulgaris treated with Rasayana Therapy

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ABSTRACT: Pemphigus vulgaris is a chronic blistering disease affecting skin and mucous membranes. It is clinically characterised by recurrent painful erosions and blisters and histologically by intradermal blisters due to keratinocyte separation in the epidermis due to autoantibodies against components of desmosomes. Here an attempt is made to tackle this condition by Rasayana therapy. A male patient presented with the complaints of painful multiple bullous eruptions on skin of trunk, extremities, scalp and oral mucosa with large crusted erosions which are clinically suggestive of Pemphigus Vulgaris. Patient was treated with Yastimadhu Rasayana and yastimadhu taila for external application. After a hospitalised treatment of 7 days’ bullous eruptions, erosions started to heal without secondary infections and there was no occurrence of new blisters. After a treatment of 30 days all erosions got healed completely. The present study clearly suggests that Rasayana therapy is more effective in treating pemphigus vulgaris without secondary infections and recurrence.

Analysis of ethnomedicinal plant with special reference to Andrographis macrobotrys Nees.,

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Abstract: Upgradation of information of medicinal plants is seen from Samhitas to Nigantus. Likewise, there is need to explore such ethnomedicinal plants thoroughly and to be included in pharmacopoeia. Fortunately, folklore herbs are densely found in India where depletion of mainly used medicinal herbs is rapidly increasing. As there is development of drug resistance and most of drugs being immuno suppressants, researchers are turning their attention to folk medicine looking for new leads to develop better drugs. Andrographis macrobotrys Nees., is one of such extra-pharmacopoeial drug used by tribes of Kerala for the treatment of snake bite, diarrhoea, muscle pain, fever, jaundice, liver disorders and skin diseases. It is an erect, stout herb of Acanthaceae family distributed in semi-evergreen forest of south India and Srilanka. The drug Andrographis macrobotrys Nees is not in frequent use as main drug and very less work has been carried out so far. Here recent researches and available information is analysed. If detailed study of basic fundamentals of Ayurveda and pharmacognostical, phytochemical, toxicity, animal and clinical studies are done and found similar to main drug Andrographis paniculata. In scarcity or non-availability of main drug Andrographis macrobotrys can be used as substitute. There is need of such researches to be carried out with comprehensive study of single drug.
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Analysis of ethnomedicinal plant w.s.r Vishagna – Alstonia Venenata R. Br

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ABSTRACT: The knowledge about medicinally useful plants in the early age is scientifically documented, and systematically organized in classical texts based on sound fundamentals of Ayurveda. However, information regarding many folklore and exotic plants has not yet documented and are commonly referred to as extra pharmacopoeial drug. There is a need to first demarcate, identify, name these plants and then analyze them scientifically in terms of Ayurvedic fundamentals. Simultaneously, these should be described botanically and evaluated for their chemical composition so that they can be successfully utilized in therapeutics and documented. Alstonia venenata (Vishagna) is an important ethno medicinal plant, grows as large shrub or small tree in low to mid elevation deciduous forests of India. It is in practice among Malamalasar tribes of Parambikulam Kerala, Kanikkar tribes of Kalakad Tamilnadu as anti-venomous, analgesic, anti convulsant and anti-pyretic drug. The center for venom informatics computational biology department has taken up study for developing anti-venom out of Alstonia venenata. Attempts are made to collect and analyze the available details of the drugs. This study is to identify new ways to interpret prior researches and to encourage new studies on such drugs.

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Amelioration of Temozolomide induced cognitive impairment by (+) Catechin hydrate in male Wistar rat model

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Abstract: Chemotherapy induced neurotoxicity is manifested by impaired attention, executive functions, memory etc., even after cessation of therapy, consequently compromising the quality of life. Temozolomide (TMZ) an imidazole derivative, an alkylating agent, which is used in the treatment of glioma. It is readily permeable through BBB, as a result, it produces direct toxicity to the normal cells of brain leading to impaired hippocampal neurogenesis, disruption in the associative learning. Plants components like green tea leaves contain high antioxidant principles, chiefly flavonoids like epigallocatechin gallate, epicatechin and catechins. Catechin had shown the preventive action in age related cognitive dysfunction. To evaluate the in vivo protective activity of (+) Catechin hydrate against TMZ-induced cognitive impairment in male Wistar rat model. Animals were grouped into normal control, TMZ control and TMZ + catechin treatment groups. TMZ was administered in TMZ control and TMZ + (+) Catechin hydrate groups at a dose of 18mg/kg i.v. once in 5 days over 32 days. (+) Catechin hydrate was given 100 mg/kg p.o. daily. Spatial memory was assessed by the Morris water maze test (MWM). Sections of the brain prone to be affected by TMZ, hippocampus and frontal cortex, was subjected to antioxidant evaluation and for the assessment of neuronal integrity by histopathology. (+) Catechin hydrate was able to increase the total number of zone entries and significantly decreased the escape latency and rest of the parameters were unaffected as compared to TMZ control group. Similar changes were observed in the histopathological and antioxidant examination. In antioxidant analysis, GSH levels got elevated by Temozolomide. (+) Catechin hydrate showed a significant decrease in GSH levels, which indicates a reversal of TMZ resistance. The result showed a neuroprotective effect of (+) Catechin hydrate in TMZ induced cognitive impairment.
Asparagus adscendens: A novel herb to treat Dementia

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ABSTRACT: Various allopathic medicines are unsuccessful to treat the Dementia due to its various disorders. Dementia is caused due to cognitive dysfunction. Dementia can be treated with ayurvedic medicines which are boosting the neurological effects, such as Mimusops elengi, Desmodium gangeticum, Desmodium triquetrum etc., They are useful to improve memory, brainpower and efficiency in increasing the nootropic activity. Memory loss in dementia a disabling feature of many disorders, which leads to impairing the normal daily activities of the person and which affect their family and social behaviour. Management of cognitive disorders like dementia and Alzheimer’s disease has been a difficult task since no potential drug is available. In the present study, nootropic activity of ethanolic extract of roots of Asparagus adscendens (AA) was studied in mice. Elevated plus maze TL and Morris water maze TSTQ were employed to calculate learning and memory. Scopolamine (0.4 mg/kg, i.p.) and diazepam (1 mg/kg, i.p.) were used to induce amnesia in mice. Piracetam (200mg/kg) is the standard drug. DT (50 and 100 mg/kg, p.o.) significantly shows decrease in amnesic deficiency induced by scopolamine, diazepam and natural aging. It also slows down aging induced amnesia due to aging of mice. AA intensely increased whole brain acetyl cholinesterase inhibition activity. Hence, AA having promising activity of restoration of memory in the treatment of dementia seen in the aged mice.

European scientific and regulatory framework for Herbal Medicinal Products

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Abstract: Clear regulatory frame work is essential in bringing Herbal medicines from bench to bedside. The European Union (EU) is one of the first geographies in the world to introduce an extensive framework of scientific as well as regulatory guidelines for registration of herbal medicinal products (HMPs). To study the European scientific and regulatory framework work for Herbal Medicinal Products (HMPs). HMPs in Europe are regulated by the European Medicines Agency (EMA). Herein, the Committee on Herbal Medicines Products (HMPC) is responsible for giving scientific opinion on HMPs and EU herbal drug monographs. In EU HMPs are defined as “Any medicinal product, exclusively containing as active ingredients one or more herbal substances or one or more herbal preparation, one or more such herbal substances in combination with one or more such herbal preparations”. The EMA provides scientific guidelines which are useful for the development of HMPs and for preparation of marketing authorization applications. These guidelines cover Quality, Non Clinical, Clinical and Safety related aspects of Herbal Substances/Products. There are three regulatory pathways for bringing an HMP into the EU market. These are; traditional use registration, well-established use marketing authorisation and stand-alone or mixed application pathway. EU puts forth a specific format for Common Technical Document (CTD) for registration of traditional HMPs. This format contains five modules related to Administrative Information, Common Technical Document Summaries, Quality, Non Clinical Study Reports and Clinical Study Reports respectively. These elaborate and unambiguous guidelines given by the EMA have made the process of development, registration and marketing of HMPs in EU easier and less time consuming for medicine developers.
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GC-MS Analysis and study of Larvicidal Activity of Davana oil and its isolates obtained from Artemisia pallens wall. ex dc.

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Abstract: Davana oil is an essential oil obtained from Leaves and flowers of Artemisia pallens Wall. Belonging to the family Asteraceae. The oil is used in high grade perfumes and flavours due to its pleasant fragrance. Pharmacologically it is used to treat diabetes and high blood pressure. It is reported to possess aphrodisiac, mood elevator, antiseptic, disinfectant, antioxidant, decongestant and expectorant properties. Literature survey revealed that no substantial work has been carried out on the essential oil of Davana. Hence an effort was made to carry out GC-MS analysis to investigate the phytoconstituents present and was screen for larvicidal activity of Davana oil and its isolated fractions against Anopheles stephensi, Culex quinquefasciatus and Aedes aegypti larvae. The GC-MS analysis led to identification of 20 chemical constituents namely Ethyl(E)-cinnamate, transMethyl cinnamate, 5,5,7,7-tetramethyl 1,2,3,3b,4,5,6,7-octahydro-6aH-cyclopenta [a]pentalen-6a-ol, Davanone, -tau- Cadinol, α-Eudesmol, 3-methylbut-2-2-enyl pentanoate, Ethyl 2-phenylacetate, Methyl-3-phenylpropanoate, Ethyl-3-phenylpropanoate, 4-Carvomenthenol, phellandral, Globulol, (-)-Spathulenol, Aromadendrene oxide-[2], dihydro-γ-ionone, Octadeacane, Eicosane, 6-dehydro5-deoxy3-deoxy-dihydroartemisinine and 4a-methyl-3,4,4a,5,6,7-hexahydro2H-chromen-2-one. The results of in-vitro larvicidal activity revealed that the Davana oil exhibited significant percent mortality after 24h against Aedes aegypti and Anopheles stephensi while the activity was not observed in case of the isolated fractions. Since the above mentioned 20 constituents were isolated from Davana oil, the larvicidal activity may be attributed due to the synergistic effect of these constituents. Maximum larvicidal potential against Culex quinquefasciatus was exhibited by only Petroleum ether:Chloroform isolated fraction compared to Davana oil after 48h treatment. This was attributed due to the presence of major constituent Ethyl (E)-cinnamate in the isolated fraction.

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Extraction, Isolation and Characterization of Phytoconstituents from the Methanolic extract of the bark of Terminalia arjuna.

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ABSTRACT: Terminalia arjuna is a large tree belongs to the family Combretaceae. Sanskrit/Indian name: kakubha, arjun, kahu. It is distributed throughout India. It is a commonly occurring tree growing at a 20-30m high having a great medicinal value. It is also well recognized in Ayurveda for its various therapeutic values. From the literature survey it was learnt that phytochemical constituents such as Arjunone, Luteolin, Baicalein, Ethyl gallate, Gallic acid, Kaempferol, Oligomeric proanthocyanidins, quercetin, Arjunin, Arjunic acid, Arjungenin, Termicin acid, were found to be present the plant. Pharmacologically, the plant has been reported to possess anti-microbial, anti-fungal, and anti-oxidant activity. In the current study, an effort has been made to carry out preliminary phytochemical screening of aqueous and ethyl acetate fraction of the methanolic extract of T. Arjuna and to carry out isolation and characterization of phytoconstituents of the ethyl acetate fraction using IR, 1H NMR and 13C NMR. The results of the Preliminary phytochemical screening of the ethyl acetate fraction revealed the presence of alkaloids, carbohydrates, phytosteroids, saponins, phenolic compounds, tannins, flavanoids, proteins and amino acids. While the aqueous fraction revealed the presence of alkaloids, carbohydrates, saponins, phenolic compounds, tannins, proteins & amino acids and flavonoids. Four phytoconstituents were isolated from the ethyl acetate fractions of the methanolic extract of T. Arjuna using column chromatography, 1H NMR and 13C NMR data. The phytoconstituents were identified as Arjunic acid, Arjunolic acid, Arjungenin and gallic acid.
PHYSICOCHEMICAL AND PHYTOCHEMICAL INVESTIGATION OF LEAVES OF BAUHINIA FOVEOLATA DALZELL

Siddhi Prakash Foguri

Abstract: Bauhinia foveolatum Dalzell (also known as Pore Leaved Bauhinia, Chamoli, Moti chambuli) is a medium sized tree with pored leaves commonly found along the Western Ghats, reaching almost 25 m in height. The tree belongs to the family of Caesalpiniaceae (Gulmohar family). Parts of genus Bauhinia are known to possess medicinal properties such as antibacterial, anti-fungal, antimalarial, pain reducing, cytotoxic, fever reducing and thyroid hormone regulating properties. These are also used in treatment of dysentery, diarrhoea, and hypertension. Other uses include curing skin diseases, rectal inflammations, diabetes, worms, tumours, haemorrhoids, menorrhagia, and haemolysis. Extensive literature survey revealed that no substantial work has been carried out on the leaves of B.foveolata. Therefore, the present study was taken up to investigate the Physicochemical, Phytochemical, Total Phenolic content and Total Flavonoid Content of the Ethyl acetate and Butanolic fractions of the ethanolic extract of the dried leaves of the plant. The preliminary phytochemical screening revealed the presence of Flavonoids, alkaloids and steroids. Column chromatography, TLC and Flash chromatographic separation was performed which led to the isolation of 4 phytoconstituents viz. 13-Docosenamide, Quercetin, Isorhamnetin and Odoratin-7-glucoside. The isolated constituents were evaluated using spectral analysis like IR, 1H and 13C NMR, GC-MS and LC-MS. The results of the study provide a source in setting diagnostic indices for the identification of the plant and gaining its nutritive principles which may be beneficial in curing certain ailments.

Phospholipid Based Nano-Vesicles for Enhanced Delivery of Boswellic Acid

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Abstract: Naturosomes (also known as herbosomes/phytosomes) are amphiphilic phospholipid complexes of drugs bearing active hydrogen that bind to phospholipids, impart enhanced capacity to cross the lipid rich biomembranes, resulting in improved bioavailability. The pentacyclic triterpenic acids isolated from the oleo gum resin of various Boswellia species are collectively called as Boswellic acids and are reported for anti-inflammatory, anti-arhritic, antirheumatic properties. To develop and characterize phospholipid based nano-vesicles for enhanced delivery of hesperitin. Naturosomes of boswellic acid with phospholipid were prepared by solvent evaporation technique using QbD approach to optimize the formulation and process variables. The prepared naturosomal formulations were evaluated for physicochemical (particle size and zeta potential analysis), functional, and pharmacological attributes. The FTIR, DSC, PXRD, Photomicroscopy, SEM and the TEM studies indicated the successful formation of vesicular drug-phospholipid complex. The apparent solubility, the in-vitro dissolution, and the ex-vivo permeability studies indicated a significant improvement in the aqueous solubility, the drug release, and the membrane permeation of the boswellic acid in-vitro biological evaluation of boswellic acid naturosomes confirmed improved bioavailability of boswellic acid Present study confirms naturosomes as a promising strategy to improve the aqueous solubility and bioavailability of bioactive phytoconstituents.
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Development and Evaluation of Porous Polymeric Carrier System for modified drug release of Boswellic Acid

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Abstract: Microsponges are highly porous, micro-sized particles with a unique ability for entrapping the targeted drugs and to slow down the release, simple to prepare and hence making them attractive in the field of targeted drug delivery systems. The pentacyclic triterpenic acids isolated from the oleo gum resin of various Boswellia species are collectively called as Boswellic acids and are reported for anti-inflammatory, anti-arthritis, anti-rheumatic properties. The rationale behind present work was to formulate and evaluate gel containing microsponges of boswellic acid to provide prolonged release for proficient arthritis therapy. Quasi-emulsion solvent diffusion method was implied using ethyl cellulose and microsponges with varied drug–polymer ratios were prepared. For the sake of optimization, diverse factors affecting microparticles physical properties i.e. internal solvent volume, stirring time, concentration of surfactant was investigated. Microsponges were characterized by SEM, DSC, FT-IR, XRPD and particle size analysis, and evaluated for morphology, drug loading, invitro drug release and ex-vivo diffusion as well. There were no chemical interactions between drug and polymers used as revealed by compatibility studies outcomes. The drug polymer ratio, internal solvent volume and stirring time reflected notable effect on drug content, encapsulation efficiency and particle size. The microsponges were then incorporated in gel and evaluated for prolonged release. In vitro drug release results depicted that microsponges with optimized drug: polymer ratio was more efficient to give extended drug release of boswellic acid; compared to conventional formulation. Present study confirms formulated microsponge-based gel of boswellic acid would be a promising alternative to conventional therapy for safer and efficient treatment of arthritis and musculoskeletal disorders.

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The Molecular Docking Investigation of a Natural Lignan - Sesamol and its Derivatives as Anti-Androgen

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Abstract: Sesamol, (SM) is a well-established antioxidant molecule. SM has been shown to possess neuroprotective, hepatoprotective, anti-inflammatory, anti- ageing properties. SM, the plant lignan is generally categorized as phytoestrogens. The in-silico molecular docking studies were performed by using protein from protein data bank. The androgen receptor protein with PDB ids are 1I37 and 2AMA. The in-silico molecular docking studies were performed by schrodinger software. Lowest energy 3D structures with corrected chiralities were produced by ligand optimization using the tool LigPrep tool. OPLS 2005 force field used and the process performed at neutral pH. Before the docking study, the biological unit of protein subjected to the protein preparation by Prime tool. After the protein preparation, the receptor grid was generated using the OPLS 2005. The standard precision (SP) and extra precision (XP) flexible glide docking were used to screen the analogs, by using the Glide tool. Root mean square deviation (RMSD) calculations performed on the bound ligand. The lowest glide score with the best dock poses recorded for each ligand. The dock score from SP and XP flexible glide docking obtained through all androgen receptor protein molecules were recorded. This study showed SM and it’s derivative to be anti-androgen molecule.
Isolation, characterization and investigation of antidiabetic activity of phytoconstituents from fruit of *Momordica charantia* linn.

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**Abstract:** Ayurveda is one of the ancient traditional medicinal systems of India that uses number of medicinal plants in treatment of various ailments with fewer side effects. *Momordica charantia* is well known medicinal plant for its antidiabetic activity. This study aimed at isolation and characterization of phytoconstituents from fruit of *Momordica charantia* and determination of most potent antidiabetic compound using *in-vitro* and *in-vivo* studies. The *in-vitro* antidiabetic and antioxidant assays were used to screen the active extracts and fractions. Refluxed and liquid partitioned extracts were fractionated using petroleum ether and ethyl acetate to give 2 phytoconstituents M1 and M2 respectively. Compound M2 was further identified as momordicinin using spectral studies and evaluated for antidiabetic potential using *in-vitro* α-amylase inhibitory activity, DPPH-scavenging activity and *in-vivo* oral glucose tolerance test. The developed bioanalytical RP-HPLC method was validated for momordicinin and the method was used to evaluate its stability in gastric fluid and intestinal fluid. Momordicinin showed potent α-amylase inhibitory activity with IC50 15.86μg/ml. In *in-vivo* oral glucose tolerance study blood glucose level was initially recorded as 120mg/dL after glucose administration which was reduced to 73mg/dL after treating with momordicinin suggesting its ability to control glucose level in diabetic rats. The extracts from refluxation and liquid partitioning extraction can be considered effective in inhibiting the enzymes related to digestion resulting in benefits related to hyperglycemia treatments. However, the isolated compounds seem to be more potent than extracts which may be because of exclusion of impurities. The study demonstrated isolation of triterpenoid; Momordicinin which showed potent blood glucose lowering effect. The reproducible and rapid RP-HPLC method for momordicinin can be followed for industrial applications.

DNA SCAR marker development of *Ficus lacor*; a medicinal bark used in India system of medicine

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**Abstract:** Identification and quality assurance of botanical material is an essential requirement in herbal medicine to ensure reproducible quality of herbal medicine. DNA markers are reliable in this regard as the genetic composition is unique for each species and is not affected by age, habitat, environmental factors and physiological conditions. *Ficus lacor*, a popularly used medicinal bark used in Indian system of medicine belonging to family *Moraceae*. Bark drugs are always because of similar macro-microscopic features are deliberately or accidentally admixed with other bark pieces of same species or other species. Hence a study has been taken to develop DNA SCAR marker development of *Ficus lacor*. Fresh bark samples of *F. lacor* tree were collected from various parts of India along with *Ficus religiosa, Ficus benghalensis, Ficus racemosa*. Plant samples were authenticated and Bark samples were frozen at -70°C till further use. DNA isolation was done through CTAB method. Templates of all the 5 species were used for RAPD RAPD of ficus samples using different primers was done. Selected fragment was cut out from the gel, purified and reamplified to get enough product. This fragment was ligated into T- vector as mentioned earlier, transformed E. coli DH5 alfa and screened for clones. Result: Clone 5 and Clone 10 wascolumn purified and sent for sequencing, primer designed and reconfirmed. (LFP 5’CATGAAACACATAGTGGGG’3. LRP 5’GCATGTGGCAGAGCTGAAA’3).
Molecular targets of natural antioxidants in the management of Diabetes mellitus.

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Abstract: The primary causative factor of oxidative stress in DM is hyperglycemia, which operates via several mechanisms such as decreased activities of antioxidant enzymes SOD and glutathione peroxidase, increased oxidative phosphorylation, auto-oxidation of glucose in the presence of transition metals. The inhibition and scavenging of intracellular free radical formation provide a therapeutic strategy to prevent oxidative stress and ensuing pathologic conditions. Some dietary and lifestyle modifications associated to antioxidative supply could be an effective prophylactic means to fight against oxidative stress in diabetes mellitus and associated complications. A significant benefit of phytochemicals (polyphenols in withania, ginger, cumin, cinnamon), is thought to be capable of scavenging free radicals, lowering the incidence of chronic diseases. In this review, we discuss the role of oxidative stress in diabetes and complications, highlight the molecular target sites to improve endothelial dysfunction, and examine the impact of antioxidant herbal drugs, in relation to the development and progression of diabetes and cardiovascular complications. Therefore, the integration of antioxidants formulations into conventional therapeutic interventions, either by ingestion of dietary supplementation or through natural antioxidants, should be encouraged for a holistic approach to the management and prevention of Diabetes mellitus.

PRINCIPLE OF UNANI MEDICINE [USOOL - E-ILAJ] IN THE MANAGEMENT OF SULA-E-RAHEM [UTERINE FIBROID]

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Abstract: Sula-e-rahem [uterine fibroid] also known as UTERINE LEIOMYOMA or FIBROMYOMA, is a benign solid tumor that typically originates from myometrium and composed of a smooth muscle and fibrous connective tissues. Uterine fibroid is commonest of all pelvic tumors being present in 20% of women in the reproductive age, which is increasing with age. The etiology of uterine fibroid is not clear but it is predominantly an estrogenic dependent tumor. Uterine fibroid is a round pearl, white rubbery tumor contains elongated smooth muscles cells aggregated in bundles. Symptoms are not usually significant in fibroids. Nearly 50% of fibroids asymptomatic. The women may have single symptom or present with several symptoms depending upon the number, size and location of fibroid i.e. menorrhagia, dysmenorrhoea, pressure symptom, acute pelvic pain, infertility and leucorrhoea etc. Ancient unani physician discussed about uterine fibroid as a firm swelling and this swelling is a complex disease developing due to integration of two or more simple diseases. Warm-e-sulae-reham develops due to the assimilation of two simple diseases namely sue-e-mizaj and sue-e-tarkib. The management of uterine fibroid can be approached medically and surgically. Choice of treatment is guided by patient’s age and desire to preserve fertility or avoid surgery. The management of uterine fibroid also depends on number, size, and location of fibroid. The principle of treatment is to evaluate and eliminate the cause & elimination of abnormal humours[akhlaat] by administration of concoction and purgation [Munjiz and mushil], administration of blood purifiers and anti-inflammatory medicine, to improve the general condition of health by administration of muqawwiyat and moallid e dam medicine & anti-inflammatory drugs should be applied locally.
EFFICACY OF MUSTA IN THE MANAGEMENT OF ATISARA (DIARRHOEA)

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Abstract: In the present era, Atisara (Diarrhoea) is one of the most common health issues pertaining to Gastro intestinal tract diseases, which is caused due to irregular and unhealthy dietary habits. Musta is having Deepana, Pachana, Grahi Property and also it is having Anti diarrhoeal, anti-bacterial and anti-microbial property thus it is highly beneficial in the management of Atisara (Diarrhoea) irrespective of the age. Here in the present paper an attempt has been made to compile various References and therapeutic effect of Musta on Atisara, causes and symptoms of Atisara from various Ayurveda and contemporary text books including the websites, journals, Research updates with a conclusion of Musta with different adjuvant helps in the management of Atisara (diarrhoea).

Comparative Antioxidant activity of some Ethnomedicinal plants extract

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Abstract: Free radicals are generally reactive oxygen species (ROS) which induce oxidative stress. They play a major role in the development of chronic and degenerative ailments. Imbalance between production of free radicals and the ability of the body to counteract their harmful effect through neutralization by antioxidant. Plants play vital role in the neutralising the free radicals generated in the body. In the present study 10 ethnomedicinal plants were selected and subjected for In-vitro antioxidant activity that is total phenolic total flavonoidal and free radical scavenging activities. Terminalia paniculata was found to have highest phenolic content of 33.86 mg/g of GAE, 9.34 mg/g of QUE and IC50 of 10.62 mcg/ml, Andrographis paniculata has shown least phenolic content. A least flavonoidal content was reported in Alstonia scholaris.

Herb drug interaction of Andrographolide on pharmacokinetics of Sitagliptin

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Abstract: Diabetes is a chronic disease and its one of the major health issues that we are facing now a days. Diabetes mellitus (DM) is of 3 types; Type I, Type II and Gestational diabetes, among these 90% cases are of type 2 DM. It will be 7th leading cause of death in 2030. Many new entities are introduced for treatment of diabetes. About 70% of DM patients do not reveal their herbal use to their allopathic practitioner. Generally oral hypoglycemic agents and some herals are used by DM patients regularly. Co administration of herals with modern medicines may lead to unwanted effects which need to be studied. The objective of the present work was to study herb drug interaction of one of the widely used herb Andrographis paniculata Nees (andrographolide (AN)) and DPP-IV inhibitor sitagliptin. Pharmacokinetic interaction was studied in laboratory animals by administering andrographolide along with sitagliptin. The drug concentrations in plasma were determined using HPLC method. The main pharmacokinetic parameters of C max, tmax, t1/2, MRT, Vd, CL, and AUC were calculated by non-compartment model. The study showed statistically significant changes in Pharmacokinetic parameters of sitagliptin when co-administered as compared to single treatment. Cmax, AUC, t1/2 and MRT shows statistically significant increase (p<0.001) while Clr decreased (p<0.05) which shows that AN being the inhibitor of CYP3A4, reduces the metabolism of SIT. The information regarding possible herb-drug interaction of sitagliptin might be helpful for physicians as well as patients using AP. So the further studies are needed to confirm the interaction.
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**GC –MS Analysis and Effect of *Tribulus terrestris* on TNBS induced Ulcerative Colitis in Rats**

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**ABSTRACT:** The study was carried GC-MS Analysis and effect of ethanolic *Tribulus terrestris* (ETT) extract on 2,4,6-trinitrobenzene sulfonic acid (TNBS) induced ulcerative colitis in rats. Wistar rats (Adult) of either sex were used. Colitis was induced by 20 mg TNBS dissolved in 35% ethanol by single intra-colonic application into the descending colon. Six groups of rats were divided. Animals were treated with ethanol (vehicle), TNBS in 35% ethanol, ELI extract 200 and 400 mg/kg body weight Per oral (p.o) and standard sulfasalazine (SSZ) 360 (mg/kg) p.o for 14 days. After 14 days of treatment animals were sacrificed and following parameters such as morphological score, histopathology and biochemical parameters like myeloperoxidase (MPO), malondialdehyde (MDA), reduced glutathione (GSH), catalase (CAT), superoxide dismutase (SOD) activity and serum nitrate levels were assessed. ETT found protection against TNBS induced colitis. There was a significant protection with ETT 200 and 400 mg/kg compared to control (P <0.001) group. Morphological and histological score were significantly reduced in all the treated groups (P<0.001). All parameters were altered in colitis induced rats with improvement in animals receiving ETT which was compared to that of standard sulfasalazine treated group. GC–MS chromatogram extract of *Tribulus terrestris* clearly shows 10 peaks indicating the presence of 10 phytochemical compounds. The identification of the phytochemical compounds was based on the peak area and % Peak area, retention time and molecular formula Results indicate the efficacy of *Tribulus terrestris* against TNBS induced ulcerative colitis in rats.

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**Current Status of regulations for formulation and marketing of traditional herbal medicines in India, Europe and USA**

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**Abstract:** A detailed literature survey for regulations of the formulation and marketing of traditional herbal medicines in Europe, US and India was performed to identify recently introduced changes in regulations or newly introduced regulations compliance with the regulatory bodies. To study and compare regulations for formulation, development and marketing of traditional herbal medicines in India, Europe and USA. Herbal medicines in Europe are regulated by the bodies: European Commission (EC) and European medicines agency (EMA). The Committee on Herbal Medicines Products (HMPC) is the committee of EMA that is responsible for giving scientific opinion on herbal medicines and constitution of European Union herbal monographs led by basic regulations under the directive 2001/83/EC, according to which monographs in the European Pharmacopoeia (Eur. Ph.) are legally binding and applicable to all substances which are included in it. In India, herbal medicines are regulated by the Ministry of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy. Under section 33EEB of Drug and Cosmetics Act 1940 regulations for manufacturing and sale of Ayurvedic, Unani and Siddha drugs are given. USFDA has issued a draft guidance for industry on “Complementary & Alternative Medicine Products & their regulations. How are they regulated and under what statutory like food, device or drug information is provided in the guidance The detailed study and comparison of the guidelines in these countries will be presented in the poster. It was found that Europe is the only geography which has a separate CTD for formulation, development and marketing of traditional herbal medicinal products. USA and India doesn’t have any format for herbal medicines till now. Also, European regulations are the most comprehensive compared to Indian and USA regulations for traditional herbal medicines. Indian regulations are still at nascent stage therefore, harmonization of regulations is must for overcoming the barrier for efficient trade and uniform standards.
SCIENTIFIC ABSTRACTS

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Shanapushpi (Crotalaria verrucosa L.) – Exploring the Folklore uses of Classical Drug
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Abstract: Plants have been used for medicinal application ever since man began caring for his body and health. Herbal medicine and traditional medical practitioners play an important role in the healthcare of millions of people in developing countries. The drug Shanapushpi (Crotalaria verrucosa L.) is a shrub growing up to a meter height; belongs to Fabaceae family found in the hot regions of India. It is commonly seen in wastelands and growing on the sea coast. The decoction of leaves of Crotalaria verrucosa L. is traditionally used for fever in and around rural area of Tumkur and Shivamogga. As we need to explore/substantiate folklore/traditional uses of plant, present work is undertaken to explore the pharmacognostic, phytochemical and antipyretic study of Crotalaria verrucosa L.

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Efficacy of Shadbindu ghrita nasya and narasimha churna in the management of Vataja Pratishyaya/allergic rhinitis

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Abstract: Allergic rhinitis is a consequence of an immediate hypersensitivity reaction occurring on the nasal mucosa. The clinical manifestation of allergic rhinitis is similar to vataja pratishyaya described in Ayurveda. Nasya (Nasal instillation) and Rasayana (rejuvenator) are the standard treatment options in vataja pratishyaya (allergic rhinitis). To evaluate the effect of shadbindu ghrita nasya in vataja pratishyaya/allergic rhinitis. To evaluate the effect of narasimha churna in vataja pratishyaya/allergic rhinitis. 50 patients suffering from vataja pratishyaya (allergic rhinitis) attending the OPD of Dept of Shalakyanatantra, SDM College of Ayurveda, Udupi were randomly divided into 2 groups. The groups were named as Group A, Shadbindu Ghrita nasya group and Group B, narasimha churna group. In group A 2 courses of shadbindu ghrita nasya 10ml to each nostril was done for 7 days with 14 days interval. In group B, Narasimha churna 10gms BD was administered with 100 ml of water for 28 days. Assessments were done with regard to sneezing, rhinorrhea, nasal congestion, nasal pruritis and total nasal symptom score. The study showed that the patients treated with shadbindu ghrita nasya had significantly greater improvements in the symptoms of allergic rhinitis than in patients who were given narasimha churna.

Conclusion: Shadbindu ghrita nasya is more effective than narasimha churna in the management of allergic rhinitis.

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Bhallataka (Semicarpus Anacardium Linn) – Transition Of A Common Poisonous Drug In To Rasayana

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Abstract: Plants play a very important role in survival of all living beings. Man has learnt to use the plants in different aspect, as a food, as a medicine, or for a shelter purpose. They have proved even with toxic plant will have medicinal value after proper processing. One Such Drug is Bhallataka (Semicarpus anacardium) and Acharyas considered it under Upavisha. The drug Bhallataka being an irritant poison it contains chemical constituents like biflavonoids, phenolic compounds, bhilwanols minerals, and explained the process of purification with Ishtika choorna to reduce its intensity and have mentioned in small dose acts as a Rasayana and also its utility in various diseases. To explore more details about Bhallataka, its uses, Shodhana process and its efficacy as Rasayana dravya and further exploration of this drug as it is a potent and abundantly available in tropical region. Hence can be utilized All the bruhatrayees, laghutrayees and rasa shastrajna have quoted about Bhallataka, kept under Upavisha, and with proper Samskara they have proved its wide form of utility in various diseases and also highlighted the dose of the drug. Experimental research on anti-microbial and anti lipidaemial study of the drug has been done which may help to prevent aging factor. From mud one can get a beautiful pot or idol by suitable Samskara, similarly with proper Samskara for bhallataka, an irritant poison will become Rasayana, nectar.
A-234 Herbal Medicines for the treatment of Orphan Diseases – Unexplored opportunity

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Abstract: Orphan Disease or a rare disease is a health condition of low prevalence that affects a small number of people compared with other prevalent diseases in the general population. Estimates say that there are about 6000-8000 rare diseases prevalent globally with new diseases still adding to the list. To identify research undertaken and the herbal medicines available to treat rare diseases. Pubmed database was searched with key words “Orphan Diseases AND Herbal Medicines”. Results were critically analysed for the evidence of treatment of orphan diseases with herbal medicines. A total of 85 articles were found based on the key word search in Pubmed. However, there was just one article which is actually related to Orphan Disease and herbal medicine. The article was published in 2017 and researchers worked on malignant choroidal melanoma and the effect of garlic extract. It was surprising to know that not much research was done with respect to treating orphan diseases with herbal medicines. Though research for the majority of rare diseases is challenging researchers have to take initiatives to explore the ways to treat the rare diseases. There should be some constituents hidden in some medicinal plants which are waiting to be discovered. Researchers, medicine manufacturing companies and regulators should join hands to treat these rare diseases.

A-235 Role Of Medasaka (A Folklore Drug) Lepa In The Management Of Sandhigata Vata

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Abstract: Osteoarthritis is the degeneration of joint cartilage and the underlying bone. It is the second most prevalent joint disease world wide. Ways of its management in current system of practise includes NSAIDs, corticosteroids, physiotherapy and replacement surgeries. Osteoarthritis can be correlated to sandhigatha vata mentioned in Ayurveda. Medasaka is a drug that is widely used by the folklore vaidyas in the management of sandhigata vata. An attempt is made to throw some light on the guna, karma and utility of medasaka in the management of sandhigata vata.

A-236 Critical comparison of activated charcoal and masikalpana of Ayurveda

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Abstract: The relationship between woman and cosmetics is immemorial. Various references Of cosmetology are available in ancient texts like puranas. In olden days women Used to spend much time in decorating herself with anjana,chandana kasturilepa to Look beautiful.Now a day cosmetics has become inseparable part of women life. A Survey done in 2010 reveals that an average woman spends $13000 on makeup in Her lifetime.She spends an average of 330 hour sapplying it.One such revolution in Beauty industry is different kinds of usage of activated carbon or charcoal. Though in samhit as there is no much reference related to cosmetics, the concept of Twacha can be taken into account.Twak is considered as upadhatu of mamsadhatu, And whenever a purification procedure is done its result is expressed from the skin also. Lepa kal pana is one among the external purification technique. Masikalpana explained in sushruta samhita and other books for various skin ailments. Traditionally this masiwas used routinely for dantamarjana, snanaadikarma in day To day life. Rather than applying something externally to look beautiful, the beauty Should be expressed from within.Here is a comparative study between activated Charcoal and masikalpana to explore its usage in cosmetology.
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**Abstract:** Palladium (Pd) nanoparticles are majorly used in catalytic convertors in automobile catalysts resulting in accumulation of Pd Nanoparticles in air and soil affecting both animal and plant kingdom raising environmental concerns. Recent studies have proven adverse effects of these nanoparticles in *in vivo* and *in vitro* models. However, no study has been done on Macrophages J774 cell line which is the first one to interact with an incoming foreign material. Also, keeping safety in mind, green method of synthesis of nanoparticles was adapted as plants provide safe, non-toxic and eco-friendly medium. Therefore, this present study is aimed at one-pot green synthesis of palladium nanoparticles reduced by air-dried, crushed and boiled Oolong Tea extract. Palladium ions reduction to Pd NPs was characterized using UV-Visible spectroscopy and DLS. TEM revealed an average size of 5 nm. FT-IR suggested biomolecules responsible for reducing and stabilizing NPs. The effect of Palladium nanoparticles on cell proliferation and viability of J774 cells was determined using MTT assay *in vitro* which showed significant difference from control and decrease in cell viability as concentration was increased.

**Biosynthesis Of Gold Nanoparticles**
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**Abstract:** In vitro analysis of the plant extract, *Ruta graveolens* and gold Nanoparticles which are characterized by UV-Visible, Fourier Transform Infrared Spectroscopy (FTIR), Dynamic Light Scattering (DLS) and Transmission Electron Microscopy (TEM). Aqueous extract was prepared by maceration to reduce the size of the gold particles in the solution. They were then tested for inhibition of α-amylase activity by 3,5-Dinitrosalicylic acid (DNSA) as a color reagent and moreover, they were tested for their capacity to hinder diffusion of glucose across the dialysis membrane. Results: The aqueous extract of gold nanoparticles showed significant results in both the tests named as Inhibition of α-amylase and hindrance to the diffusion of glucose across the membrane. Conclusions: The outcomes from these tests reveal that gold nanoparticles dispersed in water and plant extract possess anti-diabetic properties to varying degrees. They can be used to develop natural drugs which may work effectively without any harmful side effects as allopathic drugs do.

**Ethnobotanical Review Of Drugs Beneficial In Galactogogue Activity**
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**Abstract:** Human milk is considered as the gold standard for infant feeding. Insufficient milk where in the supplementary feeds can relieves to so many problems in the newborns by introducing such as infection, indigestion, allergy etc. Any safe and attractive meals to enhance the mother’s milk is available that would be highly appreciable and beneficial from child health forming newborns. There are synthetic, plant-derived, or endogenous galactogogue available. They may be used to treat low milk supply i.e. to increase prolactin. Galactogogues may be considered when non-pharmacologic interventions are found to be insufficient. For example preterm labour, increasing rates of obesity, elderly pregnancy and high rates of ceasearn section etc. The side effects of synthetic galactogogue drugs are anxiety, insomnia, nausea dry mouth and these drugs are contraindicated in high blood pressure, asthma, convulsions, bleeding ulcers etc. Detailed descriptions concerning the physiology of milk formation and ejection, diseases interfering the quality, quantity breast milk and their management are embodied in Ayurvedic literatures. An approach is made to highlight mode of action of sthnyajanana dravyas which are explained by our acharyas based on their traditional use, principles mentioned in Ayurveda texts and also by applying its use in contemporary pharmacological thoughts.
Effect Of Ishwari (Aristolochia Indica) In The Management Of Dusta Vrana (Chronic Ulcer) – A Folklore Medicine

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Abstract: The discontinuation or a break in the continuity of the covering epithelium of skin or mucous membrane is called as ulcer. The healing of the ulcer is a physiological response of the body. When person does not maintain the proper treatment regimen, hygiene, along with indulgence of improper food & lifestyle and contaminated with various microorganisms and developed a dushta vrana. Dusta vrana (chronic ulcers) are a frequently encountered problem in present era produced commonly as a complication of trauma or pathologic insult & it cause long term agony to the patient. In wound healing local application are more important than oral medicines. Traditional medicine has a special place in improving the quality of wound care. In India the native people are exploiting a variety of herbals for effective curing of various ailments. A folklore practitioners have used Ishwari root in the management of dushta vrana & gives tremendous result. It is also used liberally for many of the disease ailments like sarpavisha(snake venom), dustavrana(chronic ulcers), aamavata(rheumatoid arthritis), sandhivata(osteoarthritis) etc. This presentations highlights the effect of Ishwari(Folklore medicine) in the management of dushta vrana.

Mudgara (Jasminum Malabaricum Wight) Patra Swarasa As Vamaka - A Folklore Claim

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Abstract: Vamana karma is one of the Panchakarma treatment procedure considered to be paramaushada in kaphaja vyadhis and can be given in emergency conditions as sadhyavamaka. One such sadhyavamaka drug which is wildly used by folklore practioner of udupi district is Mudgara patra swarasa in Gara visha. Therapeutic effects and medicinal efficacy of the wild herbs were identified and administered by the tribal people to cure various ailments. Recently, the practice of herbal medicine has been diminishing hence an attempt is made to throw some light on the above drug and its utility in panchakarma.

ROLE OF AGNI CHIKITSA LEPA IN MANAGEMENT OF PAKSHAGHATA – A FOLKLORE CLAIM.

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Abstract: Pakshaghata or Cerebro Vascular Accident is an important cause of death and disability in low income and middle income countries like India. According to WHO 15 million people suffer from CVA worldwide each year, of this 5 million die and another 5 million are permanently disabled. Modern science believes that brain tissue once damaged completely cannot be repaired, leading to permanent neurological deficit resulting in the poor prognosis. A folklore line of management which is claimed to have a good anchor over this disease is ‘Agni Chikitsa Lepa’. Hence here an attempt is made to throw some light on the treatment modality anticipating its widespread acceptance in holistic approach towards Pakshaghata.
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Phytochemical Investigation And Pharmacological Screening Of Poly Herbal Formulation For Anti Diabetic Activity

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Abstracts: The present study was undertaken to evaluate the Phyto chemical and anti diabetic activity of ethanolic extract *Nigella sativa*, *Olea europa* and *Cyamopsis Tetragonoloba* its *poly herbal formulation* in Streptozotocin induced diabetic rats. These ingredients are subjected to extraction with ethanol. These extracts are subjected to phytochemical investigations. The formulations are screened for Streptozotocin induced hyperglycemic activity at dose of 200 mg /kg and 400 mg / kg for 28 days. The blood glucose level measured on 0, 7th, 14th, 21st and 28th day of the experiment. The various parameters measured in anti-diabetic study included estimation of Total Cholesterol, Triglycerides, VLDL, HDL and LDL. Diabetes induction caused significant (P<0.001) hyperglycemia in all diabetic groups, Oral administration of the extract and glipizide for 21 days significantly (P<0.001) lowered the hyperglycaemia of the experimental groups. The fasting blood glucose of the group treated with 500 mg/kg body weight extract lowered the glucose level from 270.08mg/dl to 172.27mg/dl and glipizide from 280.32mg/al to 146.06mg/dl representing 76.15% and 74.83% reductions respectively. The effect on the fasting blood glucose is dose dependent. The ethanol extract of *poly herbal formulation* was tested on streptozotocin induced diabetes in Wister albino rats. Administration of extract produced a significant reduction in serum glucose, total protein, total cholesterol, triglycerides in STZ-induced diabetic rats. The presence of flavonoids and phenols is the possible reason for significant and dose dependent antidiabetic activity.

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A Comparative Analytical Study Of Kalyanaka Ghrita And Ksheerakalyanaka Ghrita

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Abstract: Kalyanaka ghrita is extensively used in clinical practice to treat Apasmara(Epilepsy), Unmada(Insanity) and other broad spectrum of diseases.Ghrita kalpanas (Medicated ghee formulations) holds an important place in the aspect of mental health in Ayurveda.The ingredients of Ksheera kalyanaka ghrita is same as that of Kalyanaka ghrita except the ratio of water used and the addition of Gokshira while processing the ghrita.Gokshira(Milk) is said to possess actions like Rasayana(Rejuvenation), Medhya(improves memory), Balya (strengthening) which is considered very essential in chiravyadhi(chronic conditions) like Apasmara(Epilepsy) etc. To evaluate the analytical parameters of given sample of Kalyanaka ghrita and Ksheerakalyanaka ghrita. The analytical parameters are assessed by evaluating Specific gravity ,Refractive index at 250 Celsius ,Iodine value ,Saponification value ,Acid value , Determination of Unsaponifiable matter ,Chromatography(HPTLC).Analysis of both samples were carried out at SDM Research Centre,Udupi. Refractive index of Kalyanaka ghrita and Ksheerakalyanaka ghrita indicates the active constituents present in the sample.Specific gravity indicates the presence of solutes present given quantity of ghrita.Acid value is showing lesser value for Ksheerakalyanaka ghrita comparatively.Saponification value and iodine value is less for Kalyanaka Ghrita comparatively.Unsaponifiable matter is comparatively less for Ksheerakalyanaka Ghrita. The peaks observed in HPTLC can be considered for fingerprint profile analysis. The addition of milk as an ingredient to the formulation can bring about changes in physico-chemical parameters as well as therapeutic properties.
Apprehending and Analysing the Efficacy of Mushika taila in the treatment of Rectal prolapse: A review

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Abstract: Ayurveda, the ancient Indian art of holistic medicine, through its copious unique concepts and therapeutic combinations aids man in combating diseases. The classics have explained and exemplified complete rectal prolapse as ‘Guda bhramsha’ or ‘Guda nissarana’ in various contexts and have also emphasised on the need for its appropriate management as Guda(rectum) is considered as a Marma(vital point) by them. Comprehending the complexity in management of ano-rectal disorders, Acharya Sushrutha and Acharaya Govindadasa in their treatises Sushrutha Samhitha and Bhaishajya Ratnavali respectively, have explained and endorsed the therapeutic importance of Mushika taila. Mushika taila is a special oil prepared with Anthravarjitha Mushika mamsa(meat of a rat/ mouse, excluding its intestines) along with Bhadrarvadi gana dravyas as Kalka dravyas(herbs used in paste form) and Mahath panchamoola dravyas as Drava dravya(herbs used in liquid form), prepared in accordance with Taila paka vidhi(medicated oil preparation procedure) of Ayurveda. Paana(oral intake) and abhyanga(external oleation) of this Mushika taila is said to be highly beneficial in treating kruchhra guda bhramsha (complicated/ complete rectal prolapse). The coherence and certainty in classics of Ayurveda concerning the therapeutic importance of Mushika taila while elucidating the condition of Guda bhramsha(rectal prolapse) is noteworthy. However, it is very much essential to primarily understand the principles in the preparation of this unique formulation and the positivity in the practical utility of the same. Proper apprehension and analysis of Mushika taila can be an affirmative and appreciable approach in the treatment of Gudabhramsha. The study ascertains the authenticity of the classics of Ayurveda and demands further endorsement and establishment.
Ethnopharmacological evaluation and formulation of medicinal plants used by traditional practitioners of Nepal

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Abstract: Nepal has a rich tradition of plant-based knowledge on healthcare. A large number of plants, plant extracts, pastes and plant powders are used by tribals and folklore traditions in Nepal for treatment of several type of diseases. Bioassay analysis of very few plant species have been conducted to investigate and validate their medicinal properties, and to ascertain safety and efficacy of traditional remedies of Nepal. The present paper thus attempts to collect our research activities based on the ethnobotanical knowledge for treatment by tribals and folklore practices prevailing in Nepal and their scientific validation. Biological activities of the several medicinal plants has been carried out and developed into different doses forms such as tablet, capsule, ointment, cream, gel, microsphere, transdermal patches etc by taking knowledge of long history of herbal usage for the clinical management of a variety of diseases in indigenous cultures on Nepal. The major pharmacological strategies such as phytochemical and antimicrobial screenings, antioxidant, wound healing, analgesic, anti-diabetic, anti-inflammatory etc properties of plants have been carried out in the discovery of herbal formulation of potential clinical value. Synergy assessment of essential oil with allopathic drug was also carried out to overcome the resistance of different pathogens to modern antibiotics. Several of the medicinal plants showed the positive results on pharmacological activities according to traditional practice. Mango and orange peel showed remarkable results in cancer cells, which could be a very potential anticancer agent against human cervical carcinoma and gastric carcinoma and cervical carcinoma both respectively. *Diploknema butyracea* seed oil and its formulated 5% ointment showed significant effect as analgesic, anti-inflammatory and wound healing agents. *Psidium guajava* leaf extract can be considered for transdermal patch containing HPMC & PVA as polymers & PG as permeation enhancer for better release of the drug over a period of 12hrs for the management of diabetes. Similarly, extract of *Smallanthus sonchifolius*, *Utrica dioica* showed satisfactory result as anti-diabetic drug in Streptozotocin induced diabetic mice. Formulation of herbs found strong antioxidant proprty in the mixture form due to synergestic effect instead of individual. Similarly, ointment prepared by fusion method from *Gaultheria fragantissima* oil showed analgesic effect, spread ability, stability tests but negative result for irritancy test. Plants screened for high tannin and phenolic contents with significant antioxidant property were formulated into wound healing ointment. 10% w/w of *Bauhinia variagata*, *Rhododendron arboretum*, *Myrica esculenta* ointment found to be more effective in healing wound than 1% w/w Framycetin cream. Furthermore, in another experiment *Camellia sinensis*, *Punica granatum*, *Hordium vulgare* plant extract showed potent anticancer activity. LD50 of *C. sinensis* decreases from 24 hrs to 48 hrs for both MCF-7 and MDA-MB-231 cancer cell lines. In addition, micropshere loaded gel of *Lactuca sativa* is prepared by dispersion into carbopol base and then formulated for 2% gel and 4% gel, which showed potential anti-inflammatory activity, anxiolytic activity, anti-oxidant activity and anti-microbial activity. Conclusively, this study identified anticancer, wound healing, analgesic, anti-inflammatory, anxiolytic and actimicrobial herbs, extracts, and their respective formulations. These results will be useful in the validation of the clinical application of above mentioned herbs and the development of novel herbal therapeutics from the same.
A Review On The Anticancer Properties Of Nimibolide

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Abstract: Cancer is considered to be one of the deadliest diseases of all times and is one of the major health concerns worldwide. Neem, an active of Indian subcontinent, traditionally used for its medicinal properties. Nimibolide, alimonoid derived from the Neem (Azadirachta indica) leaves and flowers exhibit several pharmacological effects, one of which is its anticancer property. The present study aimed to review the mechanism behind anticancer properties of Nimibolide. Research article from Scopus, Pubmed and Google scholar database were reviewed. In silico studies showed the exquisite binding of Nimibolide to antiapoptotic BCL2 protein most strongly, followed by HSP90 and PI3K. Invitro studies confirmed it on carcinoma cells by decreasing BCL2 expression and a down regulating of PI3K signalling pathways. The cell cycle analysis showed arrest at G0/G1 phase in U937 leukemic cells, and at G1/Sphae of glio blastoma cells T98G, A172 and U87 cells and colon cancer line HT29. Antimetastatic effect was observed by inhibition of VEG F expression in colorectal cancer xenografts and breast cancer cell lines (MCF-7 and MDA-MB-231). Antimetastatic effect was also seen in myeloid leukemia (KBM-5, JJ-90, U-937 and K-562) by inhibition of MM9, ICAM1, CXCRI expression. Invitro studies in colorectal cancer xenografts in mice showed a tumor volume reduction of 67% at 5mg/kg and 90% at 20mg/kg after 10 days of intraperitoneal dosing. The reports from in silico, invitro and invivo studies indicated promising anticancer effect of Nimibolide by antiproliferation, induction of apoptosis, and inhibition of metastasis in various types of cancer

Protective Effect of Tinospora tuberculata Extract on H2O2 Induced Oxidative Stress in Wild and Mutant Yeast Strains

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Abstract: Generation of superoxide is a pivotal starting point in the development of insulin resistance (IR). The insulin sensitivity can be improved by reducing mitochondrial superoxide. In the present study, the protective effect of aqueous fraction of the methanolic extract of T. tuberculata (Family: Menispermaceae) (TTA) on cellular oxidative stress and viability was observed in H2O2 challenged yeast cells. The study was done on wild and an antioxidant knock-out strain (Δtrx2) based on its sensitivity towards H2O2. The effect of TTA on cell viability, growth, membrane integrity and the level of mitochondrial superoxide were determined to assess the antioxidant protection against ROS assault. The results indicate that cells pretreated with TTA acquire an oxidative stress resistant state exhibited as the decreased growth arrest in the growth curve assay and a significantly (p<0.01) increased viability (47.76±0.66% for WT and 46.82±4.64% for Δtrx2) compared to negative control (30.96±3.06% and 29.91±3.80%). Also, the group treated with TTA decreased the level of mitochondrial superoxide indicated by a significant (p<0.01) reduction (4 times in WT and 3 times in Δtrx2) in the amount of MitoSOX™ Red stained cells, in the test group compared to the challenge group. TTA was able to reduce oxidative damage exemplified by a decrease in the growth inhibition of WT and Δtrx2 strains against H2O2 challenge.
A Case Study- Major Depressive Disorder (Kaphaja Unmada) Treated With Guduchi Rasayana As Ayurvedic Management.

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Abstract: Major depressive disorder includes the symptoms like depressed mood, markedly diminished interest in almost all activities, insomnia or hypersomnia psychomotor agitation or retardation, fatigue etc. Prevalence of depression in community samples and the prevalence rates have varied from 1.7 to 74 /1000 population. Depression is close equivalent to kaphaja unmada based upon the total clinical presentation. To evaluate the clinical efficacy of Guduci rasayana in major depressive disorder. A female named x (identity hidden) aged 18 years as a resident near Ittamary school, Belman, Udupi, Karnataka was admitted in SDM Ayurveda Hospital, Udupi presenting with the complains (patient party version) since two months patient was in stress and complains of depressed mood, reduced speech, disturbed sleep, tension, reduced food intake, reduced interest in daily activities, poor concentration since 3 weeks and diagnosed as Major depressive disorder. This case was treated with Brahmi ghrita, guduchi rasayana capsule, takradhara for a period of 7 days with significant improvement. Guduchi rasayana was continued after discharge also. The improvement was assessed based on the scorings of Hamilton Depression Scale and it was 24, 19, 15 before, after treatment, and 2 weeks of follow up respectively.
PHARMACEUTICO-ANALYTICAL EVALUATION OF BRIHATYADI KWATHA- A POLYHERBAL FORMULATION

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Abstract: Urinary tract infection is one of the common urological problems seen worldwide. The symptoms seen are pain and burning sensation with the urge to urinate frequently. In Ayurvedic classical texts the same has been explained in the name of Mutrakrichra. Brihatyadi kwatha is one such formulation prepared from herbal drugs indicated in this condition. So it was taken up for pharmaceutical and analytical evaluation as a part of its standardisation. To prepare Brihatyadi kwatha according to Ayurvedic texts, Astanga Hridaya and Sharangadhara Samhita and subjecting it to analytical evaluation. Brihatyadi kwatha is prepared by boiling 1 part of coarsely powdered drugs with 16 parts of potable water until it is reduced to 1/8th part. It is then observed for organoleptic characters and subjected for physicochemical analysis. The present study revealed the analytical parameters like total solids, refractive index, specific gravity, viscosity and the ph of the Kashaya. The peaks observed in HPTLC helps in establishing its fingerprint. This will help in standardising the formulation for maintaining its quality and efficacy. The qualitative and quantitative analysis is essential in any new formulation. The data evolved from the present study will help in setting up the quality control of the formulation and also help in further experimental and clinical studies.

TO EVALUATE THE EFFICACY OF PRASARINI TAILA NASYA KARMA IN CERVICAL SPONDYLOSIS

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Abstract: Cervical spondylosis is one of the most common degenerative conditions of the spine that affects the vertebral bodies and intervertebral disc of the neck as well as the contents of the spinal canal. The prevalence in male was 13% in 3rd decade and increases to 100% by the age of 70 years but in females it ranges from 5 % in 4th decade to 96% by the age of 70 years. Ayurveda understands the cervical spine disorders in terms of Vishwachi, apabahuka, manyasthambha in which nasya is considered as a unique line of treatment in urdhvajatrugata vikara. Prasarini taila nasya is considered as easily available and cost effective medicines as mentioned by Bhavaprakasha in the context of vata vyadhi prakarna. keeping in this mind a study was conducted entitled - “ To evaluate the efficacy of prasarini taila nasya karma in cervical spondylosis’ Hence I have taken up the study to highlight the efficacy of prasarini taila for nasya karama in cervical spondylosis anticipating its widespread use in integrated medicinal practice.
THERAPEUTIC EFFECT OF KUTAJA BEEJA AS VAMAKA

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Abstract: Kutajabeeja- Indrayava is botanically identified as Wrightia antidyscentrica stated to be a potent therapeutic emetic agent in skin disorders. Acharya Charaka explained six main drugs for Vamana karma and Kutaja is one among them. Expulsion of vitiated doshas through oral route is termed as Vamana karma, keeping this in mind a study was conducted entitled “A Comparative Clinical Study to Evaluate the efficacy of Vamanakarma with Jeemutaka and Indrayavachurna in Psoriasis”, and this study concluded that Kutajabeeja has significant result. Hence I have taken up this topic to highlight the importance of Kutajabeeja as Vamaka.

PRESERVATION AND POTENTIFICATION OF MADANAPHALA

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Abstract: Madanaphala is considered as shreshta Vamaka dravya. It contains Saponin as its main constituent which is responsible for the process of Vomiting by triggering CTZ. When Saponin content exceeds its normal limit it induces saponification like reaction and produces lot of complication. Hence there is a need for processing of Madanaphala. In our classics we get reference about Preservation and Samskaras of Madanaphala. When these samskaras done to Madanaphala there will be decrease in its toxic contents and increase in its potency. Previously a work has been carried out to compare the efficacy of processed and unprocessed Madanaphala. Now here an attempt is made to explain the importance of processing and potentification of Madanaphala.
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EFFECT OF STREE KUTAJA TAILA IN MANAGEMENT OF PSORIASIS- A TRADITIONAL MEDICINE

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Abstract: Psoriasis is a chronic skin condition caused by overactive immune system, common skin condition that speeds up the life cycle of skin cell. Psoriasis occurs worldwide and affects about 2% of the population in the United Kingdom. It is the major genetic determinant of psoriasis and accounts up to 50% of genetic susceptibility to the disease. It has a strong genetic component but environmental factors such as infection can play an important role in the presentation of disease. Stree kutaja (Wrightia tinctoria) is one of the folklore medicine used in day to day practice. It has tikta kashaya rasa, laghu ruksha guna, sheeta veerya, katu vipaka, kaha pitta hara. Wrightia tinctoria contain wrightial, a triterpenoid chemical, along with cycloartenone, cycloeucalenol, Beta-amyrin, and beta-sitosterol. In classic they have said “abyangam acharate nityam”. With this context here we have made this presentation. Hence this presentation highlighting the importance of stree kutaja in management of psoriasis.

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A comparative toxicological evaluation of the strychnine and Ashodhitha Kupilu in wistar albino rats

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Abstract: Ayurveda recommends the use of every plant material originating on this Earth. Also it cautions that the use is judicial when appropriate processing is done to the resource material. This holds good to the poisonous plant material too e.g., Strychnous nux vomica of Loganiaceae, called Kupilu in Sanskrit, one of the upavisha. When taken with precautions and after special purification (Shodhana), Kupilu transforms into a potent medicine and may be prescribed in various ailments. Ayurveda praises the seeds as the best part which may be used in pharmaceutics. Concentrating the chemical nature of Kupilu, its determined that strychnine and brucine are major components making it poisonous and special role is ascribed to Strychnine as it is 10 to 20 times more poisonous than brucine. Strychnine, a colourless, odourless and bitter tasting alkaloid is present wildly in the tress of Strychnos nux vomica. It is proved to act on the receptor sites in spinal cord and brain stem. The present paper projects that if an active principle like strychnine is matched with unpurified kupilu seeds the toxicity though bit less, shodhana which reduced the strychnine concentration is unique concept. To assess the toxicity of the strychnine and un purified Kupilu seed powder (strychnous nux vomica) Methods: The dose of the 1/10th and 1/5th of LD50, ashodhitha kupilu and Strychnine is given to the wistar albino rats and the toxicity exhibited is compared in physical, behavioural changes and mortality. Strychnine groups of 1/5 th LD50 showed more toxic effects than the group of Ashodhitha kupilu seeds when observed biochemically, haematologically and histopathologically, comparison between the strychnine and Ashodhitha kupilu shows that ashodhitha is mild toxic.
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**REVIEW ON HERBAL FORMULATIONS USED FOR COBRA POISON IN KRIYAKOUMUDI**  
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**Abstract:** Ayurveda consists of 8 branches. Agada Tantra or Damshtra Chikitsa is one among them which deals with entire aspect of toxicology. Many toxicological treatises are available in Kerala which contains medications used in emergency conditions by the renowned visha vaidyas. Kriyakoumudi is one such book which explains about the treatment of poison. There are good number of herbal formulations explained here, exploration of which can help the rural community with higher incidence of snake bite due to minimum access to antivenom serum. Among the classification of snake poison darveekara visha (Cobra poison) has given the prime importance in all classical textbooks because of its graveness. This study is focused on screening of herbal formulations explained in Kriyakoumudi.  
Literary review is conducted by referring Kriyakoumudi textbook correlating it with classical and contemporary textbooks and different websites. Kriyakoumudi is the prime textbook which explains different formulations for Pana (internal administration) Nasya (nasal instillation), Lepa (External application), Anjana (collirium) where many medicinal plants were used, which comes under the 24 methods in management of poisons which is explained in ayurvedic classical textbooks. These formulations were effectively used by the traditional vaidyas of Kerala for the Cobra poisoning. This step towards the exploration and identification of such formulations in Kriyakoumudi can add on to the scope of research in Cobra poison.

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**Pharmacological Potential of selected Apocynaceae plant species in Inflammation and Psoriasis- A short Review**  
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**Abstract:** Psoriasis is common auto immune disorder mainly affecting skin, and it is primarily characterized by focal formation of inflamed, raised plaques that shed scales from excessive growth of epithelial cells and associated with histological changes such as hyperplasia of epidermal keratinocytes, vascular hyperplasia and ectasia, infiltration of T lymphocytes, neutrophils and other leucocytes in the affected skin. It affects more than 125 million people worldwide. Nearly 2/3rd of the people with psoriasis have a mild form of the disease, with less than 3 % of the skin surface of the body affected, but others have more extensive involvement of the skin. Some species of plants such as Alstonia Scholaris (Sapta Parni). Wrightitia Tinctoria (Stri kutaja and Nerium indicum (Karaviua) of the family Apocynaceae have been extensively referred in ayurvedic literature for their anti-inflammatory and anti-psoriatic properties. This is supported by recent studies conducted on extracts from these plant species. The scope of this review is to discuss these pharmacological and phytochemical evidences accrued in support of their use exclusively for the treatment of inflammation and Psoriasis.
Clinical Evaluation of Shushka Kaasaghna Arka - A Herbal Antitussive

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Abstract: Cough is a common clinical presentation. It is both a symptom and a disease. The repeated episodes of the cough make the patient feel disturbed and also sometimes effects by preventing them doing their daily routines. Herbal compounds which can help these categories of patients may be of great importance. On this background a study was planned to develop and evaluate a herbal compound which works as an anti-tussive which is very much cost effective. To prepare shushka kaasaghna Arka Evaluate the efficacy of this combination as an anti-tussive agent. Placebo controlled study was planned to evaluate the efficacy of shushka kaasaghna arka. 30 patients satisfying the inclusion and exclusion criteria’s will be selected. 15 patients will be administered with shushka kaasaghna Arka and 15 patients with placebo. 80% of the patients responded to the study positively. 15% of the patient showed moderate responses and 5% showed nil response. The herbal compound shushka kaasaghna arka reduced the repeated episodes of kasa in the patients. Hence can be administered as an antitussive in patients with dry cough.

Natural Curb for HIV replication

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Abstract: HIV pandemic is still a serious challenge. With growing understanding of the mechanism of viral replication, spread and adaptability, there is an open platform to identify new targets to control viral replication. HIV-reverse transcriptase, protease and integrase enzymes have been targets of several anti-retroviral drugs used today, but toxicity associated with these drugs and emergence of drug resistant viral strains has augmented the need of active search for new molecules for the anti-HIV therapy. Apart from synthetic chemical compounds, several natural compounds derived from plants, especially the secondary metabolites have been identified with potential anti-HIV and immune stimulating activity. Natural products derived from plants, have a variety of chemical structures and there are probabilities for targeting HIV replication in unconventional ways. The discovery of these compounds and detailed study of their pharmacological potential will widen the use of natural products as novel pharmaceutical agents.
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The effect of alkaloid *Mahonia Aquifolium* (Oregon grape) in the treatment of Psoriasis.

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Abstract: Psoriasis is an immune-mediated skin inflammatory disease, affecting approximately 125 million people globally. Clinically, characterized by hyperproliferation of keratinocytes which results in red, scaly patches and thickened epidermis. It can appear anywhere on the body but it mainly occurs at site of epidermal trauma, such as the elbows, knees, back and trunk, which severely impairs the quality of life of the patients. In Psoriatic patient the keratinocytes (skin cells) differentiate at faster rate, due to which lesion occurs. Most patients have slight to modest psoriasis (≈80%). *Mahonia Aquifolium* is a powerful alkaloid which possess antimicrobial and anti-inflammatory properties that play a role in immune response. The literature suggests that the stem and leaves of the plant can be ground into a powder or distilled into an extract that is used to make a topical skin cream. Previous studies showed that applying a cream containing 10% *Mahonia* is effective in treating mild to moderate psoriasis.

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Screening of Alpha-Glucosidase inhibitory activity of some cucurbitaceae food plants

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Abstract: Diabetes is an important human ailment affecting many people in different countries. Diabetes Mellitus is of two types, Type I and Type II. Diabetes can cause many complications like cardiovascular disease, stroke, chronic kidney disease, foot ulcers, and damage to the eyes. α-glucosidase breaks down starch and disaccharides to glucose or simple sugars which further increase the blood glucose level. Acarbose, Miglitol and Voglibose are well known in the market as α-glucosidase inhibitors and used in the treatment of type-II diabetes mellitus. Some unacceptable side effects of conventional α-glucosidase inhibitors have lead researchers to find lead from natural products as useful α-glucosidase inhibitors with fewer side effects. Establishing the concept of ‘Food as the Medicine’ is an initiative of the present study, which was one of the basic postulates of the Ayurvedic system of medicine. Plants of Cucurbitaceae family are used regularly in Indian diet. In this study the standardized extracts of three plants of Cucurbitaceae family were studied for their α-glucosidase inhibitory activity. *Luffa acutangula*, *Sechium edule* and *Trichosanthes cucumerina* plants were selected. The plants were collected and dried. Extraction was carried out by maceration method using hydro alcoholic solution as solvent and lyophilized. Standardization of the hydro alcoholic extracts of the plants was performed through RP-HPLC using chlorogenic acid as marker compound. The results indicated the IC\textsubscript{50} values in the range of 1.83-3.60 mg/ml whereas the IC\textsubscript{50} value of Acarbose was found at 2.25±0.58 mg/ml. The quantitative estimation of chlorogenic acid in the three above plants was calculated in the range of 0.55-1.74% w/w. Thus this study was able to establish the alpha glucosidase inhibitory potential of Cucurbitaceae plants which can offer a potential lead to treat hyperglycemia related disorders at large.
HPTLC Standardization and evaluation of *in vitro* pancreatic lipase inhibitory potential of *Benincasa hispida* (Thunb.): A food plant of cucurbitaceae family

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Abstract: *Benincasa hispida* (Thunb.) commonly called winter melon, ash gourd etc belongs to the cucurbitaceae family. It is a popular food plant, especially among Asian communities both for nutritional and medicinal purposes. Fruits of this plant have been traditionally used in various metabolic disorders including diabetes. Various reports suggest the hypolipidemic potential of fruit extract of this plant. This encouraged us to investigate *in vitro* pancreatic lipase inhibitory potential of this fruit. Standardization of fruit extract has been carried out by HPTLC. To standardize *Benincasa hispida* (Thunb.) fruit extract using HPTLC and evaluate *in vitro* pancreatic lipase inhibitory potential Methanolic extract of fruit of *Benincasa hispida* (Thunb.) was prepared and subjected to phytochemical analysis. The extract was then standardized by HPTLC with the phytomarker ferulic acid. Henceforth it was screened for pancreatic lipase (Porcine pancreatic lipase Type-II) inhibitory activity using p-nitrophenyl caprylate (p-NPC) as the substrate and Orlistat as standard. The reaction was monitored in microplate reader and absorbance recorded at 405 nm at 37°C. The activity of different concentrations of control, test and standard were compared. The methanolic extract of *Benincasa hispida* showed the presence of volatile oil, glycosides, flavonoids, and terpenoids. The amount of ferulic acid present in extract of *Benincasa hispida* was found to be 0.11 % w/w. It was found that *Benincasa hispida* (Thunb.) possessed significant lipase inhibitory activity with an IC$_{50}$ of 1.25 µg/ml when compared to standard Orlistat (IC$_{50}$- 0.15 µg/ml). This study shows the potential of *Benincasa hispida* (Thunb.) fruit to be a promising source of functional food and anti-hypolipidemic drug development.
**A-263 GC/MS analysis and Antiviral (HSV I) potential of isolated essential oil from Piper schmidtii – mechanistic approach**

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**Abstract:** Herpes simplex virus I (HSV I) infection is a major concern due to its silent infection nature, epidemic potential, ability to produce recurrent infection with periodic reactivation and frequent development of drug-resistance. The present investigation is focused on the identification of novel non-nucleotide antiviral agent. Evaluation of anti-HSV activity of Piper schmidtii (PS) essential oil, which is traditionally used as antimicrobials from ancient times as mentioned in Ayurvedic text. Essential oil was extracted from PS dried fruit material by Microwave extractor with specific condition. The isolated essential oil were evaluated for anti-HSV activity. GC/MS- study was performed to identify tentatively major phytoconstituents in the essential oil. Antiviral potential was evaluated against wild-type and clinical isolates of herpes simplex virus I (HSV I) by cytotoxicity, cytopathic effect and plaque reduction assay, whereas the mechanism was determined by the time-of-addition and attachment-penetration assays. The cytotoxicity (CC50) of the active fraction was found to be 711.00 ± 5.8 µl/ml. The effective concentration (EC50) of the active fraction was found to be 84.31 ± 3.9 µg/ml and 82.90 ± 7.2 µg/ml with the selectivity index (SI) of 8.43 and 8.57 against the wild type and clinical isolates of HSV I respectively. Active fraction of CS possessed moderate anti-HSV activity. From the present study reveals that essential oil isolated from PS possesses promising anti-HSV activity and may provide useful lead for the development of effective antiviral agents, which needs further study.

**A-264 In vitro antioxidant, anti-inflammatory and anticancer activity of Pterostilbene from Blue berries**

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**Abstract:** Chemotherapy is the major option including surgery for solid tumours followed by radiation therapy. Chemotherapy is associated with many side effects. However plant extracts of natural source are reliable and show less side effects. These plant extracts are associated with more than one active compounds. But, extraction procedures and conversion of those extracts into final drug products is associated with different hurdles. Pterostilbene, found in almonds various berries and grape leaves. Pterostilbene has been shown to prevent carcinogenesis include inhibition of the production of pro-inflammatory molecules, oxidative stress and products of oxidative stress such as DNA damage, inhibition of cancer cell proliferation and increased apoptosis. The in vitro metabolism in rat liver microsomes suggested phase II metabolism of pterostilbene. Pterostilbene demonstrated concentration-dependent anticancer activity in five cancer cell lines (1–100 µg/mL).
**Trends of nanotechnology in Ethnopharmacology**

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**Abstract:** Nanotechnology is the new emerging technology in traditional drug discovery. Nanoparticles with particle size of 1-100 nm, have the property of self-targeting, which can ease the delivery to specific target site without the attachment of a specific ligand. Recently, the focus has been given to traditional drugs with nanotechnology in various dosage forms for the prevention and cure of diseases. Recent data has been shown that 80% of the world’s population has a belief and start using natural medicine, particularly traditional plant-based drugs for acute and chronic diseases and nutraceuticals. Nanoparticulate formulations such as liposomes, niosomes, microemulsions, microsuspension, and solid lipid nanoparticles present potential to deliver herbal medicines to specific site of action to show better pharmacological action. Hence integration of the nanocarriers as a Novel drug delivery systems in the traditional medicine system is essential to conflict chronic diseases such as myocardial infarction, angina pectoris, cancer, asthma, diabetes, related kidney diseases and others. For example, berberine loaded nanoparticles for cancer, Radix salvia miltiorrhiza nanocapsule for pulmonary heart disease, angina pectoris, and myocardial infarction. Curcumin nanocarrier transdermal gel as the anti-inflammatory drug is also explored. The benefits of nanomedicines are indubitable and unstoppable, nevertheless, and safety-related studies should also be carried out rigorously and planned in order to provide guidelines for safer manufacturing practices, keeping care of ecology, and environment. This review addresses on recent trends and various applications of nanotechnology in ethnopharmacology.

**Acetylcholinesterase inhibitory potential of Hemidesmus indicus and Vernonia anthelmintica and its active constituent**

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**Abstract:** Neurodegenerative disorder scenario in India is facing a crisis among the elderly. One of the important target for altering the Alzheimer’s disease (AD) conditions is by altering the acetyl cholinesterase (AChE) levels in humans, which is currently considered the main therapeutic approach that plays an important role in diagnostic, detection and treatment for AD. Though, a vast range of natural products and medicinal plants, including crude extracts and isolated compounds have been shown to change the levels of AChE, but there is a need of scientific validation and reproducibility of these bioactive which requires a molecular-target based characterization. Aim and Objectives: The origin of neurodegenerative disorder are due to various genetic, environmental and lifestyle factors which have been considered a critical putative pathways mediating AD. Our study proposes to assess and validate the cognitive enhancement activity of selected medicinal plants Hemidesmus indicus (HI) and Vernonia anthelmintica (VA) by screening AChE enzyme inhibition assay. Methods: In-vitro AChE enzyme inhibition assay was carried out using Ellman’s colorimetric method followed by isolation of phyto-molecules using flash chromatography. Among, the selected plants and phytomolecules, the methanolic extract of HI has shown potent inhibitory effect then that of VA when compared with galantamine hydrochloride, as a standard. Further, the phyto-molecules isolated from the bioactive fraction found to contain steroids and saponins when characterized by FTIR, 1H NMR and GC–MS. Whilst, our findings suggest the potential role of methanolic extract of HI as a promising AChE inhibitors in the development of therapeutic strategies to combat AD and the main inhibitory activity against AChE was found to be due to presence of steroids and saponin structure in the isolated phyto-molecules.