Theme 4

Importance of Herbal drug in modern Ayurvedic Chikitsa

Sustainable Production of Anticancer Agent Camptothecin Through Plant Biotechnological Strategies

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Abstract

Camptothecin (CPT) is one of the popularly used anti-tumor drugs possessing clinically proven properties against a plethora of human malignancies that include ovarian and colorectal cancers. For the first time, CPT was obtained from the extracts of a Chinese medicinal tree, *Camptotheca acuminata* Decne. from the family Cornaceae. Subsequently, CPT was also isolated from the bark of *Nothapodytes foetida* (Wight) Sleumer (Icacinaceae). However, the availability of enough natural sources for obtaining CPT is a major constraint. Due to overexploitation and harvesting, loss of habitat, excessive trading, and unfavorable environmental factors, the natural source of CPT has become extinct or extremely limited and hence they are red listed under endangered species. Conventional propagation has also failed to meet the ever-expanding demand for CPT production. With this, biotechnological toolkits have constantly been used as a boon to produce sustainable source, utilization, and *ex situ* conservation of medicinal plants. The approaches serve as a supplement to traditional agriculture in the mass production of plant metabolites with potent bioactivities. Non-availability of enough anticancer medicine and the requirement to satisfy current demands need a sustainable source of CPT. With this background, we present a our work on CPT occurrence in the plant kingdom, phytochemistry, pharmacological properties, clinical studies, patterns of CPT accumulation, and biotechnological aspects of CPT production in *N. nimmoniana*,

Keywords: Camptothecin, anti-tumor, phytochemistry, Pharmacology.

Screening of biomarker(s) in Cancer Drug Discovery and development: Case studies

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Abstract

Biomarker measurements have become a crucial component of cancer drug discovery and development, predominantly so in this era of targeted therapies. Biomarker assays are characterised in terms of their sensitivity, specificity, limit of quantification, limit of detection and variability. These measurements warrant that clinical studies are testing our biological postulates and can help us to make the tough decisions required to choose which drugs to go no-go decision and or to stop developing or de-prioritise them. Molecules which are taken forward, biomarker measurements help us to choose their schedule, appropriate dose, and patient population. With the advent of Precision medicine/personalized cancer therapies involving the tailor made antitumor treatments to the individual using associated microenvironment of patient's tumour molecular signature profile and clinical features with the aim of treating cancer more effectively and with less toxicity. Here, in my talk I shall be conversing with you the case studies pertaining to two most important herbs i.e. *boswelllia* and its Penta cyclic triterpines compounds and *Cannabis* and its compounds THC/CBD. I shall be will be deliberating their molecular biomarkers associated with anti-inflammatory / immune system-related signalling pathways in cancer.

Keywords: Anti-inflammatory, Tumour, Boswelllia

Ayurveda in the Treatment of Rheumatoid Arthritis

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Abstract

Now a days Rheumatoid Arthritis (RA) is a big challenge to elder female and male. RA is a chronic autoimmune disorder characterized by inflammation in synovial and followed by cartilage and bone erosion. Therapy for reduction in RA pain is still a challenge for physicians as well as for patients. Effective therapy with subsequent achievement of low

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disease activity or even remission is achievable for numerous patients using currently available treatment options. Therapy discontinuation has therefore become a hot topic and the risk of exacerbation of well-controlled RA must be weighed against the medical and economic benefits of reducing or even discontinuing therapy. From the ancient time plants are the major sources of remedy of many diseases and most of the medicines of RA have contain at least one plant derived chemical constituent. In current era utilization of plant extracts and their useful phytochemical constituents gave rise to a new trend of medication known as phytomedicine. This article gives an overview of ayurvedic herbs use for the treatment of Rheumatic Arthritis. Plant that containing phytochemical constitutes like Alkaloids, glycosides, terpenoids, and flavonoids are used for the treatment of RA.

Keywords: Rheumatoid Arthritis, Herbal Drug, Autoimmune disorder, Inflammation.

Carrageenan - A Promising alternative to cellulose

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Abstract

Search of excipients to develop a successful formulation is always of great interest to formulation scientists. Natural materials like carbohydrates are wildly used in various formulations as excipients including tablets, capsules, liquid oral, and topical formulations. These carbohydrates being familiar and safe to human, these are readily available and can be modified as per need. Carbohydrates are primary metabolites of plants- both terrestrial and aquatic. Mother Earth is 70% covered with water- which has great potential to cultivate aquatic plants. India a peninsula has large costal area. Sea weeds – Red, develops carrageenan as secondary metabolites; which have sulfated groups, and shows ionic gelation. This carrageenan is well known to pharmacologist for developing inflammation. But this polysaccharide has ample of uses, and is approved for oral use by USFDA. Carrageenan is used in oral formulations, food products, tooth pastes, cosmetics, and other products too. It does not have any direct pharmacological effect and it is a helpful excipient. They are sulfate esters of galactose and 3,6-anhydrogalactose copolymers, linked by alternating α-1,3 and β- 1,4 glycosidic linkages. And is available in three; iota, kappa and lambda categories. Recently interest is diverted towards it's chemical modifications. This carrageenan has the potential to be developed as alternative to celluloses.

Keywords: formulation, Metabolites, carrageenan, cellulose.

The market and scope of Indian herbal products in domestic and global market

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Abstract

Herbal medicines are in great demand in the developed world for primary health care because of their efficacy, safety, and lesser side effects. India is home to rich biodiversity, this coupled with its centuries-old knowledge of herbal medication in the treatment of both superficial and debilitating disease can result in India becoming a hub for Herbal Products. Herbal products have potential growth in herbal dietary supplements, herbal cosmetics, nutraceuticals, neutral medicines and so on. Global pharmaceutical market was worth US $550 billion in 2004 and is expected to exceed US $1100 billion or more by the year 2015. The herbal industry shares about US $100 billion with good growth potential. The World Bank report trade in medicinal plants, botanical drugs products and raw materials is growing at annual growth rate of about 15% (WHO). Within the European community botanical medicine represents an import share of the pharmaceutical market. Natural products compounds discovered from medicinal plants (and their analogues thereof) have provided numerous clinically useful drugs in the treatment of chronic and or acute disease and still remain as an essential component in the search for new medicines. So, these traditionally used plants can be explored effectively in order to find New Chemical Entity for the treatment of chronic and acute disease. Hence Indian herbal product having greater future perspectives review was performed systematically.

Keywords: Herbal Products, Herbalism, Scope, Natural Medicine, Marketing Strategies.

Phytoconstituents: A new way to treat Parkinson's Disease

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Abstract

Parkinson's disease (PD) is one of the neuronal disorders in which there is degeneration of dopaminergic neurons.

These neurons specifically present in the substantia nigra pars compacta. Due to degeneration of dopaminergic neurons, level of dopamine get reduced which ultimately disturb the motor function of the body and produced symptom like rigidity, tremors and postural instability. The present therapy of PD provides only symptomatic relief but not able to cure the underline cause. So, there is a need to find or develop therapy for the treatment of PD which can treat the underline cause. Oxidative stress is one of the causes of the degeneration of the neurons. On this basis various phytoconstituents those have anti-oxidant properties are tested in animal models of PD for the evaluation of their positive effect in treating the PD. The phytoconstituents are mainly responsible for the colour or some other organoleptic properties in the plants. There are numerous secondary metabolites of phytoconstituents those are tested in PD like: curcumin, resveratrol, epigallocatechin, hesperidine and baicalein etc. In this, review we try to conclude the available information regarding the phytoconstituents which are evaluated for the treatment of PD.

Keywords: Parkinson's Disease, Dopamine, Phytoconstituents, Neurodegeneration.

Extraction, Optimization and Quantification of Quercetin, Rutin as a biomarkerfrom the Leaves of *Costus igneus*

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Abstract

Plants are the largest source of therapeutic phytochemicals such as Phenolic, Flavonoids, Tannins, Alkaloids, Saponins that possess various pharmacological activity. *Costus Igneus* also known as "*Insulin plant*" belonging to *Costaceae* family. It is also known as Spiral Flag, based on literature review it has been found that the plant has Anti-diabetic, hypolipidemic, Anti-inflammatory, Anti-microbial, Anti-proliferative activity, effect on learning and memory. The present study was aimed to performchemical profiling of *C.igneus*. In this hydroalcoholic leaves extract of *C.igneus*was revealed chemical profiling. Where 80% hydroalcoholic extract by Maceration wasshown highest % of yield i.e19.9%, the phytochemical analysis revealed the presence of flavonoid, phenols, carbohydrates, Terpenoids, alkaloids in the 80%hydroalcoholic leaves extract. Quercetin and Rutin was isolated, identified and quantify by HPTLC analysis.

Keywords: Phytochemical, Maceration, *Costus igneus*, Type 2 diabetes.

Role of Herbal Biomarker for The Treatment of Angiogenesis

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Abstract

Angiogenesis is physiological process through which new blood vessels are formed by pre-existing blood vessels found in the earlier stage of vasculogenesis. It is normal and vital process for the growth and development as well as wound healing and in formation of granulation tissue. It is a fundamental step in transition of tumours from benign state to malignant. Solid cancers cannot grow beyond a specific size without an adequate blood supply. There are many factors causing angiogenesis such as VEGF-A (Vascular Endothelial Growth Factor), FGF-2 (Fibroblast Growth Factor), Angiopoietin 1 & 2, PDGF (platelet derived growth factor). Hence, there are many developed drugs called as Angiogenesis Inhibitors such as Bevacizumab, Cetuximab etc. There are some plant sources that matter of great interest in recent times.

Keywords: Curcumin, angiogenesis, vascular endothelial growth factor, angiogenesis inhibitors.

Essential Biomarkers in Herbal Drug Delivery for Treatment of Solid Tumor

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Abstract

Solid tumors are abnormal mass of tissues that usually does not contain any cysts or liquid area that are mostly malignant in nature. Biomarkers are biological molecule found in blood, other body fluids or tissues that is a sign of a normal or abnormal process, or of an abnormal condition or diseases. In the last decade, the applications of biomarker in solid tumor expand rapidly. Predictive biomarkers that include germ line mutations and somatic mutations which are used to determine the probability of response to specific therapies, targeting to the specific cells and can guide the selection of best treatment to increase chances of patient's survival and quality of life. In this paper different kinds of genetic biomarkers such as BRAF, BRCA, EROPR, HER2 HRR prostate, KRAS PN C3, C4, HRD etc were

summarized. The BRAF is a gene found on chromosome seven that encodes a specific protein. This protein plays a role in cell growth by sending signals inside the cell promoting, cell division. BRCA are the genes which produces the proteins needed to fix damaged DNA and prevent tumor growth. The BRCA1 and BRCA2 genes are also called tumor suppressor genes. In present paper the therapies which are approved by US FDA and different kinds of biomarkers for the preparation of the therapies were also mentioned. These biomarkers which helps to target the solid tumor have increased the targeting and used for various herbal delivery of drug that reduce the side effects and increase the patient compliance.

Keywords: - Biomarkers, Solid Tumor, genetic mutations, predictive biomarkers and targeted therapies.

Major Role of Medicinal Plants in the treatment and management of Diabetes mellitus

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Abstract

Diabetes mellitus is a metabolic disorder. There are some medicinal plants that are used to treat and manage *Diabetes Mellitus*. They have high level of phenolic compounds, flavonoids, terpenoids, alkaloids & glycosides which are responsible for antidiabetic activities. There are many plants which have anti-diabetic property like *Costus igneus* (insulin plant), *Cynodon dactylon* (Duba), *Madhuka longifolia (*Mahua)*, Citrus limetta* (Sweet lemon)*, Syzygium cumini* (Jamun fruit), *Acacia arabica* (Babul Plant) and *Hibiscus sabdariffa* (Rosella flower).

Keywords: Diabetes mellitus, anti-diabetic, Costus igneus, Cynodon dactylon, Madhuka longifolia.

Madhuca Longifolia: A Traditional Herbal Medicine

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Abstract

Madhuca longifolia from family of *sapoteace*, commonly known as 'Mahua'. *Madhuca longifolia* is used in traditional and folklore system of medicine across India, Nepal, and Sri Lanka. Phytochemicals studies showed that it contains various bioactive constituents, like- glycosides, flavonoids, terpenes and saponins. Pharmacologically it has anti-oxidant, anti-inflammatory, antiulcer, wound healing & anti-diabetic action. It has non-toxic effect even at higher doses. Further exploration on *M. longifolia* for its therapeutic potential is however required for deep traditional knowledge.

Keywords: *M. longifolia,* anti-diabetic, wound healing, anti-inflammatory, antiulcer.

Importance of Herbal drug in modern Ayurvedic Chikitshka

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Abstract

Ayurveda is considered as one of the oldest of the traditional systems of medicine accepted worldwide. Herbal drug includes identitying the potential influence of the action of food, spices, and medicinal plants present naturally around us. Indian medicinal plants are rich sources of beneficial compounds including antioxidants and components that can be used in functional foods. Newer approaches utilizing collaborative research and modern technology in combination with established traditional health principles will yield rich dividends soon in improving health. Ayurveda and other traditional herbal medicines are capable of addressing some modern unmet medical needs, and can provide the basis for developing potential medicines. Ayurveda and other ISMs (Indian System of Medicine's) are judicious combinations of modern science and contemporary clinical medicine, which have the potential to cure several diseases in better ways. Ayurvedic formulations, often complex with several herbal-mineral ingredients, are governed by well-described pharmacological principles of preparation, compatibility and administration. Modern Ayurveda with the help of herbal drug substances has proposed many therapeutic modalities for the management of diseases including epilepsy, obsessive disorders, neurosis, anxiety, mental retardataion, depression and bipolar disorder. The acceptability, convenience, and accessibility of ayurvedic system have been, and will be, helpful in future as well. The careful and scientific integration of Indian traditional herbal medicine into evidence-based clinical management of diseases is essential to provide better health care facilities worldwide.

Keywords: Ayurveda, Herbal, Bipolar disorder.

Synthesis and Biological Evaluation of Chalcone Thiosemicarbazide Copper Complex Derivatives as Anticonvulsant agents

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Abstract

A series of novel chalcone thiosemicarbazide copper complex were synthesized by the reaction of acetophenone and benzaldehyde followed by the addition of copper (5a, 5b, 5c, 5d, 5e, 5f, 5g, 5h & 5i). The structure elucidation of synthesized complex was determined by spectral analysis (IR & UV spectroscopy). The biological evaluation was performed by the observing % scavenging activity as expressed inhibition of hydrogen peroxide radical. The antioxidant activity was found in the order of 5i>5g>5h>5b>5c>5d>5e>5a>5h. From all these derivatives 5i was most active compound may be due to the presence of nitro group at para position. It can be concluded that electron withdrawing group enhances the activity and this result can be explore for further development of novel drugs.

Keywords: scavenging activity, antioxidant activity, thiosemicarbazide, copper complex

Synthesis and Biological Evaluation of 1,4-Dihydropyridine Derivatives as Anti-inflammatory Agents

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Abstract

1,4-dihydropyridine nucleus has been used as anti-inflammatory. A novel series of 1,4- dihydropyridine derivatives was synthesized by substituted aromatic benzaldehyde with ethyl acetoacetate. The six derivatives 3a, 3b, 3c, 3d, 3e and 3f were synthesized. The physical characterization was determined for all compounds. The structural eludicidation were performed by UV and IR spectroscopy. The target prediction of compounds were performed by SWISS target prediction. The result of target prediction by Swiss target showed that all synthesized derivatives gave target prediction on cyclooxygenase. Among all synthesized derivatives 3d shows maximum probability to inhibit COX-2. The biological evaluations of all compounds were performed by paw edema model. The order of antiinflammatory activity of synthesized compounds is in the order of 3d>3b>3e>3c>3a>3f. Compound 3d showed maximum activity as compared to other compound because of the electron withdrawing methoxy group and electron donating group chlorine present in the 1,4 dihydropyridine derivatives. These both groups are responsible for increasing the anti-inflammatory effect in rat.

Keywords: Inflammation, Dihydropyridine, Synthesis, Anti-inflammatory Activity, Swiss Prediction.

Determination of Anti-Estrogenic, Anti-Ovulatory and abortifacieant activity of *Alstonia Scholaris* in wistar rats

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Abstract

To prevent the ovulation and fertilization in females by controlling the birth rate, synthetic contraceptives have various adverse effects, the objective of this study to evaluate the anti- estrogenic, antiovulatory and abortifacient activity of *Alstonia scholaris* in female wistar rats. The experiment was performed on wistar rats obtained from animal house of VNS Group of Institutions Faculty of Pharmacy Bhopal. Anti-estrogenic, anti-ovulatory, abortifacient activity was performed on 16 rats in per activity and which were further divided in to 4 sets of groups (n=4). The extract of *Alstonia scholaris* had produced effect of abortifacient activity in female rats. Resulted that dose dependent loss of implants and increased number of resorption in female rats on the doses 200 and 400 mg/kg respectively. The extract of *Alstonia scholaris* shown maximum abortion on 400mg/kg where the fetal development was suppressed and on 200mg/kg. The potent anti-fertilizing activity of *Alstonia scholaris* is possibly by its phytoconstituents leupeol acetate, alkaloids and glycosides.

Keywords: *Alstonia scholaris,* Estrogen, Ovulation, Reproductive, Abortifacient.

Anti-Fertility Activity of *Alstonia Scholaris* (Saptaparna) In Female Rats

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Abstract

Background: Fertility is a significant issue of global public health concern. Ever increasing -human population

throughout the world has inevitable effects on the life supporting resources on the earth. Alstonia scholaris is a medicinal plant that is used all over Papua New Guinea to hasten childbirth because, is possesses the ability to stop ovulation and also used as an abortifacient. **Method:** the effects of Alstonia scholaris were investigated on the estrous cycle, Organ weight, histology of ovary and uterus of adult winter rats. These were divided into three groups of 6 animals in each group. Group A received vehicle only, while animals in groups B and C received AS-200 mg/kg body weight and AS-400 mg/kg body weight of extract, orally and daily respectively. Monitoring of estrous cycle continued 28 days of extract administration. After 28 days the ovaries and uterus were excised and processed for histological examination. The data all of experiment were analyzed using one way analysis of variance followed by Borferroni multiple comparison test. **Conclusion:** In the ovary, there was a reduction in number of primordia, primary, secondary and graffian follicles in the treated rats. Estrous cycle of group B and C, showed a disruptions when compared to group A.

Keywords: Antifertility, *Alstonia Scholaris*, Estrous Cycle, Organ Weight, Histopathology.

Synthesis and biological evaluation of thiosemicarbazide derivatives as anti-inflammatory agents

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Abstract

A novel series of Thiosemicarbazide were synthesized by acetophenone with bromine. Total four compounds have been synthesized (3a, 3b, 3c, 3d). The physiochemical and spectral characterization (UV & IR) of the synthesized compounds have been performed. The biological evaluations were performed by using formalin induced rat paw edema method to check the anti-inflammatory activity. The activity was found in the order of 3b>3a>3d>3c. Compound 3b shows maximum anti-inflammatory activity may be due to benzoxazole ring present in the structure.

Keywords: Thiosemicarbazide, Synthesis, UV, IR, Anti-Inflammatory Activity

Preparation and Evaluation of Herbal Cookies

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Abstract

Herbal based functional foods are extensively used for the prevention and treatment of complicated disease. Herbal cookies are administered orally and degraded in stomach, it is the easiest administration with negligible side effects The aim of this study is to prepare herbal cookies using the hydro alcoholic extraction of *Syzygium cumini, Momordica charantia, Emblica officinalis gaertn, Hibiscus rosa, Tinospora cordifolia, Gymnema sylvestre, Punica granatum* with the help of wheat flour. Physical and chemical evaluation was performed and the result was further elucidate its possible therapeutic effects on complicated disease.

Keywords: Herbal cookies, complicated disease, hydro alcoholic, *Syzygium cumini, Momordica charantia.*

Study on Drug Utilization Pattern of Anti-Hypertensives at a Tertiary Care Teaching Hospital

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Abstract

Hypertension is a chronic illness associated with high morbidity and mortality. Once hypertension is diagnosed, starting antihypertensive therapy on a long-term basis along with regular follow up is important. The main objective of the study is to assess the utilization pattern of antihypertensive in a tertiary care hospital at Hyderabad. A prospective observational study was conducted for a period of 8 months from August 2021 to March 2022 in general medicine department of Aware Gleneagles Global Hospital. A total of 102 prescriptions were analyzed. Through the current study, we could assess the drug utilization pattern of antihypertensive in general medicine department. The study report shows male population was higher compared to female. Diabetes mellitus was the pronominal diagnosis in general medicine department. Calcium channel blocker followed by beta blockers were the most frequently utilized drugs in the study. Among calcium channel blocker and beta blockers, amlodipine and atenolol were highly utilized in general medicine department respectively. The study also identified various risk factor associated in hypertensive patients where smoking was the most affecting factor. The current study assessed the major drug interactions which were found to be highly significant. Identifying and monitoring drug interactions helps in forming a standard therapeutic plan. It has provided an insight into the

prescription patterns of antihypertensive medications with respect to the level of BP control. It will help prescribers to pay more attention that affect outcome of BP. The trend of hypertension is on the rise, if treated rationally this disease can be overcome.

Keywords: Hypertension, Tertiary care teaching hospital, BP.

Opportunities and Challenges to Develop Polyherbal Formulations in India A SWOT Study

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Abstract

Herbal medicines and their formulations have been widely used in both developed and developing countries for thousands of years. Herbal medicine is a compilation of the medical experience of generations of doctors working in traditional medicine systems over centuries. Furthermore, healthcare professionals have a high demand for herbal medicines in many developed nations because of their efficiency, safety, and lack of side effects. India resides in a goldmine of well-documented knowledge and well-practiced knowledge of traditional medicine. Indian healing systems, namely Siddha, Ayurveda, and Unani, combine mainly herbal medicine with herbal-mineral formulations. Herbal preparations are either herbal or a group of herbs in a mixed recipe. This may be the main reason why quality control in Oriental medicine is more difficult than in allopathic or modern medicine. The value and quality of data on the safety and efficacy of traditional medicine are insufficient to meet the requirements to support its worldwide use. The SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis showed that by becoming a leader in the field of herbal medicine, India has a great opportunity in the national and international market for single and polyherbal Formulations (PHFs). It has also been recognized that the polyherbal formulation market has significant growth potential in both developed and developing countries. Investment and commitment are needed to support research and development in the field of polyherbal Formulations. This paper analyzes the opportunities and challenges to develop polyherbal formulations in India using a SWOT study.

Keywords: SWOT, Herbal Medicine, Polyherbal Formulations, Challenges, Opportunities.

Pharmacological Investigation of Anti-Cataract Activity by using Zn-Aspirin Metal Complex in Rodent Models.

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Abstract

Cataract is the disorder of eye which is the most common disorder with diabetic patient suffering from Hyperinsulinimia. In the cataract there are lack of opacity of the eye by loss of transparency of the eye lens in the patient as resulting of tissue breakdown or protein clumping. In our study we can find the Anticataract activity of the metal complex by using the aspirin from NSAIDs compound and the metal zinc. The modern co-ordination metal complex theory of medicine considers that complexation between organic medicines and minerals usually has a synergetic effect. It has been reported that Zinc ion can significantly affect drug binding and facilitate the bioactivity of drugs. So Zn-aspirin metal complex was prepared by combining Zinc and Aspirin in order to enhance the solubility of aspirin, promote the interaction between aspirin and proteins, improve the pharmaceutical activity of aspirin and to reduce its various side effects in the body and also significantly used to treatment of cataract and give the anticataract activity. The main Aim and Objective of the study is the Pharmacological investigation of Zn-aspirin metal co-ordination metal complex in obesity induced Hyperinsulinemic cataract. Basically the study is depended on the complex forming and their effect on the patient. In conclusion, these findings suggested that Zn-Aspirin complex treatment enhances the antioxidant defenses mechanism in diabetes and in this way may improve blood glucose, oral glucose tolerance and lipid profile. The results of this study clearly show that Zn-Aspirin complex has strong Anticataract potential in HFD+ STZ induced and HFD+ Fructose-induced diabetic rats. It potently reduced the body weight, hyperglycemia, and lipid profile, haematological and oxidative stress in adult diabetic Wistar rats. In future, if these data will be validated in clinical trials, Zn-Aspirin complex to offer potential as a zinc and aspirin that is useful for alleviating metabolic syndrome and eye disorders (Cataract).

Keywords: Anticataract, Cataract, Hyperinsulinimia, Zn-Aspirin, co-ordination Metal Complex.

Isolation and Characterization of Antinociceptive agent from solanum stramonium

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Abstract

The solasodine nitrogen containing steroidal glycoalkaloid obtained from genus Solanum, family solanaceae. It has

various therapeutic effects on different body system. Solasodine was used as in the industry for the synthesis of 16-DPA it is a precursor for antifertility and anti-inflammatory agent. Now in this study solasodine isolate from solanum stramonium root as antinociceptive activity. Solasodine has reported as antinocicptive action. Solasodine identified by thin layer chromatography (TLC) Rf value 0.43 in solvent system butanol, acetic acid, water (4:1:1). And characterized by high performance liquid chromatography (HPLC) C-18 column (250 mm × 4.6 mm, 10 µm particle size) using an isocratic elution of methanol – water (65:35) buffered with 20 mM phosphate (pH - 3.5) as the mobile phase with a flow rate of 1 ml/min and wavelength was absorbed at 205 nm by using U.V. detector, retention time 2.687 reported. And infrared spectroscopy, proton nmr, mass spectroscopy also characterization part. Solasodine has been isolated and characterized selectively by particular technique and it shown antinociceptive activity.

Keywords: solasodine, solanaceae, antinociceptive, steroidal, glycoalkaloid, chromatography.

Cardiac Hypertrophic Activity Potential of *Centella asiatica* Leaves Extracts

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Abstract

Centella asiatica is an Indian traditional medicinal plant. The pharmacological activity of *Centella asiatica* is due to saponins and triterpenoids compounds. It is mainly used in wound healing, ulcer healing and anti-rheumatic properties. *Centella asiatica* was extracted with different solvents, like hexane, chloroform, methanol, methanol-water. Ethyl acetate extract was selected for biological activity. Cardiac hypertrophic activity of *Centella asiatica* is confirmed on SD rat model which is induced by administration of T_3 (triiodothyronine) 80 mg/kg body weight. Cardiac Hypertrophy was checked by heart and body weight ratio. The expression of molecular markers of cardiac hypertrophy was also examined by real time PCR analysis. Isolated RNA was used to generate cDNA, for quantitative real time PCR. Protein estimation was done by Lowry protein assay method. Further confirmation of activity is checked by immunochemical assay (western blotting) of isolated proteins. Different antibodies e.g. GAP, LC3, αSKA, P62, Actin, SOD-2, COX-I, PPAR, ANP were used to check the expression of the proteins. 'Image J' software was use to analysis of area of blot in membrane. Heart and body weight ratio of rat was increased by thyroid hormone which was marginally prevented in the presence of *Centella asiatica* leaves extracts. Expression of cardiac hypertrophy marker genes ANP and sk alpha actin was increased in hypertrophied heart which were decreased in the presence of plant extract. These data indicated that *Centella asiatica* leaves extracts have anti-hypertrophic effect in rat.

Keywords: *Centella asiatica*, Cardiac Hypertrophy, Left Ventricular Hypertrophy, Cardioprotective, Asiaticoside.

Significance of Herbal Drugs in Modern Ayurvedic Chikitsa

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Abstract

Ayurveda is one of the oldest system of medicine. Ayurvedic practice is around 3000 years old, with a long history of managing disease. In modern times, people give more preference to Ayurvedic formulations rather than to the allopathic medicines because these are comparatively cheaper and have less side effects than allopathic system. The 3 basic principles, called *doshas* (*vata*, *pitta*, and *kapha*), are derived from 5 elements of Indian philosophy. Ayurveda seeks to normalize body functions with varied techniques including advice on food and activity, internal herbal preparations, purification treatments (panchakarma), and surgical methods (shalya chikitsa). The Herbal drugs in Ayurveda can be used in the form of powdered substance, extracts, essential oils, juices, pastes, etc. many factors must be considered in prescribing or taking ayurvedic medicine. Despite the fact that ayurvedic medicines are based on natural herbal materials, their safety depends on their method of administration, taking account of individuals' needs and their specific disease conditions. There are numerous pharmaceutical companies came in light in the past 1-2 decades that formulate herbal drugs intended to give Ayurvedic treatment. And also there are some old companies as well, like Himalaya, Dabur, Baidyanath, etc that are formulating the herbal products.

Keywords: Ayurveda, Herbal Plants, Herbal Drugs, Disease.

Pharmacognostic profile of medicinal plant *Catunaregam spinosa*

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Abstract

Humans have been dependent on plants since the ancient times for various reasons such as food, shelter, and medicine. Medicinal plants are the primary source of health benefits in

various communities of the world. Altogether 68 names of species are recorded under the genus *Catunaregam* belonging to family Rubiaceae. The particular species *Catunaregam spinosa* (Thunb.) Tirveng. is a shrub with thorns which is distributed up to 4000 ft. from the sea level. *C. spinosa*, known as Madana in Sanskrit, Madanphal in Nepali, and emetic nut or mountain pomegranate in English, is a deciduous shrub with approx. 5m of height, leaves are ovate, simple, shiny, and pubescent, and flowers are white solitary and possess a honey-like fragrance. This plant has been reported from various parts of India, Nepal, Bangladesh, South China, and the African subcontinent. *C. spinosa* is reported to be distributed in tidelands of semitropical and subtropical areas. The ancient medicinal systems of Ayurveda and Siddha use this plant to treat various types of symptoms and it is still in use. "Rasayana," a kind of clinical specialties in Ayurveda, uses this plant for promoting good habits in the dietary regimen. People in India and Brazil use this plant for treating food poisoning, inducing vomiting, and treating allergy and inflammation. The presence of various important phytoconstituents such as phenols, flavonoids, triterpene saponins, hemolytic saponins, randianin, iridoids, dihydroisocoumarin, and many more other phytoconstituents is reported from various parts. Several studies have reported the modern pharmaceutical activities of *C. spinosa* such as piscicidal, molluscicidal, antioxidant, anti-inflammatory, antidiabetic, and antihyperlipidemic activities. The isolated compounds are not well studied for the possibility of drug discovery pathways. It is important to have a clear idea of this medicinally important plant and its scientific progress. The current state of *C. spinosa* and its overall perspective related to ethnomedicinal importance and modern medicine is still lacking.Thus, there is a need to collect and analyse the current status of traditional uses, phytochemicals, and pharmacological activities from the available scientific information.

Keywords: C. spinosa, Rasayana, phytoconstituents.

Synthesis, Docking and Biological Evaluation of 2,3,4,5-Tetra Substituted Dihydrooxazoles for Anti-Inflammatory Activity

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Abstract

A novel series of 2,3,4,5-tetra substituted dihydro-oxazole were synthesized by substituted benzaldehyde with thiosemicarbazide. The physiochemical and spectral characterization (UV & IR) of the synthesized compounds have been performed. The physiochemical property calculated by SWISS ADME online prediction tool indicated that all compounds have lipophilic and drug likeliness in nature. SWISS target prediction analysis indicated that synthesized compounds have cox-II enzyme inhibition activity. The biological evaluations were performed by using formalin induced rat paw edema method to check the anti-inflammatory activity. The activity was found in the order of SA-3>SA-6>SA-4>SA-5>SA-2>SA-1. Compound SA-3 shows maximum anti-inflammatory activity may be due to bulky isopropyl group.

Keywords: Dihydrooxazoles, Synthesis, Docking, Anti-Inflammatory Activity, Swiss ADME.

Synthesis and evaluation of quinolones carboxamide and assessment of antimicrobial activities

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Abstract

The extremely drug resistant may be a worldwide public ill health in recent years. Molecules with newer targets and an alternate mechanism of action is an urgent requirement of improvement of latest drugs. The utilization of heterocyclic compounds has been increased dramatically over the last 70 years due to their wide selection of technical applications and their favourable environmental and toxicological properties. The ciprofloxacin and its derivatives that we'll manufacture during this method will change the potency and specificity of fluoroquinolones. The fluoroquinolones are a series of systemic, broad-spectrum antibiotics that have been extensively utilised to treat urinary and respiratory tract infections. Numerous aerobic gram-positive and gram-negative microorganisms are susceptible to the effects of fluoroquinolones. Taking under consideration the findings, the goal is to style and manufacture ciprofloxacin and its derivatives. The synthesized compounds are going to be characterized using multiple analytical techniques, virtual screening, and in-silico ADME/T prediction.

Keyword: Ciprofloxacin, Quinolone, ADMET, Hetrocyclic compound.

An exploratory review on *Saraca indica* (Roxb.) De wild; An endangered valuable Ayurvedic medicinal plant.

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Abstract

Saraca indica is enormously famous in the Ayurvedic system of medicines. It is IUCN red listed tree species, belongs to the family Caesalpiniaceae. It has been used to treat various gynecological disorders, bacterial infections, worm infestations, haemmorhagic dysentery, uterine pain, skin diseases, cancer, circulatory, cardiovascular disorders, and many others. Extensive folkloric practices and ethnobotanical applications of this plant have even lead to the availability of several commercial *Saraca indica* formulations recommended for different indications though adulteration of these remains a demanding concern. All parts of the *Saraca indica* have medicinal values. Various antioxidant compounds like flavonoids, catechin, beta-sitosterol, lignin glycosides are present in the bark, leaf, and flower of *Saraca indica* plant, which help to stabilize free radicals molecules that are associated with the development of various pathological conditions. Plant based therapy for various diseases is becoming more demanding due to its various unique properties such as natural chemical composition, less expensiveness, naturally available, easily orally administrable, less side effects compared to other synthetic drugs. This review paper summarizes the evidences which agree with the fact that flavonoids and other phenolic compounds in *Saraca indica* plant possess significant antioxidant activity and an efficient herb against metabolic disorders. Also in this review emphasis is lead upon researches associated with phytochemisty and pharmacological profile of *Saraca indica* (Roxb.) De Wild.

Keywords: *Saraca indica*, Antioxidants, Flavonoids

Biological Efficacy of *Desmostachyabipinnata* Grass against Allergy & Hypersensitivity using Different Experimental Models

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Abstract

An ethanolic extract of *Desmostachyabipinnata*is studied in this research for its anti-allergic properties. Oral administration of 250 and 500 mg/kg of *D. bipinnata* extract was used to study the effects of the material on animal models of allergic reactions, including milk-induced eosinophilia and leukocytosis, compound 48/80-induced mast cell degranulation, and active and passive anaphylaxis. Additionally, the effects of *D. bipinnata*extract on sensitised guinea pig ilea (ex-vivo) and tracheal chain preparations were tested and evaluated (in-vitro). Compound 48/80 in the mesenteric area reduced mast cell degranulation and allergic reactions significantly after treatment with *D. bipinnata* extract at any dose level. Additional studies show that D. bipinnata can prevent the contractions generated by acetylcholine, histamine, and antigen in the ileum of sensitive Guinea pigs. Histamine-induced tracheal contractions were likewise inhibited by this medication (Shultz-Dale inhibition test). As a bonus, it could help to neutralise free radicals (in vitro). Anti-allergic and anti-anaphylactic effects of *D. bipinnata*extract may be due in part to the presence of phytoconstituents on mast cell membranes (tannins, glycosides and flavonoids).

Keywords: Histamine, Allergy, Anaphylaxis, Kush, Immunity

Comparative evaluation of the acid neutralizing capacity of different antacid formulation marketed in India

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Abstract

Antacid are the preparation used to counteract (neutralise) the excessive acid in stomach to relieve indigestion and heartburn. Thus ANC is capacity of antacid to neutralise the excessive acid production, these act by the differences between cation of strong bases and anion of strong acid as the amount of acid needed to change the pH value from the sample value to a chosen different value the optimum value of ANC of ideal antacid must be between 13.16 ±0.55 to 20.70±0.18. The aim of present study to compare the ANC of different antacid formulation available in market .The different antacid formulation selected for compare evaluation are Pantracid (Mfg. by windlass biotech limited), Omee (Mfg. by Alkem laboratories Ltd), Intahel (Mfg.by Reehel pharmaceutical Pvt Ltd), Solacid-O (Mfg. by DEY'S Manufacturing Ltd.) The ANC of above calculated & compared.

Keywords: ANC, Antacids, Neutralization, pH.

Formulation, Development & Characterization of Allopurinol for the Treatment of Hyperuricemia

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Abstract

AIM: This study attempted to develop and evaluate controlled-release matrix-type transdermal patches with

different ratios of hydrophilic polymers (sodium carboxymethylcellulose and hydroxypropyl methylcellulose) for the local delivery of Allopurinol. **MATERIAL & METHODS-** Transdermal patches were formulated by employing a solvent casting technique using blends of sodium carboxymethylcellulose (CMC-Na) and hydroxypropyl methyl cellulose (HPMC) polymers as rate-controlling agents. The F1 formulated patch served as the control formulation with a 1:1 polymer concentration. The F9 formulation served as our optimized formulation due to suitable physicochemical properties yielded through the combination of CMC-Na and HPMC (5:1). Drug excipient compatibilities (ATR-FTIR) were performed as a preformulation study. Physicochemical parameters, kinetic modeling, in vitro drug release, ex vivo drug permeation, skin drug retention were also carried out for the formulated patches. The formulated patches exhibited a clear, smooth, elastic nature with good weight uniformity, % moisture uptake, drug content, and thickness. **RESULTS-** Physicochemical characterization revealed folding endurance ranging, tensile strength, % swelling index, and % drug content. An increase in the concentration of the CMC-Na polymer (F9) resulted in increased drug release from the formulated transdermal patches. Similarly, drug permeation and retention were found to be higher in the F9 formulation compared to the other formulations (F1–F8). **CONCLUSION-**These findings reinforce that Allopurinol-based patches can possibly be used for the management of hyperuricemia. This study can reasonably conclude that Allopurinol transdermal matrix-type patches with CMC-Na and HPMC polymers at different concentrations effectively sustain drug release.

Keywords: Sodium Carboxymethylcellulose (CMC-Na); Hydroxypropyl Methylcellulose (HPMC); Transdermal Drug Deliveries (TDDs); Allopurinol; Transdermal Patches.

In-Vitro Evaluation of Anti-diabetic Activity of Roots & Leaf of Plumbago zeylanica

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Abstract

AIM- The aim of the present investigation is to study In-Vitro Evaluation of Anti-diabetic Activity of Roots & Leaf of Plumbago zeylanica. MATERIAL & METHODS- The roots and leaf of the selected medicinal plant was procured from the local market ayurvedic shop. The both parts of selected plant was dried under shade and processed for the successive solvent extraction method. All the extracts were dried under vacuum and subjected to determination of percentage yield. All the extracts were subjected to preliminary phytochemical screening for the presence of various active Phytoconstituents. Anti-diabetic potential of different extracts were determined by α amylase and glucosidase methods. The dilution of different extracts were prepared in concentration of 10-100µg/ml. RESULTS- The crude drug was extracted by different solvents and solvents were selected according to polarity index i.e. solvents with lower polarity to higher polarity. The dried powders of both parts were extracted by using Petroleum ether, DCM, Ethyl acetate, Methanol and finally water. On the completion of preliminary phytochemical screening, petroleum ether extract showed presence of steroids and fatty acids. The DCM and ethyl acetate extracts showed presence of alkaloids, flavonoids, and terpenoids. The methanolic and water extracts showed the presence of some flavonoids, glycoside compounds. The anti-diabetic activity of DCM and ethyl acetate extracts showed maximum activity in comparison to other extracts. CONCLUSION- The phytochemical screening of leaf and root part showed the presence of various alkaloids and flavonoids. However, as per the literature review, Plumbagin is the chief alkaloids in root and leaf and may be responsible for the anti-diabetic activity.

Keywords: In-Vitro Evaluation, Anti-diabetic Activity, of Roots & Leaf, Plumbago zeylanica, Plumbagin

Pharmcognostic, Physicochemical and Phytochemical Evaluation of *Tridax Procumbens.*

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Abstract

Due to the characteristics determined in Pharmacognostic investigations being the identification of a certain plant, they are crucial for establishing the validity of the plant being studied and guarding against adulteration and replacement. *Tridax procumbens L*. leaf and stem have been subjected to Pharmacognostic, physicochemical, and phytochemical examination in the current study. The macroscopic, microscopic, and powder studies outlined the distinctive traits of the leaves and stems of the mentioned plants. The distinguishing characteristics of the leaves and stems of the aforementioned plants were described in the macroscopic, microscopic, and powder examinations. Ash values (total ash, water soluble ash, acid insoluble ash, and sulphated ash) and extractive values in various solvents

were the variables assessed in physicochemical analysis. Palisade tissue, parenchymatous tissue, xylem, phloem, pointed multicellular trichomes, and anomocytic stomata were all visible under microscopic examination. The plant's leaf and stem had the highest concentration of flavonoids, and its extraction value for methanol was highest. The several conspicuous diagnostic characteristics identified in this study will aid in the accurate identification and standardisation of the substance while it is in its unprocessed form.

Keywords: *Tridax procumbens*, macroscopic, microscopic, Phytochemical analysis, physicochemical analysis, leaf, stem