National Conference on Amalgamation of Recent Pharmaceutical Developments in Ayurveda
Jointly organised by National Ayurveda Students & Youth Association (NASYA) and Lovely Professional University (LPU)
22nd - 23rd April, 2016
venue Shanti Devi Mittal Auditorium, Lovely Professional University Jalandhar-Delhi G.T. Road (NH-1), Phagwara, Punjab (India) 144411.

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It is heartening to learn that National Ayurveda Students and Youth Association (NASYA) under the patronage of Vigyaan Bharati is organising a national conference jointly with the School of Pharmaceutical Sciences, Lovely Professional University (LPU), the “LPUNASYACON 2016” on 22-23rd April 2016 on the topic “Amalgamation of Recent Pharmaceutical Development in Ayurveda.” Nasya Krma (nasal rout of drug administration) in Ayurveda is proved as quickest treatment for the various head diseases and to increase the intellect. So this NASYA organisation is also doing a lot to increase the medha about Ayurveda in the youth.

Ayurveda has a long tradition of amalgamating the developments in various fields so far as protection of health and cure of disease is concerned. From DEV VYAPASHRYA CHIKITSA i.e. treatment with the chant of verses to herbal cure. Then during the period of development of alchemy in Budha period it amalgamated this as Rasa Shastra. Now amalgamating the development on pharmaceutical sciences in Ayurveda is another step in enriching this age old science. This will help to present the Ayurvedic preparations in more acceptable way nationally and internationally while preserving the fundamentals of Ayurveda. It will also help to increase the shelf life of various drugs thus help in saving the natural resources. The development of chemical molecules is a very costly process and further these are not free from their side effects and so are withdrawn from the market after some time. Now the world is looking towards Ayurveda to find cures of various incurable diseases as this have many complex formulations that being used from centuries and till date they are proved safe.

I extend my best wishes to NASYA and School of Pharmaceutical Sciences, Lovely Professional University (LPU), for the success of this conference “LPUNASYACON 2016”. I hope the outcomes of this conference will certainly give a momentum to the drug industry and Ayurveda as a whole.

Jai Hind
Jai Bharat

Prof. Vd. K. S. Dhiman
Director General,
Central Council for Research in Ayurvedic Sciences
It gives me immense pleasure to extend a warm welcome to Punjab for LPUNASYACON-2016, being organized for the first time in state.

It is a unique amalgamation of science and tradition. This conference is expected to unfold the hidden mysteries of our traditional heritage medicine-Ayurveda. It is heartening to learn the enthusiastic participation has been registered from all across the country. The theme is meticulously selected and reflects a genuine effort to bring students, academicians, researchers, practitioners, drug manufacturers at one platform. It is a forum to find out efficient practical solutions by blending latest technological advancements with age old biosciences. The interaction will definitely aid to understand and imbibe the strength of each other for ultimate development of futuristic science contributing to promotion of health and minimize suffering of the ailing humanity.

I wish this conference a landmark success and look forward to deeper understanding of the concepts of Ayurveda, in relevance to the present day and times to come ahead.

May, this event be recalled with much nostalgia and fanfare.

Surjit Kumar Jyani
India’s leadership in the area of medicines has been long established since the Vedic times. Despite its amazing potential for cure and treatment, our ancient system of medicine is facing challenges in its worldwide acceptance. The thought leaders in the area, therefore, suggested focusing on the need to integrate the traditional knowledge with the modern science to evolve sustainable solutions to these challenges.

LPU has always strived to advance such views through its multi-dimensional initiatives and programmes. LPUNASYACON is one of such steps to bring together researchers and scientists, practitioners and industrialists, students and believers in the system to discuss, evolve and present their scientific researches and innovations for the integrated development of our ancient medical science.

The conference is a collaborative effort of NASYA with School of Pharmaceutical Sciences, Lovely Professional University. It provides a unique platform to present scientific and technological advances by students, researchers, and innovators, irrespective of their academic and professional affiliations.

While offering my tribute to this great science of healing, I wish LPUNASYACON a great success!

Ashok Mittal
Chancellor,
Lovely Professional University
I am glad to know that the National Students & Youth Association- NASYA is organizing jointly with School of Pharmaceutical Sciences, Lovely Professional University, a National conference-LPUNASYACON 2016 on “Amalgamation of recent Pharmaceutical development in Ayurveda” during 22-23, 2016.

‘Ayurveda’- an age old Indian Traditional Medicine – provides both the preventive and curative components of health care. The indigenous system has herbs and herbomineral preparations as the basis of its treatment. Ayurvedic formulations revolve around cultivation, procurement and processing of crude drugs into activated potent phytopharmaceuticals that are not only effective but also safe, convenient and affordable. However, discrepancies have been creeping about the perception of Ayurveda across the globe, regarding their efficacy. Proper standardization of these drugs is the only way to make these medicines acceptable worldwide and to wipe out cynicism of the scientists and consumers. Incorporating modern pharmaceutical tools and techniques to standardize Ayurvedic formulation, will sustain our traditional system of medicine to firmly extend its roots in the global scenario. A novel comprehensive system, if generated by combination of rich traditional therapies with modern medicine system, can utilize the best of both the systems without disrespecting any and can provide care in disease management, disease prevention, preservation, protection and health rejuvenation. Amalgamation of Ayurveda with allopathy will certainly be able to create a healthy society by developing the healthcare system that is more effective than either system used alone as well as less expensive and less toxic.

I am sure, by the participation of renowned subject experts from all over the country, this conference will help to discuss the possible way of amalgamation of modern techniques successfully in the treatment of Ayurveda.

On behalf of the Gujarat Ayurved University, I wish the conference-LPUNASYACON-2016 a grand success.

[Vaidya Rajesh Kotecha
M.D. (Ayurveda)
Vice Chancellor, Gujarat Ayurved University
Padmashri Awardee]
I am glad to know that Lovely Faculty of Applied Medical Sciences, Lovely Professional University with collaboration of National Ayurveda Students and Youth Association (NASYA) is organizing a Two Days National Conference on “Amalgamation of Recent Pharmaceutical Developments in Ayurveda” on April 22nd - 23rd April, 2016.

The topics covered are very essential in perspective to the present era like contribution of Ayurvedic pharmacy in drug development, Traditional herbal drugs, quality and safety of formulations specially standardization of Ayurvedic drugs. Now a days a lot of Extracted and isolated bioactive molecule of herbal medicines are in use so Characterization and structure elucidation of herbs is also needed to understand the pharmacology of each in terms of Drug discovery, designing, role of plant biotechnology and bioengineering along with Regulatory aspects of Ayurvedic drugs. It is quite evident from current researches that these points to be explained in respect of modern scientific era for their wide acceptability without any hesitation.

So, I congratulate to the organizers for their initiative in time bound manner for the benefit of this time tested ancient heritage and its amalgamation in present scenario and wishes for great success of this event to flourish the futures of stakeholders of Ayurveda in the development of our country.

Prof. P.K. Prajapati
Director,
IPGT & RA,
Gujarat Ayurved University
NASYA, with the aim to galvanize student’s and youth power to practice, propagate and popularize Ayurveda across the Globe keeping its wisdom intact, is organizing the conference “LPUNASYACON – 2016” with the theme ‘Amalgamation of Recent Pharmaceutical Development in Ayurved’, jointly with the school of pharmaceutical sciences, Lovely Professional University, Phagwara, Punjab, is definitely a step towards the urgent need. The youth power of Ayurveda is really serving as a “RASAYAN” for the purpose.

I wish for grant success.

S G Jyotishi
Patron, NASYA
It is my pleasure to welcome all the invited speakers and delegates to LPUNASYACON -2016, jointly organized by Lovely Professional University and National Ayurveda Students and Youth Association, an initiative of Vigyan Bharati. LPUNASYACON 2016 with the theme of “Amalgamation of Recent Pharmaceutical Developments in Ayurveda” from April 22-23, 2016, is inspired by the challenging issues faced by the pharmaceutical as well as health sector in India and across the globe in the field of Ayurveda. The horizons are broadening and a co-ordinated approach is required from various facets of healthcare sector including pharmaceutical industries, research centres, hospitals, Practitioners, Scholars and Students of Ayurveda for effective drug monitoring and developing issues. I hope this conference will help in combating the bottlenecks and expanding the knowledge of researchers, scientists and healthcare professionals and lead to the betterment of the Ayurvedic healthcare sector. I extend my best wishes for a grand success of this conference.

Thanks and Regards

Dr Vikrant Patil
President,
NASYA
Therapeutic potential of epigallocatechin gallate
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Green tea leaves (Camellia sinensis, Family Theaceae) have been consumed in the form of beverage since long but their widespread health benefits have been discovered relatively recently. Epigallocatechin gallate (EGCG) is a polyphenol found abundantly in these leaves. It is a potent antioxidant which helps greatly in combating the oxidative stress generated in the body during various physiological processes. Oxidative stress plays a great role in the development of various chronic diseases such as heart diseases, cancer, and neurodegenerative diseases, like Parkinson’s and Alzheimer’s diseases. Oxidative stress is also involved in the process of aging. The Oxygen Radical Absorbance Capacity (ORAC) assay conducted by US Department of Agriculture (USDA) clearly signifies that brewed green tea is a potent antioxidant in comparison to majority of antioxidant rich foods, like brewed black tea, raw kiwi, lemon juice and extra virgin olive oil. EGCC has shown promising results in the therapy of various diseases and disorders like cancers, fatty liver disease, HIV infection, hypertension, type-II diabetes mellitus, obesity, and neurodegenerative diseases. Some recent studies have revealed novel actions of EGCg, such as interaction with proteins and phospholipids in the plasma membrane. It thereby regulates various cellular processes, such as DNA methylation, signal transduction, mitochondrial function, transcription factors, and autophagy.

Biofortification: Biofertilizers application to improve nutritional value of litchi fruits
Ajay Kumar, Shailesh Kumar Singh
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Litchi (Litchi chinensis) belongs to family sapindaceae and is an important fruit crop of sub-tropical region. Litchi fruit is botanically nut and edible portion is fleshy aril which contains rich amount of minerals like Ca (Calcium) and Mg (Magnesium); Vitamin-Bs and carotenoids. It also contains phenolic compound like oligonol, which have anti-virus and antioxidant action properties and protecting skin from harmful ultra violet rays. Nutritional value of litchi fruits can further be improved through biofortification. This can be achieved by application of biofertilizers like vermicompost (400-500 g/ plant); Azotobacter (100 g/plant) or VAM (Vasicular Arbuscular Mycorhizal) fungi in combination with PSB (Phosphate Solublizing Bacteria) with recommended dose of fertilizers (N - 75g, P2O5 - 25g and K2O - 75 g/tree) per year. Biofertilizers are not only responsible to solublize the combined nutrients like P and K but also improves nutrient uptake and assimilation in plant body. The result showed that, the integrated nutrient management gave a best performance as compare to recommended dose of fertilizers in litchi fruit. Thus, they can improve nutritional value by increasing minerals and vitamins content of fruits and improving its antioxidant properties.

Pharmacological actions of hesperidin: An overview
Amandeep Kaur, Navneet Khurana
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Hesperidin is a bio-flavanoid isolated from the peels of different species of commonly available oranges like Citrus aurantium, C. Sinensis and C. unshiu. It was first discovered in 1827 by scientist Lebrenton. In number of previous in-vivo studies, hesperidin showed to possess different pharmacological activities. It diminishes oxidative stress and scavenge free radicals inducing neuronal apoptosis and thus exhibits potent neuroprotective and antioxidant effect. In diabetic neuropathy, hesperidin is reported to have good protective effect, which is attributed to its antioxidant and free radical scavenging activity. It is reported that hesperidin exhibits anti-inflammatory effect by inhibiting two major enzymes, phospholipase A2 and lipoxygenase, which are involved in inflammation, these are hospholipase A2 and lipoxygenase, and thus also exhibits anti-inflammatory effect. Apart from that, it ameliorates liver and kidney damage induced by carbon tetrachloride, a toxin that leads to liver damage through generation of free radicals. In human beings, it was investigated that regular usage of orange juice for one month changed the expression of leukocyte genes and increased percentage of immune cells. It is used to treat the symptoms arise due to vitamin C deficiency, such as abnormal capillary permeability, as it is a rich source of vitamin C. Hesperidin, as a supplement, is also being used now a days to mitigates pain, weakness, night leg cramps, oedema and improve energy metabolism. All these pharmacological properties of hesperidin make it an excellent potential candidate to deal with the different pathological conditions, however, further studies are required based on different parameters to warrant its clinical use to treat diseases.

In vitro analysis of antioxidant property of hibiscus tea
Manzoor Shaista, Sehgal Amit
Department of Zoology, School of Biotechnology and Biosciences, Lovely Professional University, Phagwara,
Herbal teas represent an important part of herbal medicine as they are rich source of many antioxidants. *Hibiscus rosa sinensis* has been a part of traditional medicine for treating various diseases. This work contributes to evaluation of antioxidant potential and quantification of flavonoid and phenolic content in Hibiscus tea prepared from Hibiscus flowers. The determination of antioxidant activity was done by battery of antioxidant assays. The results revealed that IC50 values of Hibiscus tea for various antioxidants parameters such as DPPH, ABTS, NO scavenging tests and anti-lipid per oxidation was 69, 97.80, 643.53, 88.34 μg/ml respectively. Hibiscus tea was found to have appreciable amount of polyphenolic (14 mg GAE/g) and flavonoid (2.15 mg QE/g) compounds. The overall study revealed that Hibiscus tea has significant antioxidant properties and can be used as a potential source of antioxidants.

**Phytochemical screening and antioxidant activity of *Heracleum afghanicum* Kitamura**

Ashish Suttee, Mohammad Humayoon Amini, Anupreet Kaur

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Medicinal plants are reported to have different biological activities by virtue of their complex chemical nature. Plants containing anti-oxidant compounds play prominent role in prevention and treatment of oxidative stress and other diseases caused by pro-oxidants. In this study, leaf extracts of *Heracleum afghanicum* Kitam. (HAKL) using different solvents were screened for their phytochemical nature and antioxidant activity. Volatile oil content of HAKL was determined to be in range of 0.20-0.30% (v/w). Total 25 compounds were identified in HAKL essential oil. The major components of the oil were anethole (66.12%), spathulenol (6.4%), Trans-alpha-bergamotene (4.3%), d-limonene (3.87%) and β-pinene (1.3%). Phytochemical screening of HAKL revealed presence of phenolic compounds, flavonoids, phytosterols, diterpenes, furanocoumarins, amino acids and carbohydrates in the crude drugs. Total phenolic content (TPC) and total flavonoid content (TFC) of HAKL different solvent extracts were determined using prescribed methods. Antioxidant activity of HAKL extracts and volatile oil were determined using DPPH and FRAP assay methods. HAKL methanol extract showed the highest TPC and TFC values and excellent antioxidant activity with IC50 value of 16.2 μg/ml and FRAP value of 3040 mM FeSO4 eq/reg extract.

**Evaluation of Maharasnadi Kvatha Churna**

Vandna Kalsi, Ashish Suttee, Barinder Kaur, Ashish Sharma, Arun Kumar

Department of Pharmacognosy and Phytochemistry, School of Pharmaceutical Sciences, Lovely Professional University, Phagwara, Punjab, India

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With more concern drifting towards health and nutrition, traditional medicines prove to be an asset with better efficacy and lesser side effects for around 80% population across the globe. Due to intense side effects and toxicities of chemotherapeutic agents a need was felt to develop polyherbal formulation i.e. Maharasnadi Kvatha churna (MKC) with the perspectives of safety, efficacy and quality, which will rationalize the use of the natural herbs either alone or in combination with synthetic compounds, effectively in the health sector. Present work on MKC aimed at standardization, preliminary phytochemical investigations and development of high performance thin layer chromatography (HPTLC) profiles which can be utilized as a reference standard for quality assurance purpose. MKC is a polyherbal formulation in Indian ayurvedic system of medicine, used in the treatment of acute vatta conditions, joint pain, muscular pain, rheumatism and other diseases. It contains 26 vital ingredients which possess anti-inflammatory, antirheumatic properties and control degeneration. The formulation was standardized using different parameters like physical and chemical tests, microbiological screening, organoleptic parameters, quantitative parameters, heavy metal determination, thin layer chromatography and high performance thin layer chromatography profiles etc. as per the guidelines laid down by the department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH). The knowledge perceived out of the work can serve as an important source of information to ascertain the identity and to determine the quality of the plant material in the future studies.

**Alzheimer’s disease: An ayurvedic approach to fight the curse**

Arun Uday Paul

School of Pharmaceutical Sciences, Lovely Professional University, Punjab, India

Alzheimer’s disease is an age-associated, irreversible, progressive neurodegenerative disease that is characterized by permanent dementia, unfamiliar behavior, personality disorder and a loss of cognitive function. The drugs currently available to treat the disease have limited effectiveness. So, it is timely to re-explore ancient medical evidences for new directions in the therapy of this disease. There are number of drugs mentioned in ancient Western, Indian and Oriental medicine that have been directly isolated from plants, or are derived from phyto-original compounds which are far more effective in treatment of dementia. The therapeutic use of this drugs commercially could postpone the onset or progression of Alzheimer’s disease and hopefully reduce the number of cases in the future. A number of pharmacological studies have described the use of various Ayurvedic medicinal plants and their constituents (Ashwagandha, Turmeric, Brahmi, Shankpushpi, Jyotishmati, Jatamansi, Guggulu) for treatment of Alzheimer’s disease. Although the exact mechanism of their action is still not clear. This review gathers is on those medicinal plants that have shown promise in preventing the progression of Alzheimer’s disease. It summarizes information concerning the phytochemistry, biological activities and clinical applications of these various plants and also a short view on the unpopularity of these medicines due to problems faced about their administration...
in the brain and possible solutions for problems with route of administration.

**Current marketing models for the ayurvedic pharmaceutical industry in India**
Ashir Sharma, Surajpal Verma

Department of Drug Regulatory Affairs, Lovely Professional University, Phagwara, Punjab, India
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The Indian Ayurvedic industry is re-packaging the traditional healing principles into a modern avatar. Today, Ayurveda is an officially recognized system of medicine in India. Globally, the World Health Organization recognizes it as traditional medicine. It is estimated that the total market size of the Indian Ayurveda market is Rs. 8000 crore and it is growing substantially between 10% and 15%, with the same growth rate targeted for the next 10 years. The key suppliers in Ayurveda are Darub, Baidyanath, Zandu, Himalaya, Vicco, Emami and Ajil. The biggest suppliers of Ayurvedic herb products for the U.S and other western countries is Maharishi Ayurveda products international, Colorado. Ayurvedic products fall into two categories—branded and traditional. Currently more than 30,000 branded and 1500 traditional products are available in the market. At present India manufactures Ayurvedic drugs worth Rs. 6000 crore per year of which 1500 crore are exported. 60% of this is crude herbs to be manufactured into products outside the India. 30% is finished products shipped abroad for direct sales. In India 60% of registered physicians are involved in non-allopathic system of medicine. In addition to the nearly 400,000 Ayurvedic practitioners, there are over 170,000 homeopathic physicians and 500,000 doctors. Government of India also has expressed support and encouragement for the traditional Indian medicines. A separate department for these drugs has been establish i.e. Known as AYUSH (Ayurveda, Yoga, Unani, Siddha and Homeopathy). Different strategic marketing models for the pharmaceutical industries are—core model and super core model.

**Phytopharmaceuticals development for Parkinsonism (kampavata) management**
Ashish Manocha, Shubham, Shubham Saini, Akhil Garg, S. Tamilvanan

Department of Pharmaceutical Sciences, Lovely Professional University, Phagwara, Punjab, India
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Parkinson's disease is a progressive degenerative disorder mostly affecting older people. It is an extra pyramidal motor disorder characterized by rigidity, tremor, hypo kinesics with secondary symptoms like defective posture and gait, mask like face and dementia. In order to treat this disease, Ayurvedic medicine with pharmaceutical technique might be of lucrative option today. The selected Ayurvedic medicine for this purpose include: *Mucuna pruriens*, *Zingiber officinale*, *Withania somnifera*, *Tinospora cordifolia*, etc. This abstract narrates the treatment option that combines both pharmaceutical knowledge and ayurvedic medicine. Currently, the concept of drug targeting incorporating the herbal extracts attracts more interest throughout the world. This abstract explores only idea in general manner.

**Natural herbs against diabetes**
Arun Kumar, Ashutosh Gupta

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Diabetes is a chronic disorder of metabolism of carbohydrate, protein, and fats due to deficiency of insulin secretion and varying degree of insulin resistance. Diabetes is not completely curable, but can be controlled to a greater extent by the application of some natural herbs which are scientifically validated i.e. *Allium sativum*, *Gymnema sylvestre*, *Momordica charantia*, *Ocimum sanctum*, *Panax quinquefolius*, *Trigonella foenum*, *Silybum marianum*, *Tinospora cordifolia*. These natural herbs initiate release of insulin, stimulate the effects on glucose utilization and antioxidant enzyme, stimulate synthesis and insulin secretion, inhibit renal glucose absorption, protection of reduction and regeneration of beta cells, increases insulin secretion and reduction of insulin binding on insulin receptor and possess insulin like activity with glycogenolytic effect. Currently beside insulin most widely medication for diabetes are accompanied by side effects such as severe hypoglycemia, lactic acidosis, abdominal discomfort, which can be overcome by introducing medicinal plants for treatment of diabetes. Herbal drugs research continues to bring a safer and more effective compound with all desired parameters of a drug that could replace the synthetic medicine.

**A review on antidiabetic plants and their marketed ayurvedic formulations**
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Diabetes mellitus a silent killer, is the disease related to the functioning of pancreas when it does not produce enough insulin. Also the disease associated with the physiology of body when the body cannot effectively use insulin. Diabetes mellitus is the 5th fastest growing disorder and entailing a huge financial burden. As per International Diabetes Federation (IDF), the number of individuals with diabetes in 2015 crossed 415 million and the toll will reach up to 642 million by the end of 2040. India has about 8.5% of the diabetic patients of the total population and have average expenditure of 1.2 million. Type 1 diabetes constitutes about 5-10% and type 2 diabetes constitutes about 90% of diabetic cases. Out of 2500 species of medicinal plants found in India, about 800 plants are used as antidiabetic. Most commonly used plants are *Ocimum sanctum* (tulsi), *Trigonella foenum graceum* (methi), *Syzygium cumini* (jamun), *Momordica charantia* (karela), *Pterocarpus morsupium* (indian kino tree), *Allium sativum* (garlic). Various ayurvedic formulations which are
Asthma and chronic obstructive pulmonary disorder - Phytomedicine

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Asthma and COPD are well known chronic inflammatory respiratory disease affecting millions of people worldwide. Current Allopathy system of Medicine aim to alleviate symptoms rather than cure, basically these treatments include anti-inflammatory therapy, inhaled corticosteroids and Bronchodilators, over use of some therapies can induce adverse effects in some patients such as Pneumonia and cardia co-morbidities. Today, the intrest of people divert toward such area showing good promise in providing an alternative or add on therapy is that of phytomedicine (Plant based traditional mefical practice). Khella, Lobelia herbs are widely used vasodilators and Bronchodilators having no side effects. This review focuses on recent human clinical trials using plant based medicine for treatment of Asthma and COPD.

Biological and phytochemical studies on the leaves of Caesalpinia decapetala (Roth)

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The present communication attempts to evaluate the biological and phytochemical studies on the leaves of Caesalpinia decapetala (Roth) fabaceae family. Caesalpinia decapetala (Mysore Thorn), belonging to Family Fabaceae and Subfamily Caesalpinioideae. It has originated in India, then migrated to Asia. Then migrated throughout the continent, now grown in tropical areas like Hawaii, fizi, Vietnam, China, South Africa, Australia. It is also known as invasive species because of its ability to quickly proliferate, spread and choke out other plants life. It has become known as invasive species because of its ability to quickly spread and choke out other plants life. It has become known as invasive species because of its ability to quickly spread and choke out other plants life. It has become known as invasive species because of its ability to quickly spread and choke out other plants life.

“Polypeptide-k” as phytoinsulin: How much and how far

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Diabetes mellitus (DM) is a metabolic disorder characterized by high blood glucose levels, occurs due to insulin resistance or insulin deficiency. In 2015, 415 million worldwide suffered from DM. There have been number of anti-diabetic drugs and rDNA insulin used for diabetes, however, these have their limitations in terms of side effects and cost. Need of society and efforts of scientists led to discovery of phytoinsulins. Plethora of literature is available with reports of presence of insulin like hormones in plants. Insulin like molecules reported in bacteria (Escherichia coli), protozoa (Tetrahymena pyriformis), fungi (Neospora crassa, Aspergillus fumigatus). Plant (Momordica charantia, Canavalia ensiformis, Vigna unguiculata, Bauhinia variegate and Spirulina maxima). This theory of presence of phytoinsulins has been further strengthened by presence proteins associated with insulin signaling pathways in plants. Polypeptide-k that has been extracted from Momordica charantia has shown its therapeutic potential as antidiabetic drug. It has structural similarity with insulin. Safety and efficacy of Polypeptide-k as antidiabetic drug is reported in various preclinical and clinical studies. Phytoinsulins like polypeptide-k have potential to replace costly recombinant DNA insulin. However, more clinical studies are required to establish polypeptide-k and other phytoinsulins to establish as first line therapy in management of diabetes.

Dissolution testing of polysaccharide based colon specific delivery systems: Success so far and future expectations

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Fermentation followed by degradation of polysaccharides of natural origin by the colonic microflora has been extensively explored as a triggering mechanism to achieve site specific delivery of drug to colon. The existence of colonic microflora is independent of gastrointestinal transit time, pH and disease condition. Based on this hypothesis various delivery systems have been developed. However, in vitro characterization of this delivery system remains a challenge in terms of dissolution method. Major reason behind this is the dynamic and ecologically diverse features of colon are cumbersome to be incorporated into USP dissolution methods. To overcome this, various dissolution testing approaches have been designed to better represent the colonic conditions. These include polysaccharide degrading enzymes, rat caecal contents, human fecal slurry, multi stage compound culture system, goat caecal contents and use of probiotic cultures. This report focuses on the dissolution testing strategies that are currently used in characterizing colon-specific delivery systems activated by microflora.

Neuropharmacological aspects of “Ocimum sanctum linn”: A queen of herbs
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“Ocimum sanctum linn” (Tulsi in Hindi and Holy basil in English), a herb belongs to family labiatae, comes under the class of “rasayana” in Ayurvedic medicine. This herb has been distributed throughout India. Different parts of this plant like leaves, skin, flower, roots, seeds and even whole plant is used for various therapeutic actions. This herb has been recommended for various treatments like asthma, malaria, antifertility, antidepressant, antianxiety and so on. Eugenol (1-hydroxy-2-methoxy-4 allylbenzene), the most active constituent (approx. 71% in leaves), has been observed to possess membrane stabilizing properties on synaptosomes, erythrocytes and mast cells which account for the neuroprotective potentials of Tulsi in management of convulsions and epilepsy, as well as inflammatory and allergic disorders. The plant also contains wide variety of nutritional value. It prevents the oxidative stress during reperfusion injury as well as attenuates the behavioral deficits and histopathological alterations secondary to hypoperfusion. In conclusion, the present study will provide several experimental evidence for neuropharmacological effects of Ocimum sanctum linn.

Gall stone: Herbal treatment
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Presence of gall stones in the gall bladder is referred to as cholelithiasis, gallstones migrate into ducts of billiary tract. The condition referred to as cholecodolithiasis. Gall stones within the ampula of vater causes obstruction of the exocrine system of pancreas which can lead to pancreatitis. They can vary in size and shape. Cholecystectomy (gall bladder removal) has a 99% chance of eliminating the recurrence of cholelithiasis. But there are 10-15% people may develop a condition called post cholecystectomy syndrome as well as pain in upper right abdomen along with chronic diarrhea. Ayurvedic treatment includes detoxification, herbal medications and diet modifications. Common therapy is liver flush includes olive oil, lemon juice, spices, citrus fruit, vitamin C, turmeric and ginger. Pain and inflammation can be alleviated by placing castor oil pack over gall bladder, also some herbs can stimulate gall bladder promoting flow of bile include Taraxacin and Silymarin. Herbs can be taken as a Tea or Tinctures. Concentrate mint oil capsule can also breakdown small stones. Herbal gall stone tea is also useful to remove gall stones. So herbal remedies can be a healthy and effective treatment for gall stones and avoid surgery.

Development and validation of the ultraviolet-spectrophotometric method for determination of Embelin in Embelia ribes fruit
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Embelin, chemically known as 2, 5-dihydroxy-3-undecyl-p-benzoquinone is one of the bioactive compound found in oldest herbal medicinal plant known as Embelia ribes. Embelin, has anti-cancer, anti-bacterial, anti-inflammatory, analgesic, hepatoprotective, antidepressant, anxiolytic, antioxidant, antiinflammatory, analgesic and wound healing activity. A double wavelength UV-spectrophotometric method was developed and validated for determination of isolated embelin from Embelia ribes. The standard solution of embelin in methanol showed maximum absorption at 289 nm. The response of embelin was linear over the range of 0.5-90 μg/ml with the correlation coefficient (R²) value of 0.9991. The accuracy of the method was checked by recovery experiment performed at three different levels, i.e., 50%, 100%, and 150%. The % recovery was found in the range of 98.96-100.9%. The precision of the method was studied as an intraday; interday and repeatability. The % relative standard deviation (RSD) value <2 indicate that the method was precise. The Limit of detection (LOD) and Limit of quantification (LOQ) of embelin were found 3.96μg/ml and 12 μg/mL respectively. The method was validated using parameters provided as per International Conferences on Harmonization (ICH) guidelines.

Natural products in treatment of rheumatoid arthritis
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Rheumatoid Arthritis (RA) is a chronic, progressive, sustained inflammatory autoimmune disease associated with articular, extra-articular and systemic effects. It is characterized by synovial inflammation, hyperplasia, leading to destruction of articular cartilage, bone erosion and ultimately permanent deformities. Conventional treatments for RA includes non-steroidal anti-inflammatory drugs (NSAID’s), disease modifying anti-rheumatoid drugs (DMARD’s), corticosteroids and biological agents. All these therapeutic agents are associated with one or more side-effects and none of the available treatments is able to achieve the ultimate therapeutic goal i.e. drug-free remission. Herbal remedies are alternative source to relieve symptoms in patients having RA as well as to overcome the drawbacks associated with present treatment methods. A study conducted by World Health Organization (WHO) had reported
that about 80% of world’s population relies on traditional medicine. More than 450 plants belonging to 100 families are used traditionally in management of arthritis. Some of the important natural compounds reported to exhibit anti-arthritis potential includes anthroquinone (Aloe barbadensis), withanolides (Withania somnifera), terpenes (Zingiber officinale, Boswellia serrata), polyphenols (Camellia sinensis), stilbene (Vitis vinifera, Tripyerygium wilfordii) etc. Although a number of herbal medicines are recommended for RA, further research is required to investigate their safety, efficacy and potential drug interactions.

**Design, synthesis, biological evaluation and toxicity studies of N,N-disubstituted biguanides as quorum sensing inhibitors**

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A series of novel N,N-disubstituted biguanides have been recognized as quorum sensing inhibitors using the Chromobacterium violaceum (ATCC12472)-based bioassay. Further violacein production assay was done to find out the IC50 values which are coming out be 120 μM for the compound which showed maximum biological activity. The molecular docking studies revealed that N,N-disubstituted biguanides shared structural complementarity with CviR domain of quorum sensing receptor. The hydrophobic interactions found to be most stabilizing force which is playing the role in drug receptor recognition model. Furthermore, TOPKAT analysis on Ames mutagenicity and carcinogenicity models had shown that this class of compounds has least probability (0.000.009) of exhibiting toxicity in experimental models.

**Bioenhancer: Treatment cost saving perspective of Ayurveda**

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In developing countries like India, the major concern for modern medicine is treatment cost, so it becomes necessary to develop systematic innovative means that can help in reducing the treatment cost. One solution for this problem can be use of natural bioenhancer. A bioenhancer is an agent which when co-administered with a drug has ability to enhance its bioavailability and efficacy without having pharmacological effect of its own at therapeutic dose. In Ayurveda, the concept of bioenhancers is called Yogvahi. In this system of medicine, the bioenhancers used are termed as Anupaan and Sehpaan. The commonly used bioenhancers in traditional system of medicine are piperine, quercetin, garlic, carum carvi, cuminum cuminum, stevia, glycyrhizin. Bioenhancers also play a vital role in decreasing the toxic effect of drugs by reducing treatment duration. They also play important role in decreasing the dose of active ingredient to produce desired effect and in bypassing the need of injectable route of drug administration to larger extent. The bioenhancers thus carry an innovative concept derived from the traditional system of medicine. Their uses have a beneficial impact on national economy because they cause reduction in drug cost, toxicity, and other adverse effects. Therefore, there is a need of substantial research on bioenhancers so that they could be employed in drug formulation.

**Ayurvedic management of Slushakhipaka (dry eye syndrome)**

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Dry eye or Keratoconjunctivitis sicca is a chronic ocular disease characterized by lack of sufficient lubrication and moisture on the surface of the eye. It was redefined by the 2007 International Dry Eye Workshop as follows: “Dry eye is a multifactorial disease of the tears and ocular surface, that result in symptoms of discomfort, visual disturbance, and tears film instability, with potential damage to the ocular surface”. It is mainly due to decrease in production of tears qualitatively and quantitatively along with the inflammation of the ocular surface. As per Ayurveda vata and Pitta/Rakta vitiation is the major contributing pathological factors in its manifestation. It is accompanied by burning, itching, redness, pain, ocular fatigue and increased osmolarity of the tear film. Previously, the tear substitutes were used for the palliative treatment of this syndrome. But, this method has not proved to overcome the inflammation of the eyes, which led to a change in its treatment. Jivantyadi ghrita, mahatirphaladaya ghrita, Triphala ghrit, Triphala churna, honey, Nasya, Gandush, Ghee, Chandrodaya vati etc. were found to be effective in the treatment of dry eye by causing increase in Vata – Pitta – Rakta doshas and helps the functioning of the extraocular muscles, eyelids and tear.

**Aloe vera: A real magic or myth**

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Aloe vera or ghrita kumari in Sanskrit is a member of Liliaceae family. It has been one of the most important plants used in folk medicine. The healing benefits of aloe vera were recognized in the ancient Indian, Chinese, Greek and roman civilization. Distinct parts of this plant and its various species are used medicinally. Mainly three species having more commercial values, these include A. ferox, A. perryi, and A. vera. The gel present in plant leaves contains numerous chemical constituents like amino acids, anthraquinones, enzymes, hormones, minerals, salicylic acid, saponins, steroids, sugar and vitamins. It has therapeutic, medicinal and antimicrobial
Herbal drugs used in delayed ocular healing associated with diabetes
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Now-a-days, changes in lifestyle lead to various diseases in which diabetes is one of them and it is one of the life disturbing diseases now. It is a metabolic disorder characterized by hyperglycemia and due to high glucose level inside the body, insulin deficiency or impaired production of insulin is noticed. There are several conditions which arise along with or due to diabetes in our body like disorders related with cardiovascular, digestive system, and renal. But there are certain conditions in which if diabetic patient is going to suffer from them delayed healing will be there like wound healing and ocular healing. There are number of ocular disorders associated with diabetes like cataract, dry eye, retinopathy, blurred vision, glaucoma, redness in eye etc., which are very much prevalent in old age patients. Cataract is ocular disease in which there is clouding of eye lens. In glaucoma there is increase in ocular tension which causes damage to optic nerve. In dry eye it is the disorder of tear film due to tear deficiency or excessive evaporation, which cause damage to internal ocular surface and related to symptoms of ocular discomfort. In old age, the patients are not able to bear the side effects of allopathic medication available for the treatment of eye problems and even according to WHO, 80% of world population depends upon herbal treatment or herbal formulation because of their easy availability, cost effectiveness and almost no side effects. Herbal drugs which we even use in daily food are proving boon to the patients in improving the rate of ocular healing associated with diabetes like Aloe vera, turmeric, garlic, ginseng, neem, Acacia arabica, curcuma, Gingko bilobia, vinca etc.

Herbal medicines: Importance and challenges to overcome
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Herbal medicine refers to the use of various parts of plants obtained from natural sources for medicinal purposes. Therapy by employing herbs of medicinal importance was one among the pioneer remedies used for the cure of diseases from the ancestral period. Since then, the identification and analysis of herbal sources has helped the field of medicine. The result of which can be correlated with the growth in demand and trade of herbal medicine throughout the world. The global market is flourishing well with the business of around hundred and sixty billion dollars each year. No doubt there are many merits associated with the herbal system including lower cost and widespread availability, but the problems are also not less. The analysis reports from regulatory authorities in the world have brought forward many concerning issues related to inappropriate regulatory guidelines for efficacy, safety, quality control and marketing of these drugs in various countries. The FDA and some independent researchers have shown their qualms related to adverse drug reactions and monitoring safety of herbal drugs. It has been assessed that many of the herbal medicines remain unmonitored which leads to the consequences of derisory information about interaction of such drugs with food and other drugs. Thus, the herbal medicine system requires furthermore changes in regulatory guidelines to overcome the challenges.

Exploring anti-microbial potential of Camellia sinensis against multidrug-resistant clinical isolates
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In the current scenario of extreme scientific development, the developing countries still facing problems due to emergence of multi drug resisters of salmonella and vibrio. Camellia sinensis (CAS) already showed an immense potential to curb the pathogenesis of various pathogenic bacterial species. Here an attempt has been made to check the activity of CAS leaves against MDR strains of S. typhi and V. cholerae. The ethanolic extract of CAS had shown an MIC of 400-600 μg/ml and 200-600 μg/ml for the S. typhi and V. cholerae Ogawa isolates respectively. The results clearly indicate the potential of natural product based therapy to curb MDR bacterial pathogenesis.

Global need for novel herbal drug formulations: A boon to ayurveda
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In India over the ancient times people used plants to extract plant actives to make drug formulations. Herbal drugs have enormous therapeutic potential which can be explored through various beneficial drug delivery systems. In recent time the less use of herbal formulations due to lack of their standardization. Great advancement have been made in the uses of plant therapeutics, on development of novel herbal formulations like polymeric nanoparticles, nanocapsules, liposomes, phytosomes, nannoemulsions, microsphere, transfersomes and ethosomes etc. These formulations have reported to have...
various advantages over the traditional formulations such as improved solubility and bioavailability, reduced toxicity, controlled drug delivery, protections of plant actives from degradation. Also these having the drug targeting properties with improved selectivity, drug delivery and effectiveness with dose reduction which not only increase the safety but also patient compliance. This review article illuminates the current status of novel herbal formulations and explains the different method of preparation of such formulations. In nutshell the combinations used of novel drug delivery technology and herbal medicines provides a boon for a safer and effective therapy for humans.

**Embelin: Benzoquinone with wide spectrum of pharmacological activity**

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Embelin is a benzoquinone compound, present mainly in Embelia species. Embelin is also reported in Lysimachia punctate, Ardisia humilis, Rapanea umbellate, Cannarus richiei, Myrsine Africana and Myrsine capitellata. Embelin has demonstrated wide range of pharmacological activities including; antidepressant, anticancer, antifertility, anti diabetic, antioxidant and analgesic. Embelin shown other activities also such as antihyperlipidemic, antifungal, antihyperhomocysteinemic, anthelmintic, anticonvulsant, antibacterial, hepatoprotective, wound healing and anxiolytic activity. Recent studies, have thrown light on anti-arthritis and antiulcer activities of the benzoquinone. The present review, discusses pharmacological investigations on embelin, with potential for drug-development.

**Natural gums and mucilages: Journey so far as pharmaceutical excipients**

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Plant based pharmaceutical excipients and their derivatives are being used in formulation of dosage forms since time immemorial. Among them, gums and mucilages are commonly used plant excipients with a wide range of applications in pharmaceutical and cosmetic industries. Frequent use of natural gums as pharmaceutical excipients relies on their abundance in nature, safety, cost-effectiveness, biocompatibility, and ease of availability. Moreover, possibility of their chemical modification in different ways to obtain tailor-made materials for drug delivery systems provides a tough competition for the available synthetic excipients. These have been extensively used as excipients in formulation of tablets, as suspending, coating, gelling, and mucoadhesive agents as well as potential carriers to sustain and to target the drugs to specific site. This study/presentation describes pharmaceutical applications of various natural gums, mucilages, and their modified forms for the development of various drug delivery systems.

**“Yarsagumba”- The Himalayan Viagra**

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“Yarsagumba” is a unique herb, which is a fusion of caterpillar-fungus, which occurs when parasitic mushroom spores (Ophiocordyceps sinensis) infect and mummify a ghost moth larva living in the soil. With advancement of time, this fungus gets so much into the body of the caterpillars that it grows out through its head and drains all the energy from the insect and ultimately it dies. Two to six centimeters long, the fungus shoots above the soil, acting as a tiny, finger-shaped flag for harvesters to find. It is used as traditional medicine in China and Nepal since past 2000 years, as tonic, energy booster, anti-cancer and anti-asthmatic agent as well as strengthens the working capacity of lung and kidneys. The most important use of this wonder herb is to cure impotence and boost libido, due to which “Yarsagumba” is nicknamed as “Himalayan Viagra”. Although several components present in “Yarsagumba” can be responsible for activity of compounds, however, understanding ultimate compounds which fit with biomolecular target is crucial to combat diseases and development of new class of effective drugs. In this survey a concise evaluation of pharmacological activities of metabolites for “Yarsagumba” have been reported with an aim to provide better insight into its biologically active components.

**Exploration on global challenges faced by ayurvedic drugs and their probable solutions**

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Ayurveda, born to India, is a traditional system of integrated approach of healing through lifestyle interventions and therapies comprising natural herbs and their modified or synthesized products. In India it has been practiced for more than 5000 years. In U.S, Ayurveda is considered as a form of Complementary and Alternative Medicines (CAM). More than 1500 herbs are sold as dietary supplements in US. Currently, The Unites States is largest market for Indian herbal products accounting for about 50% of total exports. In Europe, Ayurveda is perceived as a system of wellness rather than a system of treatment and has been practiced for over a century. Within European community, herbal medicines represent an important share of pharmaceutical market. China has successfully established its own traditional herbal therapy on the basis of research and science based approach. The herbal industry shares about US $ 62 billion in global pharmaceutical market with good
growth potential. According to World Bank reports trade in medicinal plants is growing at an annual growth rate between 5% and 15%. As evident, globally there is boon of ayurveda due to excellent rise in demand for medicinal plants from India. Standardization, documentation and unavailable research work are the major challenges faced by herbal industry. These challenges can be overcome by providing proper research work, complete documentation and using accomplished methods of standardization.

**Aromatherapy used in treatment in depression: Current herbal approach and future strategy**

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The depression in current scenario is a common mental disorder that present with in thoughts in some or all with a depressed mood, a loss of interest in things which is bane, instead of approbation causes feelings of guilt or low self-worth, disturbed sleep patterns, changes in appetite, a lack of energy and poor concentration. Aromatherapy is a gentle and significant therapy that uses natural essential oils to promote emotional and physical health and curtail the depressed feeling. Oils can be inhaled or applied topically often through massage. Exploring the research activity, create many evidence in supportive of aromatherapy as an effective treatment for anxiety and there is limited positive evidence for improving sleep by affecting the neurotransmitter release. Aromatherapy is the use of essential oils to treat a variety of conditions like naturopathic. Aromatherapy is used to treat depression, anxiety, insomnia and stress-related disorders and to manage chronic pain. Aromatherapy is one of the efficient herbal approach to treat depression and future strategy to give enigma of medical field in depression treatment.

**Herbal nanotechnology: Emerging scenario and challenges**

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Phytotherapeutics needs a rational approach to deliver the components in a persistent mode for patient compliance and to check repeated administration. This target can be achieved by designing novel drug delivery systems (NDDSs) for herbal pharmaceuticals. Amalgamation of the herbal extracts into novel formulation systems have definite advantages such as bulk dosing and lower absorption can be overcome which is the major problem being encountered. Nanotechnology is a field of applied science and technology that aims to develop devices and dosage forms with dimensions and tolerances of less than 100 nanometres. The applications of nanotechnology for treatment, diagnosis and control of biological systems have been referred to as nanomedicine. In phyto-formulation research, developing nano dosage forms such as nanospheres, nanocapsules, nanoemulsion and liposomes has large number of advantages for herbal drugs, including enhancement of solubility and bioavailability, protection from toxicity and enhancement of pharmacological activity and stability. Thus, the nano drug delivery systems of herbal drugs have a prospective for enhancing the activity and overcoming problems associated with herbal medicines. Hence, it is anticipated that the effective and valuable relevance of the natural products/herbals being applied with the nanocarrier will improve the importance of existing drug delivery systems.

**Use of manuka honey to eradicate biofilm related topical infections produced by drug-resistant pathogens**

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Traditionally, honey is being used for masking the bitter taste of medicament. Additionally, depending on its source, the honey is reported to possess many non-traditional uses that include immunomodulatory, antidiabetic, antitumor, antifungal, antiviral and antibacterial properties. Manuka honey is a monofloral honey (given by honey bees, *Apis mellifera*) produced in Australia and Newzealand from the nectar of manuka tree. The manuka honey consists of antimicrobial activity against wide range of microorganisms including both antibiotic-sensitive and antibiotic-resistant strains. The question of what could happen to pathogenic microorganisms when challenge them with the combination of manuka honey and antibiotic molecules such as oxacinil, rifampicin and vancomycin in an *in-vitro* condition. This abstract narrates a synergistic activity observed after challenging the combined manuka honey and antibiotic molecules onto the various topical wound producing microbes: *Staphylococcus aureus*, *Acinetobacter baumannii* and *Enterococci* species. This finding unequivocally opens the applicability of manuka honey to eradicate the biofilm-related topical infection such as wound. However, additional experimental proof is needed in a real wound condition or challenging the manuka honey onto the pathogenic/virulent microorganisms collected directly from the topically infected wound premises.

**Therapeutic potential of Angelica gigas Nakai**

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Angelica gigas, belongs to family Umbelliferae, also termed “Korean Dang Gui”, and generally known as “Korean angelica”, is a popular herbal medicinal plant. Recently, various pharmacological
properties of *A. gigas* have been reported, such as anti-bacterial, anti-cancer, anti-tumor, anti-oxidant, neuroprotective, anti-dementia and blood coagulation activity. This plant contains various compounds such as coumarins, medicinal oils and polyacetylenes. Among the coumarins, pyranocoumarins such as decursin and decursinol angelate have received considerable attention because of their pharmacological properties. Decursin plays a major role as free radical scavenger and activated the upregulation of heme oxygenase-1 (HO-1) expression, conferring protection against oxidative damage in rat pheochromocytoma cells. Through the in vivo and in vitro studies, it has been reported that the decursin isolated from crude extract have antibacterial, antiplatelet aggregation and antioxidants properties. In another study, it is reported that the methanolic extract of *A. gigas* showed anti-oxidant property in the acetic acid-induced writhing test, tail flick, and hot plate tests in mice. INM 176 is the standardized ethanolic extract of the *Angelica gigas* Nakai. This extract is standardized on the basis of the amount of decursin (15.8%) and decursinol (0.16%), the major constituents of *Angelica gigas*. Studies reported that INM 176 shows neuroprotective effect in lipopolysaccharides induced neuronal injury and also show protective effect in the scopolamine induced cognitive dysfunction.

**Role of nutraceuticals in health care: A review**
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The term “Nutraceuticals” can be explained as the food items as a whole or a part which possesses some nutritional value along with the medicinal properties. This special feature besides, providing good health leads to treatment and prevention of certain diseases. With the advancements in the qualitative and quantitative determining parameters, the requisition of these products have been found to be amplified. Due to this, the nutraceutical market has become a million dollar industry at a global level. The era of emergence of nutrients as medicines in the pharmaceutical world is of great importance and draws attention of scientists and researchers towards the appreciable benefits. The history and discovery has explored many facts about the remarkably profound therapeutic activities of such agents. As a result, interdisciplinary approaches are now being applied to design and develop various dosage forms to deliver these herbal products relative to their application. The extensive researches have revealed the involvement of these agents in the treatment of many disorders like insomnia, indigestion, cancer, blood pressure abnormalities, cold and cough, depression, coronary heart disease, delayed gastrointestinal emptying and many other disorders. The presented work is an attempt to classify all types of nutraceuticals with examples followed by their applications in treatment of various disorders.

**To study histoarchitecture and biochemical effects of *Camellia sinensis* extracts on reproductive functions in female albino mice**
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This study has been undertaken to investigate the effect of green tea (*Camellia sinensis*) extract on the histoarchitecture of reproductive organs in STZ induced diabetic female rat model. Female rats were administered the green tea extract orally for 14 consecutive days, while the control group received only normal diet. Non-diabetic rats were treated with orally green tea extract 200 mg/Kg body weight. Group (III) animals were administered multiple dose of STZ (45 mg/Kg bw). Group (IV) animals administered with Single dose of STZ (45 mg/Kg bw) i.e. dissolved in sodium citrate 200 mg/kg green tea extract orally. Treatment design was selected to evaluate histoarchitecture and biochemical effects of green tea extracts on reproductive function in female albino rat. Data were analyzed by ANOVA test and t-test. At the end of experimental period, animals were sacrificed and their blood and ovary samples were collected for the analysis. Ovaries and uterus were removed for histopathology. Based on the results, it is indicative that the supplementation of green tea extract has strong capability to decrease in serum glucose and total cholesterol levels and significantly improved the body weight loss in diabetic rats treated with 200 mg/kg green tea in comparison to diabetic control group because of the strong antioxidant effect of the phenols. And also effects on the hormones. No significant changes were observed in protein and albumin. Green tea extract has anti-hyperglycemic and hypcholesterolemic effect in diabetic rats, although further work is needed to effects and mechanism of the green tea on the histoarchitecture of the ovary and study of green tea on ovary cancer and breast cancer.

**Vermicompost application to improve medicinal potential of *Amorphophallus* and *Colocasia* intercropped in Indian goose berry orchard**
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**Background:** *Amorphophallus* and *Colocasia* are aroids with great medicinal potential. They have ability to withstand and grow under canopy of fruit plants. Their response to vermicompost is very high in terms of yield and can improve corn quality by reducing oxalate content. **Objective:** The study was conducted to improve the medicinal value by reducing oxalate level in corms by growing them in shade and supplying vermicompost. **Research Methodology:** Both *Amorphophallus* and *Colocasia* were grown under canopy of Indian goose berry orchard with supplementary doses of vermicompost and mustard cake as organic source of
Identification of anti-quorum sensing phenolic compounds from the grape fruit based on computational studies
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Quorum sensing (QS) is the well adapted cell to cell communicating system present in mainly all the pathogenic bacterial species. This system regulates the production of N-acylated l-homoserine lactones (AHLs) as autoinducers (AIs) which mediate the QS signalling pathway. QS activity is responsible for the production of virulence factors, formation of bacterial biofilm and moreover directly associated with the development of drug resistance. Phenolic compounds from ginger (Zingiber officinale Roscoe) viz. [6]-gingerol, [6]-shogaol and zingerone exhibited QS inhibitory activity against Chromobacterium violaceum and Pseudomonas aeruginosa and found to be the promising leads in the domain of antipathogenic drugs. In this work we have focussed our attention on the identification of mode of binding of phenolic compounds (those showing anti QS activity) of ginger in the active site pockets of CviR and LasR receptor protein. Based on this template, molecular docking of analysis of phenolic compounds (stilbenes, flavonols, flavan-3-ols) which are abundantly present in Grape fruit is carried out. Out of 9 studied bioactives majorly all of them were found to be effectively stabilizing the LasR receptor domain and binding with greater affinity (−7 to −11.5 kcal/mol) in comparison to natural ligand. However, these phenolic compounds have shown less binding affinity against CviR receptor protein. Further, molecular electrostatic surface potential (MESP) of the investigated compounds have shown complementary with the electrostatic surface of the docked protein. Present study illustrated the potential of phenolic compounds present in grape fruit to act as prospective leads for the further development of novel QS inhibitors as antimicrobial therapeutics.

Azadirachta indica (neem): A plant with versatile potential
Shubham Sharma

Finding/Result Highlights: The economic yield of Amorphophallus and Collocasia was reported to be highest when they were grown as sole crop. Although shade of Indian Goose Berry orchard has not significantly lowered the oxalate content of corms but application of vermicompost alone or in combination with mustard cake as supplementary dose of nutrient was reported to reduce the oxalate content up to desirable level in second year. This had also improved the medicinal value when evaluated for their methanolic and hydro-alcoholic extracts. Conclusion: Amorphophallus and Collocasia can be grown under shade of Indian Goose Berry orchard and medicinal value can be improved through organic sources of nutrients.

Conclusion: Amorphophallus and Collocasia can be grown under shade of Indian Goose Berry orchard and medicinal value can be improved through organic sources of nutrients.

Computational approach for discovery of natural lead structure from a series of natural antiviral compounds
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Herpesviruses are a large family of DNA viruses that cause diseases in humans and animals. The members of this family are also known as herpes viruses. Herpes simplex virus causes multiple oral and genital infections. Computer Aided Drug Design (CADD) technologies are used in nanotechnology, molecular biology, biochemistry etc. CADD has proven to be a very cost effective technique in research and development of drugs. There are wide ranges of software used in CADD, for structure based drug design e.g., APIS, JAVA, etc. Computer aided drug design is applicable transportation of drug to specific site in body, data collections and storages of organics and biologicals. This article deals with the development of structure-based drug design for HHV infection that implicates choosing the target proteins, visualizing the target structure, identifying the binding site, docking the ligands, and evaluating those using computational techniques. On the basis of their properties, 21 natural molecules were selected and out of these 15 molecules pass the Lipinski rule of five for ligand selection.

Abstracts

Herbs are an important source of unique natural product for development of medicine against various diseases and also for development of industrial products.

Conclusion: A large number of neem based medicines are being produced today and are in great demand overseas. It is suggested that each part of this tree has some medicinal property. It is also used internally for its medicinal uses which include malaria, tuberculosis, rheumatism, jaundice, arthritis, intestinal worm as well as skin. Neem is considered as a valuable source of unique natural product for development of medicine against various diseases and also for development of industrial products.

Azadirachta indica (neem): A plant with versatile potential
Shubham Sharma
and best of that based on Ligand Efficiency, Binding Affinity and Inhibitory Constant propose for drug target.

**In silico study of prenylated chalcones with anticancer activities for the inhibition of p53-Mdm2 interaction based on molecular docking, absorption, distribution, metabolism, excretion and toxicity and TOPKAT analysis**

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Natural products have serve as sources of medicines since time immemorial. There have been growing interests in the chalcone subclass of natural products because of their broad spectrum bioactivities viz. antimicrobial, anti-inflammatory, antiviral and other activities. Several studies have proven their remarkable anti-cancer activities via diverse mechanisms including apoptosis, disruption of p53-Mdm2 interaction and other p53 dependent pathways. p53 is a powerful antitumor protein that plays important functions in cancer biology. The reactivation of this protein through the inhibition of its interaction with its primary antagonist, the oncoprotein Mdm2 is a validated target for anticancer compounds. Prenylated chalcones have demonstrated diverse anticancer activities against many cell lines. Of recent, prenylated chalcones have shown the ability to disrupt p53-Mdm2 complex. This study explored the potential p53-Mdm2 interaction inhibition of some prenylated chalcones with anticancer activities using molecular docking, ADMET and TOPKAT analysis. Molecular docking studies and in silico absorption, distribution, metabolism, excretion and toxicity studies (ADMET) were performed to obtain vital insights on the molecular mechanism of action of the prenylated chalcones. Toxicity profiling of the prenylated chalcones using Ames mutagenicity model displayed very low probability of these compounds to show toxicity in experimental models. The results obtained from the molecular docking and toxicity studies will help in identifying more potent inhibitors of Mdm2-p53 complex especially from the chalcone scaffold.

**“Green” nanoparticles: A review on phyto-synthesis of silver nanoparticles**

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Silver is well-known to endowed with antibacterial and antifungal effects and used as an antimicrobial agent since time unknown. Silver’s potential has been demonstrated in the form of nanoparticles in a wide range of experimental and biological applications. Many traditional physical and chemical processes are in use for the synthesis of silver nanoparticles, which may produce the undesirable by-products and noxious chemicals to the environment. It is now the green chemistry based process that is approaching popularity to biological means of silver nanoparticles synthesis, which not only cut down the adverse effect on the environment but also aims at economical benefits. Green synthesis is a one-step reduction processes of silver ions to form silver nanoparticles by the macromolecules present in the plant extracts. During the period of last five years, various plant species have been successfully explored in developing new biogenic and cost effective methods of synthesizing of silver nanoparticles from their extract. Plant extracts as well as live plants can be used for the silver nanoparticles synthesis. This reviewed outlines the methods of synthesizing silver nanoparticles using plant extract, its size and morphological characterization, and the potential therapeutic applications of silver nanoparticles.

**Virtual screening for identification of novel potent epidermal growth factor receptor inhibitor**

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Cancer is a malignant disease and causing the high rate of mortality and morbidity. Current strategies for the treatment include chemotherapy, radiation therapy and surgery. There are various validated targets are explored and among them EGFR (Epidermal growth factor receptor) is most recently known to control the cancer and also implicated in more than 30% case of epidermal cancers. EGFR is a cell surface protein which involves in the cell proliferation and plays a crucial role in progression of cancer. Mutation in EGFR leads to the development of cancer. Only few drugs are available targeting the EGFR such as gefitinib, erlotinib, afatinib, brigatinib, icoitinib and cetuximab. So herein we tried to explore the EGFR for identification of novel ligands through virtual screening by using Autodock Vina as molecular docking software. Among tested ligand indole ligand showed better binding affinity. The novel identified ligands can be helpful in drug discovery and development and also can serve a better therapeutic substitute in case of drug resistant.

**Allergy and allergenic extracts**

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Allergy is an immunological response to an allergen particularly observed in patients with weak immune system. The substances responsible for causing allergic reactions are termed as allergens. The allergen can be a food, dust, plant pollen or any medicinal
Herbal medicines: Overview on regulations in India and Europe

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Herbal medicines, also known as phytomedicines or botanical medicines, involves the use of plants’ parts for medicinal/therapeutic purpose. This healthcare system is as old as our civilization and its use has been reported in ancient Chinese and Papyrus writings (1). Ayurveda and Traditional Chinese System of Medicine, are the traditional system of medicines based on herbal products that have been developed by India and China, respectively. As per World Health Organization (WHO), around 80% of the world population relies on herbal medicines as their primary healthcare system. Their popularity can be attributed to increase in the public awareness about adverse effects associated with the use of allopathic drugs. Furthermore, recent ban on number of allopathic drugs has also boost to traditional herbal medicines. Herbal medicines are regulated in Europe by European commission (EC) and European medicines agency (EMA). The Committee on Herbal Medicinal Products (HMPC) is the committee of the EMA that is responsible for giving scientific opinion on herbal medicines and constitution of European Union herbal monographs. In India, Ministry of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) is responsible to regulate the herbal medicines. Other departments such as National Medicinal Plants Board of India (NMPB) and Quality Council of India (QCI) have the responsibility to maintain the quality, safety, and efficacy of the herbal medicines in India (2). Herbal medicines in Europe, regulated through guidelines given by Directive 2004/24/EC-Herbal Medicinal Products for Human use and Directive 2001/83/EC-Medicinal Products for Human use. In India these are regulated under the Drug and Cosmetic act 1940 and Rules 1945. The current paper would provide information on the key points of these guidelines.

Comparative assessment of phytochemical content and LD₅₀ of Persea americana seed and Calotropis procera root in experimental rats

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P. americana seeds and C. procera roots have been traditionally used as antidiabetic plant based remedies. So it was inevitable that a toxicity analysis is performed to ensure safe consumption. The phytochemical content and LD₅₀ of C. procera and P. Americana aqueous extract was evaluated. The root of C. procera and seed of P. Americana powdered were percolated in water for 24 hours for aqueous extract. The LD₅₀ was evaluated in two phases (I and II) according to Lorke method. Twenty six animals (rat) were divided into two groups for two extracts. For each extract the thirteen rats were divided into, nine rats for phase I and the remaining four for phase II. In phase I the nine rats were placed into three sub-groups, each of three rats and administered with 10 mg/kg, 100 mg/kg and 1000 mg/kg of the extract. In phase II, the four rats were administered with 2000, 4000, 8000, and 16000 mg/kg of the extract. Results show that the LD₅₀ after a maximum dose of 16000 mg/kg the two extracts are relatively harmless. Phytochemical analysis of the aqueous seed and root extract showed the presence of flavonoids, cardiac glycoside and absent of tannins, alkaloids and saponins in Caltrops procera while resin is absent in both extract. In conclusion the aqueous seed of P. Americana and root of C. procera may be relatively safe and the acclaimed medicinal property is associated with these plants may due to this phytochemical.

A review on recent advancements in benzimidazole derivative as multitargated antimicrobial molecules

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Drug resistance problem against existing antimicrobial therapies becoming serious health concern. Therefore, there is always a need to identify new lead compounds and target inside microorganisms, which can be utilized in designing more potent antimicrobial agents against resistant microbial strains. Benzimidazole is an important heterocyclic aromatic organic compound shows attraction towards antibacterial, antifungal, antymycobacterial
and antiviral activities. Moreover, reported data have shown that inhibition of microbial growth by benzimidazole and their derivatives is due to binding with β-tubulin (nematodes), inhibiting microtubule polymerization (fungi), causes inhibition of intracellular transport (mycobacteria), key enzymes (bacteria) and ultimately lead to microbial cell death. Literature studies have also showed that substitutions of various moieties on benzimidazole ring viz. substituted phenyl ring (2nd position), methoxy and halogens enhanced their antimicrobial activity. Further, the analysis of results showed that, the substitution of azotidine, pyridine (2nd position), furan, benzoic acid, chloro aniline (2nd position), methoxy phenyl, hexane, quinoline, NO₂, Cl and substituted phenyl moities enhanced antibacterial activities; NH₂ (5th position), NO₂, phenyl (2nd position) and N- substituted CH3 groups increased antifungal activities; C2H5 and CF3 (5th position) groups increased antiviral activities. Moreover, the attachment of Schiff base (-C=N-) in benzimidazole based molecules also reported to have enhanced antimicrobial activities. Based on these observations, in future we will synthesize hybrids of substituted benzimidazoles and Schiff base, which will be evaluated for their antimicrobial activities against selected pathogenic bacterial and fungal strains.

Turmeric: A miraculous herb with profound anticancer potential
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Ayurvedic medicinal system is enriched with enormous herbal and natural sources for treatment of various ailments. From the treasure of such vast herbal collection, Turmeric plant has been found to be of great use in multiple treatment therapies. It has been found to provide antiseptic action to treat infection and inflammation. Besides this, researches have envisaged it as potential herb to encounter, prevent and cure acute cancer conditions. From the nutritional data suvey, the comparable chances of various cancers (breast, colorectal, lung) in Indians are found to be five, ten and twenty two times lesser than in Americans respectively. The possible cause behind which was identified to be the intake of plant based diet and spices including turmeric. The plant is associated with the anticancer prospective, due to the polyphenol active moiety present in Curcumin. This active constituent can inhibit the growth of various cancerous cells in the functional areas including: bone, breast, brain, colon, liver, pancreas, stomach and bladder. It has the ability to block every stage of cancer development, from cell mutation, to tumor growth till metastasis. It can also trigger apoptosis by inhibiting COX-2, which can lead to inhibition of proliferation, transformation and angiogenesis of tumor cells. Thus, this field holds a great potential to be explored.

Comparison of traditional and modern isolation and extraction techniques for herbal drugs

Synergistic activity of caffeic acid with oral hypoglycemic drugs for glucose uptake in rat adipocytes
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Diabetes mellitus is a chronic disorder characterized by increased blood glucose level and the cause is insufficient or inefficient insulin response. There are 20.8 million children and adults in the United States who have diabetes and it cause about 5% of all deaths globally each year. Caffeic acid is the major phenolic compound in coffee, found widespread in plants, and can be isolated from the leaves and fruit. There are reports that increased coffee consumption has significantly associated with a decreased risk of diagnosed type 2 diabetes mellitus. This paper understands the effect and the mechanism of action of caffeic acid in vitro cell culture study in 3T3-L1 adipocytes. This cell line is derived from (Swiss albino mouse) 3T3 cells which is used in biological research on adipose tissue having morphology similar to fibroblast. The study reveals that caffeic acid has enhancing effect on glucose uptake in both time- as well as dose-dependent manner. The 4 hour incubation with caffeic acid (25 μM), 2,4-Thiazolidinedione (THZ) (10 μM ) and metformin (20 μM) shows approx 3.27, 3.29 and 2.95-fold increase in glucose uptake. The caffeic acid has shown synergy for glucose uptake activity with both the combination i.e., with metformin and THZ. The effect of chlorogenic acid on the GLUT4, PI3K and PPAR gamma genes

Isolation and extraction are the terms which refer to the separation of the active ingredients from the inactive types, which can be further used to produce the pharmacological effect. Various methods involved in the extraction process are traditional techniques and modern techniques. In case of traditional techniques which is based on the extraction power of different solvents involves soxhlet extractor, maceration, hydro distillation, percolation, etc. Out of these techniques, maceration is most preferred and commonly used due to the fact that complete extraction is possible, easy process, and it can be performed at small scale. This method is primarily involved in the extraction of essential oils. In case of modern techniques which are mainly automated process, with the faster rate of extraction. Various techniques nowadays these involved ultrasonic assisted extraction, microwave assisted extraction, accelerated solvent extraction, phytotonic. Out of these, phytotonic is most preferred and commonly used as the solvent involved in extraction, have a property to get recycled, avoiding any type of wastage. Also this method is selective and faster accompanied with easy extraction mechanism.
Evolution of antioxidant and antigenotoxic potential of kahwa  
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Kahwa is an aromatic, refreshing and stimulant traditional drink made of various constituents like saffron, cardamom, cinnamon, clove, liquorice and green tea leaves. The people of Kashmir use several forms of kahwa depending upon the ingredients added, which may have different health benefits. This is the first study to demonstrate the antioxidant and antigenotoxic potential of one of the common forms of kahwa consumed in Baramulla district of Jammu and Kashmir. The ingredients used for the preparation of this kahwa are saffron, cinnamon and cardamom. The antioxidant and antigenotoxic capacity of kahwa was measured by using various in-vitro models like DPPH, ABTS, NO, lipid peroxidation, hemolysis and alkaline comet assay. The total phenol and flavonoid content was also determined by using gallic acid and quercetin as a standard. The IC_{50} values of kahwa for antioxidant assays, such as DPPH, ABTS, NO scavenging and anti lipid peroxidation were 2.15, 4.8, 8.4 and 0.56 mg/ml respectively. Kahwa was found to have an appreciable amount of polyphenols (7.41 mg GAE/g) and flavonoid (1.39 mg QE/g), which may be responsible for its biological activity. Moreover, it was observed that kahwa ameliorates H_{2}O_{2} induced hemolysis and DNA damage. This study revealed that kahwa can scavenge free radicals and may prevent us from health problems associated with oxidative damage of biomolecules. These findings indicated promising antioxidant and antigenotoxic potential of kahwa and further studies are required to explore its health benefits.

Biofertilizers application in potato improves nutritional value by reducing nitrate content of tuber  
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Potato (Solanum tuberosum L.), belongs to family solanaceae, is a fertilizer intensive crop and requires 160,100,100 kg per hectare of nitrogen, phosphorous and potassium respectively. Nitrogen is the key nutrient for better yield of potato tuber (modified stem), which is one of the richest source of starch. Application of recommended dose of nitrogen through urea has been reported to increase nitrate content of tubers and reduce pulp to peel ratio. High nitrate content increases risk towards cancer, hence, increasing yield on the cost of human health is not acceptable. Further, it also reduces quality of soil. Biofertilizers like azotobacter, PSB, Vermicompost, VAM and mustard cake has been reported as partial replacement of inorganic fertilizers. It has been reported to improve tuber quality in term of TSS, starch, dry matter and mineral (Ca, Fe and Zn) content. The reduced tuber nitrate content was also reported when 50% and 25% of urea was replaced with Azotobacter or Vermicompost and integrated with PSB (Phosphate Solubilizing Bacteria) or VAM (Vesicular Arbuscular Mycorrhizal) fungi without deceasing the tuber yield. Furthermore, increased pulp: Peel ratio was also reported with integrated management of nutrients.

The management of nephrotic disorders by herbal medication system  
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Nephrotic disorders which is also known as nephrotic syndrome, itself is not a disease but is an important feature of several renal diseases. In these disorders, the damage occurs to the functional and structural unit of kidney i.e. Nephrone. When the glomerular damage takes place, plasma proteins, fats and nitrogenous compounds pass through the filtrate and seen in urine. This leads to reduce plasma osmotic pressure.
These medical conditions are characterized by proteinuria, hyperlipidemia, hypoalbuminemia etc. The damage occurs due to diabetic nephropathy, glomerulonephritis, SLE, infections etc. Ayurvedic herbal treatment could be used for treatment of such disorders. As per Ayurveda, every root, fruit and leaf of any plant has some medicinal value. Himalayan region in India is a hub of medicinal plants that is largest producer for medicines. Most roots extracts Costus speciosus, Vitex negundo, Solidago virgurea, Salvia miltiorrhiza etc. are used for treatment purpose. These herbs mainly treats the complicating factors associated with renal failure such as proteinuria, hypercholesterolemia. These herbal drugs if used in proper dosage, having slight side effects with rapid improvement in ND. As nephrotic disorder is common disease and mostly prevalent in children of Indian Population. This article emphasizes on various herbal drugs and their mechanism of action to cure the disease at early stages.

**Therapeutic potential of Acorus calamus as antiepileptic drug**

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*Acorus calamus* is a tall perennial wetland monocot plant from the acoraceae family. In ayurvedic medicine system, *A. calamus* is used as an important herb and valued herbal tonic in various neurological disorders. Rhizomes and leaves of *A. calamus* contains asarone and beta-asarone. These active chemical constituents reported to be useful against convulsions or seizures. Asarone and beta-asarone exhibit its anti-seizure action by acting as CNS depressant, GABAA facilitator and voltage gated sodium channel blocker, as reported in number of previous *in vivo* studies. Anticonvulsant effect of roots of *A. calamus* was investigated previously by using pentylenetetrazole (PTZ) induced convulsion model. Two mechanisms have been proposed for its ameliorative effect in PTZ induced convulsion model; one is by inhibiting GABA pathway in CNS and another is by increasing the central noradrenergic activity.

**Artemisinin: Journey from herbal “Chinese recipe” to “Nobel Prize” for treatment of malaria**

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The prevalence of malaria, which is mosquito born life threatening disease, caused by plasmodium species is growing rapidly. According to the, World Malaria Report, about 3.4 billion people are at risk of being infected with malaria each year. Among them, disease burden is reported heaviest in Africa, where out of total deaths per year, about 90% occur due to malaria. Among this 90% of deaths, about 78% has been observed in children whose age is less than five years. Since last two centuries, intense research endeavors have been put towards the discovery of effective treatment against malaria. This includes development of allopathic as well as herbal medicines, and their derivatives. Artemisinin is an Anti-malarial agent isolated from leaves of *Artemisia annua*, a sweet worm wood which belongs to family Asteraceae. Artemisinin, a cold ether extract from leaves of *Artemisia annua* during its preclinical studies on malaria infected mice and monkeys, has been reported for causing 100% mortality to malarial parasites. Extensive clinical research has been carried out in past by Chinese scientists to explore potential applications of Artemisinin, alone or, in combination with other antimalarial agents, for treatment of malaria. The use of this potential antimalarial agent as an insecticide spray for prophylaxis or, as medicine has dramatically reduced the mortality rate of malaria by 47% between 2000 and 2013 worldwide, and by 54% in Africa. At the same time, the number of malarial infections has dropped to 26%, from 173 million to 128 million cases. In children 2-10 years of age, the average malaria infection prevalence has declined from 26% to 14%. Hence, there is a need to further explore its potential which should be not only limited to the therapy of malaria, but for other disease too.

**A sweet future for stevia: A magical sweetener**

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Stevia rebaudiana is a genus of about 240 species of herbs and shrubs in the sunflower family (Asteraceae), native to subtropical and tropical regions from western North America to South America. The leaves extract of Stevia, which is 300 times the sweetness of sugar, possesses anti-bacterial, anti-fungal, anti-inflammatory, anti-microbial, anti-viral, anti-yeast, cardiotonic, diuretic, hypoglycemic, hypotensive tonic and vasodilator effect. Considered natural source of antioxidants, which contained phenolic compounds and flavonoids at levels 24.01 and 18.93 mg/g dry weight basis of leaves and 33.99 and 30.03 mg/g dry weight basis of callus, these substances have been suggested to play a preventive role for human health. Antioxidant activity of water and methanolic extracts of stevia leaves and callus equivalent to gallic acid (GA) and butylated hydroxyl anisole (BHA) were determined. GA was the stronger antioxidant in both water and methanol extracts than BHA. Antibacterial and antifungal of stevia leaves and callus extracted by six types of solvent (acetone, chloroform, hexane, methanol, ethyl acetate and water) were studied. Methanol and acetone extracts had greater antibacterial potential for he strains of Listeria monocytogenes, Staphylococcus aureus, Pseudomonas aeruginosa and Escherichia coli. However, acetone, chloroform, methanol and ethyl acetate had antifungal potential for *Aspergillus ochraceus, Aspergillus parasiticus, Aspergillus flavus* and Fusarium. The results indicate that stevia leaves and callus extracts may be an ideal candidate for further research into their uses for food preservation and pharmaceutical due to their antioxidants and antimicrobial activities. Other health benefits of stevia are prevalent in medicine, dental health,
digestion; balanced blood sugar etc. The demand for high potency sweeteners is expected to increase worldwide. The increasing number of diabetic patients and health conscious individuals would push forward the need for alternatives to sugar. Stevia is a potential alternative source for replacing artificial sweeteners like saccharin, aspartame, asulfam etc. If you fall into the category of a consumer who is searching for an excellent natural sweetening agent which is safe, powerful and calorie – free, stevia extracts should be first on your list.

**Essential oil and aromatherapy**

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Aromatherapy is the alternative medicine which are using of the natural oils which are extracted from flowers, barks, stems, leaves, roots or other parts of plant to enhance psychological and physical well-being. Aromatherapy also called essential or volatile oils. It involves the control use of aromatic essential plant oils. The benefits of aromatic for cancer patients include various reduced anxiety levels, pain, fatigue and muscular tension. It is also have some Anticonvulsive and spasmyloptic properties. Essential oils have generally shown minimal adverse effect when used in appropriate dilutions, allerguc reactions can occur with all oil. Essential oils also acts as an antimicrobial and antioxidant Agent or have a pharmacological effect. Essential oils have an effect on brainwaves and can also alter behavior. In the review of 2009, which gave information about Six randomized and non-randomized controlled trials that aromatherapy gives short term improvements and the people who are suffering from cancer, we have to research long term effect of aromatherapy.

**Protective potential of royal jelly against hepatotoxicity**

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Royal jelly is secreted by the mandibular and hypopharyngeal glands of young workers of honeybees of family Apis mellifera hymenoptera, Apidae. It is acidic material of slightly pungent odor, taste and milky-white to yellowish creamy. Fresh royal jelly chemically comprises of water (50-70%), carbohydrate (7-18%), fatty acids and lipids (3-8%), proteins (9-18%), mineral salts (1.5%) and small amount of vitamins and polyphenols. Thus, lyophilised product consists of <5% water, protein (27-41%), carbohydrates (22-31%), fats (15-30%). A study reported that the antioxidant property of royal jelly by preparing enzyme hydrolysates which are having much higher antioxidant activity. Few studies have reported anti-inflammatory, antioxidant property of royal jelly. Different studies showed the combination of protective effect of ascorbic acid, biopropolis and royal jelly against aluminium induced toxicity in rats, against oxidative stress caused by CDDP induced damage of the kidneys and liver, against liver damaged in mice caused by paracetamol, against inflammation induced by formalin in rat hind paw. Royal jelly is also known to effective against atherosclerosis, childhood malignancies and best known as nephroprotective. The Protective potential of royal jelly has been studied against carbon tetrachloride induced toxicity, cisplatin induced hepatotoxicity and valproic acid induced genotoxicity and nephrotoxicity. The results have indicated the protective potential of royal jelly.

**Preview of research related to anticancer activity of Aloe vera**

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The plant Aloe vera is used in Ayurvedic, Homoeopathic and Allopathic streams of medicine, and not only tribal community but also most of the people for food and medicine. There are over 300 species of aloe, which grows mainly in the dry regions of Africa, Asia, Europe and America. The botanical name of Aloe vera is Aloe barbadensis miller. It belongs to Asphodelaceae (Liliaceae) family. The plant has triangular, fleshy leaves with serrated edges, yellow tubular flowers and fruits that contain numerous seeds. Aloe vera contains 75 potentially active constituents: Vitamins, enzymes, minerals, sugars, lignin, saponins, salicylic acids and amino acids. It has been found to be anti-cancerous. Aloe-emodin is a new type of anticancer agent with selective activity against neuroectodermal tumors. Aloe-emodin (AE), a hydroxyanthraquinone present in Aloe vera leaves, has a specific in vitro and in vivo antineuroectodermal tumor activity. The growth of human neuroectodermal tumors is inhibited in mice with severe combined immunodeficiency without any appreciable toxic effects on the animals. The compound does not inhibit the proliferation of normal fibroblasts nor that of hemopoietic progenitor cells. The cytotoxicity mechanism consists of the induction of apoptosis, whereas the selectivity against neuroectodermal tumor cells is founded on a specific energy-dependent pathway of drug incorporation. Taking into account its unique cytotoxicity profile and mode of action, AE might represent a conceptually new lead anti-tumor drug.

**Promising role of phytoconstituents in the treatment of dementia: A review**

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Dementia is a syndrome of acquired intellectual impairment produced by brain dysfunctions. The cognitive impairment characterizing dementia may include memory loss, difficulty in understanding or using words, inability to carry out motor activities despite adequate motor function, and failure to identify or recognize objects. Dementia, as per the Ayurvedic literature, has existed in India for centuries. Ayurvedic physicians used the terms smriti bhransh and chittanasa to describe the
memory loss as early as 800 BC. Many traditional medicines are there in the Ayurvedic medicine system for this condition which act through various mechanisms, such as antioxidant, AChE inhibition, induction of nootropic factors and inhibition of cell apoptotic mechanisms. In this review, we discussed about the various phytoconstituents having great potential for the treatment of dementia.

**Development of surfactant based nanocarrier system for delivery of an antifungal drug**
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In recent years, the design and development of surfactant based elastic vesicular systems (spanlastics) has aimed at controlling or improving the bioavailability levels of therapeutic agents. Spanlastics act as promising systems for ocular delivery of drugs as an efficient route of drug administration. These systems primarily constituted of spans and edge activators. Miconazole nitrate is a common antifungal agent, exerts effective activity against many pathogenic organisms that affects eye. Different batches of formulations containing miconazole nitrate were prepared by varying the type and ratios of surfactants. The optimization of formulation was carried out on the basis of higher drug entrapment efficiency. The optimized formulation was characterized and evaluated for different parameters such as droplet size, zeta potential, TEM, FTIR and ex vivo permeation study through porcine cornea and obtained results were compared with its niosome formulation. The results indicated that the developed spanlastics formulation could be established as a promising treatment option for ocular fungal infections.

**Evaluation of nootropic activity of Sida cordifolia in mice**
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In the present study, nootropic effect of aqueous and hydroethanolic extracts of Sida cordifolia (AESC and EESC respectively) was investigated in mice using transfer latency (TL) and step down latency (SDL) tests. Sida cordifolia is a well know Ayurvedic plant which has been administered anciently for various nervous disorders including loss of memory. Varying doses (50, 100, 250 mg/kg; p.o.) of AESC and EESC were administered along with standard drug (donepezil; 5 mg/kg) for 15 successive days to different groups. They were subjected TL and SDL tests on the 16th day. EESC dose dependently increased the SDL and decreased the TL in mice as compared to control group and this effect was comparable to the standard drug. No significant effect on TL and SDL was observed following varying dose treatment of AESC. These findings suggest the nootropic effect of EESC and predict its scope in the possible treatment of diseases associated with memory dysfunctions like Alzheimer’s disease.

**Lower vertebrates and in-vertebrates models for screening of ayurvedic drugs: A review**
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Lower vertebrates and in-vertebrates have been emerged as the potential models for screening of Ayurvedic drugs in the recent time. These include zebrafish as lower vertebrate and flatworm, drosophila, C. elegans as in-vertebrates. These have various advantages over the conventional vertebrate models, such as rodents. These are effective, robust, reproducible and cheaper than the conventional models. Also, the ethical constrains are not as strong as in the case of vertebrates and primates. In this review, we discussed how these models are beneficial in the evaluation of various pharmacological activities of different Ayurvedic drugs.

**Characterization of curcumin nanoparticles prepared by bottom up approach**
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Curcumin, a phytoconstituent is reported to treat various disorders like inflammation, neurodegeneration, arthritis, skin diseases and cancer. Despite being such an effective medicine, its use in pharmaceutically acceptable oral dosage form is limited. The major impediments include its poor aqueous solubility and permeability. This causes dissolution and permeability rate limited bioavailability. In present study an attempt has been made to prepare nanosuspension of curcumin by bottom up approach. Anti-solvent precipitation followed by spray drying was used. Ethanol was used as solvent to dissolve the drug and water was used as antisolvent. Sodium lauryl sulphate and hydroxy propyl methyl cellulose were used as steric and electrostatic stabilizers. Prepared nanoparticles
An ayurvedic approach for the treatment Alzheimer’s disease
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Alzheimer’s disease is a progressive neurodegenerative, irreversible disease which is age-associated and generally characterized by unusual behaviour, personality changes, severe memory loss, and decline in cognitive functions. Pathologically, it’s severe degeneration of synapses and nerve cells in the cerebral cortex and certain sub-cortical regions, resulting in atrophy of the temporal and parietal lobe and some parts of the frontal cortex. It causes decline in the lifestyle as patient’s age progresses. Currently there is no permanent cure for Alzheimer’s disease and the allopathic drugs prescribed such as antagonists of NMDA receptor and anticholinesterase inhibitors only provide symptomatic relief. However these drugs have associated side effects (mild to moderate nausea, vomiting due to anticholinesterase inhibitors and decrease cognitive ability due to antipsychotics). In Ayurvedic medicinal system of India there are certain plant species which are being used to improve the memory and cognition ability of the individuals for example Ashwagandha. One other plant Bacopa monnieri commonly known in India as Brahmi has been used since ancient times as a nervine tonic. This poster represents the general information and pharmacological studies performed on these Ayurvedic formulations regarding their applications in Alzheimer’s disease. It will also present a focus on the future uses and benefits of these Ayurvedic drugs for the prevention and therapy of Alzheimer’s disease.

Synthesis, antimicrobial evaluation and quantitative structure activity relationship studies of Undec-10-enoic acid hydrazone derivatives
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Undec-10-enoic (undecylenic acid) is eleven carbon straight chain unsaturated fatty produced by cracking of castor oil. It is a natural fungicide used for the treatment of skin infections such as athlete’s foot, ringworm and jock itch. The incidences of death rate due to multidrug resistant fungi, bacteria and other pathogenic microbial strains have become one of the serious health issues worldwide. In view of above findings and continuation of our research programme on antimicrobial evaluation of hydrazide-hydrazone derivatives, a series of undec-10-enoic acid hydrazide was synthesized and evaluated for their in vitro antimicrobial activity against pathogenic strains viz. S. aureus, B. subtilis, E. coli, A. niger and C. albicans by tube dilution method. QSAR study was also performed to correlate antimicrobial activity with physicochemical parameters of synthesized hydrazide derivatives. The preliminary results showed the significance of o-NO₂, m-NO₂ and m-OCH₃ groups at phenyl ring in describing antimicrobial activity of synthesized compounds. QSAR studies revealed that second order molecular connectivity index (χ²) and Balaban topological index (J) are the key parameters for antimicrobial activity of synthesized hydrazide derivatives and can be considered as important factors for interaction with target site of different microorganisms. It is pertinent to note that multi-target QSAR models were more significant in demonstrating the antimicrobial activity than one-target QSAR models.

Breast cancer-herbal treatment
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Breast Cancer is the most frequently occurring cancer around the world. It develops from breast tissue due to factors like hormonal change, drinking alcohol and obesity, and symptomized by change in breast shape, a lump in breast or red scaly patch on skin. Complementary and alternative medicines (CAM) use is common amongst breast cancer patient. Herbal medicines are most commonly used group of treatments among CAM. It is assumed to be safe, cause less complications than other surgical and chemotherapic treatment. This necessitates alternative therapy as the current standard of cure doesn’t work for all. Toward this the use of natural herb, turmeric having antiseptic, anti-inflammatory and anti-tumorous characteristics is proposed. Curcumin (active principle component) and antiproliferaton characteristics of turmeric make it more effective. Considering the low cost and almost no side effect of turmeric, curcumin delivery could be a potential alternative treatment for breast cancer.

Depression and it’s management
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Depression is one of the psychological disorder that affect people in all communities across the world and it is the major cause of disability. Depression is a mental serious illness that is estimated to affect 20 million American and 350 million people worldwide. Suicidal rate due to depression is 12.3% in one lakh people every year. Depressive disorder most commonly affect people at their young age and ultimately paflect people functioning and performance. People with depression often feel sad, guilty, lose interest in activities once that were pleasurable.
for them, problem in concentration. By considering by suicidal cases due to the depression the world health organization and it’s members states are ready to take action for the proper management of the depression. In this review article I focused on the two important aspects of depression first on is about the pathophysiology involved in depression like endocrine changes take place in human body during depression and second one is about the use of various anti depression drugs combined with psychosocial support such as cognitive behavior therapy that can be beneficial for the management of depression.

**Abstract**

**Anti-microbial properties of 2-substituted benzimidazole derivatives**

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The treatment of microbial infection is still one of the major problems worldwide due to increased prevalence of microbial resistance and emergence of new infectious diseases. The major factors responsible for increased antimicrobial resistance are irrational and long term use of high dose of antibiotics. Benzimidazole is a versatile pharmacophore in the field of medicinal chemistry and has diverse range of pharmacological activities. A number of benzimidazole derivatives are available in market for treatment of microbial infections such as albendazole, mebendazole, thiabendazole etc. 2-Substituted benzimidazole derivatives are one of the most important benzimidazole derivatives known to possess varied biological activities. In an endeavor to find a new class of antimicrobial agents, a number of 2-substituted benzimidazole derivatives had been synthesized and evaluated for anti-microbial potential.

**Post-marketing data representing for ayurvedic medicines: A need of present time**

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The idea that controlled clinical trials can establish product safety and effectiveness is a core principle of the pharmaceutical industry. Neither the clinical trials process nor the approval procedures of the U.S. Food and Drug Administration (FDA), however, can provide a perfect guarantee of safety for all potential consumers under all circumstances. Despite this fact, there are viable solutions that pharmaceutical companies can implement to support pharmacovigilance (the systematic detection, assessment, understanding and prevention of adverse drug reactions). When built into existing research and development practices, pharmacovigilance activities can enhance patient safety while reducing or even preventing costly safety related withdrawals. WHO (World Health Organization) established its programme for International Drug Monitoring in response to the thalidomide disaster detected in 1961. The increasing international acceptance of Ayurveda, led regulators to implement a similar program for Ayurveda, particularly as some medical professionals, scientists and members of the public reported adverse reactions after taking Ayurvedic formulations. The World Health Organization therefore persuaded the Department of AYUSH, Ministry of Health and Family Welfare, Government of India, to implement a pharmacovigilance program for Ayurveda, as a means to ensuring the safety and efficacy of Ayurvedic medicines.

**Preview of uses of Ocimum sanctum (tulsi) against respiratory disorders**

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*Ocimum sanctum* (Tulsi) is a widely branched, erect, stout and aromatic herb, about 75 cm high. The leaves, seeds and roots of this plant have been used in Ayurvedic medicine. The chemical composition of Tulsi is highly complex, containing many nutrients and other biological active compounds. Due to its inherent botanical and biochemical complexity, Tulsi standardization has, so far, eluded modern science. Perhaps best known of many active compounds that have been identified and extracted are eugenol (an essential oil) and ursolic acid. Many scientific studies have indicated that *Ocimum sanctum* has anti-stress, antioxidant, hepatoprotective, immunomodulating, antiinflammatory, antibacterial, antiviral, antifungal, antipyretic, antiuretic, antidiabetic, antimalarial and hypolipidemic properties with a wide margin of safety. Its also used to treat respiratory disorders. Tulsi is very effective in treating common cold. A decoction of the leaves, with honey and ginger is an effective remedy for bronchitis, bronchial asthma, influenza, cough and cold. For the immediate relief in cases of influenza the decoction of the leaves, cloves and common salt also gives immediate relief within the case of influenza. Tulsi is important constituent of many ayurvedic cough syrups and expectorant. It helps to mobilize mucus in bronchitis and asthma thus is very beneficial for maintenance of a very healthy respiratory passage. Chewing tulsi leaves relieves cold and flu. Water boiled with tulsi leaves is taken as to drink in case of sore throat. This water can also be used for the purpose of gargles.

**Role of Momordica charantia in treatment of diabetes**

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Diabetes mellitus is among the most common metabolic disorder in world and India is leading country among it. A number of conventional drugs are available for the treatment of diabetes like sulphonyl urea, biguanide, meglitinide, thiazolidinedione. All these drugs are associated with few side effects so, use of herbal drug is always desirable. There are many herbal plants which are used for diabetes cure such as *Allium sativum, Eugenia jambolan, pterocarpus marsupium*, out of which *Momordica charantia* is most

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**Abstracts**

**Role of Momordica charantia in treatment of diabetes**

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Diabetes mellitus is among the most common metabolic disorder in world and India is leading country among it. A number of conventional drugs are available for the treatment of diabetes like sulphonyl urea, biguanide, meglitinide, thiazolidinedione. All these drugs are associated with few side effects so, use of herbal drug is always desirable. There are many herbal plants which are used for diabetes cure such as *Allium sativum, Eugenia jambolan, pterocarpus marsupium*, out of which *Momordica charantia* is most...
commonly used. *M. charantia* is also known as bitter gourd, bitter melon, bitter squash or balsam pear. It is a tropical and subtropical vine of the family Cucurbitaceae, widely grown in Asia, Africa and the Caribbean for its edible fruit. It contains bioactive chemicals, vitamins, minerals and antioxidants, which all contribute to its remarkable versatility in treating a wide range of illnesses. It has various biological activities like antidiabetic, abortifacient, antihepatic, antimalarial and many more. Abundant pre-clinical studies have documented in the anti-diabetic and hypoglycaemic effects of *M. charantia* through various mechanisms. Experimental studies have indicated that pretreatment of *M. charantia* is effective in lowering blood glucose level in alloxan induced diabetic mice. The unripe fruit, seeds and cerids parts of the plant have been used to treat diabetes, as oral administration of its juice improves glucose tolerance notably. Many clinical studies data has revealed that *M. charantia* is gold mine for controlling diabetes, hence a potential source as antidiabetic drugs.

**Caesalpinia bonducella: An overview**

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Caesalpinia bonducella (Syn. Caesalpinia bonduc, Syn. Caesalpinia crista.) belongs to family Caesalpiniaaceae is one of the recognized plant in ayurveda. It has been found throughout India and tropical countries of the world. The plant has been reported to have antidiabetic, antihepatic, antihepatic, anti-inflammatory antispasmodic, antimalarial, antioxidant, antidiarrheal activities. Phytochemical study of Caesalpinia crista showed the presence of alkaloids, glycosides, flavonoids, tannins, saponins and terpenoids. The first non-alkaloidal bitter constituent from the seeds of *C. crista* is bonducellin. Different parts of Caesalpinia bonducella have different medicinal properties such as the oil from the seeds is used in convulsions and paralysis. The presence of diterpene norcaesalpinin E showed potent antimalarial activity as compared with chloroquine.

**Nanotechnology: A tool for enhancement of bioavailability of herbal drugs**

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Since ancient times, herbal medicines have been extensively accepted and used all around the world especially in India. They are best known for their use in chronic diseases like cancer, diabetes, arthritis, skin infections etc. A major problem with herbal drugs is their limitation in crossing the lipid cell membrane due to which they have low absorption which results in poor bioavailability and efficacy. These problems can be swamped by developing a novel drug delivery system (NDDS). This system helps not only in reducing the repetitive administration but also increase the bioavailability of the herbal drugs. One of the novel advances in herbal medicines is emergence of nanotechnology as a tool for increasing the bioavailability. It is widely known that nanotechnology is one of the most potential and fastest developmental technologies in the prevalent world. Many novel carriers have been developed in the last few years like liposomes, nanoparticles, niosomes, microspheres, ethosomes etc. which have been reported for successful modified delivery of many herbal drugs. It’s alluded that quantum leap will be effectuate from the research of the nanomization of herbal phytochemicals like-nanocurcumin, nanopiperine, nanoberberine etc.

**In-vitro anti acne activity of ethanolic extract of stem of Berberis aristata**

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Current research work is intended to study the impact of herbal approach to treat acne, an extremely common cutaneous inflammatory disorder of multifactorial origin with prevalence in adolescents. *Acne* is common disease of skin and is usually treatable. An attempt had been taken to investigate the *in vitro* antiacne activity of ethanolic extract of stem of *Berberis aristata*. The MIC value of the *B. aristata* extract against *S. epidermidis, P. acnes* and *M. furfur* were found to be 600 μg/ml, 200 μg/ml and 100 μg/ml respectively. *In vitro* antimicrobial screening using erythromycin as a positive control clearly indicated that ethanolic extract of *B. aristata* is promising antimicrobial against the test microorganisms.

**Ginsenoside in brain attack management: A review**

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Ginseng or *panax ginseng*, a small perennial herb, is a highly valued traditional Chinese medicine used all over the world. It has proved numerous role in various neurological diseases like anxiety and depression. It has attributed in treatment of neurodegenerative diseases including brain attack commonly known as stroke. Its main constituent, ginsenoside, draws special attention as a neuroprotective agent to diminish ischemic stroke. According to WHO, millions of people suffer stroke and gets permanently disabled worldwide. Ginsenoside are chemically classified with different structure which include Rb1, Rd1, Rg, Rh. Studies have shown that an extract containing ginsenoside Rb1 promoted the recuperation of neural behavior as well as stimulated the development of new brain neurons. It promoted neuro protection against cerebral ischemia. Ginsenoside Rb1 suppress the local inflammation effect in cerebral ischemia and contribute in abatement of stroke occurrence. The stroke caused by the cerebral ischemia known as silent stroke, causes blood clot which interrupts the blood flow of the brain. In this review,
we reviewed the potential of ginsenoside, as a neuroprotective agent in stroke management.

Review of selected natural antimicrobial agents
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Natural products are rich in terms of antibacterial constituents for many decades but investment in this area has declined, naturally occurring compound that are used in the treatment of microbial infection are secondary metabolite that can be found in plants, animals and microorganisms, therefore plant especially herbs are given more attention in natural antimicrobial research. The increasing resistance of pathogenic microbes have turned the attention of the scientific communities towards the studies on the potential antimicrobial activities of natural products which are generally recognised as safe and they appear to be most promising solution for microbial resistance. This review was designed to assess the antimicrobial activity of selected natural product belonging to terpenoids and alkaloid against gram negative multidrug resistant bacteria and their mechanism of action.

p53-Mdm2 interaction inhibiting peptidomimetics as potential anticancer agents
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Mdm2 is an important E3-ligase that inhibits functions of tumor suppressor p53 through its proteolytic degradation. The p53-Mdm2 interaction has been recognized as an essential step in development, progress and chemotherapeutic resistance in several cancers. p53-Mdm2 interaction involved three hydrophobic residues (Phe19, Trp23, and Leu26) of p53 inserted in hydrophobic surface groove of Mdm2. Thus, mimicking the hydrophobic residues (Phe19, Trp23, and Leu26) of p53 inserted in several cancers. p53-Mdm2 interaction involved three hydrophobic residues (Phe19, Trp23, and Leu26) of p53 to inhibit p53-Mdm2 interaction and to prevent degradation of p53 for preservation of its anticancer effect. Here we reported several peptidomimetics which mimic key amino acid residues of p53 to induce the apoptosis and potential anticancer effect non-genotoxically.

Allergic rhinitis - Herbal treatment
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Allergic rhinitis is a disorders which is characterized by one symptoms including itching, sneezing, nasal congestion and rhinorrhea. Pollens, molds, dust mites and animals danders are some causative agents. Seasonal allergic rhinitis is fairly easy to identify because of rapid and reproducible onset and offset of symptoms. Perennial allergic rhinitis difficult to detect because of overlap with sinusitis, respiratory infection and vasomotor rhinitis. allergic rhinitis affects 20 - 40 million people in US alone and incidence is increasing, now a days people are more interested in getting Ayurvedic treatment rather than allopahic. Tulsi herb proves beneficial in this regard. It has anti inflammatory properties. Tulsi or holy basil substantial medicinal meaning and is used in numerous ayurvedic herbal supplement and is very effective in viral flu, influenza and chronic allergic rhinitis. It has been proved to play an important in management of immunological disorders including all types of allergic and asthma. Regular use of tulsi capsules helps body to fight infections in a natural way. It is a natural immuno - modulator and very effective for treatment of chronic allergic rhinitis.

Bhasmas: A newer approach to nanomedicines
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Ashes, well known as Bhasmas, are unique Ayurvedic metallic/minerals preparations, treated with herbal juice or decoction. A series of process is involved in its preparation. This includes incineration (Sodhan), where in the starter material undergoes an elaborate process of purification and followed by the reaction phase, which involves incorporation of some other minerals and herbal extract. Significant importance of Bhasmas is maintenance of optimum alkalinity for optimum health, neutralization of harmful acids that lead to illness. Different types of bhasmas include swarna (improves body immunity), mukta-shouktic (tuberculosis), varatika (digestive impairment), mandura (anemia), tamra (liver disorder), abbrak (hepatitis), yashada (sprue), sankha (hyperchlorhydria). Recent studies suggest that bhasmas comprise of nanoparticles, hence, bhsama-inspired new drug discovery approach is emerging out as new era for development of several metal based nanomedicines. Tamra Bhasma is used for the treatment of cirrhosis, while modern copper basednanomedicine helps in treating cancer. Swarna Bhasma is used for treatment of rheumatoid arthritis, hyperlipidaemia and cancer in both Ayurveda and modernnanomedicine.

A literature review on Gokshur-tribulus terrestris
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India is having a rich heritage of traditional medicine constituting of different components and one of them is Ayurveda. In India, about 20,000 plant species have been recorded and among them, 800 traditional plants are therapeutically used. *Gokshur* (*Tribulus terrestris*) belongs to the family (Zygophyllaceae) is a perennial plant grown predominantly in India and Africa also known as *Trikantaka* (three spikes fruit) in Ayurveda and *Bai Ji Li* in China. *Charaka* mentioned it under the category of *Mutra virecaniya Dravya*, *Sothahara Dravya* and *Krimighna Dravya*. This herb is known for its effect on urinary disorders and *Prameha* (diabetes) in classical literature. This plant is having many therapeutic properties like *Balya* (strengthening), *Brimhana* (nutritive), *Rasayana* (rejuvenator), *Mutrala* (diuretic), *Sothahara* (anti-inflammatory), *Vajikarana* (aphrodisiac) and useful in the management of *Mutrakrichhra* (dysuria), *Ashmari* (renal calculi) etc. Active constituents present in this plant are alkaloids, saponins, resins, flavanoids and nitrates. Considering its therapeutic properties, plant plays a great role in Ayurvedic pharmacology and in health care system.

**Formulation development and evaluation of anti-stress herbal lozenges**

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The present work was aimed to design the herbal lozenges for stress. This polyherbal formulation contains *Ashwagandha*, *Brahmi*, and *Shankhpushpi* as active ingredients with excipients as Sugar, Talc, Magnesium stearate, and binders. Dried extract of herbal drugs were used to formulate the lozenges. Ten batches were prepared by moulding method with different concentration of sugar and liquid glucose for optimization but they were no longer stable so five batches were prepared by compression method and same has been evaluated for weight variation, hardness, thickness, friability, and disintegration. *In vitro* dissolution study shown 70% to 80% drug was released within 60 minutes. Compressed lozenges were found to be stable at 370°C/65% RH and 400°C/75% RH for 30 days. *In vitro* study was conducted for antioxidant potential or antistress activity.

**Sandhan Kalpana: A progressive review**

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Growing awareness about harmful adverse effects of allopathic medicine has led to interest in *Ayurveda* at the international level as well as within India. *Ayurveda* comprises of various types of formulations including fermented forms, namely, *Madya* and *Sukta Kalpa* collectively termed as *Sandhana Kalpana*. *Sandhana Kalpas* are unique and have valuable therapeutic indications due to their efficacy, stability and desirable features. It is either prepared by expressed juice or using decoction of herbal drug and contains self generated alcohol. Although these formulations are available in classical literature and used regularly, their scientific investigation and reporting is essential to strengthen Ayurveda in global market.

**A pharmacological review on recent advancement on herb Nux vomica**

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The plant *Nux vomica* (*Strychnos nux-vomica*) known as *Kupeelu*, is described under the “Upavisa Varga” (secondary poisonous group), its seeds after proper *Shodhana* (Purification/ detoxification) have been used successfully in many diseases. Seeds show poisonous activity due to its main alkaloids i.e., Strychnine and Brucine. Pharmacological study was carried out in two parts i.e., acute toxicity study and efficacy related study. It was found that if *Kupeelu* was taken in crude or in unpurified form then it showed poisonous and fatal effect. Main poisonous effect is on the spinal cord, Strychnine acts as glycine receptors blocker which causes massive tetanic contractions. Ayurvedic texts have described it as an *Akshepaajanana* (convulsant) drug. Toxic symptoms are restlessness, suffocation, tremors and convulsion gradually and ultimately leading to death due to respiratory arrest. Seeds are used traditionally to treat *Prameha Roga* (diabetes), *Shwasa Roga* (asthma), *Vajikarna* (aphrodisiac), *Agnimandya* (anorexia), *Sarpadansh* (snake bite), *Kandu* (itching), and also have analgesic and anti-inflammatory activity. Same traditional formulations of *Kupeelu* are *Kriminudara Rasa*, *Visatinduka Taila*, *Mahavasgarbha Taila*, *Agnitundi Vati*, *Visatinduka Vati*, *Navajivana Rasa* etc.

**Conservation of Ayurvedic evidence: Impact of traditional knowledge digital library (TKDL) on bio-piracy**

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Traditional knowledge based on biodiversity. It has always been an easily accessible treasure to the treatment of various diseases which leads to the development of biologically active molecules by the technology-rich countries. India has taken activities in regards to the security of customary learning under intellectual property rights (IPR) with the support of traditional knowledge digital library (TKDL), a noteworthy advance to control bio-piracy. TKDL is playing an important role in the preservation, protection, and dissemination of traditional knowledge, searching facilities, benefits, and current status of the traditional knowledge. At the end of the day, customary information is being abused for bio-prospecting, and most part unprotected to patent cases. In any case, Indian government have made a couple of bio-theft claims.
Development of phytosomes of G-Amrita capsule: A marketed product
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The term “Phyto” means plants while “some” means cell like. Therefore, Phytosomes is a “Phytophospholipid complex” resembling a small cell. Phytosomes are one of the novel drug delivery system containing hydrophilic bioactive phytoconstituents of herbs surrounded and bounded by phospholipids. The phytophospholipid complex resembles a little cell which possess better pharmacokinetic and pharmacodynamic profile than other herbal extract and dosage form which resulting in good efficacy, bioavailability, as well as good therapeutic effect even at low dose. It is the technology that enable in making polyphenolic phytoconstituent more skin permeable and absorbable from gastrointestinal tract. This study highlights the dosage form development of G-Amrita capsules into a novel drug delivery system that is “Phytosome.” It is an industrial project which is associated with Dhanwantri herbs. The capsule of G-Amrita contains powder as well as extract material in granule form within a capsule shell so by converting these granules in phytosomes, we can enhance the bioavailability of capsule within reduce dose.

A literature review on Bhang - Cannabis sativa
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Cannabis is a genus of flowering plant that includes three species; sativa, indica, and ruderalis. The plant is indigenous to Central Asia and the Indian subcontinent. It has long been used for hemp fibre, for hemp oils, for medicinal purposes, and as a recreational drug. Industrial hemp products are made from cannabis plants selected to produce an abundance of fiber. To satisfy the United Nation Narcotics Convention, some cannabis strains have been bred to produce minimal levels of tetrahydrocannabinol (THC). Many plants have been selectively bred to produce a maximum of THC (cannabinoids). Various compounds, including hashish and hash oil, are extracted from the plant. Cannabis has a hair-like growth (trichomes) on the leaves, stem, and the flowers. The trichomes present in the leaves, secrete a sticky substance contain active narcotic chemical i.e., Tetrahydrocannabinol (THC). In organic chemistry, these cannabinoids act as secondary metabolites, or supplementary chemicals produced by the plant that don’t have a direct impact on plant development or reproduction. Plants like marijuana produce these secondary metabolites in place of an internal immune system, fending off parasites, viruses, bacteria, and other natural predators. While THC itself does not have anti-bacterial properties in humans, other cannabinoids like cannabigerol (CBG) are known to kill or slow the growth of bacteria in people and plants alike.

Gold and copper: Journey from Bhasmas to nanomedicine and nanodiagnostics
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Since the ancient times, metals are well regarded as “elixir of life,” in particular gold and copper. History reveals that gold/copper complexes and Bhasmas were being used clinically for the treatment of rheumatoid arthritis, diabetes, and atherosclerosis. Now a days, the use of gold and copper nanoparticles as cancer therapeutics and diagnostic agent is being explored. Though these nanoparticles are potential drug carriers, their use as drug delivery systems is limited due to poor bio-distribution, pharmacokinetics as well as toxicity. In recent years significant endeavours have been made to develop gold/copper nanoparticles mediated targeted delivery systems to direct the particles to specific tissues. Site specific delivery improves oral bioavailability and unfavourable pharmacokinetics, delivers particles to site specific tissues and thereby minimizes toxicity, sustains the drug release at specific site. It also improves the stability of drugs against decomposition. The present study deciphers various approaches used for site specific delivery of gold nanoparticles as well as potential applications of these nanoparticles as therapeutics and diagnostics.

A potent traditional aphrodisiac herb - Kapikachu (Mucuna pruriens)
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Life is a continuous process and the generation of progeny happens to maintain the existence of any species on this earth. In humans, infertility is one of the commonest problems which is on rise. A much research has been focused for the development of formulations for the treatment of sexual disorders. Seeds of one of the very potent drug, Kapikachu (Mucuna pruriens), has been in use since the ancient era for such ailments. Kapikachu (Mucuna pruriens) is well known for its aphrodisiac activity and is known to increase the sperm count. This medicinal herb has also shown its effects in other conditions like urinary complaints, snake bite, fracture etc. A number of effective preparations have been cited in the various classical texts. In the present work, authors have made an attempt to review and present the highlights of said medicinal herb in a structured manner. More work can be carried out for development of a novel formulation that can benefit the mankind.

In vivo study of antiurolithiatic effect of Hajral Yahud Pishi
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Urolithiasis, also known as Mutra-ashmari refers to the disease which is characterized by the formation of hard calcified masses that are formed in the urinary tract, the severe cases of urolithiasis can disturb the normal physiology and anatomy of urinary system. The etiology of this disease can be multiple in number but it mainly occurs due to low urine volume or accumulation of stone forming components such as oxalates, calcium, cysteine, xanthene etc. from the food components, dietary and mineral imbalance and sometimes due to genetic predisposition too. These urinary stones can regrow in the body even after surgical removals. This study emphasizes upon the herbo-mineral formulation which is made of Hajral Yahud (Badrasham) in Pishti form. It is prepared by leviating the active substance Hajral yahud with different liquid medias (Chandan arka, Nagarmotha arka, Jala) respectively. With the help of this study an attempt is made for observing the physico-chemical changes along with its Antiurolithic activity. Hajral yahud is said to be a comprehensive natural remedy for any kind of urinary obstruction or any other urinary disease, as it helps in normal functioning and elimination of the stones from the urinary tract naturally. This work will reveal the method of preparation and physicochemical standardization of Hajral yahud Pishti.

Dalbergia sissoo Roxb: Timber tree or medicinal tree
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Ayurveda is the considerable pharmaceutical framework utilized from the thousands year to treat different diseases by using natural sources as medicine. Natural sources of Ayurvedic medicine are herbal, animal, mineral and metal. Primarily, herbal sources are used to prepare various single and compound formulations in Ayurveda. However, people are not aware most of these drugs and using them for other purposes. Dalbergia sissoo Roxb is a tree which is generally used as fuel or to prepare furniture, although, classical texts of Ayurveda describe its uses as a potent drug. Various research articles also support the claim of classical texts of Ayurveda. In this review, an effort has been made to collect all the references related with the wide array of therapeutic properties of Dalbergia sissoo Roxb.

A novel approach for the treatment of Charamkeela - A review
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Warts are most common skin disease caused by the Human papillomavirus. Spread by contact, either directly or indirectly, warts infection is more likely to occur if the skin is macerated and in contact with roughened surfaces. They typically grow on fingers, elbows, knees or soles of the feet and other parts of the body. In Ayurveda warts are known as Charamkeela, and caused due to imbalance of Vyan Vayu along with Kapha. The characteristics features of warts are different on the basis of dominance of Doshas. According to Ayurveda, various herbs, herbo-mineral preparations and therapies are prescribed for the treatment of Charamkeela. Raktamokshana (blood-letting), Ksharakarma (chemical cauterization) and Agnikarma (thermal cauterization) and Shastrakarma (surgery) are considered as best therapy to remove warts from the skin. Mustak, aloe, Kushta, Daruhridra and Atisava are some drugs which are having Lekhan property used to cure such diseases. Due to the minimal invasive procedures followed by these methods, no scar formation and no recurrence has been found and considered more beneficial in the treatment of warts.

Concept of drug standardization in Ayurveda
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The term Ayurvedic drugs, comprises of herbal, mineral and animal resource substances. When we say broadly the standardization of ayurvedic drugs - first of all, the category of drugs, their method of preparation (which invariably includes their end point determination or in other words, their quality control guidance) was defined. During ancient times, drugs were prepared by the physician himself to cater the need of his patients in small batches. Over the centuries, these practices were changed and resulted in large scale manufacturing and wide distribution of Ayurvedic drugs at national and international levels. This commercialization should always ensure quality of products using proper standardization parameters. Drug has specific role in the treatment of disease for achieving the objectives of healthy human system. Qualities of ideal drug and concepts of drug standardization are described in Ayurveda classics, Acharya Charak has mentioned “Bheshaj Pareeksha” in “Viman Sthana” 8th chapter as tool for drug standardization and quality control in Ayurveda. We have been hearing invariably, that there are no standards for Ayurvedic drugs. I don't think that this general statement is true. Because, everything is written in the Ayurvedic classics and if it is not followed by some unauthorized and unqualified manufacturers, how can we blame Ayurved?

A novel approach towards Ayurvedic drug delivery system
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Ayurvedic drugs and formulations are accepted worldwide for
its safety and efficacy; still these products are having certain limitations like low solubility, slow metabolism, instability and low shelf life. The acceptance of the novel drug delivery system (NDDS) for such products can be a good approach. Various NDDS are liposomes, Phytosomes, Emulsions etc. Liposomes are the form of the novel drug delivery system in which the drug particles are encapsulated to form a lipid vesicle. The targeting of drug to a particular site can be achieved using this technique. The encapsulation protects the drug from the oxidation and degradation. Clove oil liposomes, Neem extract liposomes, herbal tea extract liposomes etc. have already been prepared to enhance the activities of the drugs. This review article represents various Ayurvedic formulations which are already been encapsulated into the liposomes for the enhancement of the stability, pharmacological efficiency and efficacy.

Impact of gender dissimilarity on quality of plant products
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Dioecious means sexually distinct, having the male and female reproductive organs borne on separate individuals of the same species. Various studies have been reported regarding impact of gender dissimilarities in physical and chemical properties of dioecious plants. For example, Latex collected from the unripe fruit of female *Carica papaya* contains papain enzyme. However, it’s not available in male plant. Significant qualitative and quantitative phytochemical variations are reported in the female and male plant of *Tinospora cordifolia*. This review will provide an evidence related to the impact of gender variation on the over all quality and therapeutic properties of each gender of dioecious plants including *Tinospora cordifolia*, *Piper betle*, *Carica papaya*, and *Cannabis sativa*.

An overview of current scenario of *abhav-pratinidhi dravya* in Ayurveda
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Medicinal plants used in Indian system of medicine remain an effective source of alternative medicines because of its minimum side effects as compared to synthetic medicines. Due to deforestation and resisting of many species of plants in modern era, substitution of rare drugs takes place in the market. The concept of Substitution has been in vogue in *Ayurveda* and found in the treatise of *Bhavaprakasha*, *Yogaratnakara* and *Bhasisya Ratnakarini*. Such a notion is known as *Abhava-Pratinidhi Dravya*,” wherein an “*Abhavadraya*” (unavailable drug) is replaced by a “*Pratinidhi Dravya*” (substitute drug). In *Ayurveda*, more than 150 “*Abhava-Pratinidhi Dravya*” pairs are mentioned and principle for selection based on similarity of *Rasa* (Taste), *Guna* (Property), *Virya* (Potency), *Vipaka* and most important factor is *Karma* (pharmacological action) rather than morphology. In case of precious stones, gems are also not easily available in modern era. So to overcome this problem, *Pratinidhi Dravyas* are selected and utilized rationally. Thus, in this review, an attempt has been made to document the list of *Abhav-pratinidhi Dravyas* which goes in hand by hand with a holistic approach of *Ayurveda*.

Pharmacovigilance: Safety assurance in *Ayurveda*
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Pharmacovigilance is identified with the protection of general health and checking of unfavorable medication reactions. Herbal and ayurvedic medications make up an essential module towards elective drug. The World Health Organization (WHO) therefore convinced the department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) in ministry of health and family welfare under government of India, to execute a Pharmacovigilance program for Ayurveda, as an intend to promising the safety and viability of ayurvedic drugs. Mostly the herbal and ayurvedic pharmaceuticals are considered as protected but to compete with other developing pharmaceutical corporate segment, there is a requirement to create and experimentally accepted all the restoratively valuable herbal and ayurvedic medicines. These medicines are generally considered as safe but they also need consistent monitoring for adverse effects. The process of pharmacovigilance of herals in India has proceeded significantly since its initiation. The objective of this review is to provide a brief assessment on the recent patterns and complications postured in the performance of pharmacovigilance of herbal medications mostly in the Indian perspectives. Proper reporting of suspected adverse drug reactions (ADR) from herbal drug pharmaceuticals has expected a more prominent part today and requires appropriate and cautious implementation from everyone in the social insurance division.

Development and evaluation of phytosomes of *Pongamia pinnata* seeds oil for Eczema
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The present work was aimed to formulate the phytosomes of *Pongamia pinnata* seed oil for the treatment of eczema. The oil was extracted with hexane solvent by soxhlet extraction method and preliminary phytochemical test like iodine value, specific gravity, acid value, saponification value were performed for oil. The oil of *Pongamia pinnata* was incorporate into phospholipid soya lecithin to produce phytosomes by solvent evaporation. The two other methods reflux method and methanol method were
performed for the preparation of phytosomes but formulations prepared by these methods were in sticky nature and in a lamp shape out of them solvent evaporation method chose as final method for the preparation of the phytosomes. Twenty batches were prepared in the ratio of 1:1, 1:2, 1:3, 1:4, 1:5 among batches with ratios 1:1, 1:2 select as optimizing batch. The prepared phytosomes were evaluated by parameters microscopy TEM, Zeta size and entrapment efficacy. Further for topical application and to enhance the stability of prepared phytosomes loaded into a gel prepared from carbopol 934 and HPMC E50. The in vitro study was done by denaturation of albumin to check the anti-inflammatory activity. The prepared formulation showed significant anti-inflammatory activity.

A phytopharmacological review on *semecarpus anacardium* - A benison of alternative medicine
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*Semecarpus anacardium* Linn. (Family: Anacardiaceae), derived from two words: simeion means marking and carpos means nut and is commonly known as 'Bhallataka' or 'Bhilawa'. According to *Ayurveda*, it is a well known irritant poisonous plant which needs to be detoxified before its use. In classical references, *Bhallataka* is mentioned as *Deepaniya Dravya* and has been classified under "*Deepaniya Mahakashaya*,” “*Kushtaghana Mahakashaya*” and “*Mutrasangrahaniya Mahakashaya*.” *Shodhit Bhallatak* is used for the treatment of various ailments like *Arsha* (Piles), *Kushta* (Skin disease), *Udara* (Ascitis), *Jwara* (fever), *Krimi* (Worm infestation) etc since ancient time. Biological active compounds like bhilwanols, phenolic compounds, bhilvonoids, and various medicines commercially. Due to its biological activities, the plant is used worldwide to cure various disorders. It is known by diverse names like Agni, Agnimata, Chita, Chitra, Chitraka, Dahan, Cheeta, Chitramula, Chitrakmula, Vahni, Lead wort, Doctor bush etc and contains various chemical constituents like plumbagin, plumbic acid, naphthaquinones, tannins, glucose, fructose, aspartic acid, cinnamic acid, isohinanolone, indole-3-carboxaldehyde, vanillyl acid, lapachol. The plant is reported to increase *Pitta* (agni) due to its *Ushan* (hot) *Veerya* (potency). Due to revitalization of herbal drugs in current scenario, *Chitrak* is used in the preparation of various medicines commercially. Due to its biological activities, various parts of plant are reported for the treatment of ailments like diarrhoea, hypercholestremia, abortifacient, anemia, leucoderma and psoriasis etc. The plant is found all over the world in tropical and sub tropical regions and has two more species as *P. indica, P. capensis* but only *Plumbago zeylanica* has the therapeutic activity. It is a traditional herb used in Ayurveda for various disorders over years. This review encapsulates the morphology, various varieties, chemical constituents, therapeutic uses of this plant.

A review on natural bioenhancers and their applications
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*Ayurveda*, one of the oldest still enduring sciences, has made a major contribution to the drug distribution process. The concept of bio-enhancement was used in ancient time as *Yogavahi Dravyas*. Recent advancement in enhancement of bioavailability of drugs of herbal and mineral origin has produced an extensive approach in the way of therapeutics. Bioenhancers are chemical entities which at low dose promote the bioavailability or biological activity of the drugs. The necessity of bioenhancers emerges due to the drugs...
which are poorly bioavailable and require prolonged therapy. They are quite effective and enhance bioefficacy and biological activity when used with the combination of different classes of drugs such as antibiotics, antituberculosis, antiviral, antifungal, and anticancerous drugs at low doses. Various herbal origin bioenhancers available are Pippali, Suntthi, Shigru, Krishna Jeerak, Rason, Haridra and Sweta Jeerak. So, the need of the hour is to carry out substantial research on bioenhancers to utilize these in the drug formulations.

A systematic review on aromatherapy: Ancient science for a modern lifestyle
Risabet Danola Lamare, Diksha Puri

Aromatherapy, derived from the word “aroma” (fragrance) and “therapy” (treatment), is the healing intelligence of essential oils. It is one of the complementary and alternative therapy which uses plant essence for restorative purposes. The roots of aromatherapy can be traced back to ancient civilization where the Egyptians embarked the use of essential oils to provide a holistic therapy to the body. Local application, inhalation and baths are the major methods used in aromatherapy that utilizes these oils to penetrate into the epidermis layer with marked aura. This therapy is being unwavering admired in today’s world because of its natural healing power of a person’s body, mind and soul. Due to its fragrance stimulation property, it has been considered a harmonious therapy for the management of stress, depression, pain, anxiety and dementia. The real beauty of aromatherapy lies in the essence which works on a cellular and physical level thus this therapy has been appraise as an ancient science for a modern lifestyle.

PCOD poly cystic ovarian disease (A Yonivyapad Roga) etiopathology and management in context to Ayurveda
Ritu Sharma, Aarti Bhardwaj, Amit Sharma

Ayurveda has a holistic approach and includes all the factors which are necessary in the determination of health. PCOD (Yoni vyapad) is one of the most prevalent condition leading to reproductive and metabolic health concern for women. In this condition numerous cysts develop around the edge of the ovaries which causes the failure in the release of eggs from the ovary. It classifies as a Kaphaj disorder and due to the blocking Vata (Apan Vayu) and Pitta, hence movement is obstructed and the transformation process is suppressed. Follicle during the ovarian cycles, the rupture of the ovary wall releasing the immature ovum, the movement of the ovum towards the uterus. Ovary syndrome (PCOD) is a health problem that can affect a woman’s like nashta rakta (amenorrhoea), ability to have children, acne, weight gain, excessive facial hair growth. Management of steer roga (gynecological disorder) by the account treatment modalities with evaluation including herbal drugs as well as panchakarma and preparation like Rachnaar gugglu, Rajpravartani Vati, Ashokarishta, Raapya bhasma, Abhrakh bhasma, and Kumaryasava moreover, techniques like Basti, Uttar Basti, Vaman and Virechana as well as asana which proved helpful and coupled with above description.

Physico-chemical screening of Godanti Bhasma: An effort to pharmaceutical standardisation
Rohit Thakkar, Dileep Singh Baghel

Godanti is the mineral which is described under Sudha Varga. Bhasmas are the calcinated form of material. The traditional procedure followed for the manufacturing of Bhasmas has so many hurdles such as difficulty in controlling temperature, excess human effort, consumption of large quantity of fuel, space, time etc. So in the present work the conventional method is used with reference to the classical method for the preparation of Godanti Bhasma and an effort is made for the standardization of the Godanti Bhasma prepared by conventional and classical method and the finding of the comparative result is quoted on the basis of changes occur during process i.e., organoleptic characters, physical properties and physico-chemical parameters.

Ashwagandha: A literature review
Sakshi Sabharwal, Aarti Bhardwaj

Ashwagandha (Withania somnifera) is a well known medicinal plant which belongs to the family Solanaceae. It is commonly known as Indian ginseng, Winter cherry. It grows prolifically in dry regions of South Asia, Central Asia and Africa. In India, it is cultivated in Madhya Pradesh, Uttar Pradesh, Punjab, Gujarat and Rajasthan. In classical literature, it is mentioned as Balya and Brihanya Dravya by Acharaya Charak. It is a shrub whose smell and resemblance is like horse, whose various parts (berries, leaves and roots) have been used as folk remedies or as aphrodisiac (Vejikaran), diuretic and also adaptogen (used for sexual vitality). It is referred as “Rasayana” for improving human health and longevity. Secondary metabolites present in this plant like alkaloids and steroidal lactones are responsible for the pharmacological activities. Leaves contain withanolides, withaferin A which are reported to produce anti-stress agents. By amalgamating all these, aim of this abstract were highlighting the classical and pharmacological activities of Ashwagandha.

A comprehensive assessment of Vednasthapan activity of herbal drugs
Saveena Chauhan, Amrinder Kaur
Abstracts

A progressive pharmaceutical review on 
Sneha Kalpana
Sweta Kumari, Dileep Singh Baghel

Wellness and Medical Tourism is an important economic activity and continues to be the fastest growing sector. It encompasses both medical tourism (based on western medicines) and wellness tourism (based on traditional therapies such as Ayurveda). The literature refers to medical tourism as the act of travelling to foreign countries to seek ‘western-style’ medicine treatments and procedures. Ayurveda has been the unique selling proposition (USP) of health tourism to offer a complete package of travel experiences with psychological, physical and spiritual wellbeing. Presently alternative therapy and herbal treatment is widely popular globally and makes India a major tourist attraction.

A literature review on Varun - crataeva nurvula
Vijay Chopra, Aarti Bhardwaj

Plants have a significant role in maintaining human health and improving quality of life. Varun (Crataeva nurvula) belongs to family (Capparidaceae), mentioned in Ayurvedic texts, having common names like three leaved caper, barum, borun, bonna, pithagola, etc. It is one of the best litholytic herb (ability to break up the stones). This plant has various therapeutic properties like anti-inflammatory, anti-oxidant, contraceptive, antimicrobial and it also have urinary renal supportive qualities. It is a medium sized deciduous tree, height of 50 feet. This plant contains alkaloids, triterpenes, saponins, tannin, flavonoids and plant sterols. Scientific research has indicted that a constituent of Varun, i.e., lupeol deactivates the enzyme glycolate oxidase, reducing the body’s production of oxalates which combine with calcium to form kidney stones. So it is mainly used in renal

Principles of Ayurveda: A business model perspective
Shivangni Raj, Manish Vyas

Ayurveda is a holistic system of medicine emphasizing on the importance of preventive over a curative approach. Ayurveda describes various single and compound formulations to maintain the health of individual by providing the essential nutrition to body which are generally termed as Ahar Kalpana. These formulations can be easily correlated with the Nutraceuticals. The global market of nutraceutical was valued at $160.6 billion in 2013 and expected to reach $241.1 billion by 2019. Whereas, Ahar Kalpana is limited to the Vaidyas or home remedies. Ayurvedic drugs and formulations are not only limited up to nourishment of the body. Besides, formulations are also available to improve the complexion and beauty of skin. This category of the products is termed as cosmetics. This segment of business is expected to be valued at $390.07 billion by 2020. This market research clearly describes the importance of timely innovation and advancement to maintain the growth. Present review describes the various segments of business and their market analysis based on the principles of Ayurveda to explore the scope of entrepreneurship.

Ayurceuticals: A progressive opportunity in wellness and medical tourism
Swati Sharma, Dileep Singh Baghel

Medicinal plants are a rich source of therapeutic agents for the prevention of various ailments since Vedic period and for this purpose various karma (actions) are described in Ayurveda Among them, Vednasthapan is one of the important karma which is explained in classical text. It is composed of two words: Vedna (pain) + Sthapan (to reduce) which means the drugs which are used to remove the pain from the parts of body and which restores normal state of body. Pain is an unpleasant experience associated with tissue damage. It is a warning signal, primarily protective in nature, but causes discomfort and suffering which may be unbearable and incapacitating. It is the most common symptom which brings the patient to the physician. According to modern science, analgesic are the medicines that relief pain. Analgesics, work on nerves either by blocking the signals from peripheral nervous system or by distorting the interpretation from CNS. Various herbal drugs are reported as Vednasthapan (externally and internally) like Rasana, Kadamth, Guggulu etc. Various non pharmacological treatments can also be done for treatment of pain like acupressure, acupuncture, music therapy etc. Now a days, people are motivated more towards the use of herbal drugs due to the side effects associated with synthetic drug. The aim of this review is to provide the knowledge of the Vednasthapan drugs in concise form.
stones. It is mentioned as Varunadigana in “Sushruta samhita”. Considering its therapeutic value, information on different aspects of Varun this plant plays a major role in Ayurvedic pharmacology and in the treatment of various diseases.

**Preparation of different types of Ksharsutra**

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In present sinerio due to western life style and lack of time people becoming prone to anal disease like Arsha and Bhagadbara. In recent years treatment of Arsha and Bhagandara by Ksharsutra is well appreciated by ayurvedic as well as modern surgeon. But preparation of standard Ksharsutra in large scale become little difficult because of collection of snuhi ksheer in large amount is very difficult process due its best time to collect is early morning and its takes to much time but its collection is very less in too much time. So to solve this problem different ayurvedic practicener describe there own method of preparation of ksharsutra. Acharya caraka mentioned the use of Ksharsutra in Bhagandara and Acharya sushruta in nadi vrana but both did not explain method of preparation of it. First time Acharya chakrapani explain the method of preparation of ksharsutra in his book chakradutta. Then Acharya sadanand explain 7 coating snuhi ksheer and haridra powder in preparation of kshar sutra. Then in Banaras Hindu University Dr. P.G. Deshpanse and group explained the preparation of kshar sutra on the principle of Acharya chakrapani. They used snuhi laex qnd apamarga kshar and haridra churna in preparation of kshar sutra. In preparation of ksharsutra they used lenin 20 no. cotton thread in which they first used snuhi ksheer for 11 coating then 7 coating of snuhi ksheer + apamarga kshar was done followed by 3 coats of snuhi +haridra churna. And they used it in the management of fistula in ano. Then different doctors and scholar used different drugs in preparation of ksharsutra according to their convenient such as udambar kshar sutra, papaya ksharsutra, yavakshar ksharsutra, guggulu kshar sutra, etc. So now a days a variety of kshar sutra is available for ayurvedic practicener to prepare by their own convenience.

**Traditional herbal chewing sticks – A scientific pharmacognostical approach**

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Scientific investigation of medicinal plants is essential because of their contribution to healthcare. Various ethno botanical studies have been reported to expose the knowledge from the various tribal’s of India. The lower incidence of dental caries amongst users of chewing sticks has been attributed to the superior mechanical cleansing action on the teeth and to the antimicrobial properties of some of these sticks. Traditionally in Jamnagar many herbal sticks are using for the dental cleaning purposes. In the present work Neem, Bakula, Babool, Peelu, Karanja are considered into pharmacognostical evaluation.

Experimentally studied five plants showed the similar anatomical characters i.e. the entire five plants stem showed the cork, cortex, pericyclic fibres, vascular bundle, lignified pitted parenchyma, medullary rays and central pith. The cellular constituents like calcium oxalate crystals, oil globules, starch grains, lignin and tannin are commonly observed in all five plants. Anatomical and cellular inclusions play very important role in the hygiene of the teeth and its diseases. Above mentioned anatomical characters helps in the identification.

**Standardization – A foundation for pharmaceutics**

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Standardization of Ayurvedic formulations is essential in order to assess quality of drugs, or simply a quality assurance program for production and manufacturing of Ayurvedic drugs. WHO specific guidelines for checking the quality, safety and efficacy of Ayurvedic medicines. Standardization is required for clinical trials and also to provide therapeutic effects. Pharmacological properties of an Ayurvedic preparation depend on phytochemical constituents present therein. Due to this, scientists have a challenge to develop the methods which can profile the phytochemical composition. An overview covering various techniques employed in extraction and characterization of herbal medicines as well as herbal nano-medicines standardization is reported. In addition, phytosomes increased bioavailability, bhasma as a metal nano-barrier drug delivery system, potential of metabolomics in the development of improved phytherapeutic agents; DNA based molecular markers in adulterants and SCAR markers for authentication and discrimination if herbs from their adulterants are reported. Nanotechnology based herbal drugs and processed metals like gold, silver are used in different diseases and conditions from ancient times by Indians.

**Folk-lore of herbs used as cosmetics in Himachal Pradesh**

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In the hilly areas of Himachal Pradesh, in spite of availability of cosmetics of synthetic origin, people residing in the rural and remote areas still use the wild herbs as their beauty aids. The people from different parts of the rural areas of the districts of kangra, chamba and kinnaur were contacted and set of questionnaire were asked about the use of local cosmetics which they traditionally used for different parts of the body. Based on...
their reply the wild herbs were surveyed, photographed and identified. They use different preparations of Khanor, Chuli, Baru, Khamet, Khor, Ritha, Sarson, Shouch, Behami, and Losar as beauty aids for different parts of the body. The paper presents the detail study of these herbs and advocates their use as environmentally friendly cosmetics and general health aid under the conditions of hilly areas. The paper also gives a correlation of some of these herbs now used in various cosmetics highlighting the amalgamation of traditional knowledge of past with the herbal discovery of today.

Medicinal uses of Indian culinary herbs and spices
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Herbs are incredibly rich in medicinal compounds, and mankind has known this for a very long time. These were esteemed in past times as due to the lack of refrigeration, it was difficult to keep food from spoiling, and herbs offered a means of masking off – flavors. Indian cuisine is as old as its civilization, dating back approx. 4000 years, and as diverse as its population. It is characterized by an abundant use of spices and herbs. The main culinary herbs and spices used in Indian kitchen are: Black pepper, cardamom, coriander, cumin, fenugreek, garlic, ginger, mint, mustard, parsley, pepper mint, poppy, turmeric etc. Culinary herbs not only bring culinary pleasure to the table but also have pronounced medicinal properties. It is due to the presence of chemicals in the plant. For maintaining health and curing diseases, the world continues to use herbs medicinally. The objective of this presentation is to spread awareness regarding medicinal use of these herbs which are available at home. Present poster will display the above mentioned culinary herbs and spices commonly used in Indian kitchens with their Pictures, Botanical names and their Medicinal uses.

Ethnobotanical uses of Amra in costal belt of Karnataka
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Ayurveda is a science of healthy life. It is the science which not only deals with the Aushadha, Ahara, Vihara concept but also focuses on the other aspects such as Phala. Canara or the Costal belt of Karnataka mainly comprises of three costal districts of Karnataka i.e., Uttar Kanada, Udupi, Dakshina Kanada. It basically forms the Southern part of the Konkan coast. The region is bounded on the east by Western Ghats and West by Arabian Sea. The region has many indigenous fruits yet one important common fruit is Amra. The region has varieties of Amra where not only the fruit but various parts of Amra i.e., leaf, bark, seed, root, flowers, etc. are being used by the traditional people not only for the culinary purposes but for the medicinal uses as well. As documentation of the indigenous knowledge through the ethnobotanical studies is important for conservation and utilization of biological available resources. So this paper was being presented to discuss the uses of Amra and to reveal the hidden traditional knowledge regarding especially in Costal belt of Karnataka.

Need of evidence based evaluation of ayurvedic nanomedicine (Bhasma)
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Bhasmas (ashes) is board class of classical rasa medicine, converts a metal or mineral into its oxide form intended for internal use. Bhasma are easily assimilated in the general system and they directly increase the metabolism and have a definite action upon the endocrine gland being as essential, beneficial, micro-macro nutrients. This review highlights the lacunae in preparations along with the characterisation of Bhasma with the recent discoveries and on-going researches about nano-medicine are being discussed as well as develop good standards for stringent quality control of these preparations between the alignment of classical standardisation parameters and the modern parameter of testing of bhasmas. To activate inorganic substances, it is the only choice on reasonable and scientific ground along with combines therapeutic properties of both the groups and provides us with preparations easily assimilable and heightened in their therapeutic standard. Bhasmas, furnish a permanent and equally effective medicament in the context of nano-medicine along with safety and efficacy. Also prospective area for future research is suggested.

Exothermic reaction for Veerya analysis of Masha (Phaseolas vulgaris) - An experimental study
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The effectiveness of a Dravya which enables the same to exhibit its action is known as Veerya. Veerya is actually the ultra chemical action of the drugs which can be of two types Ushna (hot) and Shiha (cold). Their transformation as hot or cold is not appropriate as these denote only to the temperature status, while the Veerya is something more than that. Veerya is given prime importance in classics as it decides the karma of a Dravya. If the Dravya becomes Nirveerya, then it is considered as useless. So Veerya (potency) of drug plays vital role in the treatment principles. To scrutinize the potency of the drug exothermic and endothermic reactions plays an imperative role which is exhibited here taking Masha as an
example. *Masha* was authenticated AYUSH approved ASU drug testing Laboratory Central research Facility KLEU’s Shri B MK Ayurveda Mahavidyalaya and Research Centre, Belgaum. 10 ml of water taken in a beaker and temperature were noted down for three times, then 10 grams of *Masha Churna* was added in water and changes in the temperature were noted down after 1 minute, 3 minutes and 5 minutes and a hour. After the experimental study, *Masha* (*Phaseolus vulgaris*) which is a *Ushna Veerya Dravya* showed exothermic reaction and rise in the temperature varied from 1- 2°F. From above said results it is proved that *Masha* is having *Ushna Veerya*.

**In-vitro anti-inflammatory and antimicrobial potential of leaf extracts of Sesbania sesban**

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Different leaf extracts of *Sesbania sesban* were investigated for in-vitro anti-inflammatory and antimicrobial activities using HRBC membrane stabilization method and disc diffusion methods respectively. The in-vitro activities were performed on chloroform, methanol and aqueous extracts of leaves of *S. sesban* at the doses levels of 25, 50, 100 and 200 μg/ml. In this work, the potency of the extracts was compared with standard Diclofenac (100 and 200 μg/ml) for In-vitro and 50 μg/ml for in-vivo model. The methanol extract showed the most promising and significant anti-inflammatory activity at the dose of 100 μg/ml in membrane stabilizing model. The efficacy of these extracts was tested against bacteria through a well-diffusion method employing 50μl leaf-extract solution per well. According to the findings of the antibacterial assay, the methanol and chloroform extracts of the leaves showed inhibitory activity against gram-positive bacteria, whereas the gram-negative bacteria were resistant to aqueous extract. The methanol extract had an antibacterial activity with mean zones of inhibition of 8.27 and 12.3mm, and the chloroform extract had a mean zone of inhibition of 6.11 and 11.0mm against *B. cereus* and *S. aureus* respectively.

**Molecular docking studies in ayurvedic medicinal research: A bioinformatic approach**

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Molecular docking, a recognition process between or among two or more molecules, is an important molecular simulation method involving space and energy matching among molecules. This method is widely used in drug and material design. DOCK and Auto Dock, are examples of commonly used software and various database such as PDB NCBI’s Entrez database. Instead of screening drugs, the main purpose of inverse docking is to explore the mechanisms of activity, toxicity, and side effects of drugs. Due to the application of high - throughput experiments and computer techniques, the emphasis of Ayurvedic research shifts to networks and pathways of system biology instead of studies on single drugs and single targets. This is why we proposed that we should study Ayurvedic from the perspective of systems biology. New challenges that the bioinformatics field is facing include complex data integration through a set of omics technology platforms. And finally it can act as lead compound for the future development and optimization.

**Kakamachi –A boon for liver disorders**

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Liver is the largest glandular organ vital to life performing many functions such as digestion, assimilation, storage site of iron, copper, B₁₂, vitamins A, D, E and K, formation of red blood cells, plays key role in most of metabolic processes, especially detoxification. It breaks down fats, convert glucose to glycogen and so on. Some of its diseases are Wilson’s Disease, Hepatitis (an inflammation of the liver), Liver cancer, and Cirrhosis. Some of the most effective herbs used for liver detoxification are Kutki, Punarnava, Kakamachi, Haritaki etc. In the present article highlights the role of *Kakamachi* for liver detoxification. The active chemicals in *Kakamachi* are vitamin B and C, β-carotene, a flacokininase, glycoalkaloids viz. solasalone and α  and β-solamargrin, steroidal genin (tigogenin), solasodine, solasodiene, diosgenin, α- and β- solamargine, uttronin A, uttrrosides -A and -B, five steroidal glycosides SN-0, SN-1, SN-2, SN-3, SN-4, fatty acids-palmitic, stearic, oleic, and linoleic, chlorogenic, caffeic, traces of neochlorogenic and isochlorogenic acids and caffeoylglycine which particularly reduces the levels of alkaline phosphatase and helps in curing the fatty liver disease. *Makoy* leaves are effective in the treatment of digestive disorders and stomach disorders like flatulence, colitis and peptic ulcers, dysentery and other stomach ailments.

**Feminine intimate washes – Recent version of Yoni prakshalan especially for Yoni dourgandhya (foul smelling vaginal discharges)**

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Vaginal health is an important part of woman’s overall health. Vaginal problems can affect fertility and sexual health. Vaginal odor is a common feminine problem which can make her feel uncomfortable and embarrass or lose her self-confidence. Normally, the odor changes throughout a monthly menstrual cycle and is subject to poor hygiene, infections, food, etc. Vagina is prone to vaginal secretions and discharges due to a malady of hormones and phenornones affecting the way it smells. But, healthy discharge doesn’t have a strong smell or colour. Yoni prakashalan is one of the few topical routes to deliver drugs almost directly to the site of action. It seems to be a promising treatment for vaginal odor, itching, laxity, pain, discharges, etc. It offers easy painless application with enhanced epithelial effects. Among many remedies, Tuvaraka kashaya yoni prakashalan cited in Charaka Samhita stands out and outweighs others in respect to its peerless curative properties as antibiotic, astringent, anti-inflammatory, anti-rheumatic, febrifuge, and also in healing wounds. Its efficacy in Krimi, Kashtha, Jwara, Aarana, Meha, Arsh, Vrana, shopha has been mentioned in Kaiyadeva Nighantu. The feminine intimate wash products used nowadays remind of this therapy already acknowledged in Ayurvedic texts. This idea of therapy demands further pharmaceutical, analytical, clinical studies and standardisation to make it user friendly.

**Stability testing of Ayurvedic formulations: Exigency of today’s world**

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The concept of stability is one of the most important issues regarding Ayurvedic formulations as till date no specific guidelines are available for the same. Although the Ayurvedic lexicon as well as Gazette notification issued by Government of India on 26th November, 2005 revealed shelf life of Ayurvedic formulations but greater advancements in packaging and storage technology now-a-days has created a need for the revision of their shelf life. Mainly, two guidelines namely ICH (International Conference on Harmonization) and WHO (World Health Organization) provide details regarding parameters for stability study of pharmaceutical products but ICH guidelines from Q1 to Q11 is generally followed. A well designed stability protocol containing information like Selection of Batches and Samples, Test Attributes, Analytical Procedures, Acceptance Criteria, Storage Conditions and period, Testing Frequency, Sampling plan, Container Closure System, etc., various types of stability study and stability testing methods should be taken into consideration. Currently pharmaceutical product are generally assayed using a validated stability indicating analytical method and an expiry date is marked based on the predicated period from date of manufacture when the pharmaceutical product would show more than 10% deterioration in the active molecule. So, these guidelines may also be implemented on Ayurvedic formulations where percentage degradation can be assayed when the product is stored at different conditions of temperature and humidity. The general concept of stability for Ayurvedic or modern medicine remains same but the parameters used to assess the stability may vary from product to product.

**Different dosage form of Guduchi: A critical review**

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Guduchi (Amrita, Giloy) is one of the best drug which has been used in the indigenous system of medicine since the Vedic period. It is a very common drug and is quite frequently mentioned in most of the Samhitas, Nighantus for its effectiveness in various diseases. This plant is used in Ayurveda as single drug in the form of Swarasa, Kalka, Kwatha, Hima, Churna, and Ghrita and also as one of the important ingredients in many other formulations used for treating various ailments. *Guduchi* (*Tinospora cordifolia* (Wild)) contains many different chemico-constituents that affect the body. Some of these chemicals have an antioxidant effect. While other might increases the ability of body’s immune system and some chemicals have activity against cancer cells also. It is a *Rasayana* as mentioned in different Ayurveda texts, the ‘Rasayana’ accords longevity, enhance the memory, improve the health, bestows youth, better complexion, voice, energy and lustre the skin. It is one of the most effective *Rasayana* and rejuvenative. It works well on all the seven *Dhatus* [tissues] and keeps the system in balance. It has been proved to posses antiinflammatory, antioxidant, anticancerous, cognition and memory enhancing, aphrodisiac, immunomodulatory and management of gouty arthritis.

**A review on antioxidant potential of Amalaki and Amalaki Rasayana**

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Herbs form the heart of *Ayurveda*. Currently global interest in antioxidants have increased the search of pharmacologically potent antioxidants with no side effects. These herbs produce wide range of bioactive molecules such as terpenoids, flavonoids and polyphenols. Due to these phytochemicals, they act as miraculous antioxidants. *Amalaki* (*Emblica officinalis* Gaertn), is extensively used as a rejuvenator in Ayurveda. *Amalaki* itself and one of its formulation *Amalaki Rasayana* have been proved as potent antioxidants. They protect the body from damage by free radicals by stimulating enzymatic antioxidant defence system within body along with acting as a passive dietary antioxidant. Being a rich source of vitamin C, it also helps in regeneration of other antioxidants like vitamin E. Beside being combating oxidative stress, *Amalaki* and *Amalaki Rasayana* also possess wide range of other therapeutic uses.

**Pharmacognostical study of genuine sample of Mochras and its different market samples**

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Abstracts

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Present research work was carried on Mochras (Exudates of Shalmali malabarica) which is commonly available and widely used by Ayurvedic physicians but work on adulteration has not been yet studied much. Hence, Mochras has been selected for the study because Niryas (exudate) of the different medicinal plants show similar features, thus creating lot of confusion in identification of the crude drug. There is an urgent need to make a database related to exact identification and quality identification of medicinal plant raw materials. With the help of pharmacognostic analysis, one can compare the original sample of Mochras with market samples available in market. On this background present study was undertaken to analyze the original sample of Mochras with its different available market samples physiochemical pharmacognostical and thin layer chromatographic studies.

Pharmaceutical standardization of Vasaghanvati with special reference to Tamaka Shwasa
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Bhaishajya kalpana is back bone of ayurveda. It is the science, which convert the raw drugs into effective dosage form, as per need of drugs administration. Ghana kalpana may be considered as upkalpana of kashaya kalpana or ayurvedic pharmaceutics. The mode of procedures which enhance the drug action increase half of drug, improve potentiality, fulfill patient complaints called as sanskara. Vasaghanvati was prepared from vasa Swarasa required for preparation of same quantity of vasa avelaha with the classical reference from Bhaishajya Ratnavali (14/37). The details of various practical were the commented and calibrated in the form of temperature, duration and yield in the last calculate cost of final product. Also physico-chemical analysis of sample (formula) was done. This includes pH, Total solid content, methanol soluble extractive, total alkaloid, TLC or HPTLC, Hardness. The utility of ayurvedic science is to help to maintain the health individual and cure of disease. Any drug formulation is too mitigating the disease of a person, both this formulation were given to patient of shwasa roga to evaluate shwasahara effect.

Standardization of herbal drug
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Considering the rising consciousness about health care and safety aspects, a significant number of people are moving towards Herbal products. On account of their negligible side-effects and affordable prices, the utilization of herbs to treat diseases is becoming universal. On the other hand, due to lack of documentation and disruption in traditional knowledge as well as in ethical practice of Ayurveda, the system is getting affected. As a result of this, adulteration and substandard medicinal preparations have become a curse for Ayurveda. To analyze the quality of drug and to safeguard the ayurvedic concepts, standardization of herbal drug is essential. If the herbal product is not standardized, then, it may impact the product’s bio-availability, it’s desired output and it’s toxic effects. In my poster presentation, I will demonstrate the various parameters and techniques of standardization according to World Health Organization (WHO). When drugs with good potency or equal effectiveness are used, their therapeutic effect can be seen even in very low doses. When drugs of opposite qualities or potency are used together, their therapeutic effect is reduced and becomes less effective. In today’s era of globalization, the standardization of herbal drug is mandatory to enhance the traditional system of medicine. Present poster will exhibit the schematic representation of herbal drug-standardization w.r.t. physical, botanical, biological as well as chemical analysis.

Safeguarding indigenous knowledge through intellectual property rights – A comprehensive review
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Traditional medicine is being looked upon as provider of newer opportunities to bio prospect diverse chemical moieties to improve therapeutic spectrum. Indian subcontinent has a rich heritage in traditional medicinal knowledge which is derived from multiple medicinal traditions including Ayurveda. These traditions are described in diverse classical literature usually inaccessible to the developed countries. In extant times transnational pharmaceutical and research institutions have sought to exploit developing countries including India’s medicinal heritage through the patent system. Notable examples include turmeric, and neem patents which were subsequently revoked. This experience served as a wakeup call for India which led to establishment of a defensive strategy in response to the rampant bio piracy in the form of TKDL which is a sui generis system of India acting as a bridge between ancient traditional knowledge in the original languages and a patent examiner at global level minimizing the gap. Patents are the most important type of intellectual property (IP) protection for medicines. To obtain a patent, an invention must be novel, inventive and industrially applicable but medicinal herbs as natural genetic resources are not creations of human mind, so they cannot be directly protected as IP. Although India has taken strong steps to preserve its biodiversity but the existing patent laws in the developed countries has some loop holes which still pose a threat to our traditional knowledge. The rules and regulations of patenting traditional knowledge while protecting the biodiversity are also affecting the research activities in the field of Ayurvedic medicines.

Need of present scenario: Anti-dandruff herbal shampoo
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Ayurvedic medicines are undergoing drastic changes in the present era. Now a day people accept more elegant and convenient forms of Ayurvedic products for Hair care like shampoo. Shampoos are the most widely used form for scalp disorder. A shampoo is a preparation containing surfactant (i.e. surface active material) in a suitable form – liquid, solid or powder – which when used under the specified conditions will remove surface grease, dirt, and skin debris from the hair shaft and scalp without adversely affecting the user. Various anti-fungal agents are employed in hair care preparations for the treatment dandruff. These products show many side effects like loss of hair, increased scaling, itching, irritation, nausea, and headache. Hence an attempt was made to formulate Herbal Antidandruff shampoo which is effective in terms of safety and treating the dandruff condition better than the chemical based Antidandruff shampoo. Herbal Antidandruff shampoos were formulated using herbal based ingredients. Ancient classics advocated to use different forms of herbs for hair care. Kwatha form is one amongst them, is less accepted by the people and has more chances of contamination. Looking into things an attempt has been made to add certain herbal extracts to the bases of shampoos, with an intention to provide relief and additional therapeutic effects. Due to commercialization and increased demands the present generation is in need of such dosage forms which will be compatible besides providing desired attributes the main aim to modify the formulation hair care kwatha in to antidandruff herbal shampoo.

**Acute toxicity study of a new poly herbal anti hypertensive drug**

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Hypertension is a multifactorial clinical condition and therefore can be managed in multiple pathways. *Convolvulus pluricaulis* (Shankpushpi), *Nordostachys jatamansi* (Jatamansi), *Terminalia Arjuna* (Arjuna), *Withania somnifera* (Ashwagandha), *Boerhavia diffusa* (Punarnava) are effectively used to manage hypertension, but each of them has different pharmacological properties and actions mitigating some pathway of hypertension. Therefore a combination of these herbs should fulfill the need of developing a broadspectrum antihypertensive. Each of these herbs is proven to be safe and effective individually. But the safety of the combination (NIA/DG/2015/01) is yet to be established. It is mandatory to do acute toxicity study for new formulations having proven safe ingredients. Therefore a toxicity study was conducted of NIA/DG/2015/01 as per OECD guideline 423. Six albino rats were used for this study in two groups having 3 animals each group, Group 1 was given a single oral dose of 2000 mg/kg body wt. and Group 2 was given 300 mg/kg body wt. The animals were observed for OECD prescribes parameters and duration. There was no lethal or toxic effect seen in any of the animals. The present study showed that the test substance NIA/DG/2015/01 does not show any toxicity at 300 mg/kg body wt. and 2000 mg/kg body wt.

**Antipeptic ulcer activity of Muktashukti Bhasma**

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Muktashukti (Pearl oyster shell) Bhasma is the unique herbomineral calcium containing preparation of Ayurvedic system of Indian traditional medicine. Pearl oyster is found at Atlantic and Indian Ocean coasts. Its ash or paste is used traditionally for its antipyretic, antacid and antiulcer properties. It is generally accepted that gastric ulcer results from imbalance between aggressive factors and the maintenance of the mucosal integrity through the endogenous defence mechanism. Muktashukti Bhasma is well known for its antacid and digestive properties. Chemically Muktashukti Bhasma consists of calcium carbonate, calcium phosphate, aluminium oxide, magnesium oxide and organic matter. The compound is prepared from the outer covering of the shell (pearl-oyster), ground and triturated with aloe vera and vinegar (kanji) in sufficient quantity to make a homogenous paste. Muktashukti Bhasma show variable reduction in free acidity, total acidity, acid output and peptic activity and an increase in volume and pH of the gastric juice salts of aluminium, magnesium and calcium are well documented as antacids. Aloe-Vera gel being mucilaginous may have ulcer protective action whereas inhibition of lipid per oxidation on Muka Bhasma administration indicates the anti lipid per oxidative effect which prevents lipid peroxidation mediated ulcerative damage to gastric mucosa. Since Muktashukti Bhasma inhibits prostaglandins and exhibits a potent anti-per oxidative effect. It acts as gastric cytoprotective agent by modulating scavenging of free radicals.

**Pharmaceutical standardization of Vijayananda rasa and its efficacy in management of Shwitra (Vitiligo)**

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*Rasa chikitsa* was considered to be the most effective and time saving therapy. The preparation used under *rasa chikitsa* being palatable, well preferred over other formulations for oral administration. Further these preparations have an advantage of being effective in a smaller dose than the herbal preparations. In Rasashastra the metals and minerals are also termed as *Dhatu* and *upadhatu* because of their specific role in biological system i.e. these can sustained body tissue by supplementing some of...
the essential elements to the tissue, whose deficiency causes any disease in the body. Thus, it can be said that on account of above mentioned qualities and properties, the use of drug of metals and mineral origin has become more frequent than the use of drug of herbal origin. In the Ayurvedic system of medicine, Shwitra has been listed to be the worst amongst kustha to cause disfigurement of the body. According to Acharya Vagbhata, Shwitra has been described as much more dangerous than kustha because it become Asadha very quickly as like burning home. Vitiligo is a common pigmenitary disorder of great socio-medical importance. It is defined as circumscribed, acquired, idiopathic, progressive hypomelanosis of a skin and hair. This disease affect male and female equally. The usual age of onset is between 10-30 years old, but the condition can start at any age. In the Ayurvedic system of medicine so many compounds has been described in our classics. One of the most popular compound which has been widely used by so many traditional vaidya’s i.e. Vijayananda Rasa . Haratal, Parada and Palaash mixed compound selected for the present study seems to safe and could be welcomed achievement for millions of vitiligo patients. Out of three ingredients of Vijayananda rasa [Ref:Rasendra sarsangrah-Shwitra chikitsa-2/113-117] all are kusthagna and pittavardhaka. They may increase the bhrjakta pitta of skin, helping in varnatpatti because varna-loss is the main complaint of the patient.

Identification features of commonly adulterated raw plant materials

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There is a vast documentation available regarding morphology of green drugs. Physicians who are totally dependent upon market for the procurement of medicinal plant raw materials are not having much relevance, even if they have sound knowledge of identification of green drugs. Different parts of medicinal plant raw materials in dry form show different features most of which are being common to many drugs. That is creating lots of confusion and controversy in identification of the crude drugs. There is an urgent need to evolve and document exact identification of medicinal plant raw materials. The modern methods like microscopy, chemical assay etc. are the methods that require trained personals and well equipped laboratories those are not available to common physicians. Further these can be done only to verify the authenticity of the already procured drugs. Thus there is no guide line available for a physician to identify the genuine drug for the procurement. Therefore it is an urgent need to evolve exclusive identifying features of raw drugs by organoleptic methods.

Essential understanding to prepare Kupipakva Rasayana w.s.r to Ras-sindur

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Rasa-sindoor is well known mercurial sulphide medicine, classically it is prepared in Valuka yantra but now a days we have facility of various furnaces one of them is (vertical) electronic muffle furnace (E.M.F). Classically preparation steps are described by symptoms attended in kupi following kramagni, looking forward with contemporary alchemy there are specific melting point, boiling point of elements and decomposition points of compound minerals are mentioned. Rasa-sindur is nothing but a compound mineral of mercury and sulphur, it is essential to know on which temperature what type of changes happens to kajjoli and then product start to sublime in the neck of kupi. This helps to fix standard temperature pattern, understand preparation more accurately and give maximum product without wasting heat and fuel and material.

Bioactive nano abstract – Approach to bioavailability and bioactivity enhancement of herbal drugs

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Nano technology is advanced scientific technique of upcoming world. It is one of the fastest developmental, most potential and far reaching high and technologies in current world and it greatly promotes the development and bioavailability enhancement of herbal drugs. Herbal drugs have been widely used around the world since ancient times and its demands have been increasing day by day because of its low side effects, non dependability and better results in some cases than modern therapies. According to WHO 80% of world’s inhabitants (including humans as well as animals) use herbal drugs for their health problems and as supportive drugs. The activity of herbal drugs depends on overall function of variety of active components that provide synergistic action and thus enhances the therapeutic value. The nature has provided us exact proportion of all the constituents for various ailments in single plant. But many herbal drugs possesses insoluble character leading to low bioavailability, increased systemic clearance, repeated doses or higher doses, less efficacy which make drug a poor candidate for therapeutic uses. To overcome these obstacles developing of nano drugs is of great advantage as it enhances solubility, bioavailability, protection from toxicity, sustained delivery and protection from both physical and chemical degradation. This application of nano technology of herbal drugs by enhancing bioactivity and bioavailability will open the new era of herbal drug discovery. Thus bioactive nano abstract of herbal drugs have a potential future for enhancing the bioactivity and overcoming the problems associated with herbal drugs.

A review on different formulations of vasa (Adhatoda vasica)

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Drug discovery and designing from ayurvedic drugs
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Drug discovery and designing have been radically grown during last couple of decades. Advanced technologies and amplification of Research activities have aided much more to this field, which has in turn served medical sciences to great extent. Ayurveda, though having a Holistic approach, also necessitates a systemic as well as advanced discovery and designing of its classical and non-classical drugs. Classical description of medicinal plants can offer better leads. Drug discovery and designing based on ancient Ayurvedic literature is proving to be cheaper, less time-taking and perhaps more productive as the base of most of the Ayurvedic drug experiments is reverse pharmacology. Due to various pharmaceutical and pharmacological researches, the same old molecules of Ayurvedic drugs are found to be applicable to new and multiple pathological conditions. Hence, discovery and designing of Ayurvedic drugs are required to re-discover their effects as well as side effects.

Anticancerous properties of turmeric: A review
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Ayurveda is a 5000 years old traditional system of Indian medicine. All ancient ayurvedic texts clearly reflects the medicinal property of plants and one such drug is turmeric which according to ayurvedic texts works well with all doshas with its main action being to reduce mucus from the system. Turmeric or Turmeric longa is a spice native to India. It has been used traditionally for almost every human ailment and many of its medicinal uses have been validated scientifically. There are over 3000 preclinical studies of turmeric and its constituents, curcumin being the most active demonstrates anti-cancerous properties. Curcumin has demonstrated as a wide range of chemopreventive (cancer-preventive) actions. It can protect DNA against single strand breaks induced by free radicals and in particular suppresses the mutagenicity of several common mutagens including cigarette smoke and benzopyrene. It also has potent anti-inflammatory and digestive and anti-microbial properties. My present research focuses on anticancerous effects of this wonder drug turmeric.

An analytical profile of classical and modified sitopaladi churna
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Cardioprotective drug Arjuna: A review
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The herbal remedies have been employed in various medical system for the treatment and management of different diseases. The herb *Terminalia arjuna* has been used in different system of traditional medication. *T. arjuna*, commonly known as Arjuna belongs to family Combretaceae. The decoction of *Arjuna* bark is used in INDIA for angina pain, coronary artery diseases, congestive heart failure and hyper-tension. The medicinal properties of *Arjuna* is also mentioned in Charak Samhita, Sushrut Samhita and Astang Hridyam. Improvement of cardiac muscles function and pumping activity of heart are seen to be primary benefits of *Arjuna*. It is believed that saponin, glycosides are responsible for the inotropic effect of *Arjuna*. Saponin includes arjunic acid, arjunolic acid, arjunanin and arjunglycosides. Whereas, flavanoids contains arjunone, luteolin and OPC's-oligomeric proanthocyanidin present in *T. arjuna* provide free radical anti-oxidant activity and vascular strength. Recently, two new cardenolides cardiac glycosides were isolated from the root of *T. arjuna*. The main action of these cardenolides is to increase the force of cardiac contraction by means of rise in both intra-cellular Na and Ca. Triterpenoids and flavanoids are considered to be responsible for advantageous anti-oxidant cardio vascular property. Until now no serious side effects have been intimated with *Arjuna* therapy. Its long term safety still remains to be illustrate.

Efficacy of shirodhara in stress induced hypertension
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Modern life is full of frustrations, deadlines and demands. Due to this, people are leading more stressful lives. Many of them are not able to adapt to the stress of day to day life and prone to develop psychosomatic illness. Hypertension is being important one of them. According to Ayurveda, vata and mana are mainly vitiates in psychosomatic disease. Looking at hypertension from Ayurvedic perspective vata dosha is the main cause of the disease. Clinical Studies have shown significant results in reducing both systolic and diastolic blood pressure with shirodhara. Also having sedative
Need of standardization of herbal: A review
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The use of herbal plants for treating diseases is probably the oldest existing method that humanity has used to try to cope with illness. During ancient times, drugs were prepared by the physician himself to cater the need of his patients in small batches. Over the centuries, these practices were changed and resulted in large scale manufacturing and wide distribution of herbal drugs at National and International levels. In order to maintain maximum efficacy and public acceptance, herbal drugs require standardization in all stages starting from identification to the finished products including storage and shelf life. So, World health organization (WHO) has developed a series of technical guidelines and documents relating to safety, quality assurance and standardization of herbal drugs i.e. Good manufacturing practices. This also ensures uniformal delivery of expected results. There are different techniques to standardize raw herbal drugs and formulations. Modern approach to standardization comprises mainly examination of organoleptic characters and qualitative estimation of the salts, minerals, ash content and pH value etc. Standardization can also be achieved by modern techniques like UV visible, TLC, HPTLC, spectrofluorometry etc. With the ever increasing use of herbal drugs and global expansion of herbal medicinal market, standardization has become a major concern for health authority, pharmaceutical companies and public.

Quality and safety of Ayurvedic drugs and formulations
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Ayurveda is the ancient most system of medicine. More than 70% of Indian population uses Ayurvedic drugs in some form. Their high cultural acceptability is due to the experienced safety and efficiency over centuries of use. Because of their unique effects and relatively low side effects, this medicine has been gaining popularity all over the world. Alike all other industrial products, pharmaceutical product is always subjected to have highly regulated Quality Control. The increasing use of these products worldwide and the growth of ayurvedic drugs industry have led to increasing concern regarding their safety. Quality is conformance to requirement and meeting stated as well as implied needs of customer. Quality control is a challenge to ensure safety, efficacy, and batch-to-batch consistency of ayurvedic products due to the complexity of phytochemical constituents. To ensure both safety and efficacy of herbal medicines, implementation of and adherence to good agricultural and collection practice (GACP), good plant authentication and identification practice (GPAIP), Good manufacturing practice (GMP) before and during the manufacturing process, and Good laboratory practice (GLP) in analysis are necessary which are ethically delivered to the subjects as per Good Clinical Practices. To protect the health of consumers, the quality and safety of herbs and herbal products must be ensured. To date, the toxicity, genotoxicity, and tumorigenicity of many herbal products have not been fully studied. The current paper plans to discuss the essential components of GMP, GCP, GLP.

Commercialising the traditional medicine and upgradation of its manufacturing all over the country
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Ayurveda is worldwide an established system of medicine. As per Charak Samhita, the main aim of Ayurveda has been described as Ayurveda not merely being a system of medicine, but a way of life. Ayurveda the holistic science of medicine as practiced and utilized by Indians since centuries is getting global at present by virtue of its qualitative strength, essential elements of health and important clues for consistent functioning of life. In ancient time Acharya’s make their medicine themselves according to the desh, kala, and prakarti of rogi and bhesja. In latest era, there are lots of pharmaceutical industries or Ayurvedic pharmacies who give us a well defined drug to cure the disease. Also in Ayurvedic colleges there are Ayurvedic pharmacies where students learn how to prepare a medicine like chawanprash, avleh, vati kalpna etc. these prepared medicines are in good quality and effective. In present era Ayurvedic pharmacies give new formulations of ayurvedic drugs like syrups, tablets, and capsules etc. which are easy to take. These formulations are modified form of Ayurvedic kalpna’s into modern parameters. The Ayurvedic industry in the country showed certain characteristic features are unique to India. The Ayurvedic industry in India is a classic example for monopolistic market structure. It implies that there should be large number of producers and large number of consumers for the Ayurvedic medicines. It follows
product differentiation to the extent that each producer produces textual medicine by making minor modification in the classical formulation. There is majority of the units having strong traditional knowledge of Ayurveda which was richly inherited form centuries. The respect for the traditional families who practiced Ayurveda with a holistic approach should transmitted to their present day torchbearers which are evident from their growing sales figures like any other industry the ayurvedic manufacturing units in India should closely knitted to those areas where there is easy availability of medicinal herbs. The proximity to medicinal plant market helps them to reduce the cost of transportation and easy and timely availability of raw materials if credited to the supply of herbs from the forest region. So is required in other parts of the country too. The ayurvedic industry should incorporate private sector. The production in the industry is in anticipation of demand and not according to demand. The total quality to be produced is done on the basis of past demand and future expectations.

An integrative approach in drug discovery through Ayurveda
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Indian healthcare system consists of medical pluralism and Ayurveda is still predominant amongst them. Drugs which are derivatives of natural resources have great importance in terms of their potency for management of multiple disorders. In early days of pharmacology, therapeutic drugs were often discovered from medicinal plants as part of folk remedy. But now these days, the conventional drug discovery process become extremely expensive, riskier and critically insufficient. Drug discovery strategies based on natural products and traditional medicines are re-emerging as attractive options. A reverse pharmacology approach inspired by traditional medicine and Ayurveda can offer a smart strategy for new drug candidates to facilitate discovery process and also for the development of rational synergistic botanical formulations. The knowledge and experimental database of traditional herbal medicine can offer a keyhole for new drug discovery and development. The plant species mentioned in the ancient text of these Ayurveda and other Indian systems of medicines may be explored with the modern scientific approaches for better leads in the health care. A salient feature of this approach is the combination of knowledge learnt from traditional or folk medicine and modern parameters to provide better and safer lead in drug discovery.

A herbal substitute for omega -3 fatty acid- flax seed (Linum usitatissimum) its segregation and distillation
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There is a need of isolation and purification of an herbal medicine which is highly in demand nowadays. Isolation is only possible through extraction procedure of herbal drug. The extraction and characterization of active compounds from medicinal plants have resulted in the discovery of new drugs with high therapeutic value. A single drug may have several pharmacological actions. But it is only those that occur in concentration reached by standard doses that are considered relevant. Though morphological analysis or other analysis of drug is important in but also extraction analysis of great significance in herbal drugs. It saves plants and will also protect globalization. Scientists create antibodies for different diseases through extraction only. Different chromatographic and electrophoresis. Techniques commonly used in the instrument inspection of herbal medicine. The modern techniques include solid phase micro extraction, supercritical fluid extraction, pressurized liquid extraction, micro wave assisted extraction, solid phase extraction. Flax seed is high quality source of alpha linoleic acid, omega 3 fatty acid. Through extraction omega 3 fatty acid extract is obtained. It was used as a food source as early as Egyptian times, and is one of the few known animal sources of omega 3 fatty acids, because of the importance of omega 3 fatty acids in the body, flax seed is highly recommended as a daily supplement for those who avoid eating animal products. The prevalence of omega 6 in our diet and the relative scarcity of omega 3 are being correlated with the rise of such illnesses as Diabetes, Depression, Schizophrenia, Hypertension, Bipolar disorder, Coronary disorders and Alzheimer’s disease. Different extraction method illustrates the contrasting philosophies pulling at the ends of contemporary herbal medicine. One supports the highly scientific method compounds believed to be responsible for the herbs medicinal effects.

Drugs related with the seven chakras
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Welcome to the subtle world of chakras the human energy system. For sure, the chakras are not something physical, we can't see them. They are aspects of our consciousness. But, chakras help us to understand the close relationship between our consciousness and our body, or what we call as the mindbody relationship. When the chakras are imbalanced, it can lead to many ailments. There are many people who can't wear stones to treat illness and to balance their chakras. This abstract only deals with the herbs, the drugs which can be used to balance chakras and thus, curing an ailment.

Samskara as immunity booster in children in ayurveda
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Ancient Indian literatures like Veda, Puran, Samhita etc. are rich with various knowledge regarding human health,
behaviour, social conduct etc. In those Granthas, there are explanations about various Samaskaras. These Samaskaras are different in numbers as per different Granthas. Out of these various samaskaras, 16 Samaskaras, which are conducted from birth to death of individual has prime importance. Those Samaskaras suggest the change in life of person. Samaskaras gives guidance for how to face this change in life and increase good qualities in person. These Samaskaras helps to build good society and so as country. In Ayurveda, the word samskara also introduced as “Samskaras hi Gunantaradhanum” means qualitative improvement is carried out by incorporating the specific qualities (in form of various dravyas or medicines as rasa aushadhi) (Charaka Samhita Vimansthana 1/21). The number of Samskara varies in different Hindu dharma granthas, it is about 16-40, but the applicable Samskara are 16 (shodash) in number (Kaumarbhriyta). Out of these 16 samskara few of them are very useful in immunity-booster for children these are jatakarma, svunnaprasan, anapanah and karnavedhan. So we can say that in present era where parents has less time for their children by which child can suffer from many disease due to lack of immunity so for come out of these problem looking toward ayurveda. And with the help of samskara, children immunity can be improved or boosted.

**Evaluation of antipyretic activity of Amrit Manjari Rasa**

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Amrit Manjari Rasa is one of the herbomineral compound explained in Bhashajaya Ratnavali and indicated in diseases like sannipataja jawara, all types of jwara kasa, shwasa. To provide scientific data to classical text and to establish its antipyretic activity by experimental study an attempt was made with this study. Antipyretic activity was conducted by yeast inducing hyperpyrexia in albino rats. Standard (paracetamol) and control (CPT) were there for comparison. Antipyretic activity of Amrit Manjari Rasa was significant than standard and control.

**Pharmaceutical standardization of paradadi malahara**

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In Rasashastra parthiv dravya are used mainly which has more therapeutic efficacy in minute doses than other Ayurvedic preparation containing Audbibh and Jangam products. Rasasrashadhi were found very effective for the preservation and promotion of positive health, with prevention of disease which is the primary aim of Ayurveda. Because of this property Rasasrashadhi often awarded with great success and reputation in the society.

Mercury is the main drug of Rasashashtra due to its chemical, medicinal and spiritual property, while other minerals are supportive to him. The usage of mercury for treatment of typical disease has been employing since samhita period. First time proper shodhana, samksara and different medicinal values with the help of different procedure were approved by Acharya Nagarjuna. There are so many compounds, drugs and formulations given in our texts which may helpful to treat several pathological conditions (surgical and medical) but they need proper evaluation and re-establishment with scientific manner. Paradadi Malahara is a formula of Yogaratnakara, a famous Ayurvedic textbook and it has been stated in the Vrana shodhana ropana prakaran. That wound untreated by other drug, will be cured by this formulation having composition of Tuttha (Copper sulphate), Para (Mercury), Gandhaka (Sulphur), Mruddharshinga (Lead oxide), Kampillak (Malotus phillipinensis) and Ghrita at the ratio of 1:1:2:4:16 respectively.

**A review on relationship between modern techniques and ayurvedic parameters with special reference to Bhasma**

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Standardisation is a measurement for ensuring the quality and is used to describe all measures which are taken during the manufacturing process and quality control leading to reproducible quality. Tremendous work is already going on nowadays on herbal drug standardisation as these medicines are serving the needs of ailing humanity since time immemorial. Particularly bhasmas, as they are biologically considered nano-sized drugs with good preventive, curative and rejuvenating potential. In earlier times the medicines were prepared by physicians themselves for their patients, which ensured the safety as they used to follow the guidelines as per shastras. But now the whole scenario is changed and the big industries have taken over the drug manufacturing processes. The manufacturing process of any bhasma plays a major role in its safety and efficacy but the exact procedure is not being followed and is either altered or made cut-short leading to decline in their quality and safety profile. Bhasmas are complex medicines hence it is necessary to be standardised by both ayurvedic as well as modern parameters. My present research focuses on the standardisation of bhasma as pertaining to today’s scenario, it is necessary to confirm its identity and to determine its quality, purity, safety, effectiveness and acceptability by proper physiochemical procedures like particle size determination test etc.

**Herbal drug therapy as traditional home remedy**

Sakshi, Tanvi Mahajan, Pramod Anand Tiwari
Role of *Yoni Pichu* in gynaecological disorders and its advancement to ointments

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Abstracts


disorders and its advancement to ointments

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In modern era women take care not only of family health but also supports it financially. She is always found to be careless about her own health. Women face gynaecological problems like white discharge, itching at vulva, foul smelling vaginal discharge, dyspareunia, laxity of perineum and many more. Even after the diagnosis of these gynaecological problems women don't go for regular follow up to doctor at regular intervals. *Yoni pichu* i.e. tampon soaked in medicated oil is indicated by ancient acharyas for various gynaecological problems such as *Yonidaha*, *Yoni kandu*, *Yoni Paka*, *Vivritta Yoniyapad*, *Yoni Paichilya*, *Yoni Srava*, *Vataja Yoniyapad*, *Pitatta Yoniyapada*, *Vamini*, *Upapluta Yoniyapada*, etc. Tamponing is also indicated in nine month pregnancy, retained placenta, *Yoni Bhransha* *Yoni Pichu* is very effective but its form poses certain inconveniences while sterilizing, application, handling, packaging and transportation. Hence an attempt should be made to convert this form into ointments or gels for easy use and better acceptability. Present study is designed to provide literature about *Yoni Pichu* indications mentioned in *Ayurvedic* texts and some ideas about how it can be converted into simplest ointment form so that more conventional forms can be created using advanced techniques. The advancement of yoni pichu to ointments will bring a new revolution in the field of Ayurveda with respect to Prasuti Tantra And Stri Rog.

Antimicrobial evaluation of different extracts of *Nirgundi* leaf against *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Escherichia coli* and *Klebsilla aerogenes*

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Antimicrobial evaluation of different extracts of *Nirgundi* leaf against *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Escherichia coli* and *Klebsilla aerogenes*

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In the current work the leaf extracts (Aq. and Alc.) exhibited antimicrobial effect against bacteria at all the concentrations tested (10%, 20% and 30% w/v). Our results suggest that aqueous extract of *Vitex negundo* leaf showed significant antimicrobial activity at 30% w/v concentration and mixture of both extract showed significant antimicrobial effect at 30% w/v concentration.

Contribution of Ayurvedic pharmacy in drug development

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Discovery and development of new therapeutic agents is a continuing process. In spite of the fact that, at present we have at our command a formidable array of modern drugs, the need to discover and invent new agent is genuine and urgent. Herbal medicine used in Ancient, Greek, Chinese, Egyptian and Indian medicine for various therapeutic purposes has gained greater importance in last few decades due to its holistic approach to life and cost effectiveness. Drugs manufactured by Ayurvedic Pharmacies are famously known as “Herbal drugs” and are now used by practitioners of different pathies. Factors which have contributed to globalization of Ayurveda include reorganization by WHO and onset of research and development for discovering efficacious and cost effective drugs. WHO estimated that 80% of world inhabitants still rely mainly on traditional medicines for their health care. Now, the Ayurvedic Pharmacies are coming out
of old texts and new patents are being claimed by them. Research and development is now being done by Ayurvedic Pharmacy in new drug developments. The aspects covered include information about historical background, strategies for new drug development, ethnotherapeutics, drug discovery and conclusion.

**Ultra-violet and visible reflectance spectroscopy combined with chemometrics for discrimination as well as authentication of powder and extract of anti-diabetic polyherbal formulation**

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The proposed anti-diabetic formulation “Diabetogen” is composed of Indian Kino (Ht. wd.), Indian Lic (Lf.), Ram’s horn (Lf.), Fenugreek (Sd.), black berry (Sd.) and heart-leaved moonseed (St.) is categorized antioxidant rich medicament and has clinically been used in Indian subcontinent to various permutation and combination. The identification and discrimination of the extract (E) from powder (P) of polyherbal formulation is a crucial task to develop of its scientific proof in context of feasible Indian herbal market. Hence an analytical method which is rapid, simple and accurate for discriminating two forms of polyherbal formulation using ultra- violet (UV) and visible (VIS) reflectance spectroscopy combined with some chemometrics method was developed. Standard Normal Variate, 1st order and 2nd order derivative spectra were compared with spectral data. Principal Component Analysis (PCA) and Hierarchical cluster analysis (HCA) were used for the classification of the two types of medicament. Sample could be discriminated by visual analysis of UV-VIS spectra by using their marker bands. Discrimination of the two class of remedy was also possible through the combination of preprocessed UV-VIS spectra with PCA and HCA. Consequently the developed method could be used for the identification and discrimination of the two class of polyherbal preparation.

**Role of Yoga and Pranayama in diabetes mellitus**

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Diabetes mellitus is a disease related to the impaired glucose tolerance of the body in which insulin functioning is affected. Diabetes mellitus can be of Type 1 or Type 2 or pancreatic diabetes or gestational diabetes. Type 1 diabetes is caused by no production of insulin and this is very difficult to treat with Yoga. Type 2 diabetes which is caused by life style, stress related diseases can be effectively treated with Yoga. Both Yoga and Pranayama goes hand in hand in diabetes management since type 2 diabetes which is caused by life style, stress related diseases can be effectively treated with Yoga. Both Yoga and Pranayama goes hand in hand in diabetes management since diabetes is a lifestyle disorder.

**Review on physico-chemical characters and therapeutic effects of panchgavya Ghrit: A wonderful ayurvedic medicine**

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Indian knowledge system have the answer to many problems of the humanity. Ancient scholars had propounded and practiced those systems directed towards attainment of a healthy body and sound mind. Panchgavya has been one such piece of wisdom meant to safeguard all the human beings, animals, plants and micro-organisms that dwell on the earth’s surface. It is a Ghrit based formulation mentioned in various treatises of Ayurveda and prepared from five major substances obtained from cow which include cow’s milk, ghee, urine, dung and curd in equal proportions. Every content of Panchgavya Ghrit has distinct qualities and are used for the medicinal purpose singly or in combination with some other herbs. Out of these five contents cow milk and cow urine are analyzed extensively. In recent years tremendous interest has been generated in the therapeutic value of cow products due to the patent awarded by USFDA. This was awarded for the synergistic activity of cow urine distillate with some antibiotics and anticancer agents. In this review paper an attempt has been made to study the Doshkarmas and physico-chemical characters of all the constituents of Panchgavya and to appraise their beneficial health applications and therapeutic potential for safeguarding health of humans and animals. Our ancient sages described its wide therapeutic indications like Unmada, Apasmara, Jwara Kamala etc. and it is a widely prescribed formulation by Ayurvedic practitioners. Many researches had also been done to assess its Antifungal, Anticonvulsant, Anti cancerous and Hepatoprotective activities. Some of these studies will also been discussed here.

**Advancement in Sandhana Kalpana:**

**Need of research for diabetic patients**

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Sandhana kalpana (biomedical fermented formulations) is one of the best dosage forms of Ayurveda in practice since thousands of years. In order to prepare these medicaments,
certain sets of conditions are prearranged, which lead to fermentation. Thus, products bequeath with self-generated ethyl alcohol, which potentiate these preparations (Asava–Arishta), pharmaceutically and therapeutically. This preparation has the composition of dravadryaa (liquid), sandhaneeyya dravyaa (fermenting materials), prakshepaka dravya. (Additives), and madhura dravya(sweetening agents). Because of the presence of more sugar percentage this dosage form can’t be prescribed to any diabetic patient for the treatment of any other ailment. So, this is demand of time for Ayurvedic pharmacists to develop asava and arishta for diabetic patients with the application of Biotechnology in Sandhana Kalpana where the basic Ayurvedic principles are not altered and also the therapeutic efficiency is maintained. Ayurvedic Pharmacist can go for the sweetening agent other than jaggery and sugar which will contain least percentage of sugar and and with the application of Biotechnology, different type of yeast can be used for the different sweetening agent for least production of sugar and with appropriate percentage of alcohol in asava and arista which will be beneficial for the diabetic patients.

Role of panchakarma in diabetes mellitus
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Diabetes mellitus (DM) refers to a group of common metabolic disorders that share the phenotype of hyperglycemia. Several distinct types of DM exist and are caused by a complex interaction of genetics and environmental factors. Depending on the etiology of the DM, factors contributing to hyperglycemia include reduced insulin secretion, decreased glucose utilization, and increased glucose production. The metabolic dysregulation associated with DM causes secondary pathologic changes in multiple organ systems that impose tremendous burden on the individual with diabetes and on healthcare system. Diabetes is fast gaining the status of potential epidemic in India. In spite of tremendous advancements in modern science, no ideal drug or treatment is available which can cure diabetes. An alternative system like Ayurveda is a new hope for people suffering from diabetes. In Ayurveda, Diabetes mellitus can be correlated with “Madhumeha”. Samshodhana therapy plays a great role in the treatment of Madhumeha. Vaman, Virechana, Vasti and other Para procedures like Udavartana, Snana and Jalavaseka, Vilepana, Vyayama etc. can help in reducing excessive blood glucose level in the body and by reversing the insulin resistance within the body.

Challenge driven advancement in ayurvedic Kashaya: Need of hour
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Kashaya is the backbone of Ayurvedic dosage form preparation and it was used since Vedic age. Kashaya is entirely different from the concept of decoction as given in Remington but this term is being used for Kashaya due to its some of similar processing steps. Ayurvedic Kashaya is based on Synergism and miraculous combination theory of phytoconstituents and provide management of ailments. Nobel prize 2015 has given to Youyou Tu for artemisinin that is derived from the Kashaya formulation and its advancement was done by her. This regards inspires researcher to look over Kashaya with a different vision to understand actual ancient wisdom in respect of extent of heat transfer, mass transfer and time duration. Being so important dosage form, it has less attention of consumer due to challenged palatability and of manufacturer due to lesser shelf life. So advancement is needed to achieve demand-supply balance, ease of administration, cost effectiveness with better therapeutics. In this scenario strong policies and legislation is needed to empower and support advancement of Kashaya. Advancement must be done without compromising the basic principle of ancient wisdom (drug-solvent ratio, reduction approach, heat business, pot management and time mediated mass transfer etc.) and adjustment should be done using current science and technology and technology transfer later on. Market is always welcome favorable dosage form and make Kashaya as favorable form of administration, cost effectiveness with better therapeutics.

Biochemical and behavioral evidences for antidepressant-like activity of hydro-alcoholic extract of petals of Crocus sativus “cashmerianus” in rats
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Objective: In the present study, antidepressant-like activity of hydro-alcoholic extract of Crocus sativus “cashmerianus” petals was evaluated in stressed and unstressed albino rats.
Methods: The rats were subjected to mild stressed daily for 21 successive days to induce depression-like behavior. The hydro-alcoholic extract at the doses level (50, 100, 200 and 400 mg/kg, p.o.) were administered for 21 successive days to unstressed and stressed rats. The antidepressant-like activity was evaluated using the forced swim test, tail suspension test, and sucrose preference test. The hydro-alcoholic extract (50 and 100 mg/kg, p.o.) significantly decreased immobility periods of unstressed and stressed rats. The antidepressant-like activity was evaluated using the forced swim test, tail suspension test, and sucrose preference test. The hydro-alcoholic extract (50 and 100 mg/kg, p.o.) significantly decreased immobility periods of unstressed and stressed rats. The antidepressant-like activity was evaluated using the forced swim test, tail suspension test, and sucrose preference test. 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activity, lipid peroxidation, plasma nitrite and corticosterone levels. **Conclusions:** The hydro-alcoholic extract of *Crocus* petals showed significant antidepressant-like activity in stressed and unstressed rats probably through inhibition of MAO-A activity, decrease in plasma nitrite levels and due to its potential antioxidant activity.

**Pulse diagnosis-diagnostic tool of ayurveda**

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Pulse diagnosis is an ancient technique of examination. It was widely used over last hundreds of years by Ayurvedic physicians for diagnosis. For first time in Ayurveda literature it was elaborated in Sharangdhar Samhita in 13th century. Its utmost importance is elucidated by keeping it on top in Ashta Vigh Pariksha. Apart from Ayurvedic texts it is also mentioned in texts of Yoga and Tantra. In modern era, the practice of pulse diagnosis has become limited. The foremost reason behind it is that the information about it in scattered form. In this article I have gathered the information from various sources such as Ayurveda texts, my family tradition and teaching from various Gurus. I have tried to summarize it in concise and precise form. Hence I have formulated first version of Arogayaveda’s Standard Pulse Diagnosis technique. This technique is highly useful as it enables practitioners to have an in look of the Pulse Diagnosis.

**Impact of modern analytical tools in the standardization of Kharaliya Rasayana (Arogyavardhini Rasa)**

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**Background:** *Arogyavardhini Rasa* is a well known Ayurvedic herbomineral formulation widely used for broad spectrum of therapeutic indications mainly in the treatment of *Kamala* (jaundice) and other *Yakrit Vikara* (liver disorders). **Aim:** To standardized Arogyavardhini Rasa prepared with and without *Rasavarga Dravya* (ingredients of metallo-mineral origin) by using HPTLC and PCA as a analytical tool. **Materials and Methods: Arogyavardhini Rasa (AVR) was prepared as per classical reference and further modified this preparation by omitting *Rasavarga dravya* (metallo-mineral content) of *Arogyavardhini Rasa* (MAVR). Formulations were investigated for physico-chemical parameters, chromatography and Principal Component Analysis was applied to discriminate the AVR and MAVR. **Result and Discussion:** HPTLC study revealed a total of 11 and 8 bands at 254 nm and 366 nm in both AVR and MAVR, with only two similar Rf values in sample. PCA revealed that both the samples were different from one another and similarities were found within a batch of AVR and MAVR. **Conclusion:** Both the analytical tools applied here for study revealed that the classical processing like Bhavna, Mardana etc. had significant role in the preparation of Rasaushadhis (mercurials) and validate the Ayurvedic Pharmaceutics.

**Concept of drug standardization in Ayurveda**

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The term Ayurvedic drugs, comprises of herbal, mineral and animal resource substances. When we say broadly the standardization of ayurvedic drugs - first of all, the category of drugs, their method of preparation (which invariably includes their end point determination or in other words, their quality control guidance) was defined. During ancient times, drugs were prepared by the physician himself to cater the need of his patients in small batches. Over the centuries, these practices were changed and resulted in large scale manufacturing and wide distribution of Ayurvedic drugs at national and international levels. This commercialization should always ensure quality of products using proper standardization parameters. Drug has specific role in the treatment of disease for achieving the objectives of healthy human system. Qualities of ideal drug and concepts of drug standardization are described in Ayurveda classics, Acharya Charak has mentioned “Bheshaj Pareeksha” in “Viman Sthana” 8th chapter as tool for drug standardization and quality control in Ayurveda. We have been hearing invariably, that there are no standards for Ayurvedic drugs. I don’t think that this general statement is true. Because, everything is written in the Ayurvedic classics and if it is not followed by some unauthorized and unqualified manufacturers, how can we blame Ayurved?

**Pulse diagnosis-diagnostic tool of ayurveda**

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Pulse diagnosis is an ancient technique of examination. It was widely used over last hundreds of years by Ayurvedic physicians for diagnosis. For first time in Ayurveda literature it was elaborated in Sharangdhar Samhita in 13th century. Its utmost importance is elucidated by keeping it on top in Ashta Vigh Pariksha. Apart from Ayurvedic texts it is also mentioned in texts of Yoga and Tantra. In modern era, the practice of pulse diagnosis has become limited. The foremost reason behind it is that the information about it in scattered form. In this article I have gathered the information from various sources such as Ayurveda texts, my family tradition and teaching from various Gurus. I have tried to summarize it in concise and precise form. Hence I have formulated first version of Arogyaveda’s Standard
Pulse Diagnosis technique. This technique is highly useful as it enables practitioners to have an in look of the pulse diagnosis.

**Identification of anti-quorum sensing phenolic compounds from the grape fruit based on computational studies**

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Quorum sensing (QS) is the well adapted cell to cell communicating system present in mainly all the pathogenic bacterial species. This system regulates the production of N-acylated l-homoserine lactones (AHLs) as autoinducers (AIs) which mediate the QS signalling pathway. QS activity is responsible for the production of virulence factors, formation of bacterial biofilm and moreover directly associated with the development of drug resistance. Phenolic compounds from ginger (Zingiber officinale Roscoe) viz. [6]-gingerol, [6]-shogaol and zingerone exhibited QS inhibitory activity against Chromobacterium violaeceum and Pseudomonas aeruginosa and found to be the promising leads in the domain of anti pathogenic drugs. In this work we have focussed our attention on the identification of mode of binding of phenolic compounds (those showing anti QS activity) of ginger in the active site pockets of CviR and LasR receptor protein. Based on this template, molecular docking of analysis of phenolic compounds (stilbenes, flavonols, flavan-3-ols) which are abundantly present in Grape fruit is carried out. Out of 9 studied bioactives majorly all of them were found to be effectively stabilizing the LasR receptor domain and binding with greater affinity (-7 to -11.5 kcal/mol) in comparison to natural ligand. However, these phenolic compounds have shown less binding affinity against CviR receptor protein. Further, molecular electrostatic surface potential (MESP) of the investigated compounds have shown complementary with the electrostatic surface of the docked protein. Present study illustrated the potential of phenolic compounds present in grape fruit to act as prospective leads for the further development of novel QS inhibitors as antimicrobial therapeutics.

**Kola nut: An overview**

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In recent years revival interest has been in the use of medicinal plants in developing countries. About 80% Africans use medicinal plants to treat various diseases of which kola nut (Cola nitida) is one of them. Kola nut is the seed of Cola nitida belonging to the family Sterculiaceae. This plant is indigenous to West Africa. It chiefly contains caffeine (2%), theobromine, D-catechin, L-epicatechin and kolatin. It is used as CNS stimulant, anti-depressant, antioxidant. It has many pharmacological properties: it prevents sleep, thirst and hunger. The nuts of kola are use industrially for the production of soft drinks, wines, candies, and several beverages.

**A future possibility of safer treatment of raktatisara: Reducing need of steroids and surgical processes**

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Raktatisara ulcerative colitis, is a disease of the colon (large intestine) that includes characteristic ulcers, or open sores and is a chronic idiopathic inflammatory bowel disease with a relapsing property. The major symptoms of UC are diarrhea, rectal bleeding, tenesmus, passage of mucus and crampy abdominal pain. Its etiopathology is probably related to dysregulation of the mucosal immune response toward the resident bacterial flora together with genetic and environmental factors. The conventional medicines used for Raktatisara are associated with various side-effects, some of them may be life threatening. The use of herbal medicines may also be associated with some of the side effects, but the beneficial effects of these herbal medicines outweigh the undesirable effects. The most importantly used herbs in treatment of UC are aloe vera, turmeric, wheat grass oil, marigold and tormentil. These herbs act by targeting the production of pro-inflammatory cells such as prostaglandins, interleukins, neutrophils etc. The evidences on herbal medicine are still incomplete, if there will be controlled clinical research on safety and efficacy of these herbs, then in future they may prove to be an excellent approach for management of Raktatisara.

**Approaches to get the right bioactives**

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In the course of isolation, identification, characterization, and evaluation of bioactivity of biochemicals, appropriate extraction techniques are overriding. In ecological studies, the most appropriate procedure involves simulating natural conditions, employing water as a solvent and then re-extraction with organic solvents. This method offers disadvantages like obtainment of complex mixtures, isolation of only trace amount of metabolites, formation of artefacts, and easy microbial degradation. Hence, direct extraction with organic solvents has been widely employed because this method yields less complex extracts and significantly higher yields. Several advanced extraction techniques can be applied to yield bioactive extracts and these include ultrasound-assisted extraction, supercritical fluid extraction and pressurized liquid extraction. These methods allow the recovery of compounds in shorter times and at lower temperatures. This avoids the destruction of active molecules due to high extraction temperatures. Ultrasound extraction is
a very common extraction technique for the recovery of active components, mainly due to the mild extraction conditions applied. Additionally, in the same way, supercritical fluid extraction technology, with or without the help of co-solvent, has been applied to the extraction of bioactive compounds. During the design and development of an extraction process it is important to optimize highly significant factors that affect the extraction in order to obtain the most active extract. In this respect, it is necessary to carry out an effective bioassay to assess the activity during the extraction process.

**Phytochemical screening and hypoglycemic effect of the leaf extract of Sterculia setigera on alloxan induced diabetic Wister albino rat**

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**Sterculia setigera** is one of the medicinal plants, used in used in south and north western parts of Nigeria as a treatment for diabetes, TB, and hypertension, but little scientific research and documentation support its anti-diabetic effect or action. This study is designed to evaluate the anti-diabetic effect of the chloroform leaf extract of *Sterculia setigera*. Diabetes was induced using alloxan in Wister albino rats. Twenty diabetic-induced rats of both sexes were selected and divided into 5-groups of 4 rats each. The first 3-groups of the alloxan induced diabetic rat were treated with the leaf extract at varying dose; 1,200 mg/kg, 800 mg/kg, 400 mg/kg, *intraperitoneally* while the 4th and 5th of the alloxan induced were treated with 10 mL/kg deionized water (negative control) and 0.6 mg/kg *glibenclamide* (positive control) respectively. Fasting blood glucose was measured in all the groups. The extract of *Sterculia setigera* and *glibenclamide* were found to significantly decrease the blood glucose level in the alloxan-induced diabetic rats when compared with negative control diabetic group. Our data showed that the chloroform leaf extract of *Sterculia setigera* has significant anti-diabetic effect.

**Preliminary screening of antioxidant potential of nettle tea**

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Herbal teas have many health benefits and have been used for centuries for curing various diseases. They are effective, inexpensive and caffeine free made from seeds, roots, leaves, flowers and fruits etc. This work was undertaken to explore the potential of Nettle tea (*Urtica dioica* L.) as a source of natural antioxidants. The free radical scavenging activity of nettle leaves were evaluated using different antioxidants tests. The IC50 values were 164.32 μg/ml (DPPH), 198.4 μg/ml (ABTS), 498.17 μg/ml (NO) and 74.99 μg/ml (Lipid per oxidation). These results showed appreciable antioxidant capacity of Nettle tea. In addition total phenolic and flavonoid components were also determined and was found to be 8.95 mg GAE/g and 1.38 mg QE/g respectively.

**In silico ADME and toxicity studies of novel aryl glyoxamide derivatives**

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The expression of phenotypic characteristics in bacterial species is regulated by the signaling mechanism called quorum sensing (QS). In current scenario the quorum sensing inhibitors (QSIs) have established themselves as attractive leads which can be exploited too overcome antimicrobial resistance exhibited by various pathogenic bacteria. Aryl glyoxamide derivatives belongs to one such class among several chemical classes which are known to inhibit the quorum sensing in *P. aeruginosa* (PA14) and *E. coli* (MT102). These derivatives are mostly designed using amino acid esters and found to exhibit fairly good activity and can act as promising leads for QSIs. However, in the field of drug design the optimization of lead compounds with their activity profile plays a very crucial role. Due to ever growing need of lead optimization/modification the use of *in silico* drug design techniques proves to be most economical and best high through put screening methods. In present work, QSTR (Quantitative Structure Toxicity Relationship) and pharmacokinetic profiling (ADMET) studies were carried out on 21 N-Aryl glyoxamide derivatives. The studies implied that these derivatives had less probability to show hepatotoxicity and found to have good oral absorption profile owing to aqueous solubility. QSTR (Quantitative Structure Toxicity Relationship) and pharmacokinetic profiling studies by using TOPKAT in various computational animal models showed that these compounds are non-carcinogenic and posses least probability of developmental toxicity potential. The results indicated that the aryl glyoxamide class of compounds has substantial potential which can be exploited for the development of lead optimization in the field of QSIs.

**Ayurvedic Therapies: A Boon to Humanity**

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Ayurveda is made up of two Sanskrit words: “Ayu” & “Veda”. “Ayu” means “life” and “Veda” which means the “knowledge of”. Basically we can say that if we know about life, it is ayurveda. It is India’s traditional alternative therapy, which uses holistic
helping methods to treat patients. There are so many benefits of this therapeutic system like boosting immunity, complete healing, relieving stress, purifying the body and maintaining overall balance. Ayurvedic healing process depends mainly on holistic self – healing through purgation of toxin of the body and administering of herbal oils and medicines. The process of treatment under Ayurvedic system involves massages, therapies, herbal medicines, proper diet and exercise. Some of the most important healing ayurvedic treatments are “Purvakarma, Snehna, Panchakarma, Yamana, Virechana, Vasti, Roktamokshana, Nayasa, Dhara, Pizhichil, Kizhi, Udwarthanam, Sirolepanam, Bahya vasti, Sirovasti, Kativasti, and Gheeavastiv”. These treatments are also mentioned in Atharva Veda and Rig Veda. From these Vedas they were taken into books like Charaka Samhita by Charaka and Sushruta Samhita by Sushruta. These traditional Ayurvedic treatments have been used to treat aged people from various diseases and ailments.

**Molecular docking study, green synthesis and pharmacological evaluation of 1,3,4-Thiadiazole derivatives as multi-targeted agent.**

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Green chemistry plays an important role in the synthesis of various organic moieties. Green synthetic procedures are eco-friendly, economic, reproducible and non-hazardous. By using green synthetic techniques chemical wastage and reaction time was reduced than organic synthesis. Due to environmental awareness chemists paid their attention to synthesize those nucleus, which have wide range of bio-activity. Such type of chemical reaction done in the presence of microwave, ultrasound, sonochemistry etc. methods. Thiadiazole can also be synthesized by these methods. It had basically four isomers, but among all the isomers 1,3,4-Thiadiazole used medicinally. It shows various therapeutic activities like antimicrobial, antmycobacterial, antitumor, antiarrhythmic etc. Molecular docking study tool will be used to check the binding affinity at target site.

**In silico ADME and toxicity studies of Novel Aryl Glyoxamide Derivatives**

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The expression of phenotypic characteristics in bacterial species is regulated by the signaling mechanism called quorum sensing (QS). In current scenario the quorum sensing inhibitors (QSIs) have established themselves as attractive leads which can be exploited too overcome antimicrobial resistance exhibited by various pathogenic bacteria. Aryl glyoxamide derivatives belongs to one such class among several chemical classes which are known to inhibit the quorum sensing in *P. aeruginosa* (PA14) and *E. coli* (MT102). These derivatives are mostly designed using amino acid esters and found to exhibit fairly good activity and can act as promising leads for QSIs. However, in the field of drug design the optimization of lead compounds with their activity profile plays a very crucial role. Due to ever growing need of lead optimization/modification the use of in silico drug design techniques proves to be most economical and best high through put screening methods. In present work, QSTR (Quantitative Structure Toxicity Relationship) and pharmacokinetic profiling (ADMET) studies were carried out on 21 N-Aryl glyoxamide derivatives. The studies implied that these derivatives had less probability to show hepatotoxicity and found to have good oral absorption profile owing to aqueous solubility. QSTR (Quantitative Structure Toxicity Relationship) studies by using TOPKAT in various computational animal models showed that these compounds are non-carcinogenic and possess least probability of developmental toxicity potential. The results indicated that the aryl glyoxamide class of compounds has substantial potential which can be exploited for the development of lead optimization in the field of QSIs.

**A Review on anti-Diabetic ootential of ‘Gymnema sylvestre’**

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Diabetes now a full blown epidemic has been denominated incurable by the mainstream medical industry. However by bestowing ayurvedic fundamentals and drugs, this disease can be propitiously treated. *Gymnema sylvestre* (Meshshurungi) or ‘Gurmar Buti’ (sugar-annihilating herb), a wondrous ayurvedic herb has prodigious anti-diabetic potential. The fresh leaves of *G. sylvestre* when chewed have the remarkable property of annihilating the gustatory kinesthesia (taste perception) for sweet and bitter substances for few hours due to pervasion of a sweet taste-annihilating polypeptide ‘gurmarin’. Another extraordinary bioactive compound of the plant, ‘gymnemic acid’ avowed a tremendous activity of stimulating insulin release from pancreas. Ayurvedic compendiums acknowledge the astoundingness amazing pharmacological actions of the herb not only in hyperglycemia but also in umpteen complications of diabetes like hyperlipidemia, cardiopathy, rheumatism and hepatospleenomegal. The herb also possesses anti-cancerous properties. The present review is an endeavor to elucidate the propitious therapeutic effects of this traditional ayurvedic herb.

**Treatment of Hashimoto’s Thyroiditis with Herbal Medication**

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Hashimoto’s thyroiditis is an autoimmune thyroid disorder, an organ specific which is characterized by diffused goiter with lymphocytic infiltration, which can lead to destruction of thyroid gland causing hypothyroidism. This is a condition where the thyroid gland does not secrete enough of thyroid hormone called thyroxine due to insufficient amount of iodine. Because iodine is an essential component for normal thyroid function, some common signs and symptoms of Hashimoto’s disease and hypothyroidism are weight gain, depression, constipation, irregular and heavy menstrual period. However, herbal treatment is effective and enhance thyroid function. There are some natural occurring herbals like Gum guggul (commiphora mukul), Blue flag root (iris versicolor) and Seaweeds such as a Bladderwrack (fucus vesiculosus) which are used to treat this disorder, these herbs have different mechanism of action in Hashimoto’s and hypothyroidism disorder. For instance Bladderwrack upregulate the production of iodine processing hormone, whereas Gum guggul increase the conversion of T4 into T3 and Blue flag root is detoxifying agent. As Hashimoto’s disease is prevalent in world. So this article will emphasize on few herbs which are used for treatment of Hashimoto’s disease.
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