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on

"Exploring the new horizons of Phytotherapy innovation to Entrepreneurship"(NCPI 2023)

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National Conference on "Exploring the new horizons of Phytotherapy innovation to Entrepreneurship" (NCPI 2023)
23rd -24th June 2023

Plenary lectures

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PHYTOTHERAPY: AYURVEDIC PERSPECTIVE

The global turn towards green pharmacy and back to nature trend in health care scenario are creating more opportunities as well as challenges to traditional and herbal medicine industries. Latest developments in technologies and researches are supporting the Ethnobotanicals to explore the benefits of natural therapies. Phytotherapy is linked to traditional knowledge system and established in the use of nature's gift i.e medicinal plants for the health care practices. It also refers to substances that come from plants or herbs. "Phytopharmaceuticals,""Phytomedicines," Herbal medicines and Botanicals are terminologies often used for plant- or herb-based medicines. Ayurveda, the philosophical science of life is the traditional medicine indigenous to India, utilizes nature's wealth for Human-Animal-Plant health care. Principles and practices of *Lokapurusha samya vadam* (similarity between the universe and the human beings), *Vrikshayurvedam* (Ayur Agri-Horti Applications-Plant therapy) *Mrigayurvedam* (Ethnovet medicine) are well established in Ayurveda. Since Ayurveda is most adherent to plant source, knowledge on the sustainability of plant life and utilization is inevitable. While describing a medicinal plant, Ayurveda indicates the Pharmacognosy, Phytoconstituents in the sense of *Rasa, Guna, Veerya, Vipaka* (Based on Tastes Physical and biochemical properties), Pharmacological action, Therapeutic application, range of applications with adjuvant. Based on that the disease and health care oriented poly herbal formulations are designed. Indications are the leads for establishing reverse pharmacology supported by system biology. Various Ayurvedic Pharmaceutical process technologies provide the Plant/ Herb/ Composition, a broad spectrum of action. Apart from textual indications, experiential wisdom also provide hits and leads for rational /evidence based research programmes to establish new drug delivery mechanisms and to develop innovative products and entrepreneurship.

Theme: Current Technological Development and standardization of ISM Drugs

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Indian System of Medicine (ISM) includes various herbal medicines of Ayurveda, Unani, Siddha, Homeopathyand Sowa Rigpa systems including different pharmaceuticals, nutraceuticals, food products, beverages, volatile oils, personal & beauty care products and many more which are facing a heavy demand amount the consumers throughout the globe. In 2021 the worldwide market for the herbal medicine is found to be 151.91billion USD which is estimated to take a growth from 165.66 billion USD in 2022 to 347.50 billion USD in 2029. In such a very highly competitive market situation one of the biggest challenges faced by the various professionals and manufacturers is the quality control and standardization ofISM drugs. This work mainly focuses on the current technologies involved in standardization ISM drugs and the various quality control techniques such as HPTLC, HPLC, IR spectroscopy, DNA fingerprinting, Metabolomics, X-Ray powder diffraction, Mass spectroscopy, Nuclear Magnetic Resonance etc. The challenges faced while performing the sophisticated techniques are also discussed. Hence this work may be supportive for the individuals who go through the day to day requirements in developing herbal products and it paves a way to understand the overall process in quality control and standardization of ISM drugs

PHARMACOPEIAL AND REGULATORY REQUIREMENTS OF DNA ADDITIONAL VALID SCIENTIFIC AUTHENTICATION OF MEDICINAL PLANTS

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Recent discovery Artemisinin from *Artemisia Annua* (Asteraceae), a traditional Chinese herb, leads to receiving noble prize in the year 2015, in turn attracts global researchers to explore therapeutic molecules from medicinal plants. Shifting to Molecular Pharmacognosy Research from Traditional Pharmacognosy Research is the need of the hour in Drug Discovery Process. Molecular Pharmacognosy Research starts with Identification and Authentication of Medicinal plants in genomic level. DNA authentication studies are needed to be done,parallel with botanical authentication that provides data to get regulatory approval for Herbal Pharmaceuticals. British Pharmacopoeia had approved 6 annotated DNA barcodes for the identification of *Anethum graveolens* Sowa (ITS2), *Glehnia littoralis* (ITS2), *Ocimum tenuiflorum* (*trn*H-*psb*A), *Myristica fragrans* (*trn*H-*psb*A), *Phellodendron amurense* (*trn*H-*psb*A) and *Phellodendron chinense* (*trn*H-*psb*A). In addition British Pharmacopoeia Commission (2017) published the use of these barcodes, extraction of DNA, amplification of barcode markers, sequencing and its comparison to Pharmacopoeial standards. The National Pharmacopeia of China (2015) contains 650 medicinal plants from which 78,847 DNA barcodes have been sequenced. This presentation will give basic understanding of DNA authentication of medicinal plants in terms of Isolation of plant DNA, Gel electrophoresis, PCR amplification using primers for marker genes, sequencing PCR amplificons, construction of Phylogeny using Bioinformatics tools and data analysis to authenticate genetically the desired Medicinal plant of Interest. To make crystal clear understanding, a case study of DNA authentication of Medicinal Plant *Kalanchoe gastonis-bonnieri* (Crassulaceae) using marker gene ITS2 will be presented. To conclude DNA based authentication is a powerful molecular tool for quality control aspects of Herbal Pharmaceuticals that will significantly add the potential commercial profitability in terms of accurate and précised authenticity of herbal pharmaceuticals

Challenges in Implementation of Siddha Medicine in Health care business"

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Today, I would like to discuss the fascinating realm of phytotherapy, specifically exploring the potential it holds for innovation and entrepreneurship. Phytotherapy, also known as herbal medicine, has been an integral part of our country's Siddha medicine since ancient times. It has played a significant role in the treatment of diseases ethically. Even during the recent COVID-19 pandemic, herbal medicines like Kabasura Kudineer Chooranam and Nilavembu Kudineer Chooranam have been instrumental in saving lives.

Phytotherapy has emerged as a valuable alternative to modern allopathic medicine, offering numerous benefits. While herbal medicines are popular in society, only a few medicinal herbs have been scientifically evaluated for their medical potential. Herbal medicine products encompass a wide range of ingredients derived from plants, such as leaves, flowers, fruit, seed, stems, as well as minerals. These ingredients form the basis for various preparations and finished herbal products.

In India, Ayurveda, Siddha, and Unani (ASU) drugs are categorized into classical ASU drugs, patent or proprietary medicine, and phytopharmaceuticals. The regulations surrounding these drugs require proof of effectiveness, either through citation in authoritative books, pilot studies, or clinical trials. The Department of Ayurveda, Unani, Siddha, and Homeopathy (AYUSH) introduced guidelines to ensure the quality, safety, and efficacy of ASU medicines.Phytopharmaceutical drugs, which are purified and standardized fractions of medicinal plants, have their own set of regulatory provisions. They must contain a minimum of four bio-active or phytochemical compounds, assessed qualitatively and quantitatively. The regulations for phytopharmaceuticals fall under the purview of the Central Drugs Standards Control Organization (CDSCO). N Schedule Y outlines the data requirements for clinical trials, import, and manufacturing of phytopharmaceutical drugs.

To meet the regulatory requirements, extensive information must be provided, including details on plant identification, extraction processes, formulation details, manufacturing processes, and stability data. The new regulations encourage the use of advanced techniques in extraction, fractionation, and formulation development, fostering scientific and innovative approaches in drug development from botanical sources.

By embracing these regulations, we can promote research and development in phytopharmaceutical drugs, bridging the gap between traditional herbal medicine and modern medical practices. This new, researchers, and industry to collaborate, bringing forth new and effective drugs derived from botanical sources.

In conclusion, the exploration of phytotherapy's new horizons holds immense potential for innovation and entrepreneurship. By combining traditional knowledge with modern scientific approaches, we can unlock the power of herbal medicine, paving the way for the acceptance and utilization of herbal products in the medical field.

Keywords: Siddha, Healthcare, Phytotheraphy, Phytopharmaceuticals, Phytochemical,

PHYTO-PHARMACEUTICALS -SCOPE & GLOBAL REGULATORY SCENARIO

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The demand for medicinal plants is increasing everyday and WHO has projected that global herbal market will grow up to $ 5 trillion in 2050 from the current level of $ 62 billion. India and China produce more than 70% of the global diversity. Indian products to other countries like Germany, France, Italy and Netherland have also increased. The European Union is the biggest market in global herbal products.

This study explains about the phytopharmaceuticals and their trends in global market. Phytopharmaceuticals may be a Purified & Standardised Fraction Bioactive/Phytochemical compound, Extract of medicinal plant/part, used for Internal/External & Human/Animal, Diagnosis/treatment/mitigation/prevention disease or disorders.

These phyopharmaceuticals must have 100% Safe, so effective , Heavy metal free , Pesticides free, ADR free Drug interactions free. Herbal formulations should follow some standards and rules like ASU formulations lisencing, phytopharmulations CDSCO, Functional foods FSSAI .CDSCO – DCGI , New Drug – Rule 21 D&C. A New phyto drug must completed with Pharmacological study and toxicological study also Human clinical and toxicological study Phase I to Phase IV and studies in special populations. The Regulatory scenario in India regarding Ayurvedic formulations, Sidha formulations, Unani formulations, Phytopharmaceuticals and functional foods, Nutraceuticals. The Regulations in India are ASU – D&C Act 1940 & Rules 1945 – IV A, Phytopharmaceuticals D&C Act , Functional Foods – FSSAI , DMRA – Drugs & Magical Remedies Act , Biodiversity Act 2022 & Rules 2004 and Indian Patent Act. This presentation will be an eye opening and motivating to the pharma researchers about the global marketing of phyto medicines in different countries standards like USA, EUROPE. Also explain the challenges regarding Quality evaluation with fingerprint profile, more and more scientific evidence of their quality, efficacy and safety phytopharmaceuticals.

Herbal Medicine – A growing segment with a long tradition
Scope and Challenges

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Traditional medicines were an integral part of healthcare since time immemorial and have been a vital part for community healthcare especially in rural and developing economies. The world, which is claims to be so advanced, has still not been able to offer universal healthcare for all, owing to inefficient health delivery systems, increasing population, escalating healthcare costs etc. A larger portion of the global population, especially in rural and developing economies relies on traditional medicines for their healthcare needs.

If we really analyze, we understand that several developing countries such as Mali, Cameroon, in that case even India has a large Traditional medical healthcare delivery system as part of their public healthcare, which provides primary / preventive healthcare. Eq: Kerala has a much evolved Ayurveda healthcare center in all panchayats which is providing

This trend of even more pronounced in countries like China, South Asia, India and large parts of Africa. Interestingly, the geographical regions, which are reliant on traditional medicines, had a local traditional health system, which the community had relied for ages. If you look at the population size of India , Africa and China alone , out together comprises over 4 billion as compared to the global population of 8 billion – Meaning bout 50% of the world population in reliant on traditional medical systems . Developed countries such as Japan and South East Asia put together may take this percentage to above 60%.

If we examine closely, many blockbuster API's are developed from plants and plant based sources .Most of these plants and plant parts where used widely in traditional medicine and local health practices.

MODERN DRUG	USES	PLANT SOURCES
Aspirin	Reduces pain and inflammations	Filipendula ulmaria
Reserpine	Lowers blood pressure	Rauvolfia serpentina
Digitoxin	Dropsy, relieves heart congestion	Digitalis purpurea
Quinine	Combats malaria	Cinchona pubescens
Ephidrine	Reduces nasal congestion	Ephedra sinica
Scopolamine	Eases motion sickness	Datura stramonium
Diosgenin	Contraceptive	Dioscorea floribunda

There exists a wide scope for the development of new drug leads from natural sources, flora and fauna, which is part of traditional medicinal systems which offers huge scope for drug development.

However, there are challenges too, in the development and popularity of traditional medicinal products –

1. Lack of uniform quality standards and tests protocols
2. Lack of a pharmacopeia standards and common guidelines for ingredients
3. Lack of a process standards and guidelines for extraction and processing
4. Lack of uniform regulatory parameters for recognition of products across the world
5. Inclusivity of traditional healthcare systems as part of public healthcare systems around the world
6. Collaboration with international universities in the area of research
7. Collaboration in integrative medicine with modern systems of medicine and institutions

If we evaluate the pros and cons of traditional medicine as a knowledge base – there exists a huge leverage for development and growth. The bias that generally exists towards traditional medicine systems and the general overview of it being nonscientific is indeed hindering its potential growth, rather than the systemic deficiency. Traditional knowledge base requires a very serious scientific overview to understand its true economic, sociological and scientific potential.

The Author Mr Ajay George Varghese, C.E.O. & M.D of Bipha Drug Laboratories Pvt. Ltd – An innovative and transformative healthcare company founded in 1929 which has successfully synchronized the knowledge of Ayurveda with modern science and technology to develop modern user friendly formulations . He has over 25 years of experience if traditional medicine industry and has been instrumental in transforming the company into a successful D2C player. Bipha has also recently launched clinically tested formulations for HPV, Vaginosis, Leukoderma and Eczema .The company has technology tie ups with DRDO, Talwar Research foundation, B.I.T.S, Pilani, and NRDC .

" Shortcomings and blind spots in Modern medicine therapy and lessons and opportunities for Phytotherapy"

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During past seven decades, three revolutions. Agriculture, Industrial and Technological had made tremendous effect on human life &also in medical care services. However, in spite of the progress in some areas, we are living in a deeply, flawed with toxicities at every levels which is generating toxic environment for human beings and for all living creatures on the earth. Something is amiss in our individual and social culture itself which we need to find out among the benefits, triumphs of modern cultures. There are limitations and blind spots/clashing points which are preventing us to be healthy as an individual and society as a whole.

A time has come to find out what are those blind spots where there is mismatch and discords in modern medicine cultures

Agriculture Revolution-It has provided sufficient food to feed all but still one third population is hungry and suffering from malnutrition on one end and obesity because of Mall-nutrition (because of Mall Culture) on the other end.

Industrial Revolution–It had helped in Creation of Wealth through Globalized Capitalism, but has failed for its equitable distribution & Use. Because the main drivers for industry engagement are Market Care & not the Health Care. Consequently, medicines are being invented for the ‘’Few diseases and for ‘’Few countries, where there is a sizeable global market. And by ‘’Few international & national companies who dominate the market ’’

Technological Revolution –It has brought overall Progress& Development in Medical Treatment but this is also without equitable distribution & use, which is resulting in highest public spending on Medical care, which is also essentially, dominated by market needs and not real health needs

Technology Pandemic - The Corona Pandemic has further pushed heightened use of technology for Self -care. Newly introduced devices like SIRI & Alexa have occupied central place in the lives of all and these gadgets have replaced family physicians and are advising unsafe use of medicines and herbal products.

To put it succinctly, all three revolutions have brought some relief however; have miserably failed in providing equitable distribution and safe use in maintaining Good Health of all population.

The time has come now for- ‘’Going back to roots’’, With the result, world over old trusted and effective Traditional Remedies are being taken out of ancient closet and being tried. The herbal

medicine is helping people world over to take the rein of their Self- care in their hands. Now, the Phytotherapy also need to come out its traditional role of Ayurvedic and Siddha medicine. They have to come out of mortar& pestle era and have to explore the current market potential for its development which can definitely get them recognition as a best complementary traditional medicine with modern look.

ORAL PRESENTATIONS

NCPI-OP-101

Marker-based standardization of extract and formulations of *Nigella Sativa* and their anticancer activity evaluation in breast cancer cell lines.

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Background: A wide range of traditional medical knowledge systems from around the world is being re-examined for their therapeutic abilities. Proper standardization procedures, such as HPLC fingerprinting, will enhance the authenticity of traditional medicine, resulting in the globalization of alternative medicine.

Aim & Objectives: To investigate the anticancer properties of *Nigella Sativa* extracts and formulations and standardize them by quantifying the marker molecule Thymoquinone and to evaluate the activity of formulation in breast cancer cell lines.

Methods: Standard Thymoquinone was purchased from Sigma Aldrich and the RP-HPLC method was developed by using an alliance (waters) automated sampler HPLC system. The cytotoxicity evaluation using MTT assay, Migration assay, cell cycle arrest, and Apoptosis induction have been done.

Results & Discussion: The standardization of diverse extracts and formulations by assessing their Thymoquinone concentration was developed using a simple, dependable, precise, and accurate HPLC method. *Nigella Sativa* extracts and the formulation efficiently inhibited the growth of MCF-7 and MDA-MB 231 cell lines.

Conclusion: The proposed HPLC method was recommended for routine Thymoquinone content analysis in various extracts and formulations. When compared to the Thymoquinone standard, the extract of Nigella Sativa formulation demonstrated greater anticancer activity, indicating that it could be developed as a possible treatment agent for breast cancer with additional research.

NCPI-OP-102

A Preliminary approach on Nutritional, Anti-Nutritional, and Elemental evaluation of enriched Sweet Potato cultivars in India.

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Objective: Sweet potatoes, a nutrient dense crop is recognized as potential functional food to mitigate an array of nutritional disorders. In India, sweet potato is considered as secondary staple crop due to its unique nutritional properties. Owing to the high consumption, food intervention efforts like bio fortification have been made to enrich the essential bioactive compounds (carotenoids and anthocyanins).

Methodology: In this study, we aim to explore the nutritional, anti-nutritional, and elemental profiles of two bio fortified sweet potato varieties (Orange & purple flesh) and one unfortified variety (commonly white flesh sweet potato).

Results: The results showed high levels of bioactive compounds in bio fortified varieties. The DPPH assay revealed high antioxidant activity in *purple flesh* followed by *orange* and white flesh (unfortified variety). The total carotenoid content ranged from 0.9 to 12.6 mg /100 g dry weight, with the highest content in *orange flesh* sweetpotato. The anti-nutritional content like phytates and tannins in sweet potato cultivars ranged between 57.35 and 60.82%. However, the antinutrient content was comparatively high in selected biofortified varieties, establishing research prospects with respect to human health. Further, the biochemical properties of the sweet potato are been compared to the standard data available in Indian food composition table 2017.

Conclusion: These obtained results provide insights on the suitability of bio fortified varieties for inclusion in diets that are nutritionally adequate and sufficient nutritional information for policymakers to promote these varieties to vulnerable.

NCPI-OP-103

EFFECT OF HYDRO ALCOHOLIC EXTRACT OF *BAUHINIA PURPUREA* LINN LEAVES ON DLA INDUCED TUMOR IN MICE.

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Objective: Ethnobotanical studies reveal that various tribes used *Bauhinia purpurea* Linn(Fabaceae) leaves for treating asthma, malaria, diarrhea, and other symptoms. Previous pharmacological report reveals anti-inflammation, anti-microbial, anti-ulcer, anti-diabetic and hepatotoxicity. The literature survey reported that anti-tumor activity was not reported so far. An attempt was taken to investigate the effect of hydro alcoholic extract of *Bauhinia purpurea* leaves using chemically induced tumors derived from DLA method.

Method: Leaves of *Bauhinia purpurea* Linnwas identified, collected, dried, powdered and was extracted with 70% hydro alcohol. The resulting extract (HAEBP) was screened for anti-cancer activity using male Swiss albino mice. Five groups of 6 each were grouped [I- Normal control; II- Tumor control; III- 5-Flurouracil (20mg/kg IP) as standard; IV- HAEBP 100mg/kg & V- HAEBP 200mg/kgorally] fed with standard diet, kept in 12 hours day/night. Dalton Lymphoma Ascites were administered1×10^6 cells per mice intraperitoneally for 7 days. On 15^{th} day the animals were sacrificed, blood was drawn, screened for hematological indices (RBC, WBC and platelet count), serum enzyme and lipid profile were determined using diagnosis kits. Total cancer cells, bodyweight and percentage of life span were calculated.

Results: Group IV and V received HAEBP showed increase in RBC count, platelets and decrease in WBC, PCV, cholesterol (132.40±4.1 mg/dl), TGL (168.35±2.65 mg/dl), AST (65.35±1.80 U/L), ALT (46.45±2.05 U/L) andALP (180.15±2.70 U/L) levels. Noted that increase in life span and decrease in body weight and number of cancer cells (1.75±0.25 ml$\times10^6$) in comparison with Group III treated with 5-Flurouracil. Histopathology of liver showedhepatocytes with prominent nuclei and sinusoidal spaces. It is also observed that

regeneration of the glomeruli region of the kidney, indicated the anticancer effect of HAEBP on cellular level.

It is concluded that *Bauhinia purpurea* Linn showed increase in life span 84%, in comparison with 5-Flurouracil treated group by 92%. The anticancer property may be due to the presence of sterols phenols and tannins. Hence, this plant formulation may be developed to investigate the mechanism of anti-cancer effect. The plant formulations may use as adjuvant therapy in the management of cancer treatment.

NCPI-OP-104

Effect of hydro alcoholic extract of *Adenanthera pavonina linn* leaves on effect of hydro alcoholic extract of *adenanthera pavonina linn* leaves on anti-hyperuricemic activity in mice

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Objective: Ethnomedical survey reveals that usage of *Adenanthera pavonina* (Fabaceae) in the treatment of various disease and disorders. Previous pharmacological report reveals anti-inflammation, anti-hypertensive, anti-fungal, hepatotoxicity and CNS depressant activity. The literature survey reported that anti-hyperuricemic activity was not reported so far. An attempt was taken to investigate anti-hyperuricemic activity of hydro alcohol extract of *Adenanthera pavonina* Linn leaves.

Method: The leaves of *Adenanthera pavonina* was identified, collected, dried, powdered and was extracted with 70% hydro alcohol. The extract was screened for anti-hyperuricemic activity in Swiss albino mice. Five groups of 6 each were grouped (I- normal control; II- sample control; III- Allopurinol 10mg/kg (IP) as standard; IV- 100mg/kg HAEAP, V- 150mg/kg HAEAP orally for 7 days), fed with standard diet, kept in 12 hours day/night. Hyperuricemia was induced using potassium oxonate intraperitoneally for 7 days. On 7^{th} day the animals were sacrificed, blood was drawn and screened for hematological (RBC, WBC and platelet count) and biochemical indices. Levels of uric acid, blood urea nitrogen analysis, creatinine level were determined using diagnostic kits. Xanthine Oxidase activity was determined by spectroscopic method.

Result: Group IV and V received HAEAP showed decrease in the level of blood urea nitrogen, creatinine (40.78 ± 2.60 mg/dl) and xanthine oxidase (0.84 ± 0.19 U/mg p) level and increase in RBC (2.73 ± 0.19ml/cumm), WBC (12.58 ± 3.43 cells/ml$\times 10^6$) and platelet count.On treatment with Group IV (100mg/kg HAEAP) and Group V (150 mg/kg of HAEAP) showed decrease in Xanthine Oxidase level in comparison with group III (Allopurinol 10mg/kg).

Conclusion: It is concluded that *Adenanthera pavonina* Linn shows moderate anti-hyperuricemic activity, when compared to group III (Allopurinol). Xanthine Oxidase inhibitory activity of HAEAP may be due the presence of polyphenols and flavonoid. Hence, this plant formulation may be developed to investigate the mechanism of anti-hyperuricemic activity. The plant formulations may use as adjuvant therapy in the management of cancer treatment.

NCPI-OP-105

Evaluation of the synergistic effect of two preservatives to be used on a trial basis in Ashwagandadhi lehyam based on Minimum inhibitory concentration studies.

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Objective: Ashwagandhadi lehyam is an Ayurvedic formulation containing *Withania somnifera* as one of the main ingredients.Since these herbal jams may be subject to microbial spoilage, the effect of preservativesfor controlling it was studied using Minimum Inhibitory Concentration(MIC).

Methodology: Bacteria and fungi isolated using pour plate technique were pooled to form a cocktail of bacterial cultures and a cocktail of fungal cultures separately andused as the test cultures for MIC. Prior to each experiment, the species isolated were inoculated separately in Sabouraud's and Nutrient broth respectively to check the suitability of the media.MIC was first performed for sodium methyl paraben and sodium propyl paraben for both bacterial and yeast and mould isolates from Ashwagandhadi lehyam and then their synergistic effect evaluated.

Results: 0.07% Sodium methyl paraben was found to be effective against yeast and moulds.Sodium propyl paraben at 0.03% was effective against fungi from Ashwagandhadi lehyam. But the combined effect of the two preservatives in synergistic way must be determined while fixing the concentration. It was seen that sodium methyl and propyl paraben together are effective at a concentration of 0.09% and 0.015% respectively against fungal cocktail from Ashwagandadi lehyam.

Conclusion: According to Food Safety and Standards Regulations, 2022, methyl paraben and its salts should be used as preservative at 0.2% and propyl paraben and its salts at 0.02%.The synergistic effect found was 0.09% and 0.015% which is below the recommended dose and hence can be safely used to control microbial spoilage. It is recommended that addition of preservatives in modern dosage forms may be encouraged to follow reasonable shelf-life periods as per the regulations given in the Ayurvedic Pharmacopoeia of India.

NCPI-OP-106

Chemical Characterization Of Herbo-Metallo Drug Velvanga Parpam – An Official Siddha Drug By X-Ray Diffraction Studies

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Introduction: In Siddha system of medicine, various herbo-metallic drugs are prescribed in the treatment of several diseases and disorders. Parpam (Calcined oxide form of minerals/metals) is one of the metallodrug prescribed in minimal dose. X-ray diffraction technique helps to evaluate the characterization of metals/ minerals which provides the chemical characterization of Parpam.

Objectives: This research work is focused on the preparation of *Velvanga parpam* (herbo-metallo drug) and to evaluate the structural and chemical changes of metal oxide (Tin oxide) by using X-RAY diffraction in various calcined stages.

Materials and method: *Velvanaga Parpam* is a calcined preparation was subjected to various stages of Purification and Preparation method by using three herbs such *Madhuca longifolia* oil, *Curcuma longa* powder and *Aloe barbadensis* juice. Calcination was done by cowdung cakes (added 5 cowdung cakes after 1^{st} calcination), during this process temperature was observed inside and outside of the earthen pit. The different calcined stages of Velvangam preparation(1^{st} calcination, 5^{th} calcination, 10^{th} calcination & 11^{th} calcination) were analysed by X-RAY diffraction studies.

Result: The prepared velvanga parpam was analyzed by carrying out Physicocharacterized by powder XRD studies. Chemical characterization of the traditional medicine is the need of the hour in drug discovery process.

Keyword: X-ray diffraction, Siddha, *Velvanga Parpam*, Metal oxide.

NCPI-OP-107

MECHANISM-BASEDCOMPARATIVE STUDY OF MARKETED FORMULATION WITH PHYTOCHEMICALS FOR TYPE II DIABETES MELLITUS

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Type 2 diabetes mellitus is a chronic disorder characterized by pancreatic beta cell dysfunction, Insulin resistance, and hyperglycemia. Administration of different classes of anti-diabetic drugs over the long term is essential to maintain normoglycemic levels in affected individuals. This study focuses on natural analogs as substitutes for the most marketed synthetic and semi-synthetic anti-diabetic drugs. The objective of this review-based study is to develop a new polyherbal formulation with the isolated phytoconstituents comparatively equivalent to that of the allopathy anti-diabetic marketed drugs like Biguanides, sulphonylurea, and thiazoglinidiones. At present different drugs are available for the treatment of diabetics and working with different mechanisms, like Metformin induces AMPK Pathway in hepatocytes and muscle fibers and increased glucose uptake in peripheral tissues and Sulphonylureasdrugs bind to specific receptors in hepatocytes resulting in glucose-independent insulin release. The drug Thiazoglinediones target adipocytes and cause GLUT-4 Translocation and up-regulation of PPARγ and adiponectin gene expression. Some of the selective Phytoconstituents such as Quercetin, Cyanidin-3-glucoside, protocatechuic acid, Mahanimbine, koenidine, Kaempferol, α & β amyrin were analyzed for their anti-diabetic activity and was compared with that of the above synthetic drugs. The phytoconstituent like Quercetin (Flavanoid), Mahanimbine, and koenidine (Carbazole alkaloids) were found to be analogous with Metformin. Cyanidin-3-glucoside(anthocyanin), and protocatechuic acid(Tannin) exhibited similarities with that of thiazolidinediones. α & βamyrins (pentacyclic triterpenoid) and kaempferol (flavonoid) had similar effect as that of sulphonylureas. In this review research it can be concluded that the selected compound are having the same antidiabetic activity comparatively with that of the synthetic drugs. In future, a new poly herbal dosage can be developed with these selected molecules having same mechanism, with significant therapeutic value without side effects.

KEY WORDS: Hyperglycemia, Metformin, Mahanimbine, Quercetin.

NCPI-OP-108

Formulation and Evaluation of Polyherbal Orodispersable Tablets for the treatment of Mouth Ulcer

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Background : Tablets and gelatin capsules constitute a major portion of the drug delivery systems that are currently available.Orodispersable tablet dosage form containing active ingredients disintegrates rapidly in matter of seconds without the need for water, providing optimal convenience to patient.

Objective : The present study was aimed at formulating and evaluating orodispersable tablet containing polyherbal extracts to achieve local and comparatively fast actions for mouth ulcer treatment.

Methodology :A combination of five herbal drugs (Terminalia chebula, Glycyrrhizaglabra, Cyperusrotundus, Psidiumguajava, Punica granatum,) were extracted by cold macceration method.In our attempt to select the best possible disintegrant to formulate rapidly disintegrating tablets which disintegrates in matter of seconds in the oral cavity, we have formulated 9 formulations (F1-F9) using different superdisintegrants (Croscarmellose sodium, Sodium starch glycolate, Crospovidone) in different percentage (4.5%, 6% and 9%). In the preformulation studies all formulations exhibited good flow property and compressibility which is very essential for direct compression and hence tablets were prepared by direct compression method. The compressed tablets were evaluated for their weight variation, hardness, thickness and friability as per Indian pharmacopoeia and the results were found to be within the prescribed limits.

Result: In vitro release of F-9 batch was found to be 99.1 % which was better as compared to other batches. Hence, it was concluded that Cross cormellose sodium at 9% was the best super disintegrants for this polyherbal formulations. The HPTLC analysis confirmed the presence of representative peaks of each herbal ingredient in the product fingerprint. HPTLC graph of extracts found to contain rutin, gallic acid and quercetin as standard.

Conclusion: With orodispersable tablets emerging out as new delivery system providing convenient means of drug intake, the present investigation concludes that ODT's can be a potential novel drug dosage form for the treatment of mouth ulcer.

NCPI-OP-109

Phytochemical screening and evaluation of hypoglycaemic activity of leaf extract *Eleocarpus tectorius* in streptozotocin and nicotinamide induced type II diabetic rats

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Background: Diabetes mellitus is a group of metabolic diseases characterized by chronic hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of different organs, especially the eyes, kidneys, nerves, heart, and blood vessels.

Objective: The objective of present investigation is to investigate antihyperglycemic activity of *Eleocarpus tectorius* extract against Streptozotocin nicotinamide induced type II diabetic rats.

Methodology: Diabetes was induced by a single intraperitonial injection of Streptozotocin 60mg/kg 15 min after the administration of Nicotinamide 120 mg/kg (i.p) followed by (i.p). The diabetic rats were treated with alcoholic leaf extract of *Eleocarpus tectorius* (200 and 409 mg/kg, p.o) for 21 days. Fasting blood glucose level and body weight were monitored every 7 days during the treatment. At the end of the study fasting blood glucose level, haemoglobin and HbAlc were analysed in whole blood. Total cholesterol, triglycerides, SGOT, and SGPT were estimated in serum, and invivo antioxidant markers (GSH, CAT and LPO) were estimated in liver homogenate. Histopathology of pancreas were carried out to assess antidiabetic effect of HALEET.

Results: After treatment with HALEET fasting blood glucose, HbAIc levels, SGOT, SGPT and LPO were significantly decreased in diabetic rats. However, haemoglobin, CAT and GSH levels were significantly increased in HALEET treated diabetic rats. The histopathological studies of the pancreas in extract treated diabetic groups revealed regeneration of beta cells.The results indicated that significant antihyperglycemic effect in Streptozotocin and nicotinamide induced Sprague Dawley rats.

Conclusion: The study confirms that anti-hyperglycaemic activity of Eleocarpus tectorius on Sprague Dawley rats. Thus the study substantiates traditional claim of Eleocarpus Tectorius as an anti-diabetic drug. However, further studies are needed to elucidate the mechanism(s) of action and to identify the active principle/s responsible for producing these activities.

NCPI-OP-110

SYNTHESIS AND IN VITRO ANTI DIABETIC ACTIVITY STUDIES ON SEMISYNTHETIC DERIVATIVES OF CURCUMIN

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Background: Curcumin and their derivatives constitute an important class of heterocyclic compounds.They have diverse biological activities such as antiviral, anticancer, antioxidant,antibacterial, anti-inflammatory, antifungal and anti-arthritic activity. Organic compounds containing curcumin fused, that is pyrimidine and pyrazoles moieties, have been reported to possess α- amylase inhibitory activity. Hence, it acts as antidiabetic agent.

Aim and Objectives: The present work was under taken to synthesis curcumin derivatives. The synthesized compounds were characterised by UV and IR spectroscopy and screened for in vitro alpha-amylase inhibitory activity.

Methodology: The semisynthetic derivatives of curcumin (SDC) were prepared using two different schemes to synthesize pyrazole and pyrimidine derivatives. Pyrazole derivative was prepared by condensation of curcumin with hydrazine hydrate and pyrimidine derivative was prepared by condensation of curcumin with urea. The purity of the compounds was established by single spot-on TLC plates. The newly synthesized compounds were evaluated for their α- amylase inhibitory activity.

Result and Discussion:The compounds SDC 1 and SDC 2 were synthesized. The yield of the compound ranged from 62-79%. The melting point of the compounds were taken by open

capillary method using MR-VIS, visual melting range apparatus,LABINDIA and uncorrected. Thin layer chromatography was carried out using precoated TLC plates using chloroform:methanol (95:5). Visualizing agent-iodine vapour.

Conclusion :The curcumin derivatives showed better inhibition against alpha amylase with IC50 values of 41µg/ml and 38 µg/ml respectively. Results of alpha amylase inhibitory assay revealed that the incorporation of heterocyclic ring system to curcumin anti-diabetic activity of curcumin was increased as compared with curcumin.

NCPI-OP-111

EVALUATION OF PHYSICOCHEMICAL CHARACTERISTICS OF SHANKA BHASHMAM CAPSULE- A MARKETED AYURVEDIC FORMULATION

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The bhasma is an ancient Indian nanomedicine which deals with metals, herbo-minerals and non-metals preparation made by metallic/minerals treated with herbal juice or decoction and exposed as an ash through incineration followed by an elaborate process of purification. It provides easily absorbed calcium & maintains optimum alkalinity for optimum health. The present study is to evaluate the physicochemical characteristics of Ayurvedic formulation-Shanka Bhasmam which is prepared by conch shell, by adding Aloe vera or lemon juice then dried in the absence of oxygen for 800-900^{o}C and allowed to cool down, a calcium amended marine source.It is one of the members of Sudha varga containing calcium compound used as an antacid, stool binding agent, anti-diarrhoeal, appetite stimulant, anti-spasmodic, anti-inflammatory, anti-oxidant and antiemitic properties.

Physical & Chemical characterization is basic step to understand the importance of determining efficacy & evaluation of approved medicine. The physical characterization was done by using modern tools such as X-ray diffraction (XRD), Scanning Electron Microscopy (SEM), and Fourier Transform Infra-red (FTIR) & metals composition and its limits was determined by using Atomic absorption spectroscopy (AAS) . The chemical characterization includes solubility, pH, Loss on drying, Ash value were performed. The results of above study reveals that our formulation has several metals with considerable quantity which has been taken as an internal medicine and also confirms that it has heavy metals are absent and it passes to the IP limit. It may give some valuable information for the development of master formula for marketed Shanka bhashmam in Ayurvedic formulation.

KEYWORDS: Shanka bhashma, XRD, SEM, FTIR, Metal analysis.

NCPI-OP-112

In- Silico HMG CoA Reductase inhibition and *In -vitro* anti diabetic assay of Phytochemicals isolated from seed coat of Foxtail palm

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The plant *Wodyetia bifurcata* (Foxtail palm) is a palm species in the Arecaceae family , it is a nice species for the garden. It has become widely distributed across the world, being progressively planted out as one of the "world's most popular" palms.This study aims to find out the phytoconstituents present in the seed coat, in-vitro antidiabetic activity by alpha

amylase inhibition methodand Molecular docking for inhibition of HMG CoA reductase for Diabetes mellitus and Hyper lipidaemia.Seed coat region of the plant was separated, powdered and Methanolic extract was prepared by cold maceration method. By the preliminary phytochemical studies the presence of tannins, and phytosterols were identifies and it was confirmed by Thin layer chromatography . The methanol extract was fractionated and applied forGCMS studies ,it confirms the presence of 30 compounds. Condensed tannin were isolated from crude extract subjected to in vitro ant diabetic activity& phyto sterol were subjected to Molecular docking studies. The extract was made into different concentration like 2%,4%,6% and subjected for Alpha amylase inhibition assay & Docking studies were conducted by Autodock software. The percentage inhibition was calculated for different Concentration of prepared extract for 2%- 19.93,4%-33.94,6%-49.86 and compared with the standard Acarbose and the docking study shows ihhibition of HMG CoA Reductase. There by it may conclude major compounds like condensed tannins,beta sitosterol which are responsible for inhibition of alpha amylase enzyme for Antidiabetic activity and Inhibition HMG CoA reductase for Anti Hyperlipidaemic activity.

Keywords: Foxtail palm, GCMS studies, Condensed tannin, Beta sitosterol, alpha amylase inhibition activity, molecular docking.

NCPI-OP-113

Documentation of traditional healing practices among Irular tribe at Andimadam block of Ariyalur district inTamil Nadu

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Plants have been used in traditional medicine for several thousand years. The knowledge of medicinal plants has been accumulated in the course of many centuries based on different medicinal systems such as Ayurveda, Siddha and Unani. Tribe have a deep belief in their native folklore medicine for remedies and they rely exclusively on their own herbal cure.The Irular tribe inhabit the northern, eastern and western districts of Tamil Nadu, a state in south-eastern India. Their language, Irular, is related to Tamil and Kannada and in the Tamil language, the name *Irula* means "people of darkness." This could refer to their dark-coloured skin or to the fact that all important events traditionally took place in the darkness of night. An ethnobotanical survey was carried out among the ethnic groups (Irular) at Andimadam Block in Ariyalur District of Tamil Nadu. The tribal communities of Irular nurture rich knowledge about medicinal plants and its traditional uses. Therefore, we have done an exhaustive ethnobotanical survey in this area. In this present investigation, it is observed that the Irular tribe being used 51 wild valuable plant species belonging to 32 genera 23 families were identified with relevant information and documented in this study with regard to their botanical name, family, vernacular name, parts used and utilization by the local tribal people for different human ailments. The common diseases treated by the herbal practitioner were toothbrush, stress reliever, appetizer, aphrodisiacs, corn, dandruff, diuretic, diabetes, jaundice, indigestion, ulcer, infertility, piles, paralyzes, cold and cough, fever, asthma, arthritis, mouth odour, body odour, skin diseases, beetle bite, dog bite, centipede and Millipede bite, stint of scorpion and wasp etc. The valuable indigenous and traditional

knowledge available with tribes as well as rural ethnic communities should be preserved and to be utilized for our traditional medicines. The traditional healers have been reducing in numbers so the traditional knowledge have been disappearing now days. The younger generation should be interested to carry the traditional knowledge. Therefore, documentation of the traditional knowledge and different types of naturally available medicinal plants and their usages in our normal life very essential and the same information should be passed to our younger generation.

Keywords: Irular tribe,Traditional healers, Traditional medicines, Preservation, Disease free life.

NCPI-OP-114

Documentation of Wild Aromatic Medicinal Plants in Nelliyampathy Hills, Palakad District, Kerala

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The present study was aimed to explore the wild aromatic medicinal plant in Nelliyampathy hills, Palakad district inKerala. The field survey was carried out with the traditional healers belonging to an age between 50 and 70 years, to record the information about documented plants.Totally 120 wild aromatic medicinal plants belonging to 17 families were documented along with ethnomedicinal uses. The maximum number of species found in the family Lamiaceae (49) followed by Rutaceae(18), Zingiberaceae (12) and Asteraceae(10). The most dominant life form of the species includes herbs(73), followed by tree(17), climber(15) and shrub (15), the most frequent parts used was leaves(40%) followed by, fruit (20%), flowers (10%), root(10%), seed(15%)and bark(5%). The most common preparation and administration methods were paste, powder, decoction, juice, raw, and infusion. The current study revealed a considerable indigenous knowledge about the wild aromatic medicinal plants in Nelliyampathy hills for treating common ailments. Further it could be useful in conservation, investigating the phytochemical profiles, biological efficacies, isolation and characterization of plant active compounds for the development of natural potential drug.

***Key words**:* Wild aromatic medicinal plants, Documentation, Conservation, Ethno medicinal uses.

POSTER PRESENTATIONS

NCPI-P-001

Drug Utilization Evaluation Of Antibiotics In General Medicine Department Of A Tertiary Care Hospital, Namakkal.

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Drug utilization evaluation is one of the tool to study the use of drugs and its impact on the healthcare system. Drug utilization evaluation studies plays important role in identifying the prescription pattern among the patients which helps in provide useful information for improvement of the appropriate and effective use of antibiotics and also developing the proper protocols for the use of antibiotic in hospitals. Therefore, rational use of antibiotics is necessary. So, based on the need the present study mainly focuses on the antibiotic prescribing pattern and therapeutic outcome of the antibiotic during the hospitalization of patient in a tertiary care hospital of Namakkal district. The main aim of the study is to assess the drug utilization evaluation of antibiotics in the general medicine department of a tertiary care hospital, Namakkal. The prospective study was conducted for a duration of 3 months in a tertiary care hospital. A total of 100 patients were involved in the study. Out of which 49% of male patients and 51% of female patients with an average age of 55.09±17.17. According to the social history, the study population shows increased number of the patients with non-alcoholic and non-smoker. The study population was analyzed based upon the co-morbidity conditions, 19% of the patients have diabetes mellitus which is considered to be increased in number and 49% of the patients are with no comorbidity. Nearly 14% of patients are diagnosed with lower respiratory tract infection and urinary tract infection and most commonly prescribed antibiotic in the study population was cephalosporins and β lactamase inhibitors. The rational use of antimicrobial agents is one of the main contributors to control worldwide emergence of antibacterial resistance, side effects and reduced cost of the treatment.

Keywords: Drug utilization evaluation, antibiotic, cephalosporins, β lactamase inhibitors.

NCPI-P-002

Formulation and Evaluation of Anti-Microbial Activity of Herbal Gel Containing Ethanolic Extract of *Kleinia Grandiflora* Leaves and *Aloe Vera* Exudate

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The phytochemical constituents of various medicinal plants have been obtained from the different parts such as leaves, stem, root, flower, seed, etc. The herbal medicines are most popularly used, for their ability of causing lesser than side effects and are cheaper when compared with the synthetic drugs. Chemical compounds which are naturally occurring in plants and exerts specific therapeutic activity or medicinal value is called phytochemical constituents. The determination of Phytochemical constituents are necessary for developing the new chemical substances and also for discovering the new therapeutic agents. The present

study aims to investigate and formulate the herbal gel with the plants of *kleinia grandiflora & aloe vera exudate*. The ethanolic extract of *kleinia grandiflora* was obtained after drying and pulverizing the plant leaves. Then the *aloe vera* extract was prepared by slicing and sieving the mucilage and soaking with ethanol for 24 hours and filtered. Both extracts were concentrated and the concentrations were added with the excipients to obtain the gel formulation. Carbopol 940 was added as polymer (gelling agent), methyl paraben and propyl paraben was added as preservatives and propylene glycol as moisturizer. The phytochemical properties and physiochemical properties were examined and reported. The permeation rate of the prepared formulations can be obtained from In-vitro Diffusion study. Further, the antimicrobial activity of the prepared formulations were carried out and the formulation HG-F4 which shows better activity against *Streptococcus aureus & Escherichia coli* species and it is significantly active against tested pathogens while compared with the marketed product Clindamycin.

Key words: Anti microbial activity, Ethanolic extract, Herbal gel, *Kleinia grandiflora, Aloe vera.*

NCPI-P-003

Isolation and characterization of phytoconstituents from *Spathodea campanulata* Flower (linn)

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Medicinal plants are extremely important to pharmacology researchers because most pharmaceutical firms concentrate on medicinal plants for raw materials. *Spathodea campanulata* belongs to the family of *Bignoniaceae*. It is widely renowned for its therapeutic properties. The present study was carried out to evaluate the antioxidant effect, possible bioactive components present in the methanol fraction of Spathodea campanulata flowers. The current study was conducted to assess the antioxidant impact and potential bioactive components contained in the methanol fraction of *Spathodea campanulata* flowers.In the present study we have exploited interactions of 42 bio-active components against anti-malarial targets(1LDG and 2ANL) through computational analysis by using Schrödinger Maestro 11.2 version. The phytochemical analysis of methanol fraction of *Spathodea campanulata* flower revealed the presence of flavanoids, glycosides, carbohydrates, steriods, quinones, terpenoids.The GC-MS analysis revealed the presence of 42 phytoconstituents which include methyl .beta.-dgalactopyranoside , 4-hydroxybenzoic acid, 1,2-ethanediol monobenzoate.Docking study revealed the that among 42 bioactive compounds methyl .beta.-dgalactopyranoside , 4-hydroxy benzoic acid, 1,2-ethanediol monobenzoate exhibited greater G-Score with 1LDG and 2ANL. This study provides an insight into the identification of various phytoconstituents present in methanol extract of S.campanulata flower. Through this research four phytoconstituents from the flower extract may be developed as new therapeutic approach for anti-malarial targets.

NCPI-P-004

Morphological description and ethnobotanical review of*argyreia zeylanica* (gaertn.) Voigt

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Aim and Objectives: *Argyreia zeylanica* belonging to the family Convolvulaceaeis an endemic medicinal plant found in dry, deciduous forests of South India and Sri Lanka. This species has been ethnobotanically reported to cure various diseases. Hence, morphological characters and ethnobotanicaluses of the plant were explored in the present study.

Materials and methods: Morphological characters of *A. zeylanica* collected from Coimbatore were studied with the parameters like colour, size, shape, texture and other special features. The data on ethnobotanical uses were collected through online search method.

Results:*A. zeylanica* is a perennial climbing shrub. Stem is woody at base, herbaceous at the tip and tomentose. Leaves simple, Elliptic - ovate. Inflorescence -axillary cyme. Bracts 2-4. Flowers few to many, Sepals -5, Corolla is lavender coloured, funnel-shaped, mouth 5 lobed, mid petaline bands hairy. Stamens inserted, subequal. Ovary conical, disc annular, style single, stigma biglobose, papillate. Fruit - berry.

The leaves are ethnobotanically used to cure Diabetes mellitus, peptic ulcer, cardio vascular diseases, wounds and to give cooling effect to eyes. The root extract is used for treatment of jaundice. The raw and ripe fruits are used to cure ulcers.

Conclusion: Morphological structures like white, tomentose and ovate leaves, linear or oblong bracts, ovate and obtuse sepals are the important identifying characters of the plant. These characters will be useful for standardization and authentication of the species.

Ethnobotanical studies report the plant to be used for jaundice, Diabetes mellitus, peptic ulcer, cardio vascular diseases and to treat wounds. Hence, further phytochemical and bioactivity studies are required to explore the medicinal activities of the plant.

NCPI-P-005

Inhibition of Hiv-1replication Effect of Flavonoids In *Moringa Oleifera*– Areview of Promising Healer

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AIDS (or) Acquired Immune Deficiency Syndrome caused by infection with the human immune deficiency virus, which weakness the immune system of as the Ellagic acid(90%) is known to possess 25µm and 50µm inhibited HIV-1replication inU87 cells by 56% and 84%respectively. Moringa have immune – beneficial properties the body and makes the body vulnerable for common infections.TheHIVdestroys helper T4 lymphocytes and as a result the CD_4 cell count drops from thenormal 800-1000 cells per cubic millimetre of blood to 400 – 600 cells. Recent researches pointed out that the G-protein coupled chemokine receptor $CXCR_4$ is an important target, as they are specifically implicated in HIV-1 infection as well as cancer metastasis.

Scientific studies illustrate that *Moringa oleifera* Lam. (Moringaceae) is one of the important medicinal plants employed by herbal physicians to treat and manage people living with HIV/AIDS (PL WHA) in African Traditional Medicine (ATM) and there are many claims to the fact that it improves quality of life and reverses the HIV/AIDS disease progression. Previous investigations explained about16 phytochemicals like (alkaloids, saponins, tannins, steroids, phenolic acids, glucosinolates, flavonoids and terpensetc) were isolated from *M. oleifera* and docked against $CXCR_4$ receptor. As per the literature *M.oleifera* has Kaempferol (1933.7mg/kg), Quercetin (1362.6mg/kg), Myricetin (1296.6mg/kg) are the flavonoid constituents having the ability to hinder viral growth. As well and also improve hematological abnormalities in HIV positive individuals receiving antiretroviral therapy. The extract of *M.oleifera* bind with target gene by increasing the expression of Hemeoxygenase–2(HO-2).In future, thereis a great need to work on the isolation of active principles from *M.oleifera* to formulate a new novel drug to reach the target area, and promote thequality of patients life.

KEYWORDS: HIV/AIDS,Traditional medicine, *Moringa oleifera*. Lam, $CXCR_4$ receptor, Viraltarget.

NCPI-P-006

AN Overview on Cuminaldehyde and its Therapeutic Potential

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Objective: The objective of the study is to provide structured outline on the therapeutic potential of cuminaldehyde (4- isopropyl benzaldehyde)which will provide enormous information to a wide range of researchers, working on the different applications of natural products.

Methodology: Published literature on recent developments in research of cuminaldehyde, including original articles and papers in Pubmed and Pubmed Central Databases were taken into study for the report. Information extracted from a total of 143 published articles and cross references thereof were collected.

Results: It is one of the major component present in the volatile oil of cumin seeds (*Cuminum cyminum* Linn, FamilyApiaceae) which has traditionally used for treatment of dyspepsia, diarrhea, abdominal colic and jaundice. It also possess multiple pharmacological effect including antioxidant, antidiabetic, antibacterial, anti-inflammatory, anti- Parkinson, anti-platelet and anti-cancer effect.

Conclusion

It has been widely used in traditions for various effects but still it is a drug of concern for the researchers as many of its activities are still hidden. These studies place cuminaldehyde a novel candidate for drug development in the treatment of diseases. An extensive research has to be carried out to explore the potential of cuminaldehyde for their better economic and therapeutic utilization.

Key words: cuminaldehyde, cumin, 4-isopropylbenzaldehyde

NCPI-P-007

SYNERGISTIC EFFECT OF PROBIOTICS AND OMEGA 3 FATTY ACIDS SUPPLEMENTATION IN THE TREATMENT OF VARIOUS DISEASES

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OBJECTIVE: To study the positive impact of omega 3-fatty acid and probiotics in the treatment of various diseases.

METHODS: Pubmed, Science direct and Google scholar has been used to collect the data of last 20 years relating to synergistic effect of omega 3 fatty acid and probiotics.

RESULTS: Probiotics, specific health promoting microbes have multifactorial benefits to human health and some may have been part of daily diet for centuries in the form of traditional fermented foods or beverages. Omega 3 fatty acids are essential for normal physiological functioning and for the health of humans and all domestic species. The plant derived sources of O-3FAS include flax seeds, walnuts and leafy vegetables contain small amounts. Daily dose of 2.5g is recommended for cardiovascular and eye health. It significantly reduce TG levels and increase LDL-c levels in patients with high TG levels. Probiotic combination with omega 3 PUFA modestly improved insulin resistance and obesity related parameters in patients with type 2 diabetes. The combination were found to have a useful effect on some serum parameters and appetite control that are important in fatty liver disease. The administration of supplement with the combination reduces the hepatic steatosis, which is found to be an alternate approach to NAFLD. The combination has plays significant role in decreased body weight, BMI and markers of chronic systemic inflammation. Regular intake of O-3FAS-enriched yogurts is a value added strategy for improving human health with a remarkable reduction in progression risk of infectious diseases. Incorporating O-3FAS into products such as cheese to provide adequate intake of this nutrient in the consumer's diet on a daily basis to prevent cardiovascular disease.

CONCLUSION: The synergistic effect of omega 3-fatty acid and probiotics still in need of well-conducted and properly controlled clinical trials to further confirm the effectiveness.

Keywords: Omega 3 fatty acids, Probiotics, Insulin resistance, TG levels, Fatty liver.

NCPI-P-008

THE IMPACT OF PANDEMIC ON CANCER SURVIVAL WITH CO-MORBIDITIES

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Background: The corona virus disease 2019(COVID-19) pandemic (officially declared on the March 11, 2020), and the resulting measures, are impacting daily life and medical management of cancer patients. This study is intended to evaluate the association between COVID 19 pandemic and cancer survival, and to explore the prevalence of co-morbidities in cancer patients**.**

Methods and materials used: The retrospective study was carried out in the oncology department for a period of six months. The data were collected from patient history and, Medical Record Department. A total of 150 subjects were included in this study with 75 Pre-

pandemic cancer patients and similar age, gender matched 75 Post- pandemic patients. Charlson Comorbidity Index (CCI) is used to assess the survival rate of cancer patients.

Results: Based on the comparison of survival rate of Pre-pandemic and Post-pandemic cancer patients, the Pre-pandemic cancer patients have mild survival rate (44%) and the Post-pandemic cancer patients have moderate survival rate (62.67%). Both males and females among the study population have moderate survival rate of 44.12% and 51.22% respectively .By comparing the survival rate of breast cancer patients with other cancer patients, both the groups have moderate risks of survival for next 10 years (46.34%) and (48.62%) respectively .Metastatic cancer patients have severe risks of survival (59.02%), whereas other cancer patients have moderate risks of survival (100%) for the next 10 years.

Conclusion: The prevalence of co-morbidities in cancer patients has increased after the covid-19 pandemic. Our finding reveals that the risk of survival of cancer patients has increased from mild to moderate level after covid-19 pandemic.

Keywords: Co-morbidities, COVID-19, CCI, Breast cancer, Metastasis, Cancer survival.

NCPI-P-009

DEVELOPMENT OF POLYHERBAL FORMULATION FOR SKIN REJUVENATION

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Background: Natural products from plant, animal and minerals have been the basis of the treatment of human diseases. Herbal medicines as the major remedy in traditional system of medicine have been used in medical practices since antiquity. Skin is the largest organ of the body and protect from the external environment. Changes in local resistance led to proliferation of opportunistic pathogens on skin resulting in bacterial, fungal, parasitic and nonspecific dermatitis and eczema.

Aim and Objectives: The present study was aimed to develop polyherbal topical formulations for skin care using common traditional herbs available in the region such as neem leaf, aloe gel and turmeric rhizome and to study the phytochemical content and antimicrobial potential of the polyherbal preparation.

Methodology: Plants were collected in Coimbatore region, authenticated, dried, powdered and mixed in equal proportions and subjected to soxhlet extraction using methanol as solvent. The polyherbal extract obtained was evaluated qualitatively for its phytochemical content and HPTLC fingerprinting. The invitro anti-microbial activity of the polyherbal extract was studied against gram positive and gram-negative bacteria and fungi by disc diffusion method, The extract was formulated into polyherbal cream using w/o cream base and its physiochemical characters were evaluated.

Results: HPTLC finger printing of the polyherbal extract demonstrated the presence of about 15 prominent phytoconstituents. The antimicrobial study of the polyherbal extract confirms the inhibition of both bacteria and fungi. The developed polyherbal cream with 1.5% extract showed promising physiochemical properties

Conclusion: The study concludes that the polyherbal extract possess antimicrobial activity and incorporation into cream base at 1.5% demonstrated ideal physiochemical characteristics and may beneficial for skin rejuvenation.

NCPI-P-010

Biogenic nanomedicines and future scope of Niosomes as nanocarriers for the treatment of inflammatory bowel disease – A systemic review

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Objective: The primary objective of this review is to compare and correlate the results obtained from studying the effects of Macromolecules and Phytochemicals in Inflammatory bowel disease and IBD associated colorectal cancer. The secondary objective is to illustrate the role of niosomal drug delivery of phytomedicines.

Introduction: Though monoclonal antibodies and several synthetic drugs are used for the treatment of IBD they implicate in causing complications hence phytochemicals are used as alternatives as they modify enzymatic activity, alleviate oxidative stress, and cytokine secretion. Both *invitro* and *invivo* experiments demonstrate the effectiveness of phytochemicals against IBD.

Methodology: Data was collect based on the effects of macromolecules and phytochemicals in inflammatory bowel disease from database Pubmed and ResearchGate. To conclude this review we have referred several articles concerning the natural particle based drug delivery and development of niosomes as effective nanocarriers.

Conclusion: Our intent in this review is to summarize the use of nanoparticles encapsulating phytochemicals and macromolecules for the treatment of IBD and stating niosomes as a productive nano carrier for several phytomedicines.

Keywords: macromolecules, phytochemicals, niosomes, nanoparticle, cytokine.

NCPI-P-011

Recent Advancements In The Use Phytopharmaceutical Agents To Combat Breast Cancer

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Breast Cancer is the number one cancer diagnosed in Indian females with a high mortality rate of 12.7 per one lakh women. The chemotherapy regimen for this includes Doxorubicin, Paclitaxel, Tamoxifen etc., in varying combinations depending on disease prognosis. Although chemotherapy remains a very efficient mode of treatment for cancer, it is typically associated with significant adverse events, and the effectiveness of chemotherapy can be diminished due to drug resistance and therapeutic selectivity. Certain plant derived compounds such as curcumin (derived from *Curcuma longa L.)*, ellagic acid (derived from *Punica granatum L.)* and thymoquinone (derived from *Nigella sativa)*are known to possess effective anti-tumour chemo and radio-sensitising properties. Various in-vitro and in-vivo studies reveal that such phytopharmaceutical products possess synergistic effects as well as the ability to reduce dose related toxicities when co-administered with chemotherapeutic agents. However, application of phytopharmaceuticals is limited in clinical trials because of their hydrophobic nature and low

bioavailability. Nano-formulations of these phytopharmaceuticals can help increase the surface area thereby overcoming the above mentioned issues, while also potentially increasing therapeutic benefits when given in combination with chemotherapeutic agents. The objective of this review is to highlight the benefits of co-administration of phytopharmaceuticals with anti-neoplastic agents, wherein the dosing and frequency of administration of chemotherapy can be reduced while not compromising on the efficacy. So far, research done in this area only include in-vitro studies and animal studies. Given the wide potential of nanotechnology based phytopharmaceutical be combinations, it should more extensively studied.

NCPI-P-012

A Review on Microspheres: Types, Methods of preparation, Factors affectingformation, Evaluation and Applications

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Microspheres are small spherical particles with the size ranging from 1 to 1000µm. Microspheres are multi particulate systems that are used to control and prolong the drug release to improve bioavailability and to target the drug to specific site at predetermined rate. Microspheres are made up of bio degradable or non-bio degradable or synthetic polymers.There are many kinds of microspheres such as bio-adhesive microspheres, magnetic microspheres, floating microspheres, radioactive microspheres, polymeric microspheres, mucoadhesive microspheres. The methods used in the preparation of microspheres are single emulsion technique, double emulsion technique, ionic gelation method, phase separation or coacervation technique, solvent evaporation, solvent extraction, spray drying or spray congealing, quasi emulsion solvent diffusion, precipitation method, freeze drying method, wax coating and hot melt method and polymerization technique.The drug release from the microspheres depends on the type of polymers used and its molecular weight and other excipients and polymers used in the formulation.Microspheres will be evaluated by using different methods that analysis the quality of microspheres such as electron microscopy, percentage yield, FT-IR, density determination, isoelectric point, entrapment efficacy. Microspheres will play a key role in novel drug delivery in the future by fusing together a variety of strategies especially in diseased cell sorting, diagnostics, gene and genetic materials, safe targeted and efficient in vivo delivery and supplements as miniature representation of diseased organs and tissues in the body.

Key words: Microspheres, bioavailability, controlled release, types of microspheres, method of preparation of microspheres, evaluation of microspheres, FT-IR, isoelectric point, application of microspheres.

NCPI-P-013

Formulation And Evaluation Of Ethanolic Extract Of Herbal Tooth Paste Containing *Syzygium cumini LINN*

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Dental disease is considered to be a major health problem throughout the world. Many commercial toothpaste claim to have abrasive, spreadability, foaming ability and have caries conteractive action. Use of fluorides has been the foundation of caries conteractive action and the use of fluoridated toothpaste is the most widely recognized types of caries being used today. Hence the purpose of this study was to collect and prepare extract to *Syzygium Cumini Linn* as natural ingredient and small amount of synthetic ingredient.The *Syzygium Cumini Linn* seed powder extract by continuous hot extraction with ethanol at 50℃ and dried extract was evaluated for the phytochemical screening (carbohydrate, glycosides, alkaloids, amino acids, flavonoids, fixed oil, tannins, gum and mucilage, phytosterols etc..) and formulation of toothpaste.In formulation the required quantity of ingredients were calcium carbonate,sodium lauryl sulfate, methyl cellulose, honey, glycerin, acacia and water was added.These herbal medicine has more antimicrobial effect and strengthen the gums and minimum side effect. Evaluation studies are warrented to improve the stability of the formulation prove the efficacy and safety of the formulated toothpaste. The obtained results showed that prepared herbal toothpaste is greenish brown colour, characteristic odour, and smooth while rubbing in fingers and relative density of 10.1 (good).

Keywords: Herbal toothpaste, Herbal medicine, *Syzygium Cumini Linn*, Ethanolic extract, Strengthen the gums, pH, Moisture content, Foamability, Spreadability, Efficacy and safety.

NCPI-P-014

Molecular Docking Studies of Canthin-6-One from *Simarouba glauca* against Breast Cancer

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Cancer is a disease caused when cells divide uncontrollably and spread into surrounding tissues. According to WHO 2.3 Million women were diagnosed with breast cancer and 685000 deaths occur globally.The objective of this study is to explore the anti cancer potentials of selected phytoconstituent through molecular docking studies. For this study, natural phytocompound canthin-6-one from *Simarouba glauca* was selected as ligand. Gemcitabine and tamoxifen were taken as the standard synthetic drug for comparative analysis. Molecular docking analysis was performed using GLIDE, SCHRODINGER. Present study reveals that Canthinin-6-one showed interaction with ER alpha, PR and Her 2neu with the score of -7.905, -7.109 and -6.260 respectively. The docking results were comparable with that of standard drugs tamoxifen and

gemcitabine. Tamoxifen is a non-steroidal hormonal receptor inhibitor especially anti estrogen used to treat breast cancer. Gemcitabine is used in various carcinomas such as pancreatic cancer, breast cancer etc. Out of three targets Canthin-6-one showed maximum score for ER alpha when compared to other two targets.

Key words: *Simarouba glauca*, Canthin-6-one, Docking, Breast cancer

NCPI-P-015

Anti Angiogenesis activity of acetonic extract of *Ananus comosus* by using Chorioallantoic membrane (CAM) assay Technique

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Angiogenesis is important for the typical physiological activities such as cure from injury, menstrual cycle and embryo growth. It is also plays a crucial role in several pathological conditions in cancer. Antiangiogenesis, e.g., inhibition of blood vessel growth, is being investigated as a way to prevent the growth of tumors and other angiogenesis-dependent diseases. The chick embryo chorioallantoic membrane (CAM) is commonly used as an experimental in vivo assay to study both angiogenesis and antiangiogenesis in response to tissues, cells or soluble factors. Given the high occurrence of cancer worldwide and the major source of the discovery of new lead molecules are medicinal plants. The objective of the present research was to study the antiangiogenic activity of acetonic extract of Ananus comosus by using chick chorioallantoic membrane (CAM) model.The outcome of the study confirmed that Ananus comosus contains active constituent like Bromelain, Flavonoids, Beta-Carotene, Vitamin-A and Antioxidants. It exhibits antiangiogenic activity by inhibiting the neovascularization (5µg/egg) concentration dependent manner. We concluded that the fruit possess significant antiangiogenic activity and new blood vessels were inhibited in the chick embryos and may have therapeutic value in cancer and related complications.

Keywords: Ananus comosus, Bromelain, Antiangiogenesis, CAM assay, Chick embryos, Neovascularization.

NCPI-P-016

Anticancer Effect of Beta Setosterol, Beta Carotene And Selenium In Skin Cancer From *Cynodon Dactylon* And *Delonix Regia*

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Skin cancer is a abnormal growth of skin cells (Basal cells ,Squamous cells ,Keratinocytes and Melanocytes).The two type of skin cancer are Non melanoma cancer (due to mutated Epidermal keratinocytes) and Melanoma cancer (due to mutated Melanocytes) most commonly caused due to UV radiation. This review aims to find out the development of a new novel drug

formulation for the treatment of skin cancer (melanoma) in comparative literature review model. At present there are four commonly used anti cancer drugs in market with different mechanism like (a) 5-Flourouracil directly inhibits Thymidine synthesis by Blocking Thymidine Synthase Enzyme, (b) Dacarbazine inhibits Trancription of cancer cells by Alkylation, (c) Methatrexate inhibits Purine and Pyrimidine Synthesis by blocking Folate related rnzymes , (d) Neomenthol inhibits Hydronidase activity and activates Apoptosis by Caspase 3 and Caspase 10. Two plants were identified with some phytoconstituents having same mechanism of action like that of synthetic products. (1)***Cynodon dactylon*** (family : poaceae) consists of beta setosterol , beta carotene , selenium , (ergonovin and ergonovinine) , ferulic , syringic . (2)***Delonix regia*** (family : fabaceae) posses beta setosterol , beta carotene ,selenium , lupeol ,lycopene , phytoene, zeaxanthine . Both the above mentioned plants have the common phytoconstituents such as Beta setosterol, Beta carotene and selenium derivatives , these posses anticancer and antioxidant activity . Beta setosterol follows the mechanism of Methatrexate , Beta carotenefollows the mechanism of Neomenthol, Selenium follows the mechanism of Dacarbazine and Neomenthal. This review explore a clarity about the constituent and its mechanism of action regarding skin cancer, to develop a new novel drug delivery system.

Key words: Keratinocytes, Melanocytes, *Cynodon dactylon*, *Delonix regia*

NCPI-P-017

Phytochemical evaluation and larvicidal activity of *Lantana camara* leaf extract

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Across the world many infectious diseases are transmitted by mosquitos which are otherwise called as “Flying syringes”, “Tiny buzzing vampires”, “wing devil” and “Tiny assassins”. They act as vector for transmitting many infectious pathogens such as virus, bacteria, protozoa and nematodes which cause serious disease such malaria, dengue, yellow fever, filariasis and zika. One of the best strategies of reducing the incidence of these diseases is mosquito control . Since ancient times many control strategies for mosquitos have been recommended and using chemical insecticides are considered to be the most effective control strategy against mosquito. But during the last decade, different studies focused on natural plant products against mosquito vector as effective alternative to synthetic chemical insecticides . The present study is focused on natural products of plant origin with insecticidal properties for control of insect vectors. Methanol, Chloroform, Petroleum ether, Water extracts of *Lantana camara* were evaluated against the third instar larvae of *Culex quinquefasciatus* . Phytochemical screening of the leaves showed the presence of phytocompounds such as tannins, alkaloids, flavonoids, proteins and carbohydrates. The extracts of this plant showed potent larvicidal activity and can be considered for futher investigation.

Keywords: *Lantana camara* , Phytochemicals, Larvicidal activity, *Culex quinquefasciatus.*

NCPI-P-018

Estimation of phenolic compounds in *Madhuca longifolia* extracts using High Performance Thin Layer Chromatography (HPTLC)

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Introduction: *Madhuca longifolia* is a tropical tree belongs to the family Sapotaceae which is grown in India at damp and hot climate. It has numerous industrial applications. Medicinal uses include antiulcer, anti-inflammatory, antiepilepsy, antimicrobial, antipyretic, antirheumatic, antioxidant, astringent, demulscent, stimulant and emollient.

Objective: To estimate the phenolic content present in the alcoholic extracts of *Madhuca longifolia* using High Performance Thin Layer Chromatographic technique (HPTLC).

Method: The alcoholic extracts of *Madhuca longifolia* leaves were subjected to cold maceration with alcohol and extracts were prepared. It is further subjected to preliminary phytochemical screening through chemical tests. Based on the presence of phenolics, the gallic acid has been selected as standard to quantitatively estimate the phenolic present in *Madhuca longifolia* leaves by using High Performance Thin Layer Chromatographic (HPTLC) technique. The standard gallicacid(2 mg/ml) was applied on stationary phase at Silica gel 60F 254 plates(10×10 cm) in different aliquots along with the alcoholic extracts of *Madhuca longifolia*. The chromatogram was developed as ascending using Toluene: Ethyl acetate: Formic acid(5:4:1) as mobile phase. The dried plates were viewed under UV at 254nm and scanned using Wincats 3 software.

Result: The quantified content of phenolic present in *Madhuca longifolia* extracts were 307.8ng/µl at the Rf of 0.14.The Limit of Detection(LOD)for gallic acid was identified as 200µg/µl and the Limit of Quantification (LOQ) was ranging from 0.4µg - 2µg/µl.

Conclusion: Thus, the quantified content of gallic acid present in the extracts of *Madhuca longifolia* can be subjected to further validation protocol to standardize as per ICH guidelines.

NCPI-P-019

Secondary metabolites of the miracle plant *kalanchoe pinnata*

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Objective: To study the different secondary metabolites reported in the plant *kalanchoe pinnata.*

Methods: The reported data were collected from PubMed between the years 1967-2023(110 results) including clinical trial and meta-analysis data.

Results: Alkaloids, flavonoids, phenolic molecules are present in the plant. Three unusual flavonoids isolated from plant responsible (unusual quercetin diglycosyl flavonoid known as QAR, or quercetin arabinopyranosyl rhamnopyranoside (chemical marker for the plant species), kaempferol 3-O-a-L-arabinopyranosyl (1- 2) a-L rhamnopyranoside and 4',5-dihydroxy-3',8-dimethoxyflavone 7-O-b-D-glucopyranoside) for anti-inflammatory and anti leishmanial activity.

Five bufadienolides that have anti-tumor activity were isolated from the plant. There were isolated two insecticidal bufadienolides. From aerial parts, the cardienolide, steroidal content, and carboxylic acids are isolated.

Conclusion: In many temperate and tropical areas of the world, the succulent plant *Kalanchoe pinnata* has been introduced as an ornamental. Alkaloids, triterpenes, glycosides, flavonoids, steroids, and lipids are abundant in kalanchoe. The leaves include a class of compounds known as bufadienolides and related flavonoids (digoxin and digitoxin), which are utilised in medications for the clinical treatment of congestive heart failure and related diseases. Clinical studies have shown that the ingredients have antibacterial, antitumor, cancer-preventive and insecticidal properties. To determine its chemical and pharmacological action, additional research should be conducted. We can investigate the plant for a clinical study since the plant has not yet undergone a clinical trial.

Keywords – Kalanchoe pinnata, Phytoconstituent, Pharmacological activity.

NCPI-P-020

A COMPREHENSIVE REVIEW ON PHYTOCHEMICAL AND PHARMACOLOGICAL PROFILE OF *Vitex negundo* L.

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*Vitexnegundo*L. is also referred to as Nirgundi, Chastetree and Horse Shoe Vitex belongs to the family Lamiaceae.Folk medicine uses it extensively and especially in South and South-East Asia.The Coronavirus disease (COVID-19) is an inflammatory and infectious disease that time scientists establish its potential as an adjunctive treatment ,also the significant targets of Vitex *negundo* compounds in are CSB, SERPINE1, and PLG which code for cathepsin B, plasminogen activator inhibitor-1, and plasminogen, respectively.Numerous chemical constituents have been found and reported, including flavonoids, volatile oils, triterpenes, diterpenes, sesquiterpenes, lignan, flavones, glycosides, iridoidglycocids, and stilbene derivatives. Aucubinaginuside, alkaloids ,Nishidine, Hydrocotylene, Orietin, Isoorietin, 5-hydroxy, 3, 6, 7, 31, and 41 pentamethoxy flavone are all found in its leaves. Additionally, it consists of flanoids , phenolic anti-oxidants such cisticin, chlorophenol D, luteolin, and luteolin 7-o-glucoside. The bioactive compound chroplenol D, in it is used primarily for cough and asthma, has anti-histaminergic and muscle-relaxing characteristics. Agnuside, negundosid, and ludeolin were identified from leaves exhibits osteogenic activities.Chrysoplenol D has anti-histaminergic properties which is used for treatment of cough and asthma and also possesses muscle relaxing properties. Glycosides namely vitexnegheteroinsI-J along with two iridoidglycosides,vitexnegheteroins K-L, exhibits strong anti oxidant prpperties. Schrysoplenetin and chrysosplenol D exhibits effect against human pancreatic cancer. Chrysoplenetin is effective against 25 different cancer cells.Agnuside, negundosid, and ludeolin were identified from Vitexnegundo leaves exhibits osteogenic activities. Methanolic extracts contains negundoside, agnuside, vitegnoside they shows anti bacterial activities. From this review *Vitexnegundo* possesses powerful pharmacological properties like Respiratory Stimulant, Anti-Oxidant, Anti-Cancer, Anti-Osteoporotic, Anti-

Bacterial activities and can serve as a useful starting point for additional scientific research, therefore gathering knowledge about it is crucial andfurther experimentation are needed to completely establish the molecular mechanisms of *Vitex negundo* against COVID-19.

KEYWORDS: Vitex, ChrysosplenolD, Ludeolin, Anti-histaminergic.

NCPI-P-021

THEOBROMA COCOA : REVIEW ON THE BIOLOGICAL PROPERTIES AND POTENT ANTICANCER COMPOUNDS

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Introduction; A nutraceutical is defined as any substance that is food or part of food that provides medical or health effects including the prevention and treatment of disease**.**Studies on *Theobromacocoa* have been most prevalent now a day as it has shown promising results in various pathological complications such as diabetes,atherosclerosis,CVS disorders,cancer and neurological disorders.

Objective ;This study aims to summarize the review on biological property of *Theobroma cocoa* and its potential anticancer phytoconstituents.

Methodology; Systemic search of major scientific database (Pubmed, Elsevier, Science Direct and Google Scholar) were performed .The broad spectrum of biological activities associated with *Theobromacocoa*has been explored and considered as a valuable and alternative method for the various disease and their treatments.

Results; The cocoa beans containing a large number of phytochemicals, and physiologically active compounds have been reported. Cocoa is rich in procyanidins, polyphenols[flavonoids],theobromine, (-)-epicatechin, catechins, and caffeine. Selected procyanidinspresent in cocoa inhibited tumorogenesis**,** tumour growth, and angiogenesis. Natural polyphenolic compounds can act as highly effective antioxidant and chemo-preventive agents able to interfere at the three stages of cancer. The anticancer property of cocoa has been studied with the lung cancer cell line [A549], colorectal cancer cell line [HT-29] , breast cancer cell line[MCF-7 and SKBR3],ovarian cancer cell line [OAW42 andOVCAR3]

Conclusion; Potential mechanisms for cancer prevention of bioactive compounds include prevention of DNA adduct formation, enhanced carcinogen elimination, inhibition of inflammatoryprocesses, and a directcytotoxic effect on tumour cells.The consumption of cocoa or chocolate, which possesses highantioxidantactivity, could be beneficial in decreasing damage caused by genotoxic and epigenetic carcinogens and inhibitthe complex processes leading to cancer**.**

Comparative study on Modern and Conventional extraction of Quassinoid from *Simmarouba glauca* leaves and Evaluated through HPTLCFingerPrinting Technique.

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Abstract

Background; From the recent market trend, there is a huge demand for the bioactive compounds from various medicinal plants that could be capable enough to combat the emerging health effects in day-to-day life. Simarouba glauca, a flowering plant (fam: Simaroubaceae) is also known as paradise tree. SG leaf extract has been widely used in folk practice for its effectiveness against a number of diseases.

Methodology; In the present study, green extraction method, ultrasound (UAE) assisted extraction and conventional extraction methods (Soxhlet and Cold maceration) were applied in regard to the extraction of phytoconstituents from Simarouba glauca leaf extracts and aimed to optimize the extraction efficiency. A two- level (2^3) factorial design was constructed with three factors (treatment time, temperature, solvent types) and two levels: (− 1) and (+ 1) for low and high levels. In this study, the mass of the sample (*Simarouba glauca* leaf) was kept constant during all extraction methods. The extract yield observed was varied and to identify the quassinoid from *Simarouba glauca* DC leaf extracts through HPTLC analysis and compared with standard using mobile phase n-Hexane: Ethyl acetate (2:8).

Results; Phytochemical screening of *Simarouba glauca* leaf extracts revealed the presence of alkaloids, flavonoids, carbohydrate, phenolic, phytosterol, saponins, tannins, and terpenoids. Good yield of extract was obtained from UAE. From the HPTLC study, chromatogram and Rf value were recorded with respect to that of standard quassinoid followed by UV spectra (λmax) *for Simarouba glauca*chloroform leaf extract were detected at 250 nm which was compared with the standard quassinoid.

Conclusion; According to this study, a green extraction method was used with a good yield of SG leaf extract. Quassinoids will be isolated in the future and used to treat a variety of illnesses.

Keywords: *Simarouba glauca*, Quassinoid,HPTLC fingerprinting technique,UAE.

NCPI-P-024

Review on Pharmacological safety and efficacy of *Glycyrrhizia glabra* (liquorice) in the treatment of respiratory infection (COPD).

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Objective; The aim of the current study to identify the therapeutic uses of *Glycyrrhizia glabra* (liquorice) in the treatment of respiratory infections .

Indroduction; In the last 10 years, it has been observed that India has a disproportionaterespiratory diseases, major contributors being COPD & Asthma. (COPD)Chronic Obstructive Pulmonary Disease affects nearly 63 million people nationwide, which is almost 32 per cent of the world's population.

Anti-inflammatory treatments effectively treat respiratory tract infections were validated by various studies. However, the worldwide leading cause of high mortality is COPD, and a significant factor is cigarette smoke. Chronic inflammation and oxidative stress are causes of COPD, which is due to lung dysfunctions. For thousands of years, herbal drugs have been used to cure numerous illnesses; they exhibit promising results and enhance physical performance .

Liquorice is found in Asia, Europe and middle East. Liquorice is a herbaceous perennial Legume and it consists of peeled and unpeeled roots, stolon stem of *Glycyrrhiza glabra Linn* . Belonging to the family Leguminosae. It possess a worthy pharmacological effect.

Licoricepharmacological actions helps to boosts the immune system, inhibit virus growth, produce anti-inflammatory activity, and inactivate viruses. This comprehensive review mainly focuses on the role of licorice in managing respiratory infections caused by viruses and bacteria, including complications associated with its excess intake.

Methodology; I Preformed a literature search in the article published by MDPI and PubMed scientific database range of keywords including *Glycyrrhizia*, Liquorice, respiratory infections, COPD .

Conclusion; This review finalizesthe recent knowledge on medicinal uses of liquorices and also helps for further research development.

NCPI-P-025

Quantitative estimation of phytoconstituents present in traditional marketed formulation Saraswatarishta using High Performance Thin layer Chromatography

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Abstract

Even though traditional medicines are effective in treating several ailments, it is essential to standardize the Ayurvedic formulation in order to value the quality of drugs and to provide scientific evidence to the traditional knowledge. This is a work attempted to standardize the

Ayurvedic formulation Arishta [Saraswatarishta] which contains potent therapeutic phytoconstituents. Such constituents were aimed to estimate quantitatively using HPTLC and Apigenin selected as common flavonoidal marker.

The marketed formulation was fractionated with methanol (Saraswatarishta methanolic fraction-SM) for standardization. The standard solution Apigenin (5mg/10ml) were applied in different aliquots on Silica gel 60F 254 plates along with SM. The ascending development were performed using the mobile phase Toluene-ethyl acetate –formic acid (6:4:0.1) for 9 cm. the developed plates were detected in UV at 254 nm and 366 nm and scanned using Wincats 3 software. The quantitative determination of Apigenin using HPTLC was foundto be 39.81ng/µl at the Rf of 0.31.Thus, the formulation can further processed to determine various constituents using species specific markers and standardization as per the guidelines of Ministry of Ayush, India

Keywords : Arishta, HPTLC, Apigenin,Ayurvedic formulation

NCPI-P-026

EVALUATION OF EFFECT OF TEMPERATURE ON ANTIOXIDANT STATUS OF THE COMMON VEGETABLE EXTRACTS

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Background; Regular consumption of fruits and vegetables, rich in natural antioxidants is associated with reducing the risk of various diseases like cardiovascular and neurodegenerative diseases. Vegetables are mostly consumed in cooked form and this may alter the nature of phytoconstituents, which may result in reduced health benefit to the consumer.

Aim and objective; The purpose of the study is to evaluate the effect of temperature on antioxidant status of the common vegetables such as *Momordica charantia* (MC), *Cyamopsis tetragonoloba* (CT) and *Phyllanthus emblica* (PE).

Methodology; Fresh fruits of MC, CT and PE was collected from Coimbatore region. The hot and cold extraction methods were employed to prepare the vegetable extracts. Hot extraction was carried out by boiling the cut vegetables for 30 min in distilled water, filtered and concentrated by heating to get hot extracts MCH, CTH and PEH whereas cold extraction was carried out by freeze drying of aqueous juices, to get cold extracts MCC, CTC and PEC respectively. The extracts were studied for its % yield, phytochemical screening, antioxidant potentials in vitro cell free and cell culture systems using NIH3T3 cell lines.

Results; The % yield was high in hot extracts (9-15% w/w) compared to cold extracts (5-8% w/w). HPTLC study reveals that the presence of quercetin, rutin and gallic acid in all the cold extracts and demonstrated high antioxidant activity when compared to respective hot extracts in both in vitro cell free and cell culture systems.

Conclusion; The overall study concludes that the cold extracts possess rich antioxidant principles when compared to hot extracts of vegetables and thus antioxidant activity. The difference in

activity may be due to the loss of antioxidant principles during heating process. Further it confirms the prolonged cooking process may reduce the health benefit of the vegetables.

NCPI-P-027

PRIMARY PHYTOCHEMICAL ANALYSIS AND INTERACTION OF *TRIDAX PROCUMBENS* PLANT EXTRACTS WITH CENTRAL NERVOUS SYSTEM

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ABSTRACT

The present study was designed to evaluate the phytochemical screening and anti-depressant activity of Successive extraction of Petroleum ether (PEETP), Chloroform (CHETP), ethylacetate (EAETP), Ethanolic (EETP) & Aqueous (AETP) extracts of *Tridax procumbens (TP)*by Tail suspension test (TST). The mice 25-30g were divided into six groups. Dose was fixed as per OECD 425 Guidelines acute toxicity studies. Drug and extracts was administered 30min prior to study.Duration and percentage reduction of immobility was noted. The CETP & EAETP 200 mg/kg extracts shows significant ($p<0.01$) decreased immobility time compared to control. The EETP 200 mg/kg effect was equal toescitalopram (10mg/kg), as compared to control more significant ($P<0.001$) then other extracts. AETP was shows $p<0.05$ significant whereas PEETP no significant to negative control, the studies result recommends that ethanol Chloroform and ethyl acetate extract encompass good antidepressant effect and further studies in process to isolation of compound and their receptor interaction in CNS.

Keywords:*Tridax procumbens*, Anti-depressant, Tail suspension test, Mice, Immobility time

NCPI-P-028

Fingerprint analysis of herbal raw materials of Combretaceae and Fabaceae family by HPTLC technique using antioxidant markers

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ABSTRACT

Background; The primary aim of thestudy is to detect the flavonoids, phenolic acids andxanthones in five commercial herbal raw materialsobtained from Fabaceae and Combretacea family indaily domestic needs as antioxidants, antidiabetic,antipyretic, diuretic, anti-fertility, ulcer healing, anti-inflammatory agent dysentery,relieves morning sickness, nausea, eliminates bacteria,heals wounds, burns and Reduces stress.

Aim and Objectives; The prime aim of the study is to notice the flavonoids, phenolic acids and xanthones in five commercial herbalraw materials namely *Pterocarpum marsupium* Bark, *Ormocarpumcochinchinense* leaf, *Indigofera tinctoria*leaf, *Terminalia arjuna* bark and *Terminalia chebula* fruit obtained from Fabaceae and Combretacea family.

Methodology; Five herbal raw material were procured from thetraditional siddha.Rutin, Gallic acid, Quercetin, Catechin, Vitexin,Mangiferin, Ellagic acid and Ferulic acid were procuredfrom Sigma Chemical Company, Solvents forextraction were purchased, HPTLC was carried out usingMerck aluminium sheet coated with silica gel GF254.

Results:

The plate was scanned at UV 254 and 366 nm usingCAMAG TLC Scanner, Rf value ofeach compound which were separated on plate and dataof peak area of each band was recorded. Different solvent compositions were triedfor monitor the elution of componentsin herbalextracts,

Conclusion; The findings can be concluded that flavonoids, phenolicacids and xanthones were detected in the five herbalextracts. Presence of quercetin was confirmed in all herbal extracts.The developed HPTLC methodmay be adopted for routine detection of flavonoids,phenolic acids and xanthones in the herbal extracts.

NCPI-P-029

POTENTIAL PHYTOCONSTITUENTS OF HERBAL PLANTS ON NEPHROLITHIASIS
A COMPREHENSIVE REVIEW

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Abstract:

Nephrolithiasis , a prevalent urological disorder affecting millions of individuals worldwide. It occurs through a series of several physicochemical events, including super-saturation, nucleation, growth, aggregation, and retention within the kidneys. The objective of this study is to explore the potential phytoconstituents present in herbal plants and their effectiveness in the

prevention and treatment of nephrolithiasis. A systematic methodology was adopted for collecting and analysing information pertaining to the etiology, pathophysiology, and efficacy of herbal plants for nephrolithiasis. In the traditional system, a huge number of herbal plants, such as Moringa oleifera, Phyllanthus niruvi,Tribulus terrestris, and Bergenia ligulata, have phytoconstituents that have anti-urolithiatic properties. All are working through different mechanisms based on their phytoconstituents. The eupalitin-3-O-β-galactopyranoside decreases production of IL-2 and TNF-α; the constituent kaempferol increases NaCl excretion and calcium reabsorption; and it has anti-inflammatory activity. The constituent catechin inhibitsROS and the production of osteopontin. Gallo and Ellagitannins have diuretic and antimicrobial activity. Stigmasterol is an antioxidant, and punarnavoside has diuretic activity, and inhibits lipid peroxidation. The studies revealed that these bioactive compounds exhibited anti-urolithiatic properties by inhibiting crystal formation, promoting urinary stone dissolution, having diuretic and antispasmodic effects, aiding in the expulsion of kidney stones, and reducing oxidative stress and inflammation. This review indicates that herbal plants containing specific phytoconstituents possess promising anti-urolithiatic properties and potentially serve as alternative or adjunct therapeutic options for individuals with nephrolithiasis. Further studies are needed to establish their safety, optimal dosage, and long-term efficacy in clinical settings, thereby improving patient outcomes and reducing the burden of this condition on healthcare systems.

NCPI-P-030

FORMULATION AND EVALUATION OF POTENTIAL ANTI MICROBIAL EFFICACY OF POLY HERBAL HANDWASH

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Abstract:

Herbals have been used for health and medical purposes for several thousands of years, majority of people still using herbal medicine to meet their health needs. The aim of the research work is to formulation, evaluation of poly herbal hand wash and find out the antimicrobial efficacy of the formulation. The selected plants *Ocimum sanctum* Linn and *Ocimum basilicum* Linn were collected, authenticated and dried. The Prepared ethanolic extracts of the plant materials were evaluated their quality and purity by physiochemical methods. The phytochemical screening of ethanolic extracts were proved that the presence Alkaloids, Carbohydrates, Flavonoid and proteins and amino acids and absence of glycosides , cardiac glycosides,Steroids, saponins , Phytosterols, Fixed oils and Fats. The formulated polyherbal hand wash was evaluated by foam formation, foam retention and pH. The results revealed that poly herbal hand wash has partially reached marketed formulation (Dettol). The antimicrobial activity of ethanolic extracts *Ocimum sanctum* Linn and *Ocimum basilicum* Linn and polyherbal hand wash from the ethanolic extracts were analyzed against gram positive and gram negative organisms. The result explained that formulated ethanolic extracts *Ocimum sanctum* Linn and *Ocimum basilicum* Linn and polyherbal hand wash showed the maximum zone of inhibition range was found to be 13 mm for *B.subtilis* at 300

µg/ml concentration.The resultswerecompared with the standard drug (Amikacin, ketoconazole), the formulated poly herbal hand wash revealed that equal effects on selected microorganism. It was observed from the antimicrobial study that the formulated poly herbal hand wash had ability to control the growth of microorganisms.This study clearly indicates that extracts of the plants studied possess potent antimicrobial activity.

Keywords: *Ocimum sanctum* Linn, *Ocimum basilicum* Linn, Amikacin, ketoconazole

NCPI-P-031

EVALUATION OF MMP INHIBITION AND IN VITRO ANTICANCER ACTIVITY OF A NATURAL TRITERPENE - URSOLIC ACID

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ABSTRACT

Background; Ursolic acid is a pentacyclic triterpenoid compound found in many herbs and spices (rosemary and thyme), fruits (apples, cranberries, blueberries), and some edible plants. It possesses multiple beneficial effects, including antioxidant, anti-inflammatory, antibacterial, antifungal and anticancer properties

Aim and Objectives; The present study was aimed to explore the ursolic acid for its cytotoxicity effect on various human cancer cell lines and the inhibition potential of matrix metalloproteinases (MMP), the enzyme which is directly involved in cancer metastasis.

Methodology; Ursolic acid was purchased from sigma chemicals. The human cancer cell lines such asHeLa, HepG2, A431, Miapaca-2, AGS and U373MG were procured from NCCS, Pune. The cytotoxicity of ursolic acid on cancer cell lines were studied by MTT assay and MMP inhibition potential was done by gelatin zymography techniqueusing an enzyme collagenase crude Type 1A from microbial source.Collagenase (20 units) was incubated with various concentrations of ursolic acid (10, 30 and 60 µM) at 37^0C for 12 h. The proteolytic potential of the collagenase after treatment with ursolic acid was evaluated using gelatin zymography.

Results; The study reveals thatthe molecule ursolic acid has strong inhibitory effect on all the tested cancer cell lines and the IC50 value was found to be 12.7, 17.5, 14.0, 14.1, 15.6 and 24.8 µM for the cell lines HeLa, HepG2, A431, Miapaca-2, AGS and U373MG respectively. Gelatin zymography revealed that the triterpene ursolic acid possess MMP inhibition potential. When the enzyme was treated with ursolic acid for 12h, the activity of the enzyme was inhibited in dose dependant manner.

Conclusion; The overall findings support the triterpene ursolic acidto be a promising molecule to further explore the therapeutic applicability against cancer treatment

NCPI-P-032

DETECTION AND ESTIMATION OF RUTIN, QUERCETIN ANDGALLIC ACID IN MARKETED GREEN TEA FORMULATIONS BY HPTLC TECHNIQUE

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ABSTRACT

Background: Identification of major and unique molecule in herbs as markers and development of analytical methodologies for the selected markers are the key steps involved in marker-based standardization of herbal formulations. High performance thin layer chromatography (HPTLC) is a preferred analytical tool for fingerprints and quantification of marker compounds in herbal drugs.

Aim &objectives: Toevaluate various marketed green tea (*Camellia sinensis*)formulation using HPTLC finger printing and to determine the presence of selected markers such as rutin, quercetin and gallic acid in both aqueous and methanolic extracts of the formulations.

Methodology: Six green tea formulations GTF1 to GTF6, were procured from the market and extracted with water and methanol. A Camag HPTLC system comprising ofLinomat 5 applicator and Camag TLC scanner were used, HPTLC was carried out using Merck aluminium sheet coated with silica gel GF 254 using different solvent compositions.

Results: The densitometry analysis was performed at 254nm in reflectance mode. The elution of all the formulations were carried out in mobile phase, good results were tabulated by considering each Rf value for one ingredients of formulation.Resultsof the investigation revealed the presence of well-known free radical scavengers rutin, quercetin and gallic acid.

Conclusion: The findings can be concluded that flavonoids, phenolic acids and xanthones such as rutin, quercetin and gallic acid were detected in the marketed green tea formulation. the investigation revealed the presence of well-known free radical scavengers rutin in decreasing order GTF(4)A < GTF(3)A < GTF(2)A. quercetin GTF(4)M< GTF(5)M < GTF(5)A< GTF(1)A and gallic acid in decreasing Order of percentage GTF(3)M < GTF(2)M < GTF(3)A < GTF(2)A < GTF(1)A< GTF(1)M< GTF(4)A were estimated in marketed green tea formulations. The developed HPTLC method may be adopted for routine detection of flavonoids, phenolic acids and xanthones in the above formulations.

NCPI-P-033

A Review on Acetogenins from *Annona reticulata*: "A Promising Approach for Effective Cancer Therapy"

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ABSTRACT

Objective; The objective of this review is to elucidate the underlying mechanisms of action and therapeutic benefits associated with this plant against cancer therapy.

Methodology; Using a variety of terms, such as "acetogenins and cancer," "acetogenins antitumor activity," and "acetogenins and cytotoxicity," we conducted a literature search in the scientific database PubMed.

Result; Annonacin, Gamma-lactone acetogenin, cis-/trans-isomurisolenin, annoreticuin, annoreticuin-9-one, bullatacin, squamocin, cis-/trans-bullatacinone and cis-/trans-murisolinone are some of the acetogenins isolated from *Annona reticulata*. T24 bladder cancer cells at the S phase were more susceptible to the cytotoxicity of annonacin, a cytotoxic mono-tetrahydrofuran acetogenin from Annona reticulata seeds.. Furthermore, annonacin activated p21 in a p53-independent manner and arrested T24 cells at the G1 phase. It also induced Bax expression, enhanced caspase-3 activity, and caused apoptotic cell death in T24 cells. Similarly, squamocin," bis-tetrahydrofuran acetogenin", from the seeds arrested T24 bladder cancer cells at the G1 phase and caused a selective cytotoxicity on S-phase-enriched T24 cellsIt increased caspase-3 activity, promoted the expression of the pro-apoptotic Bax and Bad genes, cleaved the functioning PARP protein, and triggered cell death.cis-/trans-isomurisolenin, cis-/trans-murisolinone and cis-/trans-bullatacinone also caused significant cytotoxic activity activity against HepG2 cells.

Conclusion; Acetogenins the secondary metabolites found in the Annonaceae family, which are employed in traditional medicine for the treatment of cancer are versatile anticancer molecules causing tumor cell death by different mechanisms.They are potent inducers of apoptosis and can control the exclusion of chemotherapy medicines from cancer cells.Their pharmacological versatility is demonstrated by their capacity to inhibit different proteins, promote apoptosis by stopping cells in phase G1, and even induce autophage

Key Words: *Annona reticulata,* cytotoxicity, annonacin, squamocin

NCPI-P-034

Evaluation of the Plant Extract of *Myristica Fragrans*for inhibitory effect of Cariogenic Biofilm Colonizer Bacteria-Nature's Gift in Oral Health Care

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ABSTRACT

Background: Dental caries and periodontal disease were associated with oral pathogens. Based on various facts we planned to study the effect of leaves of *myrstica fragrans* on the biofilm formation. the pharmacological activity of *myristica fragrans* leaf oil and its effects on *invitro* dental Plaque was observed

Aim and Objectives: To prepare the biofilm using *myrstica fragrans* leaf oil and to evaluate the anti carries properties against the bacteria *streptococcus mutans* and *streptococcus sobrinus.*

Methodology: Colony counter, Stereomicroscope, *S.mutans* (MTTC 890 strain), Brain heart infusion broth and agar media (Hi media) ,Fluid thioglycolate medium (Hi media) were used. we designed a method for screening plant material for this activity that is adaptable to natural and synthetic materials, a simple, rapid, and reliable technique. *Invitro* Plaques were formed on Nichrome wires no.20 by the slight modification of the method.

Results: The VOMFL was evaluated for the inhibitory activity of the major cariogenic bacteria Streptococcus mutans, using an artificial dental biofilm model. The inhibitory actions were performed at a concentration of 1µl/ml and exposure of time to the test, standard, and were evaluated.

Conclusion: From the results obtained by invtro anti plague activity, we concluded that the essential oil of leaves of *myristica fragrans* could be utilized for Pharmaceutical applications.

NCPI-P-035

Phenylpropanoids, cycloartane derivatives from Star Anise (*Illicium verum*) and their antiviral properties

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Objective; The objective of the study is to summarize the effectiveness of Phenylpropanoids, cycloartane derivatives from Star Anise as a better antiviral agent.

Methodology; Databases like Google Scholar, Research Gate, and PubMed were used to identify the relevant literature.

Result; Shikimic acid (3,4,5-trihydroxy 1-cyclohexene-1-carboxylic acid), a natural organic compound and an important intermediate in the biosynthesis of various phytochemicals. It has acquired significance as a substrate for the chemical manufacture of the medicine oseltamivir

phosphate, also referred to as Tamiflu commercially. It is the primary intermediate of the shikimic acid pathway. This medication effectively inhibits the surface protein neuraminidase (NA) enzyme of seasonal influenza virus types A and B, avian influenza virus H5N1, and human influenza virus H1N1.Illicinone-A, tashironin A (Phenylpropanoid derivatives) & 3,4-seco-(24 Z)- cycloart-4(28),24-diene-3,26-dioic acid, 26-methyl ester(cycloartane derivatives) from the roots of *Illicium verum* possessed moderate anti-HIV activity with EC50 values of 16.0 and 5.1 μM with SI values of 18.2 and 15.6.Similarly anisaldehyde also showed anti-HIV activity. Another phenyl propanoid derivative [(-)-bornyl *p*-coumarate] showed strong antiviral activities against influenza virus A/Puerto Rico/8/34 H1N1 (PR8) with an IC_{50} value of 1.74 ± 0.47 μM, which is much better than those of Tamiflu (IC_{50} = 10.01 ± 0.92 μM) and ribavirin (IC_{50} = 10.76 ± 1.60 μM).

Conclusion; Shikimic acid is the most important bioactive from star anise, studies reported that several other molecules from star anise produce prominent antiviral effect. Natural products are common molecular platforms in drug development; in HIV, compounds from the plant phenylpropanoid metabolic pathway and cycloartane have yielded promising associations.

Key words: *Illicium verum*,shikimic acid, Tamiflu, antiviral

NCPI-P-036

AN EVIDENCE BASED HERBAL FORMULATION DEVELOPMENT COMPARATIVELY FOR EPILEPSY

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Abstract:

Epilepsy is a chronic non communicable disease of brain which is characterized by recurrent seizures, involuntary movements that may involve a part of the body or entire body. It affects around 50 million people worldwide. Seizure episodes are a result of excessive electrical discharges in a group of brain cells. The main aim of this review article is to search out some phytoconstituents having the epileptic activity comparatively with that of the marketed synthetic drugs.Carbamazepine , Phenytoin,Valproate are the most commonly prescribed anti-epileptic drugs. The drug Carbamazepine works with the mechanism by enhancing of Na+ channel inactivation by reducing high frequency firing of action potential and it also increases the inhibitory neurotransmitter GABA.Phenytoin is a non-specific Na+ channel blocker and targets almost all voltage gated Na+ channel. Valproate is an important drug, which acts on GABA levels in the CNS, blocking voltage gated ion channels and inhibiting Histone deacetylase.Here some phytoconstituents are selectedwhich are isolated from herbs,like *Centella asiatica* consist of Asiatic acid, and the plant Becopa monnieria consist of Bacoside A. Both are having the samemechanism of action like Carbamazepine.The plant *Clitoriaternatea*is having different phytoconstituent like steroid - β sitosterol, hexacosanol, anthoxanthin with the same mechanism of action like phenytoin and Valproate. Where as the plant *Acorus calamus* containing Asarones as the phytoconstituent with the both like Carbamazepine and phenytoin mechanism of action. When concluding this review, it shows the isolated phyoconstituents are also having the same mechanism of action to prevent the neurological disorder like epilepsy. So

the isolated phytoconstituent is preferable and safety to develop medicine for epilepsy than the synthetic chemical.

Key words: Epilepsy , Carbamazepine, *Centella asiatica, Clitoria ternatea,*

NCPI-P-037

ANTIBACTERIAL AND ANTIFUNGAL ACTIVITY OF SILVER NANOPARTICLES SYNTHESISED USING PLEUROTUS FLORIDA AND AGARICUS BISPORUS

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ABSTRACT

Background; Agaricus bisporus and Pleurotus florida are the edible medicinal mushrooms which are used as anticancer, antiviral, hepatoprotective, immunopotentiating and hypocholesterolemic agents. In our study we have reported the biological synthesis of silver nanoparticles using edible mushroom extract (Agaricus bisporus and Pleurotus florida) as a bioreductant.

Aim and objectives; The present study was aimed to know the antibacterial and antifungal activities produced by the silver nanoparticles, synthesized using mushrooms to overcome antimicrobial drug resistance. Preparation of cold aqueous and hot aqueous extract of Pleurotus florida and Agaricus bisporus. Biosynthesis and characterization of silver nanoparticles by UV-Visible spectroscopy, FTIR and SEM.

Methodology; The antibacterial and antifungal activity of mushroom synthesized silver nanoparticles was carried out by disc diffusion method against gram positive, gram negative bacteria and fungi. Then nutrient agar plate and sabouraud dextrose agar plate was prepared and solidified for bacteria and fungi respectively.After that, culture were spread on the plate.Then sterile disc which was soaked in silver nanoparticles solution was placed on the medium. After incubation clear zone of inhibition formation indicates the antibacterial and antifungal activity.

Results; Silver nanoparticles were synthesized using the extracts using the extracts of Pleurotus florida and Agaricus bisporus by treating it with silver nitrate solution [1mM] under the dark condition. The appearance of yellowish brown and dark brown with precipitation indicates the formation of silver nanoparticles within 24hrs.

Conclusion; The present study concluded that the hot aqueous extract of mushroom gives better results than the cold aqueous extract. The synthesised nanoparticles are characterized and confirmed by UV Visible spectroscopy, FTIR and SEM.

NCPI-P-038

FORMULATION AND EVALUATION OF TOPICAL GEL USING BUTTERFLY PEA FLOWER EXTRACT

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ABSTRACT

Background; Butterfly pea (Clitoria ternoted) is a perennial plant species from the Fabaceae family that has been widely used as a forage crop, and as a part of traditional medicine. The qualitative analysis of Clitoria ternatea shows the presence of bioactive compounds such as Alkaloids, Tannins, Glycosides, Resins, Steroids, Saponins, Flavonoids and Phenols.

Aim and Objectives; To formulate topical gel containing clitoria ternatea flower powder using Carbopol as base & evaluate the formulation using parameters like homogeneity, spreadability, pH, viscosity and antioxidant assay.

Methodology; Formulation is obtained by serial dilution and disc diffusion method .The extraction is obtained by 10g of dried butterfly pea flower powder was dissolved in 200ml of distilled water (solvent) and let to stand for 12 hours with a gentle shake using round bottom flask. The formulation was prepared using the extract and further evaluation studies were performed

Result and Discussion

• Several formulations' percentage medication content was confirmed to be within the limit. Drug
content was found to be 98.20%, 98.75%, 99.05%, and 99.30% in F1, F2, F3, and F4.
• It was discovered that formulation FI's Ph was 6.5, which is within the ideal skin Ph range.
• Formulation FI's viscosity was determined to be 66,400 centipoise.
• Formulation FI's spreadability was determined to be 4.5 cm.
• Formulation FI was determined to have outstanding homogeneity.

Conclusion; A significant phytoconstituent called anthocyanin is present in clitoria ternatea extract and is responsible for the plants Anti aging and Antioxidant properties.

NCPI-P-039

Review on Recanescine from Rauwolfia treating Hypertension

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Traditional medicine is a comprehensive term for ancient, culture-bound health care practices that existed before the use of science in health matters and has been used for centuries. Many drugs are available for managing these diseases, though common antihypertensive drugs are generally accompanied by many side effects. Medicinal herbs have several active substances with pharmacological and prophylactic properties that can be used in the treatment of hypertension. This review presents an overview of some medicinal plants that have been shown to have antihypertensive properties. Rauwolfia

serpentina is a safe and effective treatment for hypertension.Themost important alkaloids found in the plant are indole alkaloids, with more than 50 of those alkaloids having been isolated.Among the various alkaloids of rauwolfia, reserpine,rescinnamine and ajmalicine are clinically important,but until recently only reserpine had been found to be active. Other varieties of Rauwolfia have been studied and from Rauwolfia canescine the alkaloid recanescine has been isolated.Recently,reserpine in short-term study observed a significant decrease in both systolic and diastolic blood pressureof patients to whom the drug was given.The chemical structure of recanescine is identical with that of reserpine, with the exception that the methoxy groupin position 11 is replaced by a hydrogen ion.So Recanescine is more potent thanreserpine.No dramatic responses were seen, so called "tranquilizing" effect was readily apparent and was appreciated by the patients. Arteriosclerotic hypertensive patients treated with an extract of Rauwolfia over a long period, a mild hypotensive effect was noted after weeks, or occasionally months, of therapy. Rauwolfia has been studied for the treatment of mental diseases, including schizophrenia, bipolar disorder, epilepsy ,seizures, insomnia.We concludes with the recommendation of use of low dose Rauwolfia (LDR) for suitable patients with hypertension.

Keywords –Traditional medicine, Rauwolfia, Reserpine, Recanescine, Tranquilizing effect, Antihypertensive, LDR

NCPI-P-040

Documentation of ethnomedicinal value of *Aloe vera* Linn. used by the Irular tribe of Ariyalur District, Tamil Nadu.

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ABSTRACT

The present study was carried out to assess the ethnomedicinal value of *Aloevera* Linn. used by the Irular tribe of Ariyalur District, Tamil Nadu. Survey was conducted with elderly people of Irula tribe by personal interviews and questionnaires. The investigation was revealed that *Aloe vera* has enormous medicinal value and it is used both internally and externally. The pulp extract used for external application in the form of shampoo, controls dandruff and hair-fall, heals wounds, skin diseases and smoothens the body skin. When it is taken internally it helps to prevent constipation, relieves gastric problems, ulcers, uterus problems, leukemia, intestinal worms, infertility and eye ailments. It improves the general immunity of body against diseases and rejuvenates body tissues. Hence, the effort taken to register the traditional use of *Aloe vera* therefore it can be used in pharmacological industry to explore the new drugs for dreadful diseases.

Keywords: Traditional knowledge, medicinal plants, gel, Irular tribe and healing practices.

NCPI-P-041

EVALUATION OF EUGENOL LOADED CHITOSAN NANOPARTICLES

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Introduction: Chitosan is a biopolymer, it is deacetylated derivative of chitin. It is a biodegradable polysaccharide and very biocompatible. Its source is from the outer skeleton of shellfish, including lobster, crab and shrimp. It has an antibacterial activity and nontoxic in nature.

Eugenol is an aromatic oil, extracted from cloves. It is well recognized for its pharmacological properties for anticancer, antimicrobial, anti-inflammatory, antioxidant and analgesic activity. It has less absorption rate and shows high toxicity.

Chitosan nanoparticles have become of great interest in nanomedicine, biomedical engineeringand in the development of new therapeutic drug release systems with improved bioavailability, increased specificity, sensitivity and reduced pharmacological toxicity. The effect of eugenol loaded chitosan nanoparticles are studied on this experiment, usually eugenol shows less absorption rate and high toxicity so, loading it in chitosan nanoparticles this effect are expected to be reduced based on literature reviews.

Objective: Synthesis of EugenolLoaded Chitosan Nanoparticles showing an antibacterial and antibiofilm activity.

Methodology: The Eugenolwas taken and the chitosan nanoparticles were prepared by ionic gelation method with TPP. It is the method of synthesis of nanoparticles, based on an electrostatic interaction between opposite charge types that contains at least one polymer under mechanical stirring conditions.

Result: Antimicrobial activity of ECNP was observed which shows 3cm zone of inhibition on incubation of 24 hours, using microbiological assay method.

Keywords: Eugenol, Chitosan, TPP- Tripolyphosphate,ECNP- Eugenol Coated Nanoparticles, Nanoparticles.

NCPI-P-042

ZOOPHARMACOGNOSY - DIVULGING POTENTIAL MEDICINES THROUGH ANIMAL OBSERVATIONS

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Zoopharmacognosy, the study of animals self-medicating through the utilization of natural substances, offers a unique avenue for discovering novel medicines. This review abstract explores the concept of zoopharmacognosy and highlights the potential of this field in discovering new medicines.

Introduction: Zoo pharmacognosy focuses on the intriguing phenomenon of animals actively seeking and utilizing natural substances for self-medication. This behavior reflects the remarkable adaptations animals have developed to address health issues or enhance their well-being.
Methods: A comprehensive literature search was conducted using databases such as PubMed, Scopus, and Web of Science. The inclusion criteria encompassed research articles that investigated animals' medicinal practices and their potential for discovering new medicines.
Results: Studies in zoopharmacognosy have revealed compelling examples of animals self-medicating with various natural substances. Observations have ranged from primates selecting specific plants to alleviate gastrointestinal disorders to insects utilizing plant resins for antimicrobial purposes.
Discussion: The remarkable diversity of animal species engaging in self-medication suggests that there is a vast array of untapped natural resources for potential medicinal discoveries. Additionally, investigating the evolutionary adaptations underlying these behaviors may provide valuable insights into the therapeutic potential of these compounds in humans.
Implications for Medicine: The insights gained from zoopharmacognosy have the potential to significantly impact the field of medicine can be developed into effective drugs or serve as templates for the synthesis of novel compounds.
Conclusion: Zoopharmacognosy holds great promise for the discovery of new medicines. By observing the medicinal practices of animals, researchers have the opportunity to uncover potential therapeutic compounds and gain insights into the evolutionary adaptations that underpin these behaviors. The exploration of zoopharmacognosy offers a valuable avenue for expanding our knowledge of natural medicine and advancing drug discovery efforts.
Keywords :Selfmedication, Zoopharmacogno

NCPI-P-043

FORMULATION AND PHYSICO-CHEMICAL EVALUATION OF POLYHERBAL SOAP

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ABSTRACT

Herbal cosmetics have become an item of global importance both biologically and economically. The usage of these herbal products has increased, because of the quality, safety and efficacy. Soaps are used for the topical application with herbal products against skin infection. The present study has the aim to formulate poly herbal soap with anti fungal effect. Medicinal plants extracts are the ingredients for antimicrobial herbal soap which are safer and beneficial than the commercial soaps with synthetic materials. *Azadirachta indica*, *Ocimum sanctalum*,*Cassia fistula* and *Tinospora cordifolia* has been selected for the soap because they were individually evaluated and reported for their antifungal activity and in combination it will boost up the effect towards nullify the microorganisms. The leaf extracts were prepared and incorporated within the soap base. Volatile oil has been isolated from the *Nyctanthes arbortristis* flowers by distillation method and added with the soap for fragrance. The formulation was also evaluated for the physicochemical characteristics of the soap like PH, Foaming Index, Foam retention time etc.

The poly herbal soap was successfully formulated and evaluated .Easy availability of plants and their effectiveness helps formulation with cost effective benefits without side effects.

Key Words: *Azadirachta indica, Ocimum sanctalum, Cassia fistula , Tinospora cordifolia*

NCPI-P-044

A Comprehensive review on Citrus aurantifolia as anticancer potential

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ABSTRACT:

Introduction : Cancer is an excessive, abnormal, autonomous, repetitive, proliferation of cells. Cancer is most death causing disease. *Citrus aurantifolia* belongs to the family – Rutaceae having many phytoconstituents responsible for diverse therapeutic action which includes anti-cancer activity. *Citrus aurantifolia*, a traditional fruit which is commonly called as Key lime.

Scope : To summarize review on phytoconstituents and therapeutic potential of *Citrus aurantifolia* as Anticancer plant material.

Methodology:

The data for review were collected from the following websites: Pubmed, ScienceDirect, Taylor and Francis, Thieme. The anti-cancer properties of *Citrus aurantifolia* were researched and their articles from above websites were reviewed.

Results: Phytoconstituents of *Citrus aurantifolia* includes limonoids, flavonoids, pectin, essential oil, polysaccharides, phenolics. Lime volatile oil showed inhibition of human colon cancer cells. Lime volatile oil contains D-limonene (30.13 %) and D-dihydrocarvone (30.47 %) and Obacunone which are responsible for induction of apoptosis. Nobiletin, Citrus flavonoids showed anti- Hepatocellular carcinoma (HCC) activity by *in-vitro* and *in-vivo*. Limonoids shows anti-proliferative effects in breast cancer, colon cancer, neuroblastoma. Citrus lime juice inhibits continuous proliferation of human lymphoblastoid B-cell lines.

Conclusion: *Citrus aurantifolia*has diverse pharmacological action including anti-bacterial, anti-viral, anti-fungal, anti-fertility, anti-helminthic, anti-aflatoxigenic, anti-diabetics, anti-oxidant, anti-hypertensive, immunomodulator, anti-obesity activity especially, anti-cancer activity. Its anti-cancer activity is mediated by following mechanisms such as DNA fragmentation, induction of caspase-3, infiltration of CD8+T cells, block tumor cell cycle in S-phase. From this review, it is suggested that *Citrus aurantifolia* can be used as an alternative medicine for treating cancer.

NCPI-P-045

Formulation, Characterization, and Stability Testing of Nano Lipid Carriers loaded with Curcumin

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Abstract

Background: Curcumin belongs to BCS Class IV with poor aqueous solubility and low permeability which results in poor bioavailability. The present research would focus on the preparation and evaluation of curcumin loaded with NanostructuredLipid Carriers (NLCs) using two different lipids and to identify the preparation with high physical stability.

Methodology: Curcumin-loaded NLCs were prepared by high-speed homogenization and ultra probe sonication using different sets of lipids such as solid lipids- Behenic acid and Precirol ATO-5, liquid lipids – oleic acid and Labrafac PG in the presence of Tween 80 and GMO as surfactant and co-surfactant. The lipids were selected based on the solubility studies respectively. The prepared NLCs were characterized for particle size, PDI, zeta potential, entrapment efficiency,and in-vitro drug release.

The stability studies were performed at 4°C,25°C, and 40°Ctemperatures for NLCs as per ICH guidelines for a period of 30 days.

Results: NLC F1 and F5 were chosen as the best formulations from each set of lipid combinations. The average particle size of F1 and F5 were found to be 240nm and 167.5nm with a PDI of 0.187 and 0.226 respectively. The Zeta potential values range from -28.8mV to -19.8mV. All the formulations exhibited a sustained release of curcumin for 3 hrs. It revealed that the F5 formulation possessed high stability compared to F1.

Conclusion: It can be concluded that the NLC preparation based on Precirol ATO-5 was observed with high physical stability, better drug release, and excellent entrapment efficiency. Further, the study can be corroborated by developing a suitable oral dosage form and evaluated for its anti-cancer activity.

Keywords:
Curcumin, Nano lipid carriers, stability studies.

NCPI-P-046

Simultaneous estimation of Umbelliferone and Para Coumaric acid in *Coriandrum sativum* leaf extracts using High Performance Thin Layer Chromatography.

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ABSTRACT

Background; A new simple, precise techniques for the quantification of phytoconstituentspresent in the edible nutritional plant materials are rationale for the study.

Objective Simultaneousestimation of p-coumaric acid and Umbelliferone present in the n-hexane and methanolic successive fraction of *Coriandrum sativum* was carried out using High Performance Thin Layer Chromatography.

Method; The method was performed using aluminium plate pre-coated with silica gel $60F_{254}$ as

stationary phase and the mobile phase system [Hexane:Ethylacetate:Glacial acetic acid] in the ratio [12:6:2] was used for chromatographic separation of constituents. The densitometric analysis for concurrent determination was carried out at 366 nm and 254 nm for Umbelliferone and P-Coumaric acid respectively.

Results; In this method the Rf value for Umbelliferone and P-Coumaric acid was 0.38 & 0.44 respectively. The linearity of the method was attained in concentration range 58.87ng/µl and 49.13 ng/µl spot for Umbelliferone and P-Coumaric acid with correlation coefficient value 0.99964& 0.9926. The limit of Detection was found to be 300 ng /µl and 100 ng/µl. Limit of Quantification is ranging from 0.4 µg/µl to 2.4 µg/µl and 0.2 µg/µl to 1.2 µg/µl for P- Coumaric acid And Umbelliferone respectively.

Conclusion;Thus the coumarin content of the plant material was quantified and further entire validation protocol can be developed for standardization of the nutritional plant material.

NCPI-P-047

DEVELOPMENT OF NUTRACEUTICAL PRODUCT AS DIETARY SUPPLEMENT WITH MEMORY ENHANCER

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ABSTRACT

Linum usitatissimum and *Bacopa monnieri* are the herbal plants that contains the lot of nutrients. Daily administration of these two herbs in recommended dosage shows beneficial effect on human. Due to the understanding of potential benefits brought by the two herbal plants, This study is carried out to develop and standardize herbal nutraceuticals products which contains the two well nutritious herbs. Furthermore, an added advantage of this study is that there is currently no product in the market consisting of these two herbs. Therefore, this study aimed to develop a new herbal nutraceutical product and introduce it to the market for the target group of children. Formulation was adjusted according to the recommended daily intakes of the herbs. Three different chewable tablet formulation were developed by using different excipients in order to develop a better formulation with shorter disintegration time. The prepared formulation were subjected to various physical evaluations like weight variation, hardness, thickness, friability, disintegration test, and chemical evaluations like Thin Layer Chromatography and High Performance Liquid Chromatography. The results of all physical evaluations are found to be within the limit and complies the pharmacopoeia standards. The total bacoside A content was estimated by HPLC analysis and conformed that all the formulation contains specific amount of bacoside A. out of three formulation, the fomulation 3 was considered as better one due to shorter disintegration time and good appearance. The efficacy and stability studies for the formulations are to be carried out in future.

KEYWORDS: *Linium usitatissimum, Bacopa monnier*i, TLC & HPLC, Herbal nutraceutical product, Bacoside A**.**

NCPI-P-048

CARNOSIC ACID AND FERULIC ACID ACTIVE AGAINST NEURODEGENERATIVE DISORDERS THROUGH MIXED POTENTIAL

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Abstract

Introduction: NDD'S causes neurons to gradually lose their structure and function and millions of individuals worldwide are impacted by it. NDD's are classed based on numerous characteristics, with Alzheimer's disease, Parkinson's disease, and Huntington's disease being the most frequent. Carnosic acid a Natural benzenediolabietanediterpene (*Salvia rosmarinus*) and Ferulic acid a 4-hydroxy 3-methoxy cinnamic acid (*Ferula foetida*)are natural constituents produced through diverse extraction processes from a variety of natural sources.

Objective;The primary goal is to address the value of natural product ingredients in the discovery of medications for neurodegenerative illnesses.

Methods; We performed systemic literature review using databases like google scholar, pubmed for the last 20 years including clinical trial data.

Results; Studies have shown that Carnosic acid is an effective neuroprotective agent that works through a variety of mechanistic actions (prevention of Amyloid (Aβ) induced neuro degeneration, induction of autophagy, anti-apoptotic & anti-oxidant effects). It possesses a variety of biological properties, including anti-oxidative, anti-inflammatory, and anti-carcinogenic effects. Ferulic acid also has a number of biological qualities, including low toxicity and anti-oxidant, anti-diabetic, anti-carcinogenic, and anti-inflammatory effects. Recent research on ferulic acid has shown that it is an effective neuroprotective drug that works by blocking the 6-OHDH, α-synuclein, and TLR pathways.

Conclusion; Therefore, a large synergistic effect could be produced by the efficient combination administration of Ferulic acid and Carnosic acid.It might be a brand-new strategy for the incurable neurodegenerative diseases.

Keywords: Carnosic acid, Ferulic acid, Neuro protective agent, Amyloid (Aβ), Autophagy,6-OHDH,α-synuclein, TLR.

NCPI-P-049

IN VITRO ANTIANGIOGENESIS EFFECT OF *Phoenix dactylifera L.*, BY CHORIOALLANTOIC MEMBRANE ASSAY

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Introduction; Angiogenesis is a critical process in the growth and development of blood vessels, playing a vital role in tumour progression. To combat this, researchers have focused on

angiogenesis inhibitors, which block the formation of blood vessels that support tumour growth factors rather than targeting the tumour cells.

Objective: Numerous studies have explored the potential of angiogenesis inhibitors derived from the plant sources, aiming to integrate them into conventional cancer therapies.Our research investigated the ethyl acetate and ethanolic extracts of *Phoenix dactylifera L*. seeds for their potential as antiangiogenic agents using the Chorioallantoic Membrane Assay, an in vitro method.

Methodology: Our analysis included qualitative and quantitative assessments and infrared spectrum and gas chromatography-mass spectroscopy analysis of the ethanol and ethylacetate extraction of *Phoenix dactylifera L.*,seed.

Results:The gas chromatography-mass spectroscopy analysis of the ethyl acetate extract revealed the presence of a significant phytoconstituent called Beta-sitosterol. Previous studies have reported the antiangiogenic activity of Beta-sitosterol through the induction of apoptosis. Pharmacological studies using the Chorioallantoic Membrane Assay demonstrated that the ethyl acetate extract exhibited dose-dependent antiangiogenic effect. Specifically, the 100µg/ml concentration was more effective in inhibiting blood vessel formation than 1µg/ml and 10µg/ml.

Conclusion: Based on our findings, we can conclude that the ethyl acetate extract of *Phoenix dactylifera L.,* seeds at a concentration of 100µg/ml holds promise for its antiangiogenic effects as demonstrated by the Chorioallantoic Membrane Assay. This suggests that further exploration and exploitation of this extract could be pursued for its potential application in antiangiogenic therapy.

Key Words: Angiogenesis, *Phoenix dactylifera L.,* seed, Chorioallantoic Membrane Assay, Beta sitosterol.

NCPI-P-050

Biosynthesis of Silver Nanoparticles using *Diospyros kaki* (Ebenaceae) leaf extract and its antioxidant and antibacterial activities.

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ABSTRACT

Introduction: Nanotechnology has emerged as one of the large and attractive areas of research, offering unique features and extensive applications in various sector such as agriculture, food and biomedicine. Nanoparticles of noble metals, such as silver, gold, platinum, copper, zinc, titanium and magnesium, have gained considerable attention for biomedical application due to their multifunctional theranostic abilities.

Objective: Biosynthesis and characterization of Silver Nanoparticles using *Diospyros kaki* (Ebenaceae) leaf extract and its antioxidant and antibacterial Activities.

Methodology: The eco-friendly green synthesis of silver nanoparticles (AgNPs) from silver nitrate (AgNO3) using *Diospyros kaki* leaves extract as reducing agent by a simple method at room temperature. The biosynthesized nanoparticles (NPs) were characterized by UV-Vis spectroscopy, tunneling electron microscopy (HRTEM), scanning electron microscopy (SEM) coupled with X-ray energy dispersive spectrophotometer (EDAX), X-ray diffraction (XRD) and Fourier transform infrared spectroscopy (FTIR).

Results: The AgNPs synthesized were spherical, hexagonal, and irregular in shapes. The EDAX and XRD spectrum confirmed the presence of silver ions and crystalline nature of synthesized AgNPs. FTIR showed the functional groups such as C = O, N–H and C–N groups involved in the reduction of Ag^{+} to Ag. 2, 2-Diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay was performed and it showed the percentage inhibition in concentration-dependent manner. The synthesized AgNPs showed antibacterial activity against *Escherichia coli, Proteus vulgaris, Staphylococcus aureus* and *Bacillus cereus* to different extents and the higher activity was observed in *Escherichia coli*.

Conclusion : Concludes of this studies the extract for synthesis of $AgNP_S$ is that it is energy efficient, cost effective, protecting human health and environment leading to lesser waste and safer products.

NCPI-P-051

Isolation, Characterization and Anticancer Activity of Two Bioactive Compounds from *Vitex pinnata* Linn., Leaves on MCF-7 Cell Line

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Abstract:

Vitex pinnata Linn., belongs to *Verbenaceae* family is a moderate size tree of tropical Asia. The present study deals with isolation and characterization of apigenin and luteolin from ethyl acetate fraction (EAVP) obtained from hydroalcoholic extract (70%) of *Vitex pinnata* Linn., leaves by column chromatographic method. The mass spectrum of the compound VP-1 showed $[M-H]^-$ ion peak at 269.05*m/z* ($C_{15}H_{10}O_5$). The IR spectra exhibited characteristic bands at 3283 cm^{-1} for –OH groups, 1656 cm^{-1} for C=O group, 1171 cm^{-1} for C-O group and at 1606 cm^{-1} for C=C group. The ^1H NMR spectrum showed the presence of broad peaks at δ 10.36, 10.80 and at 12.95 suggesting the presence of three phenolic hydroxyl groups. The ^{13}C NMR spectra showed the presence of fifteen carbon atoms. The spectral data of VP-1was consistent to 4′, 5, 7-trihydroxyflavone, also known as apigenin.The Mass spectral data of compound VP-2 showed $[M-H]^-$ ion peak at *m/z* 285. The IR spectra exhibited characteristic bands at 3419 cm^{-1} for –OH groups, 1654 cm^{-1} for C=O group, 1169 cm^{-1} for C-O group and at 1609 cm^{-1} for C=C group. The ^1H NMR spectrum of VP-2showed the presence of three meta coupled aromatic doublets at δ 6.17, 6.43 and 6.87, a singlet at 6.62. The ^{13}C NMR spectra showed the presence of fifteen aromatic carbons. The spectral data was consistent to luteolin. EAVP had led to the isolationof

VP-1 (apigenin) and VP-2 (luteolin), showed the potential anticancer activity against MCF-7 by MTT assay. Moreover, the two isolated compounds can play a vital role in cancer therapy. It is noted that the valuable finding of this study could be considered as a precious economic medicinal natural products which would be helpful in the cancer rehabilitation to human health.

Key words: Ethyl acetate fraction, IR, NMR, Mass spectroscopy, L-6, MCF-7

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NCPI-P-052

The role of antioxidants in oxidative stress and hypercholesterolemia

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Abstract

Hypercholesterolemia is a clinical condition characterized by an increase of the total cholesterol and LDL (low density lipoprotein) cholesterol. Cholesterol is an important cellular structural component present in cell membrane affecting the cellular structural and functional integrity. Oxidative stress is an imbalance between free radicals formation and their scavenging (antioxidant system) in the body. In hypercholesterolemia, there is an increase of total cholesterol pool in cells which results into altered cell membrane due to lipid per oxidation.

Antioxidants are first line defense system against free radical damage and play very crucial role in maintaining optimum health care. Although, present day research is focused on the potential and miraculous benefits of antioxidant nutrients or supplements in our daily life. It has become the best protection against oxidative stress involve a wide selection of interrelated antioxidants and antioxidant cofactors.Adequate intake of antioxidants, such as *beta*-carotene and vitamin C supplements or some of fruit and vegetables which have been reported as essential antioxidants which play a vital role in decreasing the risk of cancer and coronary heart disease (CHD).

Key words: Hypercholesterolemia, Oxidative stress,Anti oxidants.

About US

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