

Mar Joseph Kallarangatt
Bishop of Palai, Patron



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I write this foreword for the International Conference of Traditional and Alternative Medicine with great sense of pride and pleasure. It gives me immense pleasure to learn that Department of Biochemistry is about to host the International Conference on Traditional and Alternative Medicine (ICTAM) on 18th -19th, September 2017 at St. Thomas College Palai. It is sure that the ICTAM- 2017 will offer an excellent opportunity for increasing the public awareness about the importance of traditional and alternative medicine for various diseases. ICTAM-2017 will not only assemble of Scientists, Doctors, Academics, Researchers, and Students from all over India and abroad but also embolden their wisdom to new therapeutic level. Organizing an International conference of such mammoth proportion is always a challenging task and requires an out- and –out endeavor on part of the coordinators and for which they deserve accolades and appreciations from every quarters for their herculean feat

I wish this conference a great success and thank to Department of Biochemistry for making it possible and we all looking forward to the great academic feast.

Mar Joseph Kallarangatt
Bishop of Palai, Patron

Mar Jacob Muricken
Auxiliary Bishop of Palai
Manager & Chairman



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It is my happy privilege to write a short message for the International Conference on Traditional and Alternative Medicine (ICTAM-2017), is organized by Department of Biochemistry, St. Thomas College Palai during 18-19 September 2017. It is sure that the ICTAM 2017 will offer a unique opportunity to all delegates in all medicinal branches to share, discuss and learn about the significant transformations in conventional approach. I would like to acknowledge and thank Dr. Ratheesh M (Assist. Professor & Convenor), Organising Secretary and their committees for doing such an outstanding job in creating an exciting meeting that I believe covers the breadth of research interests of doctors, researchers and delegates, as well as some novel disciplines/research areas not previously offered.

I wish you all a wonderful meeting and hope that you learn something new, meet someone new and most importantly, have a great time.

A handwritten signature in black ink, reading "Mar Jacob Muricken" with a horizontal line underneath.

Mar Jacob Muricken
Auxiliary Bishop of Palai,
Manager and Chairman



K. K. SHAILAJA TEACHER
MINISTER FOR HEALTH AND SOCIAL JUSTICE
Government of Kerala

Thiruvananthapuram

No:301/Press/H&SJ/2017

Date: 09.09.2017



Message

I am happy to know that St. Thomas college, Pala is bringing out a Souvenir in connection with the International Conference on Traditional and Alternative Medicine & Arogya Expo' 17. I appreciate your initiative and wish you all success in this endeavour.

K K Shailaja Teacher



Estd. 1950

St. Thomas College, Palai

ARUNAPURAM P.O., PALAI - 686 574., KERALA STATE, INDIA

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Affiliated to Mahatma Gandhi University, Kottayam and Re-accredited with A Grade by NAAC in 2015

ARUNAPURAM

06-09-2017




It is indeed heartening to know that an *International Conference on Traditional and Alternative Medicine (ICTAM)* is being organized under the umbrella of Department of Biochemistry of our college during 18th -19th September 2017 in our campus. It is gratifying to note that a good number of eminent professors and leading scientists from India and abroad are participating as invited speakers. This conference will definitely be a landmark in the history of this college. This will provide our youngsters an opportunity to interact with them and be inspired by them to take up careers in science, research and technology.

Alternative medicines like Ayurveda, Yoga, Unani, Siddha, Naturopathy and Homeopathy has made great strides over the last decade and interest in alternative therapies to skyrocket and gaining importance throughout the world. It is a matter of great satisfaction that there is a worldwide interest in the science of traditional medicine. This conference will bring the experts in this system of medicine from different parts of world together and provide them opportunity to exchange their ideas, views and knowledge with each other.

I congratulate the program convener, organising committee and students of the department of Biochemistry for taking the initiative for this ambitious program. I wish the conference all success. I am sure there will be fruitful exchange of ideas leading to tangible outcomes.

Thanking you all




Dr. Joy George
Principal

email: principal@step.ac.in, principal.stc@gmail.com; Website: www.step.ac.in



DEPARTMENT OF BIOCHEMISTRY
ST. THOMAS COLLEGE PALAI
ARUNAPURAM P.O PALAI-686574, KERALA, INDIA



07-09-2017

It gives me immense pleasure to welcome all speakers and delegates of International Conference on Traditional and Alternative Medicine, which will be held on 18th -19th September 2017 under the auspices of Biochemistry Department, St. Thomas College Pala.

The use of traditional medicine and complementary and alternative medicine has increased significantly over the past few years. Numerous diseases have been discovered in the history of mankind. Traditional and Alternative medicine is discovered due to the expensive rates of traditional way of curing ailments and sickness. It has proven to be safe and very effective against disease condition. In this context the Department of Biochemistry has taken the initiative to conduct an International Conference on traversing the future of alternative medicine and it will offer a unique opportunity for scientists, doctors, researchers and students from all over the world to meet, interact and perceive new scientific approach in traditional medicine. The main objective of the conference is to create public awareness regarding the importance of traditional and alternative medicines and also aimed to exchange recent biochemical and traditional therapies on various diseases and its safe therapeutic usages. The Department of Biochemistry, St. Thomas College Pala, is highly privileged to have the opportunity of organizing such an International Conference on Traditional and Alternative Medicine. May I take this opportunity to thank all those who have contributed their valuable share, diverse in tone and nature, in making this conference; The manager with his blessings; The Principal with his unstinted support, timely advice and valuable suggestions.

I express my special thanks to Svenia P Jose, Sangeeth Saji, Augustine Joseph and all Biochemistry Complementary students for meticulous work they have done to make this conference a reality.

Dr. Ratheesh M
Convener

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- Dr. Vibin M** (St. Albert's College, Ernakulam)
- Dr. Nayana Jose** (Assistant Professor, Cochin College Cochin)

INTERNATIONAL CONFERENCE ON TRADITIONAL AND ALTERNATIVE MEDICINE

(ICTAM-2017)

Schedule at a Glance

Day 1 (18th September 2017)

Venue I (Library Hall)

8.30-9.30 AM : Registration & Tea

9.30-10.30 AM : Inaugural Ceremony

TIME	SPEAKERS	TITLE	CHAIRPERSON
11.15-12.15 PM	Dr. Muhammed Majeed (Founder & MD Sami Labs, India) Plenary Speech	“THE VISION OF A RESEARCH SCIENTIST AND A PASSIONATE ENTREPRENEUR TAKES ON SOCIAL AND COMMERCIAL EXPRESSIONS.” THIS, IN SHORT, EXPLAINS THE GENESIS AND GROWTH OF SAMI LABS”	Dr. K. Radhakrishnan (SMPB, Kerala, India)
12.15-1.15PM	Dr. Samson Mathews Samuel (Qatar)	ANTI-ANGIOGENIC EFFECTS OF METFORMIN IN 2-DEOXYGLUCOSE TREATED MICROVASCULAR ENDOTHELIAL CELLS: ROLE OF THROMBOSPONDIN-1	Dr. S Sasidharan (Sains, Malaysia)
2.15-2.50 PM	Dr. K. Radhakrishnan (India)	PROBLEMS AND PROSPECTS OF TRADITIONAL MEDICINE WITH REFERENCE TO KERALA STATE, INDIA	Dr. Samson Mathews Samuel (Qatar)

3.00-3.40PM	Dr. S. Sasidharan (Malaysia)	GREEN CANCER PREVENTION: AN OPPORTUNITY TO EXPAND THE COST-EFFECTIVE MEDICINAL PLANT-BASED THERAPEUTICS	Dr. Sunny Kuriakose (St. Thomas College, Pala, India)
3.40-4.20PM	Dr. D. Suresh Kumar (India)	AYURVEDA RENAISSANCE- WHICH WAY TO THE FRONT?	Dr. Alex Hankey (UK)
4.20-5.00PM	Dr. Roonie Moore (Ireland)	DE COLONIZING KNOWLEDGE: BIOMEDICAL BELIEFS AND INDEGENOUS MEDICAL PRACTICE.	Dr. Anirban Sukul (Hon. Physician Thailand)

5.10-6.00 PM	POSTER SESSION AND VISIT TO AROGYA EXPO
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Venue II (Tisserent Hall) ORAL PRESENTATIONS Presentations from 1 to 8 (11.40 to 1.00PM) Presentations from 9 to 26 2.00 to 5.00PM <i>(Numbering as per mentioned in the Abstract book)</i>	Venue III ORAL PRESENTATIONS Presentations from 59 to 71 (11.00 to 1.00PM) Presentations from 72 to 89 2.00 to 5.00PM <i>(Numbering as per mentioned in the Abstract book)</i>
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Day 2 (19th September 2017)

Venue I: Library Hall

9.30-10.00AM	Dr. Cibin TR (USA)	ADVANCED GLYCATION ENDPRODUCTS AND LENS EPITHELIAL CELLS	Dr. Roonie Moore (Ireland)
10.05-10.45AM	Dr. Rajmohan V (India)	AYURVEDA; AN AGE-OLD MEDICINE FOR THE AGEING WORLD	Dr. K. Jagannathan (India)
10.50-11.30PM	Dr. Alex Hankey (UK)	ADVANTAGES OF THE AYUSH SYSTEMS OF MEDICINE: SOLUTION TO THE CHRONIC DISEASE CRISIS	Dr. Girish Kumar B (MSM College, Kayamkulam India)
11.50-12.30PM	Dr. Anirban Sukul (Hon physician Thailand)	THE ANTI HEAT SHOCK EFFECT OF CANTHARIS 200 TRANSPORTED FROM ONE PLANT TO ANOTHER THROUGH CAPILLARY WATER	Dr. Felix James (Director IHRC)
12.30-1.10PM	Dr. S. Sandya (IISc, India)	NEERA INHIBITS ALCOHOLIC LIVER DAMAGE BY MODULATING INFLAMMATORY MARKERS AND OXIDATIVE STRESS	Dr. Cibin TR (USA)
2.00-2.50PM	Dr.K.Jagannathan (India)	SIDDHA, A COMPREHENSIVE SCIENTIFIC MEDICAL SYSTEM - AN INTRODUCTION	Dr. M. S. Latha (Dean, Bioscience, MG University, Kottayam, India)
2.50-3.30PM	Dr. P. G. Biju (India)	ACUTE INFLAMMATION AND SEPSIS- CAUSE, CONSEQUENCE AND CONTROL	Dr. M. S. Latha (Dean, Bioscience, MG University, Kottayam, India)

3.30-4.00PM	Dr. Vibin M (USA)	NOVEL DELIVERY SYSTEM FOR GREEN TEA POLYPHENOLS AGAINST OBESITY: NANO-EGCG FORMULATIONS	Dr. S. Sandya (IISc, India)
4.00-4.30PM	Shri. Sreekumar (CDB, India)	HEALTH AND NUTRITIONAL ASPECTS OF COCONUT	Dr. Vibin M (USA)

Venue II (Tisserent Hall) ORAL PRESENTATIONS	Venue III ORAL PRESENTATIONS
Presentations from 27 to 46 (11.40 to 1.05PM) Presentations from 47 to 58 1.50 to 4.30PM <i>(Numbering as per mentioned in the Abstract book)</i>	Presentations from 90 to 109 (11.40 to 1.05PM) Presentations from 110 to 114 2.00 to 4.30PM <i>(Numbering as per mentioned in the Abstract book)</i>

4.30 PM	VALEDICTORY FUNCTION (LIBRARY HALL)
	NATIONAL ANTHEM/DISTRUBTION OF ATTENDANCE & PARTICIPATION CERTIFICATE

ABSTRACTS OF INVITED TALKS

ICTAM: IT: 1: “THE VISION OF A RESEARCH SCIENTIST AND A PASSIONATE ENTREPRENEUR TAKES ON SOCIAL AND COMMERCIAL EXPRESSIONS.” THIS, IN SHORT, EXPLAINS THE GENESIS AND GROWTH OF “SAMI LABS”

Dr. Muhammed Majeed

Founder & MD (Sami Labs Ltd, India)

Dr. Muhammed Majeed established Sabinsa Corporation during the year 1988 in the state of New Jersey, USA with the objective of importing and marketing generic drugs into the US for the drug molecules coming off patent. Very soon he introduced into the US market a new line of products based on Indian herbal plants. It was Dr. Majeed who introduced to the Americans that Ayurveda from India can act as a complete curative to their various ailments. The persistent efforts made by Dr. Majeed in the early nineties in the field of Ayurveda did reap benefits among the Americans. To facilitate the increased demand for innovative application-based products, Sami Labs Limited (formerly known as Sami Chemicals & Extracts Limited) was set up in 1991 at Singasandra in Bangalore (India) as a research and development facility. During the year 2002, the merger of Sami Labs with Sabinsa Corporation is a result of reverse merger which led to the creation of Sami Labs Ltd an Indian Multinational Health Science Company and the global enterprises as its subsidiaries. Today the main thrust and focus of Sami is on new product development and market oriented research. To cater to the expanding global market, Sami Labs has presence and strategic alliances in The US, Europe, Japan, Australia, Malaysia, Middle East, Philippines, Vietnam, UAE, China, Russia and South Korea.

Dr Majeed will take the audience through the history of medicine in the last 70 years and the dramatic changes that happened in these decades. That is from herbal era to modern medicine to the integrated medicine and the future of medicine.

Beyond the sustainability of natural resources, marrying traditional and modern medicine faces numerous challenges. Sami Labs supports backward integration by cultivating as much as medicinal plants as possible and in the forward integration Sami Labs are strategizing to go from ingredient supplier to product supplier.

**ICTAM: IT: 2: ANTI-ANGIOGENIC EFFECTS OF METFORMIN
IN 2-DEOXYGLUCOSE TREATED MICROVASCULAR
ENDOTHELIAL CELLS: ROLE OF THROMBOSPONDIN-1**

*Samson Mathews Samuel, Suparna Ghosh, Yasser Majeed,
Hong Ding and Chris R. Triggle*

*Department of Pharmacology, Weill Cornell Medicine-Qatar,
Education City,
Qatar Foundation, P.O. Box: 24144, Doha, Qatar.*

Introduction: Metformin, which is widely used in the management of type-2-diabetes, has received considerable interest as a potential anti-cancer agent. Metformin was originally developed from natural compounds found in the plant *Galega officinalis*, known as French lilac or goat's rue. Data from our preliminary studies in mouse microvascular endothelial cells that overexpress VEGF (MS1-VEGF) has revealed that metformin (2mM) significantly increased thrombospondin-1 (TSP1) in glucose-starved cells. However, the effect of a combination of 2-deoxyglucose (2DG) and metformin in tumor endothelial cells, which play a key role in tumor angiogenesis, has not been studied.

Methods: MS1-VEGF cells were treated with 2DG (5mM) for 48h in the presence or absence of metformin (2mM) & western blot analysis was performed to assess the status of angiogenic and anti-angiogenic marker proteins. Cell proliferation assay, cell migration assays and wound healing assays were also performed.

Results: TSP1 levels significantly increased, while the levels of pVEGFR2 (Y1175) were markedly decreased in the combination treatment when compared to cells maintained in normal glucose that were treated with metformin or 2DG alone. Furthermore, the combination treatment significantly increased the levels of pRap(S792) followed by inhibition of the mTOR pathway. Levels of cell cycle related proteins such as pCycB1 (S147), CycD1 and CycD2 significantly decreased in cells treated with a combination of 2DG and metformin followed by a significant decrease in the rate of cell proliferation and migration.

Conclusion: Our findings show that using metformin in combination with 2DG has an anti-angiogenic activity associated with a significant up-regulation of thrombospondin-1 and could prove to be a therapeutic strategy in a wide range of cancers.

Acknowledgement

This publication was made possible by JSREP grant [3-016-3-009] awarded to Dr. Samson Mathews Samuel and NPRP grant [4-910-3-244] awarded to Prof. Chris R. Triggler from the Qatar National Research Fund (a member of Qatar Foundation). The statements made herein are solely the responsibility of the authors.

**ICTAM: IT: 3: PROBLEMS AND PROSPECTS OF TRADITIONAL
MEDICINE WITH REFERENCE TO KERALA STATE, INDIA**

K.Radhakrishnan

*Chief Executive Officer (i/c), State Medicinal Plants Board, Kerala
Shornur Road, Thrissur District, Kerala State, India*

From time immemorial man has been depending on natural resources viz. plants, animal products, minerals etc .to treat a variety of ailments. The knowledge on these traditional therapies was transferred from generation to generation mainly by word of mouth and has no written literature. The efficacies of the therapies were confirmed by trial and error method. It may be noted here that the ethnomedicinal history of modern drugs viz. Aspirin, Quinine, Vincristine, Vinblastineetc. Points to the fact, as they are developed through ethnomedicinal or traditional leads. Due to modernization, urbanization and resultant acculturation, the precious knowledge associated with traditional medicine are fast disappearing all over the world and it is high time to scientifically document and validate them before they are lost forever. It is also imperative to tackle the problems faced by traditional medicine particularly in this era where new diseases are cropping up threatening the very survival of humankind. The present communication focus on the problems faced by traditional medicine, rectification strategies and future prospects based on the ethnomedicinal studies conducted among the tribal / folk healers of Kerala State, India.

ICTAM: IT: 4: GREEN CANCER PREVENTION: AN OPPORTUNITY TO EXPAND THE COST-EFFECTIVE MEDICINAL PLANT-BASED THERAPEUTICS

Sreenivasan Sasidharan

*Institute for Research in Molecular Medicine (INFORMM),
Universiti Sains Malaysia, USM 11800, Pulau Pinang, Malaysia.*

The harmful effects of anticancer drugs have revealed the importance of identifying novel, rapid, and concrete solutions for control and prevention of cancer. Medicinal plants pose an interesting alternative that could overcome some of the constraints of synthetic toxic anticancer agents. The use of plants for anticancer agent offers several advantages such as low cost, safety and easy to deal. Therefore, there is a need to exploit medicinal plants for the development cost effective medicinal plant-based therapeutics, in particular for green cancer prevention via revival, modernization and integration of medicinal plant in clinical practice. Hence, the current study was reported the *Polyalthialongifolia* var. *angustifolia* Thw. (Annonaceae) leaf methanolic extract as an anticancer agent and radioprotector *in vivo*. The *P. longifolia* being the most important indigenous medicinal plants, are found throughout Malaysia and generally use by traditional healers to treat various diseases. The MTT assay results disclosed a lowest IC₅₀ value of 14.181 µg/ml as *P. longifolia* leaf extract debilitate HeLa cells. The cytological observations underlined cell shrinkage, nuclear and chromatin condensation, multinucleation, membrane blebbing, punctures, cytoplasmic extrusions and formation of apoptotic bodies, which are correlating within Light Microscope (LM), Scanning Electron Microscope (SEM), Transmission Electron Microscope (TEM) and HoloMonitor (HM) images. Further biochemical tests were performed to verify this apoptosis resemblance through flow cytometry analysis. The Annexin V/PI flow cytometry analysis was showed that *P. longifolia* leaf induces apoptosis in HeLa cells in a dose-dependent manner whereas the PI flow cytometric analysis for cell cycle demonstrated the accumulation of cells at sub G₀/G₁, G₀/G₁ and G₂/M phases. Investigation with JC-1 flow cytometry analysis was indicated an increase in mitochondria membrane potential depolarisation corresponding to increasing in *P. longifolia* leaf extract concentrations by influencing the intracellular reactive oxygen species (ROS). *P. longifolia* is deduced to effectuate distinctive morphological features of cell death in conformity to apoptosis. Subsequently, the radioprotective effect of *P. longifolia* was

studied in mice. *P. longifolia* treatment rendered remarkable improvement in mice survival (27 days), compared to 100% mortality in irradiated groups mice within 14 days. Significant increases in haematological parameters were observed in the animals pretreated with leaf extract. Pre-irradiation administration of *P. longifolia* leaf extract also increased the CFU counts of the spleen colony and increased the relative spleen size. A dose-dependent decrease in lipid peroxidation levels and a significant increase in superoxide dismutase and catalase activity were observed in the animals pretreated with *P. longifolia*. *P. Longifolia* pretreatment also resulted in the regeneration of the mucosal crypts and villi of the intestine. Moreover, pretreatment with *P. longifolia* leaf extract also showed restoration of the normal liver cell structure and a significant reduction in the elevated levels of ALT, AST and bilirubin compared. We also firstly reported the protective effect of *P. longifolia* leaf on DNA damage-induced by hydroxyl radicals. Therefore, we have reported the potential uses of *P. longifolia* leaf as green therapeutic approaches, as well as radioprotectors against the adverse effects of irradiation on healthy cells during radiotherapy as future prospects. Besides that, *P. longifolia* leaf preparation also can be consumed in a range of methods such as by drinking as teas, capsules and tinctures as a supplement or functional food by the patient as cost-effective medicinal plant-based therapeutics. Conclusively, the anticancer activities and the radioprotective ability of *P. longifolia* leaf extract create an opportunity to expand the cost-effective medicinal plant-based therapeutics for human applications in developing efficient, economically viable, non-toxic natural and clinically acceptable novel green anticancer agent.

**ICTAM: IT: 5: THE ANTI HEAT SHOCK EFFECT OF
CANTHARIS 200 TRANSPORTED FROM ONE PLANT TO
ANOTHER THROUGH CAPILLARY WATER**

*Anirban Sukul¹ MSc, PhD, BHMS, Nirmal C Sukul¹ MSc, PhD, and
Soma Sukul² MSc, PhD*

¹Sukul Institute of Homeopathic Research, Kolkata, India

²Department of Botany, Visva-Bharati University, Santiniketan, India

Two pairs of rows of cowpea plants *Vigna unguiculata* (L) Walp, were grown in earthen pots, each row containing 10 plants. Plants in each pair were connected by polythene tubes filled in water, the ends being dipped into water of two beakers. In each beaker, a mature leaf was immersed.

Plants in one row of a pair were given heat stress through hot water while the corresponding water connected row of the same pair remained unstressed. Plants in one row of the second pair treated with Cantharis 200C, a homeopathy potency, used for the treatment for burns. The corresponding water connected row of this pair remained untreated. Another single row of plants served as the unstressed and untreated control. After a fixed time leaves of all the plants were harvested and homogenized. Leaf proteins of the plants in each row were separated by fast protein liquid chromatography (FPLC). Leaf protein profile of the heat stressed plants showed similarity with that of unstressed but water connected plants. Cantharis-treated plants and the corresponding untreated but water connected ones showed similarity in the leaf protein profile. Leaf protein profile of the control plants was different from that of the two groups. It appears that an external stimulus to a plant brings about a change in the water structure in the plant which is transmitted through the global molecular network (GMN) of water connecting the two plants.

ICTAM: IT: 6: AYURVEDA RENAISSANCE- WHICH WAY TO THE FRONT?

D. Suresh Kumar

Cymbio Pharma Pvt Ltd, Bangalore, India.

Ayurveda has been practiced in India and many Asian countries since time immemorial. This medical system occupied a lofty position in the country as a result of royal patronage. Western medicine was introduced into India by the Portuguese in the sixteenth century. Although it was the Portuguese who introduced western medicine into India, it was largely the British who later established and consolidated both its practice and study in the subcontinent. The Bhore Committee (1943) headed by Sir Joseph William Bhore called for more doctors, nurses, midwives, dispensaries, and hospitals, to bring India closer to the level of health care in the West. Bhore Committee's recommendations were put into practice in independent India. As a result Western medicine became the dominant medical system of the country

Interest in Ayurveda started growing all over the world in the late 1970s due to the Alma Ata Declaration (1978), which called on member nations of the World Health Organization to formulate national policies,

strategies, and plans to launch and sustain primary health care. The member states were especially encouraged to mobilize their own national resources. The Western world was thus encouraged to study in depth the various traditional medical systems of the world. Ayurveda was an important one among them, having a sound theoretical foundation

In spite of the growing interest in Ayurveda, a closer look at the system prevailing in India reveals that it is suffering from many shortcomings. These stumbling blocks are to be removed if Ayurveda is to cater to the needs of a wider audience. This presentation will focus on those problems.

ICTAM: IT: 7: DE COLONIZING KNOWLEDGE: BIOMEDICAL BELIEFS AND INDEGENOUS MEDICAL PRACTICE.

Dr. Ronnie Moore

*BSc (Joint Hons) DPhil, PGCE, FRAI, FHEA, FGI,
G101 Newman Building, University College Dublin, Ireland.*

Critical discussions about medicine and medical practices are cognoscente of the evolution of such practices and the historical and cross-cultural developments of health care systems, or arenas, (after Kleinman 1980). In a seminal text, Charles Leslie outlined some of the key examples in terms of comparative (Asian) health care systems (Leslie 1977). This sets the scene for future generations of researchers to apply a more comparative understanding, not just to Asian medical systems, but to any such cross cultural analysis of medicine and health care. Leslie's text also brings into sharp relief the relative merits and potential drawbacks of applying a unified homogenized overarching approach to medical practice. Using historical (European context) and ethnographic data (from the Irish context) his discussion therefore concerns itself with the idea of health care systems rather than any notion of a single universally agreed medical practice and the meaning this has for 'modern medicine' in the contemporary world in the (post) Industrial West and in so called developing societies.

**ICTAM: IT: 8: ADVANTAGES OF THE AYUSH SYSTEMS
OF MEDICINE:
SOLUTION TO THE CHRONIC DISEASE CRISIS**

Dr. Alex Hankey M.A. (Cantab.) PhD (M.I.T.)
Distinguished Professor of Yoga and Physical Science, USA

Theories of the AYUSH systems of medicine have now been developed, linking their own terminology to that of western science and biology. A recently published account of the theory of Ayurveda padartha, the fundamental concepts of Ayurveda, showed that they seemed to correspond well to a modified form of systems biology with the addition of complexity biology. Ayurveda's concepts of Tridosha, the three doshas, Vata, Pitta and Kapha dosha, which apply to all levels of organism function, can be closely related to the fundamental systems functions of Input / Output, Turnover / Metabolism, and Storage, which also apply at all levels of organism function, the Whole Organism, Organ Subsystems, Organs, Tissues and Cells. The imbalances in these, and Ayurveda's seven tissue types, Blood Plasma, Hematocytes and other blood cells, Muscle, Fat, Bone, Bone-Marrow and Reproductive cells, including Stem Cells, are seen as the driving factors behind the pathogenesis for non-communicable diseases. Complexity biology enters because it provides a new concept, that of Criticality maintained by Self-Organized Criticality, to understand Ayurveda's fundamental concept of Perfect Health, Swasthya, which does not exist in western medicine. In Ayurveda, as in Naturopathy and Yoga, this is regarded as a self-regenerating state, provided that the patient gives the system enough rest. Ayurveda's six stages of pathogenesis, Shadkriyakala, show how stress causes health to depart from optimal, in a series of stages that start with adjustment of cell-membrane potentials, and lead to increasing disruption of organism regulation by cytokine and endocrine hormones. It thus becomes possible to explain how and why Ayurveda treats chronic non-communicable diseases with such success, and is even able to predict its own likelihood of obtaining a cure in each case. With these insights, it would now be possible for western biomedicine to justify adopting principles from TCAM systems of medicine, and solve the chronic disease crisis.

**ICTAM: IT: 9: ACUTE INFLAMMATION AND SEPSIS- CAUSE,
CONSEQUENCE AND CONTROL**

Dr. P.G. Biju

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Thiruvananthapuram- 695581, Kerala, India.*

Inflammation is defined as the response of immune system to any injury or foreign substance, and is characterized by heat, redness, swelling, pain or loss of function. Inflammation is classified as acute and chronic based on the time taken for manifestation of the condition. Acute inflammation is a complex process involving several cytokines, resulting in a cytokine cascade mediated hyper-reactivity of immune system. Bacteraemia from gram negative bacterial infections and subsequent development of septicaemia is a common cause of critical care facility morbidity and mortality. The bacterial endotoxin LPS is established as a strong elicitor of immunological response involving leukocytes, and macrophages in particular. Dysthermia, circulatory collapse, hypotension and multiple organ failure are the consequences of an uncontrolled septicaemia, leading to septic shock and death. The development of early predictive biomarkers has helped in detection of early stage septicaemia and has contributed to the difference between certain mortality and possible recovery. However, exploration of intervention therapeutics for the dampening of the inflamed immune response is of urgent need. Several therapeutic strategies have been developed in management of acute inflammatory progression with significant success. Evaluation of phytochemical therapeutics with anti-inflammatory properties could provide novel therapeutic agents in the fight against acute inflammation. This talk shall explore some of the avenues unravelled by our research on development of anti-inflammatory pathways and therapeutics.

**ICTAM: IT: 10: NEERA INHIBITS ALCOHOLIC LIVER DAMAGE
BY MODULATING INFLAMMATORY MARKERS
AND OXIDATIVE STRESS**

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Chronic alcohol exposure has been extensively reported to cause oxidative stress and inflammation in hepatic tissues. Coconut inflorescence sap/Neera (CSP) is known to possess various beneficial properties including; antioxidant, anti-inflammatory, nephro-protective, analgesic, anti-ulcerogenic effects. However, there is a lack of pertinent information on its importance in chronic alcohol-induced hepatotoxicity. The hepatoprotective activity of CSP was investigated against alcohol induced hepatic inflammation. In this study, adult male wistar animal model was used to demonstrate hepatoprotective activity of CSP. The animals were grouped into three and treated separately with vehicle, Ethanol and CSP + ethanol. The hepatoprotective activity was evaluated by measuring the levels of liver function markers (SGPT, SGOT, and ALP), antioxidant enzymes (SOD, CAT, GPx) and GSH, lipid peroxidation (TBARS), inflammatory markers (WBC, CRP, IL-6, TNF- α , TLR-4 and nitrite) Histopathology and cytologic evaluations were carried out follow the extent of hepatic tissue damage. Ethanol treatment [(12.5 g/kg body weight of 90% (v/v)] for 30 days induced significant liver damage as evidenced by histopathology and cytologic evaluations. Significant elevation ($p \leq 0.05$) in liver function markers, inflammatory markers, WBC, and TBARS were observed among ethanol treated animals. Antioxidant enzymes in the ethanol treated group also decreased significantly ($p \leq 0.05$) as compared to the normal group. However, supplementation of CSP at 250 mg/kg body weight demonstrated reversal of the biochemical parameters with indications of hepatic cell regeneration as evidenced from the histology and cytologic examinations. It was observed that CSP inhibits the alcoholic hepatic damage by modulating inflammatory markers and oxidative stress. Our findings indicate that CSP demonstrate anti-oxidative and anti-inflammatory effects in ethanol-induced oxidation/inflammation in the liver of rats; which could be associated with the plethora of antioxidant/ anti-inflammatory phyto-constituents present there-in.

**ICTAM: IT: 11: ADVANCED GLYCATION ENDPRODUCTS AND
LENS EPITHELIAL CELLS**

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Proteins in basement membrane are long-lived and accumulate chemical modifications during aging. The reaction of carbonyl compounds that results in the formation of advanced glycation end products (AGEs) is a major chemical modification in basement membrane proteins. In this study we have investigated the influence of AGE levels in human lens capsule on TGF β 2 treated human lens epithelial cells (HLE). The overall objective was to determine the effects of capsule AGEs on posterior capsule opacification (PCO). AGE measurements in non-cataractous and cataractous human lens capsules were done by LC-MS/MS. Tissue culture plates were coated with basement membrane extract (BME) overnight and AGE-modified with glycation mixture for 7 days. HLE was cultured on AGE-modified or unmodified BME and treated with TGF β 2 for 24. RNA was isolated, cDNA generated and real time PCR analysis was carried for EMT-associated proteins. The total as well as individual AGEs in cataractous human lens capsules were significantly higher than age-matched non-cataractous lens capsules. Real time PCR analyses revealed that TGF β 2-induced expression of EMT markers were significantly increased in HLE cells cultured on AGE-modified BME than on unmodified BME. The mRNA levels of TGF β 2-downregulated proteins were further reduced in cells cultured on AGE-modified BME. The higher AGE content in the capsules of cataractous lenses suggest that AGEs might promote the TGF β -induced EMT response in lens epithelial cells during PCO. We further investigated the role of a receptor for advanced glycation endproducts (RAGE) in TGF β 2-mediated EMT of lens epithelial cells. The interaction of matrix AGEs with RAGE plays an important role in TGF β 2-mediated EMT of lens epithelial cells and suggest that blockade of RAGE could be a strategy to prevent posterior capsule opacification and possibly fibrosis of other tissues.

ICTAM: IT: 12: NOVEL DELIVERY SYSTEM FOR GREEN TEA POLYPHENOLS AGAINST OBESITY: NANO-EGCG FORMULATIONS

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Statement of Purpose: Epigallocatechin-3-gallate (EGCG) is a major polyphenol in green tea and has strong anti-oxidant properties. It has been shown to have health benefits in cardiovascular diseases, cancer and obesity [1, 2]. However, its oral bioavailability is very low due to its chemical instability and poor permeability. To this end, the main objective of this study is to develop an effective oral delivery system for EGCG using food-grade biopolymers. Zein, a water insoluble corn protein was used to prepare nanoparticles. The goal of this study was to develop an optimal method for encapsulation of EGCG in zein nanoparticles and evaluate the chemical stability and in-vitro release in gastrointestinal fluids.

Methods: The nanoparticles were prepared by phase separation method using hydro alcoholic solution and aqueous buffer (pH 3). The particle size, zeta potential and encapsulation efficiency of the nanoparticles were characterized. Vitamin C was added as an anti-oxidant to prevent the chemical degradation of EGCG during the preparation of nanoparticles. The nanoparticles were separated by ultracentrifugation and lyophilized. The particle size, polydispersity index, zeta potential were characterized using particle size and zeta analyzer. The encapsulation and loading efficiency were characterized using HPLC method. The effect of polymer/EGCG ratio, alcohol concentration and the effect of dispersing EGCG in hydroalcoholic phase vs aqueous phase on the nanoparticle characteristics were studied. The release of EGCG from the nanoparticles was determined in simulated gastric fluid (SGF) and simulated intestinal fluid (SIF). The stability of Zein-EGCG nanoparticles in SGF and SIF were studied using HPLC.

Results: Factorial design was used to optimize the different parameters for the preparation of EGCG loaded zein nanoparticles. The optimal parameters were found to be zein:EGCG ratio of 10:1, 62% alcohol and a phase volume ratio of 1:2.25. These conditions produced nanoparticles with the highest encapsulation efficiency (Table 1).

Table 1. Optimized Zein- EGCG NPs. Particle characteristics at Zein/EGCG ratio of 10:1, Alcohol Concentration 62% and Phase volume 1:2.5 (Alcohol: Aqueous)

Size(nm)	PDI	Zeta Potential (mV)	Encapsulation efficiency (%)
343.63± 6.47	0.349±0.02	34.86± 1.15	90.89± 1.32

When the nanoparticles were incubated in SGF, approximately 6% and 16% of EGCG was released was observed after 2 and 24h respectively.

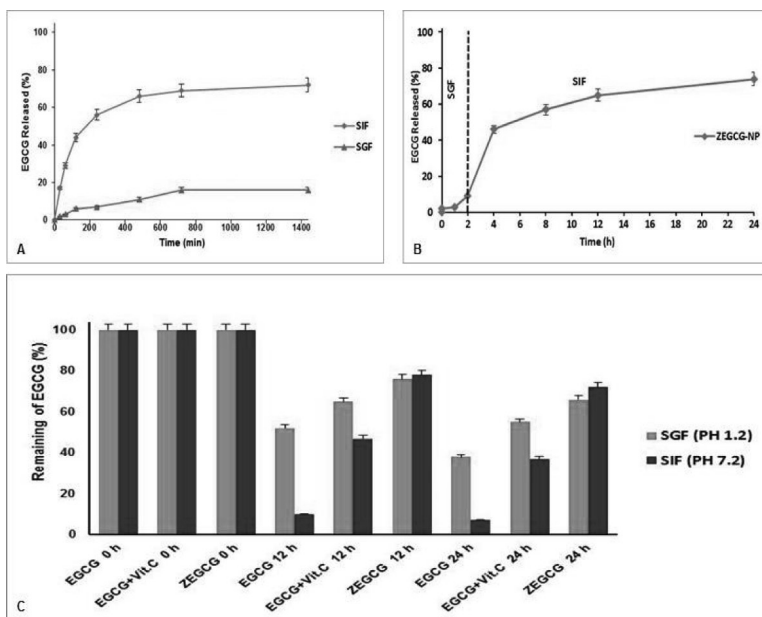


Figure 1. (A)The in vitro release curves of EGCG from zein-EGCGnanoparticles in SGF and SIF, respectively; (B)EGCG release profile from Zein nanoparticles after incubation in simulated gastric fluid (SGF, 0 - 2 h) and intestinal fluid (SIF, 2-24 h) under sink conditions; (C)Amount

of EGCG remaining in buffer, SGF and SIF after 12 and 24 h respectively. Data is expressed as the mean \pm SD, n=3

On the contrary, when nanoparticles were incubated in SIF, approximately 44% of the loaded EGCG was released after 2h and the remaining EGCG was released in a sustained manner for 24 hrs (Fig. 1a). To simulate the gastrointestinal conditions, the nanoparticles were initially incubated in SGF for 2 hours followed by incubation in SIF till 24 hours. As shown in Fig. 1B, around 20% of EGCG was released in first 2hrs in SGF followed by sustained release of EGCG in SIF for 24 hrs. It was found that the zein nanoparticles protected and ascorbic acid protected EGCG from chemical degradation in SGF and SIF. More than 60-70% of EGCG remained stable in the nanoparticles compared to 10-30% of free EGCG remaining at the end of 24 hrs (Fig. 1c)

Conclusions: EGCG was successfully encapsulated in zein nanoparticles. The EGCG/zein ratio and alcohol concentration influenced the particle size and encapsulation efficiency of EGCG in zein nanoparticles. The zein nanoparticles sustained the release of EGCG in simulated gastrointestinal fluids. Furthermore, the nanoparticles enhanced the stability of EGCG. Future studies will focus on further optimization of the formulation and in-vitro permeability of EGCG nanoparticles will be tested in Caco-2 cells. The findings from this study can be used to develop stable and orally bioavailable EGCG formulation for incorporation in nutritional products.

ICTAM: IT: 13: AYURVEDA; AN AGE-OLD MEDICINE FOR THE AGEING WORLD

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Ageing is the contribution of human civilization however, that left a choice of health, hygiene and medicine. The world population is rapidly ageing and at this pace, 22 percent of the world population will be over 60 years by 2050. Most of the infectious diseases that posed threat to pause

lifespan have eliminated over the past century, which lead to an increase in life expectancy of man over 20 years to reach a maximum lifespan of 125 years. There are many theories evolved for explaining the ageing process. But none of these theories were found to be successful in illuminating phenomena of the extremely complex and multifactorial process of ageing. Genomic instability caused by physical, chemical, biological and exogenous agents and telomere attrition is proposed to be the prime causation of ageing and related pathologies including cancer. Evidences from various studies suggests that specific secretions from the aged cells (senescent cells) is responsible for age related degeneration, and various pathologies like ischemic heart diseases, stroke, Alzheimer's and even cancer, therefore, remedy to ageing can naturally attract alleviation of many of these pathologies. Ayurveda proposed Rasayanathantra as a remedy for Jara that is ageing and associated ailments. They are also vyadhihara, means, beneficial in various diseases as they are dedicated to rejuvenation, regeneration, immunomodulation and healthy ageing. There are at least 200 rasayana drugs in various treatise of ayurveda with different indications like inflammatory, autoimmune, degenerative, and hyper proliferative conditions, and common in easing ill effects of ageing or claimed to delay or reverse the process of ageing. Several studies at the fundamental level have proven the above activities of rasayanas. The effect of Amalaki rasayana, a herbal formulation and Rasas sindura, a metal based formulation on the lifespan, sexual behavior and fitness characters in the fruit fly, *Drosophila melanogaster*, has successfully tested and proved the ability of these drugs to increase lifespan and maintain quality of life of that organism. This opens a vast area of research to investigate deeply and effectively Ayurveda in the outlook of ageing and its diverse pathologies including cancer.

ICTAM: IT: 14: SIDDHA, A COMPREHENSIVE SCIENTIFIC MEDICAL SYSTEM - AN INTRODUCTION

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Siddha, a comprehensive healthcare system developed by ancient Siddhars entirely based on holistic health principles for catering curative, preventive, promotive, rehabilitative and rejuvenative health needs. The evolution of Siddha, dates back between 7000 BC- 3000 BC and evolved

on the basis of five basic elements and 96 thathwas (principles) which include physical, anatomical, physiological, psychological and spiritual components of every human being. It is blended with Dravidian culture, tradition and heritage. Siddha is not only a mere medical science but also the way to ensure the wellness of body and mind, longevity and attainment of eternal bliss. Medicinal plants, minerals and animal derivatives are the prime sources for medicinal preparations. Raw materials are purified as per the methods shown by Siddhars to eliminate toxic elements and enhance drug efficacy. Purification methods, drug processing methods including calcinations, medicinal formulations/combinations, stability and shelf life of medicines, alchemy, drug administration methods, pathyam (regulation of diet and habits) etc in Siddha shows the scientific excellence and outlook of ancient Siddhars. Anupanam is the prime technique shown by Siddhars to promote bio availability and targeted drug delivery. Siddha is the only traditional medical system has 64 classifications of internal and external medicines. In this exceptional system, medicines are available to combat 4448 diseases of mankind classified by Siddhars in their literatures. Now, the people of Tamil Nadu and Kerala started realizing the efficiency of Siddha medicines in Viral epidemics with their experience. Treatment in Siddha, purely based on muththodam (thrivosha) concept and the methods include divine, rationale and surgical. Thokkanam, Varmam are the special treatment methods practiced to treat neuro-musculo-skeletal disorders and traumatic conditions. Ashtangayoga – Pranayamam - Dhyanam are being a part of Siddha treatment modalities find solution to varieties of psychosomatic and lifestyle disorders. 108 types of Kayakalpa medicines in Siddha, assures healthy life and longevity. Siddha, advocates day wise, season wise regulations, geo-specific regulations and preventive medicines/ measures to build a healthy community. In the conference, presentation will be focused on the unique values and scientific base of Siddha system.

ICTAM: IT: 15: HEALTH AND NUTRITIONAL ASPECTS OF COCONUT AND ITS PRODUCTS

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Coconut is a mature fruit of the *Cocos nucifera* palm. It is one of very versatile and indispensable food item for millions of inhabitants of

South and South-East Asia and Pacific islands. It is one of the most sought-after ingredients in the kitchen since it employed in almost each and every recipe prepared in these parts of the world. *Cocos nucifera* belongs to the large Palmaceae family of palm trees. Coco palm grows well in the tropical climates. The various products of coconut include tender coconut water, copra, coconut oil, raw kernel, coconut cake, coconut toddy, coconut shell and wood based products, coconut leaves, coir pith etc. It's all parts are used in some way or another in the daily life of the people in the traditional coconut growing areas. It is the unique source of various natural products for the development of medicines against various diseases and also for the development of industrial products. The parts of its fruit like coconut kernel and tender coconut water have numerous medicinal properties such as antibacterial, antifungal, antiviral, antiparasitic, antidermatophytic, antioxidant, hypoglycaemic, hepato-protective, immune-stimulant. Coconut water and coconut kernel contain micro minerals and nutrients, which are essential to human health, and hence coconut is used as food by the peoples in the globe, mainly in the tropical countries. The coconut palm is, therefore, eulogised as 'Kalpavriksha' (the all giving tree) in Indian classics, and thus the current review describes the facts and phenomena related to its use in health and disease prevention. A medium-sized nut carrying 400 g edible meat and some 30-150 ml of water may provide almost all the daily-required essential minerals, vitamins, and energy of an average-sized individual. 100 g kernel holds 354 calories. Much of this comes from the fats and protein. Although its meat is disproportionately high in saturated fats in comparison to other common edible nuts, coconut has many healths promoting bioactive compounds. The important saturated fatty acid in the coconut is lauric acid (1:12 carbon fatty acid). Lauric acid increases good-HDL cholesterol levels in the blood. HDL is a high-density lipoprotein, which has beneficial effects on the coronary arteries by preventing vessel blockage (atherosclerosis). Physicians recommend high HDL to total cholesterol levels in the blood for the same reason. Coconut water is a very refreshing drink to beat tropical summer thirst. The juice is packed with simple sugar, electrolytes, minerals, and bioactive compounds such as cytokinin, and enzymes such as acid phosphatase, catalase, dehydrogenase, peroxidase, polymerases, etc. Altogether, these enzymes aid in digestion and metabolism. Coconut oil extracted from the dry kernel (copra) is an excellent emollient agent. It is used in cooking, applied over scalp as hair nourishment, employed in pharmacy and medicines. Research studies suggest that cytokinins (eg., kinetin and trans-zeatin) in coconut water showed significant anti-ageing, anti-carcinogenic, and anti-thrombotic effects. The kernel is an excellent source of minerals such as copper, calcium, iron, manganese, magnesium, and zinc. It is also a very good source of B-complex vitamins such as folates, riboflavin, niacin, thiamin, and pyridoxine.

**ABSTRACTS OF
ORAL PRESENTATIONS**

**ICTAM: OP: 1: STANDARDIZED
POLYALTHIALONGIFOLIAMETHANOLIC LEAF EXTRACTS
(PLME) INHIBITS HELA CELLS THROUGH INDUCING
MICRORNAS EXPRESSION AND APOPTOSIS**

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Ample data specifies that various medicinal plant have an anti-cancer effect, but the detailed mechanisms are not well understood. Recent studies have revealed anticancer potential of medicinal plant Polyalthialongifolia Leaf against HeLa cells. Hence, the current study was conducted to evaluate the standardized Polyalthialongifoliamethanolic leaf extracts (PLME)-induced microRNA alterations associated with apoptosis in HeLa cells. The meta-analysis was conducted through next generation sequencing (NGS) and in silico analysis tools (bioinformatics) to study the detail mechanisms. Discoveries obviously associated the early anticancer effect of PLME with the alteration of miRNAs expression associated with apoptosis induction in the PLME-treated HeLa cells. PLME treatment significantly ($P < 0.05$) increased the expression of 10 miRNAs and down-regulated the expression of 43 miRNAs in PLME-treated HeLa cells. Gene ontology (GO) term analysis indicated that PLME induces cell death in HeLa cells by provoking pro-apoptotic genes. Moreover, down-regulated oncomiRs modulated by PLME treatment in HeLa cells were identified in targeting apoptosis-related genes through gene ontology and pathway analysis. The PLME regulated a subset of miRNAs in HeLa cells. Identification of miRNAs regulated by PLME may provide further insight into the mechanisms that plays a critical role in cervical cancer, as well as novel ideas regarding therapeutic strategies.

**ICTAM: OP: 2:- SIGNIFICANCE OF PHARMACEUTICAL
RESEARCH IN AYURVEDA**

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2-SCSVMV University, Kanchipuram

The word pharmaceutical pertains to pharmaceutical industry and drugs which is prepared and dispensed in pharmacies for the medical treatment. Production and development of standard genuine new dosage design according to approved formula and processes prescribed in science falls within the scope of pharmacy.

Pharmaceutical research intends at mass production of medicines economically from standard raw material at low cost yet with improved standard of selectivity, potency, efficacy, safety, durability, pharmacokinetics, administration modalities, palatability and clinical response of the drug. Pharmaceutical preparations are mainly classified into primary, secondary and modified tertiary dosage forms.

Globalisation of Ayurveda and industrialization of the Ayurvedic drug sector, that needs standardization and quality assurance of the in use drugs besides developing new drugs and formulation for more recent indications. There are certain important stages of pharmaceutical research in Ayurveda like Research of different sources and selection of the raw drug, Extraction of active principles, Various drug manufacturing process, Scientific drug Evaluation like process monitoring and continuous improvement, system biology, pharmaco economics, Process control and Process validation, Scale up and tech transfer etc . Mainly four phases included in this research. Validation and qualification of the compound is an inevitable part of this research. So pharmaceutical research in ayurveda is mandatory in the present scenario.

**ICTAM: OP: 3:-ESTIMATION OF SECONDARY METABOLITES
AND PHYTOCHEMICAL SCREENING OF SELECTED SOUTH
INDIAN MEDICINAL PLANTS**

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Current research in drug discovery from medicinal plants involves a multifaceted approach combining botanical, phytochemical, biological and molecular techniques. Evaluation of certain selected south Indian medicinal plants popularly used in Indian system of medicine has been taken up for their phytochemical screening and estimation of secondary metabolites. The plants selected were whole part of *Heliotropium indicum*, *Shorea robusta* oleoresin, bark of *Schleichera oleosa*, *Symplocos cochinchinensis* and *Wrightia tinctoria*. Medicinal value of plants lies in active chemical ingredients which have a definite and specific role to play in the alleviation of such conditions. Diverse phytochemicals have been found to possess a wide range of activities which help in protection against chronic diseases. Total ethanolic extract(TEE) of all the five plants were prepared and were subjected to qualitative chemical analysis leading to the identification of various phytoconstituents viz., alkaloids, glycosides, phenolics, flavonoids, carbohydrates, proteins, amino acids, triterpenoids, sterols, tannins and saponins. Estimation of phenolics and flavonoids present in TEE of the five plants parts were carried out. Phenolic estimation by Folin ciocalteau method using gallic acid as standard and flavonoid estimation by Aluminium chloride calorimetric assay using rutin as standard. A comparison of flavonoids and phenolics indicates higher content of phenolics in *S. oleosa* whereas flavonoid content is higher in *W. tinctoria*. This can be the reason behind the biological activities of the above plants.

**ICTAM: OP: 4:-PHARMACOGNOSTIC AND PHYTOCHEMICAL
SCREENING OF *LOBELIA ALSINOIDES* LAM.**

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Lobelia alsinoides Lam. (Family-Companulaceae) is a perennial herb, with milky white latex. The use of the plant for curing jaundice is a traditional wisdom of Kerala. The *Hortus Malabaricus*, a compilation of folklore practices by Henry Vanrheede contains description about *Lobelia alsinoides* Lam. However, the data on *Lobelia alsinoides* Lam. is not available in contemporary literature.

Objective of the study is to evaluate pharmacognostic and phytochemical characteristics of *Lobelia alsinoides*.

In pharmacognostical study, leaf, stem and root were evaluated histologically. Phytochemical screening of whole plant was done including moisture content, volatile oil, total ash, acid insoluble ash, water insoluble ash, fibre content, sugar content, water and alcohol soluble extractives, successive solvent extractives, heavy metal analysis by atomic absorption spectroscopy, thin layer chromatography and high performance thin layer chromatography.

Histological features were found similar to aquatic plants and were rich in Calcium oxalate crystals. Qualitative phytochemical analysis showed presence of alkaloids, tannins and steroids in ethanol extract. TLC and HPTLC profiles were developed. The four heavy metals namely - Cadmium, Iron, Lead and Zinc were found within permissible limits.

These were done for the purpose of standardization of plant based on the procedures in API (Ayurvedic Pharmacopoeia of India), a legally valid Ayurvedic drug document.

ICTAM: OP: 5:-A COMPARATIVE STUDY ON THE ANTIINFLAMMATORY EFFECT OF DECOCTION (KASHAYA) OF SIGRU *MORINGAOLEIFERALAM.*; FAMILYMORINGACEAE) LEAVES WITH ITS ALCOHOLIC EXTRACT

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Medicinal plants constitute an effective source of traditional Ayurvedic, Chinese, Homeopathy, (eg;Unani) and modern medicine. Herbal medicines are becoming more and more popular in recent years with their over increasing acceptability in both developing and developed countries. Herbs are nowadays used both in the form of extracts and in crude form. Eg: traditional dosage forms like kashaya). It is the necessity of time to scientifically validate the efficacy of herbal extracts and crude herbs, as the herbal extracts available in the market are claimed to have equal efficacy as that of crude herbs.

In traditional practice, Sigru is used in crude form to cure inflammation. The available sigru leaf extract is said to have result in inflammatory conditions. Considering these facts a study was carried out to assess the anti-inflammatory effect of kashaya and alcoholic extract of Sigru leaves experimentally in albino rats using carrageenan induced rat paw oedema method and to compare the results.

On comparison, decoction of Sigru leaves were found to be anti-inflammatory.

ICTAM: OP: 6:- ROLE OF DISEASE SPECIFIC NEW DRUG COMBINATIONS ALONG WITH CLASSICAL AYURVEDIC PREPARATIONS IN THE MANAGEMENT OF UTERINE FIBROID –CASE REPORT

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Fibroids or Leiomyomas are the common benign tumors in the uterus. Intramural fibroids are the commonest and arising from the myometrium of the uterus. These tumors are usually multiple, firm & fibrous. Clinical presentations of fibroids depend upon the size & site, which are dysmenorrhoea, menorrhagia, anemia, pressure symptoms and pelvic pain. Ayurveda considers it as Garbhashaya Grandhi and the management includes Grandhi, Vidrathi, Arbuda, Rakthapitta, and Raktharsas chikitsa. So usage of small combinations of drugs in view of the above management principle is essential for the treatment of fibroid.

A 42 yr old lady having the complaints of dysmenorrhea, menorrhagia, anemia, & her USG shows posterior wall fibroid (2.4 cm x 1.6 cm), a nabothian cyst in the cervix (15x10 mm) mild hepatomegaly and grade 1 fatty liver. After 6 months management, menstrual cycle became normal, Hb level increased & USG shows Grade 1 fatty liver only.

The drugs Nisha, Manjishta, Ashoka, Aaraguadha Twak, Nimba beejam, Shundi, Vasa, Punarnava in decoction form; Aloe Vera as juice along with an essential classical management to reduce the size of the fibroid. The medicinal plants contain several phytochemicals like vitamins, alkaloids, enzymes, and minerals etc which have antioxidant properties that are effective in fibroid therapy. These drugs also had an add-on advantage of an anti tumor and immunomodulatory activity. These drugs are disease specific, organ specific and having the properties like antimicrobial, healing, laxative, Lekhana and Sthambhana action which are effective for this condition.

ICTAM: OP: 7:- INHIBITION OF INFLAMMATION BY THE LEAVES OF *GLYCOSMIS PENTAPHYLLA* (RETZ). DC-A PROFILE OF *IN VITRO* ANALYSIS.

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Mechanism of anti-inflammatory activity of the medicinal plants is of great importance. *Glycosmis pentaphylla* (F.Rutaceae) is an odorous herb found all over India. *G. pentaphylla* is used in indigenous medicine for cough, rheumatism, anaemia and jaundice. Juice of leaves is used in fever, liver complaints and as vermifuge. A paste of leaves with ginger is applied in eczema and skin infections. Total ethanolic extracts of the leaves of *Glycosmis pentaphylla* were subjected to preliminary phytochemical screening. Anti-inflammatory activity was screened by inhibition of protein denaturation, proteinase inhibition. Studies were carried out to assess the inhibition of cyclooxygenase, 5-lipoxygenase, myeloperoxidase and cellular nitrite levels using lipopolysaccharide stimulated RAW 264.7 cell lines. Carotenoids present in the alcoholic extract of *G. pentaphylla* were estimated. Antioxidant studies on the extract were carried out by iron chelating, and total antioxidant assays. Results suggest that the anti-inflammatory activity shown by the extract was mainly by dual cyclooxygenase and 5-lipoxygenase inhibition which may be due to the antioxidant components present. Dual cox/5-lox inhibition suggests the gastrointestinal safety of the extract as an anti-inflammatory agent. The result thus confirms the traditional claim and points further investigations for a bioactivity guided isolation.

**ICTAM: OP: 8:-CARDIO PROTECTIVE ACTION
OF BALADYAM GHRUTAM**

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Baladyam ghrutam is a lipid based formulation with ghee as the medium, explained in *Ayurvedic* text *Chakradutta* for the treatment of *hridroga*. The ingredients are *Bala (Sida cordifolia Linn.)*, *Nagabala(Sida veronicaefolia Lam.)*, *Arjuna(Terminalia arjuna Linn)* and *Yashtimadhu(Glycyrrhiza glabra)*. The study was conducted to evaluate the cardio protective activity of *Baladyam ghrutam* in cardiomyoblast (H9C2) cells in ischemia/reperfusion(I/R) injury. The study was conducted in four steps: 1. Cardio toxicity assay using MTT 2. Cardio protective study of *Baladyam ghrutam* using MTT assay in I/R injury 3. Apoptosis determination by using Acridine Orange (AO) and Ethidium Bromide (EB) double staining on I/R 4. ATPase assay using ERBA phosphorus kit. The dose of *Baladyam ghrutam* was fixed at 25 µg/ml after conducting the cardio toxicity evaluation by MTT assay. Cardio protective study showed that the cells treated with *Baladyam ghrutam* was able to maintain the viability by 88.78% in I/R and *Baladyam ghrutam* can significantly prevent the cellular injury and apoptotic cell death. On determining the activity of Na⁺K⁺ ATPase, Ca²⁺ ATPase and Mg²⁺ ATPase, it was found that the cells treated with *Baladyam ghrutam* was able to withstand the ionic imbalance and the enzyme activity per milligram of protein in cells treated with *Baladyam ghrutam* was comparable with that of control cells and thus the ATP activity was maintained. Thus it was concluded that the *Baladyam ghrutam* is having a protective action in cardio myocyte.

Keywords:- Cardio protective effect, Ischemicreperfusion, MTT assay, ATPase assay

**ICTAM: OP: 9:- GIANT PAPILLARY CONJUNCTIVITIS –
A CASE REPORT**

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Rationale for this case report

Giant papillary conjunctivitis is the inflammation of conjunctiva with formation of very large sized papillae. It is a localised allergic response to a physically rough or deposited surface. Mostly Decongestants and Steroids are the line management of Giant papillary conjunctivitis but these only give a Temporary relief and sometimes it worsens the condition. A proper Ayurvedic treatment protocol gives a reduction in Size and symptoms of Giant papillary conjunctivitis.

Presenting concerns

A 19years old male patient was visited in our hospital with symptoms of itching and thick mucoid discharge .On clinical examination giant papillary hypertrophy of the upper tarsal conjunctiva in both eyes was found .It was measured about 2mm-3mm in diameter.Patient had the history of dust allergy since 10 years.

Interventions

Ayurvedic medication was started and allopathic medication deferred because patients responded positively.

Outcomes

Outcome of this study reveals that reduction in size of Giant papillary hypertrophy of the upper tarsal conjunctiva in both eyes .Also reduction in symptoms like itching and discharge from eyes.

Main lesson(s) from this case report

Intervention reduced the Giant papillary conjunctivitis. Long term and large sample size study should be done in future to validate the principle.

Keywords– Giant papillary conjunctivitis, papillary hypertrophy, itching, discharge

ICTAM: OP: 10:- UPLC-QTOF MS/MS INVESTIGATION ON PHYTOCONSTITUENTS OF *TINOSPORA SINENSIS* (LOUR.) MERR., A TRADITIONALLY USED ANTIDIABETIC PLANT

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With the outstanding developments in the areas of separation science, natural product research is enjoying renewed attention for providing novel and interesting chemical scaffolds. The various available hyphenated techniques have made possible the pre isolation analyses of crude extracts or fractions from different natural sources, isolation and on-line detection of natural products. Mass spectrometry coupled to high performance liquid chromatography has been increasingly used in the structural characterisation of complex matrices and have proved to be the tool of choice to identify phytoconstituents. In the present study we have investigated the phytoconstituents of a traditionally used antidiabetic plant *Tinospora sinensis* by UPLC-QTOF MS/MS analysis. The total ethanolic and ethyl acetate fractions of the stem extracts were subjected to UPLC-QTOF MS/MS analysis in two different ionisation modes. Many phytochemicals were tentatively identified by the molecular mass and the fragmentation pattern obtained. Compounds like naringenin 7-O- glucoside, luteolin 7-O-glucoside/kaempferol 3-O-glucoside, naringenin, luteolin, kaempferol, rhamnetin, myricetin 3-O-glucuronide, jatrorrhizine, 7-O-methyl cyanidin 3-O-galactoside and kaemferide were tentatively identified. Identified compounds like kaempferol, jatrorrhizine and naringenin were reported to have antidiabetic property. The obtained results well supported the traditional use of *T.sinensis* as antidiabetic.

ICTAM: OP: 11:- ASVAGANDHA (*WITHANIA SOMNIFERA* (L) *DUN*) IN NEUROTOXICITY EXERTED BY ENDOSULFAN – AN *IN VIVO* STUDY

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Exposure to Pesticides is a major concern in present day as they gain entry into human body through air, water, and food. The impact of pesticide contamination is very well evident in the Kasargode District of Kerala, where there was continuous aerial spraying of an organochlorine pesticide, Endosulfan, for more than 26 years; resulted in the birth of many children with congenital abnormalities. The untoward escalation of Cancers and other neuro-degenerative diseases in these areas are attributed to the pesticide contamination through generations from food and water sources. In Ayurveda, such entities are included under the heading ‘Gara’ (concocted poisons). A query into the role of Ayurveda in such toxicities leads us to ‘gems’ of practical wisdom. Asvagandha (*Withania somnifera* (L) Dun.) commonly referred to as *Indian Ginseng* is loaded with tremendous pharmacological potentials and widely referred to in Ayurvedic toxicology. This study was designed to establish the role of Asvagandha in the form of ghrta in ameliorating the neurotoxicity and Oxidative stress induced by endosulfan in male wistar rats.

In this *in vivo* study to evaluate the neuroprotective effect of Asvagandha ghrta in male wistar rats, the parameters assessed were – Lactate dehydrogenase (LDH), Creatine Phosphokinase (CPK) and Acetylcholinesterase (AChE) levels. Antioxidant enzymes like Superoxide dismutase (SOD), Glutathione peroxidase (GPx), Catalase (CAT) and Glutathione (GSH) were also assessed. Histopathology was also done on the liver, brain, kidney and intestinal tissues.

On analyzing the result, Asvagandha ghrta got significant neuroprotective effect and antioxidant property at a dose of 4.32 ml/Kg b.wt.

The study confirms the potential of Asvagandha ghrita in ameliorating the Neurotoxicity induced by Endosulfan and that this action may be due to its antioxidant activity.

ICTAM: OP: 12:-HEPATOPROTECTIVE ACTIVITY OF ROOT EXTRACTS OF *MORINDA UMBELLATA* .LINN

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Folk medicinal claims that plants provide a lead material for discovery of new natural origin. According to the traditional healers, *Morinda umbellata*. Linn (Family: Rubiaceae) which is a trailing creeping plant belongs to a large plant group Morinda possessing potent anti-inflammatory and hepatoprotective properties. Different extracts of roots of *M.umbellata* was analysed for estimation of total phenolic content by Folin-ciocalteau method and total flavonoids content by aluminium chloride colorimetric method. Total ethanolic extracts and Aqueous Extract were studied for hepatoprotective activity by MTT assay using Chang liver cell. The extracts were found to be good source of phenolics and flavonoids. The extracts and silymarin exerted a protective effect against carbontetrachloride induced hepatic injury. Further *invivo* studies may be performed to authenticate the biological activity to determine the therapeutic index. Isolation of more active constituents possessing therapeutic activity are also suggested.

ICTAM: OP: 13:- PEDIATRIC NUTRACEUTICALS IN AYURVEDA – A SYSTEMATIC REVIEW

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Food is considered as the most important medicine as per Ayurveda, especially in the case of children. One in three of the malnourished children still live in India. Various nutraceuticals are explained for specific functions as carminatives, anabolics, laxatives etc in Ayurvedic treatises for children. Almost all of these medicines are very palatable and easy to digest. Clinical

trials are being conducted with many formulations throughout India, though the nutritive value of the formulations and the mechanism of actions need to be studied further. Clinical studies were conducted in the Hospital for Woman and Children, Government Ayurveda College, Thiruvananthapuram for assessing the effect of the various such Ayurvedic medicines, since 2008. All these formulations are combinations of various herbal drugs and food articles like puffed rice, ghee, sugar candy and fruits. Five such clinical trials are systematically reviewed and statistically compared for its specific effect in children aged six months to five years. The doses of individual formulations were fixed as per the directions available in ayurvedic literature. The assessments were done using anthropometric software of WHO, TDSC charts and morbidity indices. The above formulations have shown significant positive changes in the growth and development of children.

Keywords:- ayurveda, pediatrics, nutraceuticals, clinical trials

**ICTAM: OP: 14:- EFFECTIVENESS OF HOMOEOPATHIC
MEDICINE CONIUM MACULATUM 200 C FOR MANAGEMENT
OF PYURIA.**

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Homoeopathy is an alternative system of medicine discovered by German physician Samuel Hahnemann in 1796. It has been used by several people for various health conditions globally for more than last 200 years. In India, homoeopathy is considered as a major system of alternative medicine. Homoeopathy is found effective in various medical conditions including Pyuria. Pyuria is condition in which pus cells are found in urine. Homoeopathy is very useful for reducing pus cells, and homeopathically potentized Conium Mac (Hemlock) is an important remedy commonly used for reducing pyuria. *Aim:* To reduce the amount pus cells found in urine using Conium Mac 200C. *Methods:* Design. Small N Design. Samples: Purposive Sampling with 5 cases diagnosed as pyuria. Tools: Personal Data Schedule and ICD-10 Criteria for Pyuria. Techniques: Potentized homoeopathic medicine, Conium Mac 200th potency is used. *Statistical Analysis:* The statistical analyses were done using non-parametric tests. *Results:* There is significant pre/post difference has been identified.

Conclusion: Homoeopathic potency, Conium Mac 200 C is effective in reducing the increased level of pus cells found in urine samples.

Keywords: Homoeopathy; Alternative Medicine; Pyuria; Conim Mac; Small N design; Non-parametric Tests.

ICTAM: OP: 15:-EFFECIENCY OF KUPPAI MENI SAMOOLA CHOORNAM ALONG WITH DIETARY REGIMEN FOR RATHA MOOLAM (HEMORRHOIDS)

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Hemorrhoids are variceal dilatations of the anal and perianal venous plexuses. These extremely common lesions affect about 5% of the general population and are rarely encountered in persons under the age of 30 except in pregnant women. They develop secondary to persistently elevated venous pressure within the hemorrhoidal plexus. According to modern science, different hemorrhoid therapies typically break down into the groups of conservative management, nonsurgical and surgical interventions. In Siddha system of medicine, there are various modalities in treatment of hemorrhoids. This study is an attempt to evaluate the efficacy in supportive with the literature evidences of single herb preparation for treatment of hemorrhoids. Kuppaimeni (*Acalypha Indica*) which has various traditional uses especially indicated for the management of hemorrhoids with reference to classical *Siddha* text *Therar Gunavagadam. Kuppaimeni Samoola choornam* (KSM (*Acalypha indica* whole plant powder) was given for ten selected patients (age group 25 – 60) who were having the complaints of hemorrhoids upto third degree for a period of 48 days. In addition to the therapy, they were advised to follow a diet regimen to take two fig fruits twice daily. Improvement was assessed by hemorrhoids grading and symptom severity scoring published by Karolinska University. Within the therapy period itself two cases shown complete mass shrinking and relieved well from the symptoms. Rest of

the 8 cases were symptomatically better but without significant pile mass shrinkage. This study supports the effectiveness of *kuppaimeni Samoola Choornam* in treating Hemorrhoids.

Key words: Hemorrhoids, *Siddha system. Kuppaimeni Samoola Choornam, Moolam*

ICTAM: OP: 16:- REDUCING SYMPTOMS OF ANXIETY WITH HOMOEOPATHIC MEDICINES: A STUDY USING SMALL 'N' DESIGN.

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Homoeopathy is one of the popular branches of alternative medicine practiced all around the world. It is well established in India, especially in Kerala. It is used for the treatment several health conditions both physical ailments and psychological problems. Homoeopathic medicines are useful for managing psychological problems like anxiety disorders. The current study has been done to find out the effectiveness of individualized homoeopathic medicines for the management of symptoms of anxiety. Aim: To find out the effectiveness of individualized homoeopathic medicines (IHM) for the management of symptoms of anxiety. Methods: *Design:* Small N Design. *Samples:* Purposive sampling. *Sample Size:* Seven cases identified with symptoms of anxiety. Three females and four males between the ages of 20 to 60 years are selected. *Tools:* Individual Case Sheet and Psych morbidity Assessment Scale Questionnaire. *Technique:* Individualized Homoeopathic Medicine (IHM) determined after homeopathic case taking was used as the technique for intervention. *Statistical Analysis:* Statistical analyses were done using non-parametric tests. *Results:* Significant pre/post differences were observed. *Conclusion:* Individualized Homoeopathic Medicines were very useful in reducing the symptoms of anxiety.

Keywords: Homoeopathy; Alternative Medicine; Psychological Problems; Anxiety;

Individualized Homoeopathic Medicine; Small N Design; Non-parametric Tests

**ICTAM: OP: 17:- ALCOHOL WITHDRAWL SYNDROME
AND ITS AYURVEDIC MANAGEMENT**

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Alcohol has a long history of use and abuse throughout the recorded history. Excessive alcohol misuse and drunkenness were recognized as causing physical, mental, familial, social as well as occupational problems to the affected ones. Alcoholism and the related problems is one of the major problem generally perceived as detrimental to the society. According to WHO, alcoholism is the 3rd largest risk factor for the disease burden and also results in 2.5 million deaths a year. Almost 50% of the alcoholics have alcohol related problems. Alcohol withdrawal syndrome is a set of symptoms seen when an individual reduces or stops alcohol consumption after prolonged periods of excessive intake.

Madya and the merits and demerits of its intake and the resultant clinical conditions have been discussed by the Ayurvedic scholars with utmost seriousness and due concern. A multidisciplinary approach is ideal here in this regard. The treatment is being decided after detailed clinical examination and also assessment of the parameters in Ayurveda including the status of the doshas. After which a detailed protocol including snehapana, sodhana that includes Vamana, Virechana, Vasthi, Nasya, Sirodhara etc. followed by the administration of suitable internal medicines after assessing the status of the clinical scenario.

The initial problem of insomnia as well as the auditory and visual hallucination, being experienced by the patient is overcome by Nasya or nasal administration with suitable medicines. After the Sodhana therapy, the patient is advised to Yoga therapy and also to attend the weekly Alcoholic Anonymous groups. Family as well as individual counselling sessions are also arranged alongwith. Rasayana therapy is advised at the time of discharge to be continued for a while, Such a protocol seems effective in the management of Alcohol Withdrawl Syndrome, the details may be discussed in the paper.

**ICTAM: OP: 18:- PREPARATION AND STANDARDISATION
OF A TRADITIONAL MEDICINE**

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Rasasastra uses mercury and other minerals for preparing drugs and this definitely requires cautions and pre cautions. Due to the addition of heavy metals, scientific fraternity always questions the safety and efficacy of herbo-mineral drugs. Thus for ensuring quality and efficacy it is necessary to create standard analytical profiles of each medicine. Here one such formulation named Vettumaran Gulika containing Cinnabar and Borax as ingredients from a traditional textbook Sahasrayoga was selected. The study design was of analytical and the Protocol for Testing of Tablets by PLIM was set as standard for analysing the drug. Quality raw materials were collected and were tested for their Identity, Purity and Strength. The medicine was prepared using these ingredients as per traditional method and Standardisation was done by estimating the physicochemical characters of the Gulika. The obtained results were used to prepare the Standard Analytical Profile of Vettumaran Gulika

Key words: Rasasastra, Gulika, Protocol for testing, Standardisation

**ICTAM: OP: 19:- NUTRACEUTICALS: A HOLISTIC APPROACH
THROUGH AYURVEDA**

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Nutraceutical term was coined from Nutrition and Pharmaceutical in 1989 by Dr. Stephen Defelice. According to him a Nutraceutical is any substance that is a food or a part of food and provides medical or health benefits, including the prevention and treatment of disease. The concept of nutraceutical was started from the survey in UK, Germany, France and it concluded that diet is rated more highly by consumers than exercise or hereditary factors to achieve a good health. Nutraceutical is gaining more

popularity in recent years and its roots are scattered in Indian System of Medicine. Ayurveda was given more emphasis to diet (Ahara), which mainly helps to maintain the healthy state of an individual and prevents the occurrence of disease. The level at which Ahara becomes an Oushadha depends on certain factors like properties and qualities of Ahara consumed, Prakruti, Saara and Dosha etc. of an individual. The main aim of this paper is to compile the Nutraceutical concept in Ayurvedic literature.

Keywords: Nutraceuticals, Ayurveda, Ahara

ICTAM: OP: 20:- ADENOMYOSIS – SETTING AYURVEDIC CLINICAL PROTOCOL AGAINST SURGICAL SOLUTION

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Congestive dysmenorrhoea is an important clinical presentation among women of 25-45years attending gynecological clinics and Adenomyosis is found to be a pivotal cause of secondary dysmenorrhoea. Recent studies suggest that, almost 50-60 percent of total clinical gynecological presentation points towards various degrees of Adenomyosis. This accounts for a bigger women population of reproductive age. Adenomyosis may be defined as the benign invasion of endometrium into the myometrium, producing a diffusely enlarged uterus which microscopically exhibits ectopic non-neoplastic, endometrial glands and stroma surrounded by the hypertrophic and hyper-plastic myometrium.

Adenomyosis does not have definite medical treatment in the modern gynecological practices other than surgery, thus making the patients seek alternate therapies of healing. Management of Adenomyosis through surgery ie, hysterectomy is obviously a perfect end correction by letting the cause and the issue out of the body. But this challenges the conservatory treatment in medical field and is never a satisfactory solution for patients. Here comes the arena for ayurveda to render an absolute solution by a perfect clinical addressing with well recorded clinical outcome, one step above patient's mere fear of surgery, age of the patient, financial constraint, social reason etc.

Barring morbid surgical cases, the clinical presentation of adenomyosis at ayurvedic clinics bounces to bigger digits and this calls for an efficient clinical protocol. This is an effort to code the treatment delivered at VPSV ayurveda college Hospital till date. The treatment is personalized and includes medical interventions and therapies like uthara vasthi. The treatment provided, found to have an appreciable cure in patients. The changes are recorded with imaging techniques affordable by the patient.

Key words: Adenomyosis, Congestive Dysmenorrhoea, Uthara vasthi

ICTAM: OP: 21:- WOUND HEALING PROPERTY OF *CELOSIA CRISTATA* USING INVITRO CYTOTOXICITY ANALYSIS OF BIMETALLIC NANOPARTICLES

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In the recent years bimetallic nanoparticle have obtained lot of attention due to their wide range of application and property. In the present study the silver and copper nanoparticles with diverse compositions will be efficiently synthesize from the flowers of *Celosia cristata*. These Bimetallic nanoparticles are prominent elements and they known to possess antimicrobial activity. In this study it is about to evaluate the biosynthesized Bimetallic Nanoparticles for their wound-Healing potential. The objective of this study is to evaluate wound healing potential of Ag-Cu Nanoparticles by *in vitro* studies. Structural, morphological and optical properties of the Bimetallic nanoparticles will be characterize systematically by using FTIR, SEM, XRD, EDAX and UV-Vis spectroscopy. Comparative *in vitro* cell toxicity of as synthesized nanoparticle solution was assessed in L929 cells using MTT assay and Scratch wound assay. A minimal impact was observed on cell viability and morphology during 72 h.

Keywords: Bimetallic nanoparticles, *Celosia cristata*, Wound – Healing Property, in-vitro cytotoxicity analysis

**ICTAM: OP: 22:- THERAPEUTIC MEASURES IN MEMORY
IMPAIRMENT- AN AYURVEDIC PERSPECTIVE**

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Age related memory loss is widely believed to begin around 60 years. New researches suggest that memory and other mental abilities declines decades earlier. Efforts to prevent this decline should start in adults as young as 40 years. Hypothalamus and Prefrontal cortex shrinks faster than the other areas. Intelligence, learning and memory are the three key cognitive domains that get affected early during ageing. According to Ayurvedic parlance, Smriti (Memory) as such can be related as a function of Udana vata which in turn depends on dhatu sthirartva. Integrity of any tissue depends on

1. Anupahata dhatu ooshma
2. Anuahata vata and
3. Anupahata srotas.

Upahata or obstruction to above factors leads to the formation of sama dhatu which ultimately leads to dhatukshaya (tissue degeneration). Identifying the minute changes in mental status of an individual at this state can be designated as Mild cognitive impairment. Judicious application of sneha-sweda -virechana and samana measures could help to arrest the progress towards early dementia

Key words: Smriti, Mild cognitive impairment, dementia, sneha, sweda, virechana, samana

**ICTAM: OP: 23:- PREPARATION AND PHYSICO CHEMICAL
EVALUATION OF SWAYAMAGNI
LOHA BHASMA.**

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The present study is aimed at preparation and physico chemical evaluation of *Swayamagnilohabhasma* which is a unique method of *Lohabhasma* preparation narrated in *Rasasastratreatises*. Here the *Bhasma* is prepared without providing any heating process. The raw material used was 100 mesh size Iron powder. It was subjected to *Sodhana* (purification) the quenching method seven times each in *sesame oil, buttermilk, cows urine, sour gruel, horse gram decoction* and *triphala decoction*. After that *Swayamagnilohabhasma* was prepared by grinding of *Sodhita Lohachoorna* and *kajjali* (prepared with *mercury and sulphur* in the ratio 1:2) in *aloe vera juice* within a mortar and pestle. After two hours of grinding whitish fumes seen coming out and recorded a temperature of 65 degree centigrade. Supposed to be an exothermic reaction. The colour was seen changed to brownish powder of iron oxides. Then after six hours of grinding it was made into a bolus shaped mass. It was heated under sunlight after covered with castor leaves and kept inside a copper vessel for one and half hour. Then kept in the heap of husk for three days and filtered through cloth. Final products were subjected to *Bhasmapareeksha* as per PLIM along with advanced analytical techniques like XRD, ICP-OES, XRF, AAS, PARTICLE SIZE ANALYSIS. XRD analysis revealed the amorphous nature of *bhasma*. The particle size of *Bhasma* in micro meter was confirmed through dynamic light scattering. XRF revealed presence of iron oxide and sulphur oxides, rhenium etc. AAS revealed absence of water soluble mercury. Ph noted below three indicating its high potency. It was already seen proved its therapeutic effect against hypothyroidism. Hoped to be effective in stomach cancer also.

Key words -LohaBhasma; XRD; ICP-OES; XRF

**ICTAM: OP: 24:- CONSERVATION & SUSTAINABLE UTILITY
OF MEDICINAL PLANTS**

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Plants are one of the major sources of drug in modern as well as traditional systems of medicine throughout the world, in spite of the tremendous advancement in the field of Science and Technology. Approximately one - third of all pharmaceuticals are of plant origin. The demand for Medicinal plants is said to be increasing year after year. This necessitates the conservation of Biodiversity. About 960 species of medicinal plants are estimated to be in trade of which 178 species have annual consumption levels in excess of 100 metric tons. Despite of India being rich in biodiversity and one among the 12 mega biodiversity centers, the growing demand for medicinal plants is putting a heavy strain on the natural resources. This has resulted in depletion of a number of higher plant species which are categorized as either threatened or endangered. Over exploitation and habitat destruction are the most serious proximate threat to medicinal plants. 70% of plant collections involve destructive harvesting because of use of parts like roots, barks, stems, and whole plant. The presentation will highlight in detail the four specific methods of medicinal plants conservation - in situ strategy, ex situ strategy, reduction of anthropogenic pressures and rehabilitation of endangered species. It is mandatory as a responsible physician to not only know and understand the medicinal plants but also conservation of existing plants and prevent their extinction, so that the natural wealth is preserved and promoted to be used for the benefit of mankind and the coming generations.

Key words: Medicinal Plants, Conservation, Biodiversity

ICTAM: OP: 25:- MEASURES FOR STANDARDIZATION OF PRODUCTS & PROCEDURES OF TRADITIONAL HEALING

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From the time immemorial when humanoid starts its social life, their primary aid for medical treatment was traditional healing systems. Before the entry of modern medicine system it plays a crucial role in maintain the health status of millions of human beings. Unfortunately by the entry and establishment of modern medicine a number of traditional healing systems undergo deterioration in their dominants. Among them Ayurvedha, Siddha, Yunani and only some other local healing systems could survive and exist in the streamline. Now a days some other factors like scarcity of raw materials and adulteration adversely affects the traditional healing systems. Only through Standardization and Harmonization of drugs and products, helps traditional healing system to regain its dominance back. Documentation of the medicinal formulations being practiced by traditional physicians and their scientific validation is very important. Indigenous systems of medicine have got acceptance only after proper Scientific and Clinical validation. A hawk-eyed monitoring is very necessary from the time of raw drug collection and up to packing and delivering of drugs. Storage of fresh medicinal plant samples is one of major hurdle in production side. FIFO (First in First Out) system is one of the widely following procedures in drug manufacturing industry. Packing and labelling with modern technologies minimize manual errors and promotes sales percentage.

Keywords: Traditional healing system, scientific and clinical validation, standardization, harmonization, FIFO.

ICTAM: OP: 26:- ACTION OF NASYA IN ALLERGIC RHINITIS

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Nasa is considered as one among the Panchendriyas, whose functions are not only limited to olfaction and respiration but also considered as a pathway for drug administration. Nasyakarma is a special procedure where the drug is administered through nose which is considered as the gate way for the shiras. The clinical picture of allergic rhinitis has similarities with the symptomatology of pratisyaya. Allergic rhinitis is a burning problem in present generation because of its recurrence and chronicity. Allergic rhinitis is an IgE mediated immunologic response of nasal mucosa characterised by sneezing, nasal congestion, nasal itching, and rhinorrhea. According to global statistics it affects 20% of population. Environmental factors, industrialization, change in lifestyle, all these put impact on allergic rhinitis. The clinical picture of allergic rhinitis has similarities with the symptomatology of Pratisyaya. The main symptoms include profuse sneezing, nasal blockage, nasal discharge, pricking pain over head and temples. Different modalities of treatments have been illustrated, among which the ideal one for uttamanga is Nasya therapy. Anutailam, Surasadi tailam, Shadbindu tailam, Tulasyadi tailam are commonly used nasya yogas. Shodhana and shamana therapy indicated for pratisyaya are effective in the management of allergic rhinitis. The classical drugs as well as therapy succeeds in breaking samprapthi of clinical conditions.

Keywords-Allergic rhinitis, nasya

**ICTAM: OP: 27:- HEALTH EDUCATION – AN AYURVEDIC
PUBLIC HEALTH DOMAIN**

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The current era is witnessing a tornado of events in field of Ayurveda. The speculations range from overwhelming popularity, spur of medical

tourism, profound daring researches, skyrocketing manufacturing, newer dimensions of ethics, patient safety to a less allowable misinterpretations and commercialization. The public health sector is no exception to this general rule. Since Public health is the science of protecting and improving the health of families and communities by promoting healthy lifestyles, active prevention, early diagnosis and prompt control of diseases. Thus the complete science of Ayurveda can contribute liberally for the same motto.

Relevance - The field of Public health is an already well established branch. Therefore in order to mould the vast canvas of Ayurvedic health promotive measures, one needs to employ certain handy tools. Ayurvedic health education is a protocol which needs to be contemplated, refined and put into practice. The focus is on health promotion strategies such as patient education, counseling, and support mechanisms. For this purpose a scientific know-how of various levels of Health education is mandatory. The initial task of introducing the tactics of conveying a health education class lies in the hands of the academy. However, it needs to be put to field test, evaluated and reassembled at regular intervals. For instance, a conjoint program constituting academicians and medical officers can form the Health Education module.

Methodology - The framework of Ayurvedic Health education has been embarked upon with sensitivity and specificity. A concrete knowledge of the concepts of disease prevention, health promotion, interaction between individual behaviour – social environment, community participation coupled with involvement and self-reliance is necessary to incorporate the Ayurvedic health care perspectives. The principles of daily regimen (dinacharya), seasonal regimen (ritucharya), dietetics (ahara niyama), ethical codes (sadvritta) and management of urges (vega) can be disseminated into the population only after care givers are committed to provide positive resources which would consistently help patients achieve behavior-specific changes. There is a deliberate requirement to popularize and widen the horizon of the health education component in Ayurveda. A well-stipulated module encompassing Behavioural change, Self-empowerment, Collective action model, Medical model, Motivation model and Social intervention model is required to hit the target. This humble presentation aims to demonstrate the various aspects of health education module that ought to be familiarized among students, scholars and faculty of Ayurveda.

Conclusion - The vast knowledge and manpower of Ayurvedic fraternity needs to be invested in Public health initiatives if it has been well assimilated by the masses. Health education is a time-tested tool in this

regard. Since it is targeted as a population strategy, a well coordinated, precise and meaningfully drafted modules are the need of the hour

Key words – Ayurveda, Public Health, Health Education

**ICTAM: OP: 28:- PARKINSON’S DISEASE:- AN AYURVEDIC
APPROACH, WITH SPECIAL REFERENCE TO
PANCHAKARMA**

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Parkinson’s Disease(PD),known in Ayurveda as *kampavata*,is a neurological disorder affecting 1% of the population over 65yrs of age.It is the 4th most common neuro-degenerative disorder that affects mainly the old age group.It is a progressive disease that gradually disables the patient. During the last few decades,the prevalence of the disease is alarming and that so far no curative treatment,either medical or surgical is available,that can curtail the signs and symptoms of the disease.With its worldwide distribution and prevalence in all ethnic groups and all socio economic groups,this disease adversely affects the quality of life and the economic productivity of the individual. A curative treatment for PD is still a mirage. Ayurvedic regimens have a lot to offer patients with PD. This requires proper medication and inpatient panchakarma therapy.

Onanalyzingthe *lakshanas* (symptoms)&*nidana* (causative factors) ... of PD, on the basis of its ayurvedic correlations & doshic involvement, a treatment protocol was developed viz., 22 days IP treatment schedule, which includes – *Udwarthana* (therapeutic massage with medicinal powder) + *Rookshavasthi* (medicated enema), *Sankarasweda* (sudation), *Abhyanga* (medicated oil application) and *Prastarasweda* (medicinal steam bath) , *yogavasthi*}. Internal medication continued during follow up period of 6 months.

A before after study is being conducted in Govt.Ayurveda college Panchakarma hospital Poojappura, Tvm, from 1/11/2017. Consecutive patients fulfilling the inclusion criteria, satisfying the sample size, willing to undergo the proposed treatment schedule, are selected for the study. Assessment is done with Unified Parkinson’s Disease Rating Scale., before and after treatment schedule.

Statistical analysis of assessment variables so far reveals that the study is having significant effect on improvement of quality of life of the patient viz., activity of daily living, rigidity, tremor, hand movement... There is also effect on psychological factors like behavior and mood. Follow up period shows that the improvement in quality of living is stable.

**ICTAM: OP: 29:- ACTION OF TANKANA BHASMA
PRATISARANA AND TRIPHALA KABALA IN THE
MANAGEMENT OF CHRONIC TONSILLITIS- A CLINICAL
CASE STUDY**

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Rationale For This Case Report: Tundikeri (Tonsillitis) is an inflammation of tonsils mostly affects children and even young adults. It is usually carried by viral infection or less commonly a bacterial infection. It gives discomfort to the people by its characteristic features such as sore throat, difficulty in swallowing and halitosis. When it become chronic or left untreated it leads to simple to severe complications like otitis media, meningitis etc. Surgical removal of tonsils, antibiotics are the only option of management in modern science they can give temporary relief. To manage this condition effectively without any surgery an observation in the management of tundikeri (chronic tonsillitis) was conducted on a patient of salakyatantra OPD of Amrita school of Ayurveda .

Presenting Concerns: A 40 yr old male patient having the chronic tonsillitis was selected. The patient did not have any history of morbid such as hypertension, diabetes, blood dyscrasias. He was not using antibiotics, steroids.

Intervention: Ayurvedic medication was started as Tankana Bhasma Pratisarana and Triphala Kabala in the management of chronic tonsillitis.

Outcomes: The patient had reduced the tonsillitis within 5 days with treatment involving the Tankana bhasma (sodium borate) with honey was used for pratisarana karma once daily followed by Triphala kabala and the results drawn conferred the efficacy of Tankana bhasma Pratisarana and Triphala kabala in chronic tonsillitis.

Main Lesson from This Case Report: Outcome of the study reveals that Chronic tonsillitis can be reduced within 5 days using Ayurvedic treatment protocol. Long term and large sampl size study should be done in future to validate the principle.

Keywords-Tundikeri, Tankana bhasma, Tonsillitis

ICTAM: OP: 30:- LOKANATHA RASA-PREPARATION AND ANALYSIS

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Ayurveda is a comprehensive natural health care system that originated in India 5000 years ago .Ayurveda , originally known as ashtanga ayurveda was divided by great Indian seers into distinct eight branches. Rasa sasthra is a special branch which is not included under the eight. It is a specialized branch of ayurvedic science which deals with the use of certain minerals, metals and other organic and inorganic substances in the treatment of diseases . Lokanatha rasa which is a potali kalpana is found to be effective in conditions of ama and agnimandya and has proven results in increasing intestinal motility. It is indicated in various diseases such as rakthapitha, kasa, swasa, grahani, swarakshaya, agnimandya, atisara, vataraktha with different anupana. In this fast moving world people prefer less time consuming as well as cost effective treatment procedures, so rasasasthra can offer a solution to this problem. Lokanatha rasa mentioned in sarngadhara samhitha madhyama khanda 12th chapter will be good for agni correction. The raw materials used for the preparation of lokanatha rasa are Parada, Gandhaka, Varatika, Sankha, and Tankana. The preparation include various steps such as sodhana of each dravyas, kajjali preparation , bhasmikiranana etc which extends over two months time. Analytical study of the sample reveals that Calcium oxide form the major ingredient and no heavy metal content was detected in AAS. Particle size analysis shows that mean diameter was 30.49 μm .

**ICTAM: OP: 31:- A REVIEW ON THE PHARMACOLOGICAL
AND THERAPEUTICAL EFFECT OF DIFFERENT
FORMULATIONS OF *NARIKELA (COCOS NUCIFERA LINN.)***

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Ayurvedic system of medicine is believed to promote positive health by establishing the body's equilibrium and conditioning the body tissues. Herbal drugs have served the human society from time immemorial in curing various ailments. *Narikela* (*Cocos nucifera*.Linn.) is one of the most important crop in tropical areas and usually referred as 'tree of heaven' or *Kalpavriksha*. India is the 3rd largest producer of coconut in the world with 10.56 million tones of coconut per year. Ayurveda recommends the use of *Narikela* for the management of different diseased conditions with different formulations. Coconut oil is widely used in Ayurveda as a base of almost all the oil preparations. Apart from this, it is observed that the fruit, root, flower, milk, and fruit pulp of *Narikela* are also used as an ingredient in 53 formulations which are effective in more than 25 disease conditions. The main indications include urinary disorders, skin diseases, bleeding disorders and acidity. Along with the therapeutic effects, Coconut has great culinary, cosmetic and industrial application. In this presentation, an attempt has been made to analyse and compile the pharmacological and therapeutical effects of *Narikela* and its different formulations.

Keywords: *Narikela* and Ayurveda, *Narikela* and formulations, *Cocos nucifera* and Ayurveda.

**ICTAM: OP: 32:- A SINGLE CASE STUDY ON THE ROLE OF
HERBOMINERAL IN DIABETIC MICROALBUMINURIA**

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Diabetes mellitus is reaching potentially epidemic proportions in India with 62 million diagnosed diabetic's. ICMR revealed much higher

prevalence of the disease in Southern India compared to other parts. An upsurge in early onset of diabetes is also responsible for a spectrum of Diabetic complications due to longer duration of the disease. Microalbuminuria associated with Type 2 Diabetes mellitus is a strong predictor of upcoming Diabetic nephropathy. It is a major cause of Diabetic kidney disease, leading to mortality and morbidity in these patients. The cost of treatment is huge and may further escalate unless intervention is initiated at an earlier stage. Ayurveda has been addressing the disease and its complications for several years. Apart from the various herbal preparations used in the disease, Herbominerals differ in having a more quick and specific action pertaining to tissue levels. There have been reports of clinical efficacy on various bhasmas used in complications of Diabetes. Not only they act against the disease, some go beyond and act as *Rasayanas* pertaining to those specific disease. These used in lesser dosage forms are cost effective and had to be administered only for a shorter duration. *Tarakeshwara rasa* is one such yoga mentioned in *Prameha-Bahumutraadhyaya*. Here is an attempt to understand the effect of *Tarakeshwara rasa* in Diabetic Microalbuminuria, while considering changes with respect to FBS, PPBS, HbA_{1c}, Urine routine and Microalbumin levels. This single case study reveals considerable improvement in biochemical parameters as well as quality of life of the patient which is comparable with evaluation done before and after treatment thereby proving the role played by this herbomineral preparation in Diabetes and its complications.

**ICTAM: OP: 33:- HERBAL NEUTRACEUTICAL –
AN ABLAZE SCOPE AND OPPURTUNITY OF INDIAN
HEALTH CARE MERCHANDISE**

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Neutraceuticals are bio-active materials that provide demonstrated physiological benefits or reduce the risks of chronic diseases above and beyond their basic nutritional functions. Although the concept of Neutraceuticals is gaining more popular, more recently, its root can be traced to the ancient Indian system of medicine-Siddha. It is clearly stated that should, which besides providing nutrition helps to maintain the healthy state

and prevent the occurrence of disease should be consumed. The classical texts of Siddha are filled with scattered references of implication of food products in various disease entities. Selected foods can improve physical or mental performance or even decrease disease risks indeed this concept is a core principle of Siddha medicine, an ancient Indian system of medicine which emphasise “Food as Medicine and Medicine as Food”. This concept is often sidelined because of over-reliance on designed drugs. However, the current trend is to give more emphasis to nutrition which inturn throw light on the traditional system of medicine. The objective of this study is to create awareness of prevention of various diseases through Siddha intervention and to explore the richness of herbals and develop nutraceuticals from these drugs which could be used in preventing various diseases.

Keywords: Nutraceuticals, Food as Medicine and Medicine as Food, Siddha, nutrition.

**ICTAM: OP: 34:- EVALUATION OF THE EFFECT OF
BHADRADI YOGA VASTI IN OVERWEIGHT**

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WHO defines overweight as BMI greater than or equal to 25 and obesity as BMI greater than or equal to 30. Obesity is a global issue and WHO projected that by 2015, approximately 2.3 billion adults will be overweight and more than 700 million will be obese. According to a study published in a noted journal Lancet, India is at 3rd position in the global hazard list of top 10 obese countries. Overweight is a condition where the person weighs more than what is considered normal for that height, age and sex, denoting an “At risk” category. Prevention at this “At risk” stage rather than moving to obesity, an absolute medical condition which may lead to a cascade of secondary pathologies including CVD, hypertension, diabetes mellitus etc is appreciable. At this particular point, Ayurveda provides a wide range of treatment modalities including udwartanadi bahyakriyas (therapeutic powder application) as well as sodhana kriyas (detoxification) like vasti(enema). In this particular study the effect *Bhadradi yoga vasti* in overweight is being evaluated.

An interventional study design with pre-post test without control group among 20 patients of both sexes aged 30-50, satisfying BMI criteria, attending OPD and IPD of Govt. Ayurveda College Trivandrum is selected. Intervention done for 14 days and the follow up 16 days after the intervention. Assessment was done by evaluating the changes in BMI, PBF, change in waist circumference and waist to hip ratio.

Among 20 study samples, 10 patients were evaluated so far and an average reduction of 3kg in weight and 2 inch in waist and chest circumference are noted.

ICTAM: OP: 35:- SUBCONJUNCTIVAL HAEMORRHAGE-A CASE REPORT

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Rationale for this case report: The current treatment modality for subconjunctival haemorrhage which extent from small patchial haemorrhage to an extensive one spreading under the whole of the bulbar conjunctiva and thus making the white sclera invisible is counseling and cold & hot applications. Eventhough asymptomatic cosmetic discomfort makes it an emergency. This case report discusses the effective management with Ayurvedic treatment of a case diagnosed as Subconjunctival haemorrhage. The resolution of haemorrhage and whiteness of sclera is regained, patient is asymptomatic and recurrence free.

Presenting concerns: A 61 yr old male patient having subconjunctival hemorrhage on lateral aspect of right sclera was selected who visited our hospital with signs of flat sheet of homogeneous bright red colour with well defined limits. This well defined limits shows its not a skull fracture. The patient did not have any history of morbid such as hypertension, diabetes, blood dyscrasias or clotting abnormality and not using any blood thinning medication. The features were suggestive of Subconjunctival haemorrhage and has been diagnosed by ophthalmic examination.

Interventions: Ayurvedic medication was started and allopathy medication deferred because patient responded positively.

Outcomes: The outcome of this case study reveals that subconjunctival haemorrhage subsided within 5 days, whiteness of sclera regained, asymptomatic. There was no recurrence till dated.

Main lesson(s) from this case report: Intervention cured the subconjunctival haemorrhage within 5 days and also recurrence free. Long term and large sample size study should be done in future to validate the principle.

Keywords-subconjunctival haemorrhage, sclera.

ICTAM: OP: 36:-EVALUATION OF SELECTED HERBAL MEDICINES IN DIABETES MELLITUS

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India has a glorious tradition of health care system based on plants. As per WHO estimate, 80% of population rely on traditional medicines for their primary health care. Herbal medicines are now in great demand in the developing world for primary health care, because of its better compatibility with the human body and minimal side effects. According to WHO, Diabetes mellitus is one of the most common Endocrine disorder that affects more than 422 million people worldwide. The disease in mild form is not very harmful and can be managed by dietary modifications, but if left uncontrolled can cause severe damage and even be a threat to life. Among the two types, type 2 can cause more complications. Currently available treatment option in modern medicine has several side effects and involves lifelong medicine consumption. More than 400 traditional Herbal remedies for diabetes mellitus have been recorded, but only a small number of these have received scientific and medical evaluation to assess their efficacy. A considerable number of plants were subjected to clinical trials and were found effective. Present paper focusses mainly on the principle active compounds from single drugs effective in diabetes and their therapeutic applications.

Keywords: Diabetes mellitus, Herbal medicine, Active compounds

**ICTAM: OP: 37:- EFFECT OF AMRITASHADANGAM KWATHA
YOGA IN HYPERURICAEMIA**

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Hyperuricaemia is defined as a plasma (or serum) urate concentration of > 6.8 mg/dL. It is one among the major risk factor for the incidence of Gouty arthritis and several renal pathologies like Nephrolithiasis, Urate nephropathy and Uric acid nephropathy. Hyperuricaemia can be a component of the Metabolic syndrome. Hyperuricaemia is present in ~21% of the population and in at least 25% of hospitalized individuals. Prevalence of hyperuricaemia and gout remains substantial and may have increased over the past two decades, but the management of the risk factor is still unsatisfactory in terms of the communitywide lack of knowledge about the risk factor, availability of a cost effective and effective medicament.

Objective of this study is to evaluate the effect of amritashadangam kwatham in reducing serum uric acid of patients having hyperuricaemia. An interventional pre post test without control group among 20 patients attending the OPD of Department of Kayachikitsa, Govt. Ayurveda College Hospital, Thiruvananthapuram, in the age group of 20 to 70 years, males having serum uric acid levels above 6.8 mg/dL and females having serum uric acid levels above 5.7 mg/dL were conducted Data was collected through Clinical Research Proforma and laboratory investigations (Heamogram, Renal function test, 12 hour fasting lipid Profile, Fasting blood glucose level, Liver function test).Evaluation were done on 15th,31st, and 60th day. Changes in serum uric acid values will be recorded.So far study was conducted on 20 patients and found to be effective in reducing serum uric acid levels with average reduction to 5.6 mg/dl.

**ICTAM: OP: 38:-EFFECTIVENESS OF SIDDHA VARMAM
THERAPY IN “KUMBA VATHAM” (PERI ARTHRITIS
SHOULDER)**

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Siddha is an ancient system of medicine practised mostly in the southern parts of India. It is a unique system being exist with many ancient medical systems in the world. It is spiritually developed and its principles are based on self-realization of Siddhars. Siddha system of medicine emphasizes different modalities of treatment. Among them drugless therapy is considered to be supreme and Varmam therapy comes under this category. Specific anatomical complex parts of the body are stimulated in Varmam treatment. These points are manipulated over superficial nerves, vessels, bony prominence, soft tissues, or their junctions. Siddha varmam literatures quoted that 108 varmam points in our body. Energy loss in these points due to any reasons such as improper or in adequate food intake, improper postures, hit by any external forces etc will causes the alteration in Vali Azhal and Iyyam leads to Vatham Pitham and Kapham. In fact Siddhars used these energy points for curing the illness.

Periarthritis shoulder, also called as adhesive causalities is one of the most common rheumatological problems in old age group. It is the commonest long term complication next to osteoarthritis in Diabetes mellitus patients. Adhesive capsulitis or Periarthritis can be correlated with Kumbavatham which is one of the vatha diseases mentioned in the siddha literature Yugi Vaithya Chinthamani. The patients with Kumbavatham who underwent Varmam therapy in the National Institute of Siddha Varmam OPD were observed and results were presented. The effect of varmam therapy was assessed using Shoulder pain and disability (SPADI) index

**ICTAM: OP: 39:- PREPARATION AND STANDARDIZATION
OF VACHALASUNADITHAILAM**

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The determination of quality of herbal medicines is having boundless importance in order to justify their acceptability. Herbal product studies can be considered scientifically valid only if the product tested has been authenticated to ensure reproducibility in the manufacturing of the product in question. Hence standardization and quality control measures have become an inevitable criteria for the production of safe and quality medicines. Here, an attempt was made to develop an analytical profile for *VachaLasunadiThailam* which is a poly herbal formulation mentioned in *Sahasrayoga*. The formulation contains *Vacha*, *lasuna*, *haridra*, *Bilwapatraswarasa* and *Thilathaila* as the ingredients and classical *thailapaka* method was adopted for preparation. The study design was analytical and was based on standard analytical parameters proposed by API and Pharmacopoeial Laboratories of Indian Medicine (PLIM). Quality raw materials were collected and tested for identity, purity and strength. The standardization was done by estimating the physico chemical characters of *thaila*. The obtained results were used to prepare the standard analytical profile of *VachaLasunadiThailam*.

Key words: Thailam, API, PLIM, Standardisation

**ICTAM: OP: 40:- RESOLUTION OF FLUID AND NORMALISED
HEARING SENSITIVITY IN OTITIS MEDIA WITH EFFUSION
(OME) BY AYURVEDA MANAGEMENT**

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Rationale for this case report: The current treatment modality for otitis media with effusion is surgical intervention but recurrence is common. This case report discusses the effective management with Ayurvedic

treatment of a case diagnosed as otitis media with effusion which was posted for myringotomy with grommet insertion. There is resolution of fluid and normalised the hearing sensitivity, patient is asymptomatic and recurrence free.

Presenting concerns: A 5-year boy on antihistamines and antibiotics for 3 months was visited our hospital with symptoms of constant hearing loss and speech discrimination. The features were suggestive of otitis media with effusion has been diagnostic by pure tone audiometry and Tympanogram.

Interventions: Ayurveda medication was started and surgery was deferred because the patient responded positively.

Outcomes: The outcome of this case study reveals that Audiometry finding 45 dB and 30 dB conductive hearing loss improved to 15 dB and 11.6 dB which is within normal limits, patient became asymptomatic and recovered the sense of hearing. There was no recurrence till dated.

Main lesson(s) from this case report: Non-surgical intervention of otitis media with effusion demonstrating the normalised hearing sensitivity, symptoms and also recurrence free. Long term and large sample size study should be done in future to validate the principle.

Keywords: Bhadiryā, Audiometry, Otitis media with effusion

**ICTAM: OP: 41:- EVALUATION OF NUTRACEUTICAL
POTENTIAL IN THIRTY ACCESSIONS OF OKRA
(ABELMOSCHUS ESCULENTUS L. MOENCH)**

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Okra (*Abelmoschus esculentus* L. Moench) is an annual or perennial herb growing to 2m tall. Only the tender, unripe fruits are consumed. It is a heat loving vegetable. It is an economically important vegetable crop grown in tropical and sub-tropical parts of the world. This vegetable has potential to improve nutrition, boost food security, foster rural development and

support sustainable land care. In the present study a preliminary screening on the nutraceutical value of thirty accessions of okra was conducted to identify the best parents for hybridization experiments. Seeds of thirty accessions of okra representing various agro-ecological zones of India were collected from NBPGR. The plants were raised during November to February. The fruits were collected after seven days of flowering. The levels of carbohydrate, total protein, Magnesium, Calcium, Iron, Zinc, Copper and Vitamin C in the fruit were estimated using standard protocol.

The level of carbohydrate was significantly ($P < 0.05$) high in the accessions IC 39140, IC 42456, IC 45730, IC 99641 and IC 111480 compared to other accessions and low in the accessions Pusa Swani, Arka Anamika, Salkeerthi, VRO-6, IC-39132, IC 99693, IC 99746, IC 111014, IC 111319, IC 111366, IC 111517, IC 111520 and IC 11724571). The protein level was high in the accessions Pusa Swani, VRO-5, VRO-6, IC 39132 and IC 111366. The level of Magnesium was high in the accessions IC 39132, IC 42456, IC 42515 and IC 265147. The level of calcium was significantly high in the accessions IC 43023 and IC 45898. The level of iron was high in the accessions Pusa Swani, IC 45895, IC 111319 and IC 111520. It was found that the level of Zinc was significantly high only in the accession VRO-6. The level of Copper is significantly high in the accessions Arka Anamika, VRO-6, IC 43023, IC 45730, IC 45895, IC 45932 B, IC 99641, IC 111536, IC 117238, IC 117251 and IC 265147. The level of Vitamin C was significantly high in the accessions IC 99641, IC 99746 and IC 111517. It might be suggested that these accessions could serve as parents for crossing experiments according to their low or high levels of nutraceuticals.

Among the thirty accessions of okra studied, the level of carbohydrate and other nutrients showed varied concentrations in different accessions. This study revealed that the fruits of all the accessions contain basic nutrients. Certain accessions contain significantly higher levels of nutraceuticals that may ameliorate certain pathophysiological conditions in man. D² statistics permits the selection of parents with wider genetic base and geographical origin, before effecting actual crosses in modeling the varieties.

**ICTAM:OP:42:- A RESEARCH WORK ON EFFICACY OF
HOMOEOPATHIC TREATMENT AS AN ADD-ON THERAPY IN
BRONCHIAL ASTHMA CASES WHO ARE UNDER ALLOPATHIC
TREATMENT, PATIENT AS ITS OWN CONTROL STUDY
(PRE & POST)**

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Asthma is characterised by chronic airway inflammation and increased airway hyper-responsiveness leading to symptoms of wheeze, cough, chest tightness and dyspnoea. In India, the prevalence of asthma has been found to be around 2% to 7% in the majority of surveys done. Majority of the patients with asthma adopts Allopathic mode of treatment, and the rest adopts various alternative modes of treatment viz, Homeopathy, Ayurveda, Siddha, Unani and traditional medicines. Here we try to introduce Homeopathic treatment, in patients who have been using Allopathic medicines, without withdrawing them and to see whether the interval of usage of allopathic medicine can be increased with better improvement of the condition of the patient. Thus Homeopathic medicines were given as an add-on therapy to study the total improvement in the disease condition and quality of life of the patient. To study the effectiveness of homeopathic treatment in moderate to severe chronic bronchial asthma, given as an add-on therapy who were already under allopathic mode of treatment.

Asthma, a chronic airway disorder, which can affect people of all age group, has been affected about 2-7% of Indian population. Prevalence of Asthma varies considerably with different places due to environment and genetic factors. The variation may also be due to varied research tools; eg, diagnostic questionnaire, spirometry and community versus school based studies. Here we took already diagnosed cases who were under allopathic treatment as the study sample to seek the efficacy of homeopathic medicines given as an add-on therapy.

By using the research tools such as spirometry, and Mini-AQLQ questionnaire, and by analysing the data obtained through statistical test, it is found that homeopathic treatment, has much significance in ameliorating the disease condition and improving the quality of life of the patient, when given as an add-on therapy along with allopathic medicines.

In this study, all demographic statistical values such as age, sex, occupation, smoking, alcoholism, food habit etc have significance in precipitating the disease. But here we took only 40 samples for collecting all the data relating to this aspect. A large sample is needed to confirm the significance of above demographic factors. There are so many studies had done in this concern, and the results were published. Eventhough there are only 40 samples in our study, the statistical data reveal the affinity towards the results of large scale studies.

**ICTAM: OP: 43:- POSITIVE ALTERATIONS IN SEMEN
ANALYSIS BY AN AYURVEDIC FORMULATION:
A CASE STUDY**

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According to WHO infertility statistics “one in every four couples in developing countries had been found to be affected by infertility”. Among that, male infertility accounts for about 30-40%. Usually poor sperm quality, low sperm count and hormonal imbalances are the factors affecting the male fertility.

Ayurvedic science always insist on the shudhatha of Sukradhatu for a healthy progeny. Studies had proven that the Sukrajanana and Sukrashodhaka drugs mentioned in classics are capable of acting at the Hypothalamo – Pituitary-Gonadal axis. So an ayurvedic combination providing positive alterations in the seminal parameters can be a new hope in the management of male infertility.

A patient with semen analysis report having variation in seminal parameters according to WHO's standard with no other systemic and sexual dysfunction was selected. An ayurvedic drug combination was given for 3 months. Result was analysed based on comparing the seminal values of pre, post and follow up periods.

The effectiveness of drug in each of the seminal parameters and the possible mode of drug action will be discussed. The comparison of an ayurvedic and conventional medicine action on seminal values can be assessed.

Keywords-infertility, semen analysis, sperm count, sukradhatu

**ICTAM: OP: 44:-EVALUATION OF THE FREE RADICAL
SCAVENGING AND ANTIOXIDANT ACTIVITIES OF
CERTAIN HOMEOPATHIC DRUGS COMMONLY USED IN
OSTEOARTHRITIS**

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Degenerating joint disease, comprising of Osteoarthritis, Cervical spondylosis and Lumbar spondylosis, one among the diseases, which remained unanswered by the medical systems. Homeopathy, considered being a form of Alternative and Complementary medicine has been accepted by people around the world. The homeopathy medicines are based on natural ingredients, easy to use and cost effective when compared to other systems. As free radical scavenging and antioxidant effects have pleiotrophic effects in the prevention of degenerating diseases, it is logical to accept that these mechanisms are triggered or ensued. In this research study, the free radical scavenging and antioxidant effects of five selected Homoeopathic drugs were evaluated.

Various concentrations of hydro-ethanolic extractions of *Rhus toxicodendron*, *Pulsatilla nigricans*, *Bryonia alba*, *Thuja occidentalis*, *Lycopodium clavatum*, were used in the study. Relevant assays were performed to understand the free radical scavenging; superoxide, hydroxyl radical, nitric oxide scavenging; inhibition of lipid peroxidation induced by iron and hydrogen peroxide.

The results of the study clearly indicate that hydro-ethanolic extract (Homoeopathic preparation) of selected Homoeopathic drugs possess *in vitro* antioxidant activity. The encouraging results in this study proved that these Homoeopathic drugs act as effective antioxidant agents hence, it is worthwhile to use as drugs for degenerating diseases like osteoarthritis.

**ICTAM: OP: 45:- QUALITY STANDARDS OF ELETTARIA
CARDAMOMUMMATON. AND PREPARATION OF
MONOGRAPH**

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Elettaria cardamomum is a perennial, rhizomatous plant, native to the moist evergreen forests of South India, growing wild in the Western Ghats, between 2,500 and 5,000 ft. It is found wherever the overhead canopy has been thinned by natural in causes or by human action. It is also found along stream banks, where the overhead shade is less dense. Cardamom occurs wild in Ceylon also, chiefly in the Ratnapura and Lunugala districts, and has been reported in Burma, Cochin- China and Malaya.

Cardamom owes its aroma and therapeutic properties to the volatile oil present in the seeds (2 to 8%). The important constituent of cardamom is the volatile oil (6-10%) for which it is valued as a spice and flavouring material. Cardamom oil is rich in oxygenated compounds and poor in terpene hydrocarbons. The oil contains about 70 compounds mostly mono-terpenoids. The major components are 1,8-cineole and terpinyl acetate. 1, 8-cineole gives a harsh eucalyptol smell to the oil if present in high proportion. On the other hand, the oil rich in esters like terpinyl acetate and linalyl acetate are known to give flowery smell.

Cardamom is used as a spice and masticatory, and in medicine. Cardamom seeds have a pleasant aroma and characteristic, warm, slightly pungent taste. It is used for flavouring curries, cakes, bread and for other culinary purposes. It is also used for flavouring liquors. In the Middle East countries, cardamom is used for flavouring coffee. In medicine, it is used as an adjuvant to carminative drugs.

**ICTAM: OP: 46:- ROLE OF SIDDHA KAYAKARPA
NUTRACEUTICALS FOR THE PREVENTION OF AGING**

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The Indian system of medicine in practice at present are Siddha (Tamil), Ayurveda (Sanskrit) and Unani (Urudu) , the evolution of which took place from prevedic period to the later Mohammedan period of India. Although these three system of medicines are based on humoral pathology, each has got certain features of its own. The treatment by medicine, Siddhar's works in Tamil on Alchemy ,Kayakarpa (Rejuvenation) and Yoga are considered to be more valuable than any that are in other language . The Siddhars were possessing tremendous powers in themselves and could sustain their bodies for ages. Siddhars held that the body is the only instrument with which one could attain success in spiritual evolution and thereby get rid of diseases, decay and death. On Siddha medicines Siddhar have mentioned the specificity and benefit of Kayakarpa drugs . Since the kayakarpadrugs have the property of anti-aging and longevity. This paper , hereby gives detailed implementation of kayakarpa drugs and it's progress in anti-aging and longevity. Such by developing nutraceuticals by using kayakarpa drugs . It can be tremendously helpful in preventing aging and increasing lifespan.

**ICTAM: OP: 47:- ANTIBACTERIAL ACTIVITY OF ETHANOLIC
EXTRACTS OF SPICES AND HERBS**

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Emergence of multidrug resistant pathogen is one of the greatest challenge being faced by today's medical world. The present study investigates antimicrobial activity of spices and herbs as an alternative to antibiotics in order to tackle these dangers. For this study eight spices (Garlic, Ginger, Nutmeg, Cumin, Pepper, Turmer, Cardamom, Clove) and leafs of three plants (*Moringa*, *Tamarindus* and *Garcinia*) were selected. The antibacterial activity were studied against ten bacteria such as

S. aureus, *B. cereus*, *E. cloacae*, *P. stutzeri*, *B. subtilis*, *B. amyloliquefaciens*, *E. gergoviae*, *K. pneumonia*, *A. faecalis*, *Vibrio*. Antimicrobial activities were tested on Muller Hinton Agar medium by well diffusion method. From the inhibitory activity it is concluded that, Pepper showed highest activity against *S. aureus*. Turmer, Ginger, Cardamom, Clove were showed antibacterial activity against *B. subtilis*, *B. amyloliquefaciens*, *S. aureus* and *Vibrio* respectively. *Garcinia cowa* and *Tamarindus indica* revealed higher inhibitory effects towards bacteria than *Moringa oleifera*. The leaf extract of *Garcinia cowa* and *Tamarindus indica* were showed highest activity to *Vibrio*. The results supports that ethanolic extracts of spices and herbal leaves have an inhibitory effect on the growth of pathogenic bacteria. So these can use as bio-preservator.

**ICTAM: OP: 48:- ANTIOXIDANT, ANTI-INFLAMMATORY
AND ANTITUMOR ACTIVITIES OF VARIOUS EXTRACTS OF
THE MUSHROOM *FOMITOPSIS PINICOLA* (SW.) P. KARST., A
POLYPORE OCCURRING IN KASHMIR**

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Mushrooms have long been used for treating various ailments. Recent studies have validated the ancient belief that mushrooms possess therapeutic properties. In this study *Fomitopsis pinicola*, a well referred mushroom in ancient texts, was studied for its antioxidant, anti-inflammatory and antitumor activities. Antioxidant activities of petroleum ether (PE), chloroform (CHL), Ethyl acetate (EA), ethanol (ETH) and hot water (AQ) extracts of its fruiting bodies were studied. All the extracts scavenged DPPH, nitric oxide, hydroxyl and ABTS⁺ radicals with varying degree efficiency. The extracts also reduced ferric ions into ferrous ions as revealed by FRAP assay. EA and ETH extracts were examined for their anti-inflammatory and antitumor activities. Acute and chronic inflammations were induced in the paw of Swiss albino mice by subcutaneous injection of carrageenan and formalin respectively and tumor was induced in thigh by the injection of DLA cell line. Treatment with EA extracts at 500 mg/Kg

body weight (b. wt) caused 52.77 and 46.54 % of inhibition of acute and chronic inflammations respectively and that for ETH extract at the same dosage was 33.33 and 30.44 %. Both the extracts also possessed inhibitory effect against tumor development. Treatment with EA and ETH extracts at a dose of 500 mg/Kg b.wt caused a marked reduction in tumor volume nearly 50% for both the extracts. This study indicates that *F. pinicola* is a potent medicinal mushroom with profound antioxidant, anti-inflammatory and antitumor activities.

ICTAM: OP: 49:- *IN VITRO* COGNITIVE PROTECTIVE EFFECT OF *GRACILARIA CORTICATA* AGAINST H₂O₂ AND LPS INDUCED INJURY IN HUMAN NEUROBLASTOMA SH-SY5Y CELL LINES.

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Marine red algae have a vast resource of bioactive compounds, but majority of them are least explored. In this study, an attempt is made to evaluate its effect on H₂O₂ induced oxidative stress and LPS induced neuroinflammation using human neuroblastoma SH-SY5Y cell lines. The antioxidant activity was assessed by MTT assay to determine cell viability, while neuroinflammation was induced by bacterial lipopolysaccharide (LPS) in SH-SY5Y cell lines. The quantitative estimation of TNF- α , NF- κ B, IL-1 β , IL-6, PGE₂ was done by ELISA and expression of these proinflammatory mediators was assessed by RT-PCR. The inhibition of COX, MPO, iNOS was estimated by UV spectrophotometry. The expression and estimation of proinflammatory mediators by RT-PCR and ELISA revealed a significant inhibition in the neuroinflammation as evidence by its down regulation. The MTT assay pointed that ethanolic and aqueous extract significantly raised cell viability to 86.09% and 96.47% respectively at the concentration of 100 μ /ml. However, the viability was relatively high in ethanolic extract. H₂O₂ alone exhibited a mean viability of 42.57%. This indicates a dose dependent rise in cell viability in both extracts except for aqueous extract at concentration of 100 μ g/ml. The slight fall in cell viability in the presence of H₂O₂ at 100 μ g/ml of aqueous extract might be due to the presence of some toxic compounds in aqueous extracts which will be activated in higher concentration by unknown mechanism. Further studies

are required to know its exact mechanism. The present study indicates the neuroprotective and anti-neuroinflammatory effect of *G.corticata* in SH-SY5Y human neuroblastoma cell lines.

**ICTAM: OP: 50:- PROPHYLAXIS OF *TRIBULUS TERRESTRIS*
ON CYCLOPHOSPHAMIDE INDUCED TOXICITY
IN WISTAR RATS**

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Cyclophosphamide, a potent antineoplastic and immunosuppressant agent has known to have many adverse side effects including myelosuppression. *Tribulus terrestris* (commonly known as ‘Njerinjil’ in Malayalam), is a widely used medicinal plant in traditional medicine regimes to alleviate the adverse effects of many anticancer agents. The protective effect of *Tribulus terrestris* in cyclophosphamide induced hepato-haemotoxicity was experimentally evaluated using its alcoholic extract in Wistar rats. A total of 30 Wistar rats were divided in to five groups of six animals each. Group I received distilled water. Animals of groups II, III, IV and V were administered with cyclophosphamide twice weekly for 21 days @ 15 mg/kg bodyweight orally. Group III, IV and V were administered with methanolic extract of *Tribulus terrestris* @ 100, 250 and 500 mg/kg body weight respectively, daily orally. Blood was collected on day 0 and 21 for estimation of the total RBC and WBC counts, alanine aminotransferase (ALT), aspartate aminotransferase (AST), urea and creatinine levels. Statistical analysis showed significant increase in the levels of SGPT in group II where as no significant difference in groups I, III, IV and V, on days 0 and 21. Similar observation was seen with SGOT, RBC count and haemoglobin levels. No significant difference was there in urea, creatinine and WBC count in all the groups on day 0 and 21. The plant extract might have prevented the increase in the levels of SGPT and SGOT enzymes and decrease in RBC count and haemoglobin values in groups III, IV and V,

which were significantly altered by cyclophosphamide administration alone in group II. Hence it can be concluded that *Tribulus terrestris* has excellent protective effects on hepatotoxic, haemotoxic and myelotoxic properties of cyclophosphamide.

Key words: cyclophosphamide, myelotoxicity, *Tribulus terrestris*

**ICTAM: OP: 51:- HERBO-MINERAL PREPARATION
FOR SINUS ULCER (SILAI PUN)-A REVIEW**

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Interminable varieties of herbal plants are seen in the India, with the celestial comprehension siddhars identify those herbal plants and used it for respective abnormalities in human body. Typically polyherbo-mineral oil used in siddha medicine for the treatment of ulcers. As in siddha text rupture of abscess with toxins can enter into nearby vessels, even reach bones and form sinus ulcer (Silai pun). It spreads through blood vessels like spider web so called the name Silai pun (Silai-Web, Pun-Ulcer/wound). As per modern science Sinus ulcer is defined blind track lined by granulation tissue leading from an epithelial surface into the surrounding tissues. Sinus means "hollow" or "a bay" (Latin). The polyherbo-mineral oil as mentioned in siddha text consists of *Datura metel*, *Cocos nucifera*-oil, *Acalypha indica* and Copper sulphate (Turucu) which possess analgesic property, wound healing property, anti-microbial activity, prevents excess growth respectively. The polyherbo-mineral oil can effectively treat sinus ulcer because of the property mentioned above which warrant siddha manuscript.

Keywords: Sinus ulcer-Silai pun, Polyherbo-mineral oil, Abscess.

**ICTAM: OP: 52:- EVALUATION OF BIOLOGICAL PROPERTIES
OF ACACIA CATECHU AND IT'S APPLICATION IN TEXTILE
INDUSTRY**

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Natural dyes, which were pushed during the last sixty years into the background by synthetic dyes, are recently again becoming object of consumer interests. The present study deals with the purification of natural dyestuff extracted from the bark of an abundantly occurring plant *Acacia catechu* commonly known as cutch. The aqueous extract of *Acacia catechu* bark was taken which showed a percentage yield of 20% and preliminary phytochemical analysis were performed. The presence of alkaloids, proteins, carbohydrates, saponins, glycosides, phenolic compounds, tannins, flavanoids and terpenoids were detected. The flavanoids, phenolic compounds, carbohydrate content and protein content were estimated in quantitative phytochemical analysis. The TLC was performed with the solvent system n-butanol, acetic acid and water (4:1:2). The antibacterial activity was studied where the extract showed excellent antibacterial activity against *Staphylococcus aureus* when compared with other organisms. The extract was evaluated for antioxidant activity using the DPPH method with ascorbic acid as the control. Finally the extract was applied on to cotton and rayon materials of which cotton showed much affinity, both with and without the use of a mordant. Wash performance and colour fastness properties were evaluated and was the dye found to be stable. The results of this study indicated that this pigment could be used as a natural dye to impart light brown colour on fabrics. Since the colour was stable after the wash performance studies this dye has a potential to lead to a more environment friendly way of colouring in the textile industry.

Keywords: Antibacterial, cutch, dye, pigment and textile.

**ICTAM: OP: 53:- ANTIBACTERIAL ACTIVITY OF RAW LEAF
PETIOLE EXTRACT OF ARTOCARPUS HETEROPHYLLUS
(JACK TREE) AGAINST PIMPLE**

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Artocarpus heterophyllus belonging to family Moraceae is an integral part of common Indian diet and is freely available in Indian and adjoining continents, its medicinal properties are also mentioned in ayurveda. Its leaf petiole extract has been used as traditional folk medicine against pimple. The petiole extract possess antibacterial properties. The main objective of the present investigation is to extract yellow chemical flavanol known as Morin. Flavonols, are a broadly distributed class of naturally occurring pigments present in vascular plants, and are responsible for much of the colouring in nature. Morin is effective against pimple causing bacteria such as *Klebsiella pneumonia*, *Staphylococcus aureus*, *Streptococcus pyogenes* & *Pseudomonas aeruginosa*. The *in vitro* antibacterial activities of Morin and its complexes were tested using two methods: the dilution method and the cylinder-plate diffusion method.

Minimal Inhibitory Concentration (MIC) was determined using the method of progressive dilution in liquid media containing 0.15 µg to 60 µg/mL of the compound being tested. After incubation, the bacterial turbidity was estimated. The flavanol were tested alone and also in different combinations with selected antibiotics. The results are compared with the activity of Gentamycin & Ampicillin. The present result of A.heterophyllus leaf petiole extract has provided scientific evidence for the development of antibacterial and products and the treatment of bacterial infection in the future. Jackfruit or Kathal is an excellent source of the vitamins like C and A which have antioxidant property and boosts the immune system functioning. It is rich source of some other phytonutrients called isoflavones, lignans, saponins and etc having anti-cancer and anti-aging property thus keeps body away from the cancer and early aging.

**ICTAM: OP: 54:-SELECTIVE DETERMINATION OF
TANNINS FROM *CLERODENDRUM INFORTUNATUM* L.
AND EVALUATION OF ITS MEMBRANE STABILIZATION
PROPERTY**

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Clerodendrum infortunatum L. is a traditionally used Indian medicinal plant which has been exploited in the various systems of Indian medicine such as Unani, Ayurveda, Homeopathy and Siddha. Different parts of the plant such as roots, leaf, flower, bark possess medicinal properties. Fresh leaves of *Clerodendrum infortunatum* are used against fever, treat fresh wounds, remove ascarides, bowel complaints etc. The root bark of the plant is used against indigestion, abdominal pain and inflammation. Root paste applied as a bandage around the infected area provides considerable relief from swelling. Sequential extraction and antioxidant screening of the root bark of the plant revealed that aqueous acetone extract exhibited the greatest antioxidant activity. Phytochemical evaluation of the extract showed the presence of tannins and phenols. In previous studies tannins were extracted from the root bark of the plant.

The aim of the present study is to distinguish between condensed and hydrolysable tannins and to evaluate its membrane stabilizing property by HRBC membrane stabilization assay. Tannins are high molecular weight, water soluble polyphenolics widely distributed in the plant kingdom and are classified into hydrolysable and condensed tannins. Due to the presence of two or more phenolic hydroxyl groups, tannins have the ability to bind and precipitate proteins. Protein precipitation assay revealed the presence of tannins and the modified radial diffusion assay indicated the presence of only hydrolysable tannins. The erythrocyte membrane is structurally analogous to lysosomal membrane and thus it is a good model for the anti-inflammatory studies. The extracted tannins showed significant membrane stabilizing property and it points to the anti-inflammatory potential of the plant.

ICTAM: OP: 55:- PHYTOCHEMICAL ANALYSIS, VITAMIN C ESTIMATION AND LARVICIDAL ACTIVITY OF ANNONARETICULATA

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The present study aims to determine the phytochemical constituents and larvicidal activity of the ethanolic leaf extract of *Annona reticulata* and also to estimate the amount of vitamin c in its fruits. The phytochemical analysis was done by performing standard tests for various phytochemical constituents. The study revealed a rich presents of majority of phytochemical constituents which can be correlated with the possible significant medical potential of the plant. The vitamin C estimation of its fruit was performed by iodometric titration and it was found that the fruit contain an appreciable amount of vitamin C about 19.2 mg/100g of fruit. This is suggestive that the fruit can be used as good dietary source of vitamin C .The Larvicidal activity of leaf extract was performed as per standard WHO guidelines. 100% mortality was observed even for a very small concentration of leaf extract say 10^{-2} , within short period of 2hours .It indicate that the plant leaf extract posses a potential larvicidal activity.

Keywords: *Annona reticulata*, phytochemical analysis, VitaminC estimation, Larvicidal activity.

ICTAM: OP: 56:-N.A.E.T: AN ALTERNATIVE MEDICINE FOR ALLERGIC REACTIONS

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Allergies are very common and increasing, affecting around one in three people at some time in their lives. Allergy occurs when a person's immune system reacts to substances in the environment that are harmless for most people. Antibiotic treatment is widely used for allergic patients. It provides fast cure, but not permanent. Frequent as well as high dose antibiotics can cause degradation in the basic functioning of human being.

Nambudripad's Allergy Elimination Techniques (N.A.E.T.) is a form of alternative medicine, which was proposed by Dr. Devi S. Nambudripad in 1983, treats all types of allergies and related disorders. It is a noninvasive, drug free, natural solution to alleviate allergies of all types and intensities using a blend of selective energy balancing, testing and treatment procedures from acupuncture/ acupressure, allopathy, chiropractic, nutritional, and kinesiological disciplines of medicine. According to N.A.E.T. therapists, an allergy is an energy imbalance between the electromagnetic energy of the person and the allergen. When there is a disruption in the energy flow through the meridians, energy blockages can occur, causing symptoms and illness leading to functional imbalances and diseases. This imbalance is referring as allergy.

In the present paper a comparative study between antibiotic and N.A.E.T. treatment was done using case studies and survey methods. It was found that the individual surveyed had undergone antibiotic treatment for varying duration and got cured later by N.A.E.T. From the study, it was clear that N.A.E.T. treatment was more effective, less expensive and more preferred treatment compared to antibiotic treatment

**ICTAM: OP: 57:- ANTITUMOR ACTIVITY OF AQUEOUS
ETHANOLIC EXTRACT OF *FOMITOPSIS ROSEA*
(*ALB & SCHWEIN*) P.KARST**

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The role and significance of natural products and herbal medicines are increasingly appreciated recently for the prevention and cure of human diseases. Several mushrooms belonging to the order polyporels have been demonstrated to possess antitumor activity. *Fomitopsis rosea* (Alb & Schwein) P.Karst is a polypore found growing in the tropical regions of the world. In this study, we examined the antitumor activity of aqueous ethanolic extract of this mushroom collected from Kashmir. The antitumor effect of the extract was tested on Swiss albino mice implanted with Dalton's lymphoma ascites (DLA) cell line. The extract was administered at doses of 500,250,100mg/Kg body weight after implantation of tumor cell line.

Aqueous ethanolic extract showed significant antitumor activity inhibiting tumor growth by 65% at a dose of 500mg/Kg body weight and 62%, 40% reduction of tumor growth at 250, 100mg/Kg body weight respectively. The standard reference drug, cylophosphamide at 25mg/Kg body weight showed 94.28% tumor growth inhibition. The current study indicates that *Fomitopsis resea* possessed profound antitumor activity.

ICTAM: OP: 58:- HYPOGLYCEMIC POTENTIAL OF CINNAMOMUM CASSIA BARK AND TAMARINDUS INDICASEED COAT IN NORMAL AND DIABETIC RATS

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The present study was aimed at screening of methanolic extracts and its water soluble fractions of *Cinnamomum cassia* bark and *Tamarindus indicaseed* coat for their hypoglycemic potential in normal as well as high fat diet (HFD) and streptozotocin (STZ) induced diabetic rats. HFD/STZ-induced diabetic rat model, which exhibit most of the clinical aspects of type 2 diabetes (T2D) in humans, signify the suitability of selecting this model in this study for evaluating the treatment against T2D. The albino Wistar rats were divided into different groups consisting of normal and diabetic control groups and those received treatments of methanolic extracts of *C. cassia* and *T. indica* and its water soluble fractions and reference drug metformin as a single oral dose administration. The serum glucose levels of different groups were measured at specific time intervals, up to six hours post treatment. The extracts and fractions of *C. cassia* and *T. indica* as well as metformin did not cause any significant hypoglycemic activity in normal rats, whereas, in type 2 diabetic rats, administration of methanolic extracts of *C. cassia* and *T. indica* as well as fraction of *T. indica* showed significant antihyperglycemic activity. However, the effect of the test drugs was lesser than the standard. The results thus indicated that the extracts and fractions of *C. cassia* and *T. indica*, having hypoglycemic potential, might not be acting as simple insulin secretagogues, rather improving the insulin action as it restores hypoglycaemia only in diabetic rats.

**ICTAM: OP: 59:-MORPHOLOGICAL DIVERSITY AND
NUTRITIONAL QUALITY OF JACKFRUIT (*ARTOCARPUS
HETEROPHYLLUS*) VARIETIES IN KERALA: AN OVERVIEW**

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Jackfruit (*Artocarpus heterophyllus*) is commonly grown in home gardens of tropical and sub-tropical countries. Jackfruit has diverse medicinal uses especially as anti-oxidant, anti-inflammatory, antimicrobial, anti-cancer and anti-fungal agent. Jackfruit is considered to be an underutilized fruit where most of the fruits get wasted due to ignorance, lack of post-harvest technology and gaps in supply chain systems. To find out the morphological variations among jackfruits in Kerala we conducted an elaborate survey and found out varieties using parameters such as tree characteristics, leaf characteristics, fruit characteristics of selected samples as measure. Both qualitative and quantitative data were measured using field visit and standard methods and morphological indicators. Seven different jackfruit varieties in Kerala were selected based on a baseline survey, for nutritional analysis. The proximate composition (dry matter & moisture content, crude protein, crude fat, crude ash, crude fibre, nitrogen free extract) analysis of components of different varieties of *Artocarpus heterophyllus* were determined. The sample JK1 has high crude protein and high crude fibre. The sample JK6 has comparatively high crude fat content. Also, it is observed that the JK2 variety has popular acceptance but is nutritionally weak, compared to the less accepted variety JK1. These morphological variations may have some relationship to climatic factors such as rainfall, pH and soil properties. There exists at present a wide gap in the nutritional properties of jackfruits and their processed value added products which can be fully explored for additional income as well as food security. Encouragement should be given to the marketing as well as value added processing from this underutilized fruit crop.

**ICTAM: OP: 60:-ANTI-INFLAMMATORY ACTIVITY
OF GANO OIL ISOLATED FROM RED MUSHROOM,
*GANODERMALUCIDUM***

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Ganodermalucidum (Fr.) P. Karst is a medicinal mushroom used for the treatment of a large number of diseases world over for millennia. It has been reported to possess antioxidant, anti tumor, anti-inflammatory, antidiabetic, hepatoprotective and cardio protective effects. The major chemical constituents of the mushroom are polysaccharides and triterpenes. In this study, Gano oil isolated from the fruiting bodies was evaluated for antioxidant and anti-inflammatory activities. Gano oil was isolated by petroleum ether extraction. Antioxidant activity was determined by DPPH radical scavenging assay and anti-inflammatory activity by oral and topical applications against formalin induced paw edema.

Gano oil showed marked DPPH radical scavenging activity. Oral administration of Ganooil at doses of 50mg/Kg and 25mg/Kg body weight and topical application of the oil at 5% and 1% concentrations showed significant anti-inflammatory activity. The activity is almost equal to that of the reference drug, Diclofenac (10 mg/kg body weight). TLC analysis indicated the major chemical components of the oil were terpenoids.

The results indicate that Gano oil is an effective anti-inflammatory agent which can be administered both orally and topically. The oil at the effective dose did not cause any toxicity to animals. The findings suggest the therapeutic use of Gano oil as an anti-inflammatory agent.

**ICTAM: OP: 61:- PHYTOCHEMICAL SCREENING &
PROXIMATE ANALYSIS OF *AMARANTHUS DUBIUS*
(CHEERA) LEAVES**

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Herbal medicines are widely used by the people for their health care. It is also used for animals in Veterinary practice. In this study, preliminary qualitative phytochemical analysis of 10 per cent aqueous extract of *Amaranthus dubius* leaf was carried out using standard procedures and proximate analysis of leaf powder was done by the recommended method of the Association of Official Analytical Chemists(2012). The phytochemical screening revealed the presence of steroids, alkaloids, tannins, flavonoid, diterpenes and saponins. On proximate analysis, it was found that leaf powder contained moisture- 8.89%, Crude protein- 24.47%, Crude fibre- 8.34%, Ether extract- 2.77%, Total ash-13.01%, Acid insoluble ash(sand & silica)-2.10%, Calcium- 1.99%, Phosphorus- 0.51%, salt- 2.21% and had Gross energy of 3678 kcal/kg. The result suggested that *Amaranthus dubius* leaves have nutritive and medicinal values. The presence of these phytochemicals may contribute to pharmacological potentials of the leaf such as antimicrobial, immunomodulatory, anti-inflammatory and antioxidant properties with much scope for developing safe & effective drug.

**ICTAM:OP:62:-ANTIBACTERIAL AND MOSQUITO
LARVICIDAL ACTIVITY OF A CRUDE PIGMENT FROM
ACTINOMYCETES**

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Actinomycetes are ubiquitous microorganism, widely distributed in natural ecosystems around the world. They are gram positive, unicellular microorganism and are known to produce medically and agriculturally important secondary metabolites, such as antibacterial, antitumor, antifungal,

and antiparasitic drug. In the present study, a red pigmented actinomycete (PCPGMB01) colony was isolated from fertile soil near Sulthan Bathery by using spread plate method. The PCPGMB02 was identified by microscopic, macroscopic and biochemical methods. The growth of the organism on starch casein nitrate agar showed the characteristic powdery or chalk-like appearance of Actinomycetes on agar surface. The bright red pigmentation was found on the reverse side of plate and was intracellular in nature. The intracellular pigment was extracted by solvent extraction method by using methanol. The pigment production was optimized based on three physical parameters such as temperature, pH and salt concentration. Optimum pH for pigment production is 7, optimum temperature is 30°C and optimum salt concentration is 2.5%. Protein content in the crude pigment was estimated by Lowry's method. Pigment was partially purified by using silica gel column chromatography. Various fractions were obtained from the pigment and fraction 2 was used for characterization studies. Bioactive property of fraction 2 was characterized by TLC, UV visible spectrophotometry, FT-IR analysis and GC-MSMS. The *R_f* value of fraction 2 is 0.81. The pigment showed antibacterial activity against both gram positive and gram negative bacteria. Good Zones of inhibition were produced against *Staphylococcus citrus*, *Bacillus sp* and *Pseudomonas aeruginosa*. The pigment shows mosquito larvicidal activity with LC_{50} of 1.589, 0.331, 0.398 and 0.312 at 2, 4, 6 and 8 hours respectively.

Key words: Actinomycetes, Antibacterial, FT-IR, GC-MSMS, Mosquito larvicidal

ICTAM: OP: 63:- BY INFLUENCE OF KARPOGI PASAI ON LEUCODERMA

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Siddha system is a unique system of Indian medicine . The Siddha medicine is well founded on the basic principles of nature and it's elements after careful and thorough study of the human system. The Siddhars were the greatest scientists in those days , that is the seekers of truth. They were popular writers in Tamil in all it's branches of knowledge. Siddhars

knowledge of Iatro-chemistry, minerals, metals and plants was stupendous. In general, skin diseases are classified into acute and chronic skin diseases. That in Siddha system of medicine acute skin diseases are considered to be cured and chronic skin diseases can be managed. Leucoderma (Vitiligo) is a type of skin disease which is characterised by acquired depigmentation of skin. Karpogipasai of our medicine possess significant role in curing Leucoderma and other skin ailments. These medicines can be formulated by the components like Karpogarisi (*Psoraliacardifolia*), Neeradimuthu (*Hydnocarpus laurifolia*), Kandhagam (Sulphur), Kasakasa (*Papaver somniferum*), Coconut kernel, Karunseeragam (*Nigella sativa*), Kaatuseeragam (*Vernonia anthelmintica*), lemon. On this paper we are going to present about Karpogipasai in accordance to Siddha hospital pharmacopeia.

ICTAM: OP: 64:- SYNTHESIS OF SILVER NANO PARTICLES FROM CYMBOPOGAN CITRATUS AND ITS APPLICATION IN LARVICIDAL ACTIVITY

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Nanotechnology is one of the most active areas of research in modern material science. The present study deals with the biosynthesis of silver nanoparticles using fresh leaves of *Cymbopogon citratus* (Lemon grass). Silver nanoparticles were synthesized by the bio-reduction of silver nitrate solution (1mM) using the aqueous extract of lemon grass. The synthesized silver nanoparticles were characterized by using UV-visible spectrophotometer analysis, SEM and FTIR. Synthesis of silver nanoparticles was confirmed by the presence of an absorbance peak 420nm in UV-visible spectrum. Scanning electron microscopy (SEM) reveals the size and shape of silver nanoparticles. Fourier transform infrared spectroscopies (FTIR) were conducted to determine the various functional groups. The extract was evaluated for antioxidant activity using 1,1-diphenyl-2-picrylhydrazyl (DPPH) method with ascorbic acid as the standard. The synthesized nanoparticles were studied for larvicidal activity. The synthesized nanoparticle having high potential for larvicidal activity was characterized for active principle. The application in various fields could also be used.

Keywords: Aqueous extract, larvicidal, nanoparticles, spectrophotometer, uv-visible spectrum.

ICTAM: OP: 65:- PHYTOCHEMICAL ANALYSIS, ANTI OXIDANT AND ANTI ELASTASE ACTIVITY OF *BIOPHYTUM SENSITIVUM*

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Biophytum sensitivum (L.) DC (Oxalidaceae), an indigenous medicinal plant, was evaluated for its in vitro antioxidant potential and antielastase activity. *Biophytum sensitivum* is used for wound healing and skin disease in traditional systems of medicine. The hexane, ethyl acetate, acetone and ethanol extracts of *Biophytum sensitivum* were prepared using Soxhlet extraction method. Qualitative and quantitative phytochemical analysis, antioxidant and antielastase activity of different extracts were studied using standard methods. The *in vitro* antioxidant activity was analyzed using DPPH scavenging activity; FRAP assay; Ammonium molybdate assay and total reducing power measurement. The qualitative analysis of the extracts revealed the presence of most of the phytochemicals. The total phenol compounds were found to be more for ethanol extracts of *Biophytum sensitivum* (61.54±4.12 mg/g Gallic acid equivalence). The amount of flavonoids in the ethyl acetate and acetone extract of *Biophytum sensitivum* was found to be 13.6± 0.08 and 7.3± 0.13mg /g plant extract in rutin equivalents respectively. *In vitro* antioxidant activity studies conducted using various methods revealed that among the different extracts under study, the ethanol extract of *Biophytum sensitivum* possessed significantly highest antioxidant potential ie 65.66±5.83 by DPPH scavenging assay; 82.73 ± 5.08 by ammonium molybdate assay, reducing ability of 61.73 ± 6.58 mM μM (Fe (II) equivalents /g dry mass, the percentage reducing power of 74.17 ± 4.30 , compared to the various extracts and the standard antioxidant ascorbic acid studied. The anti elastase activity towards porcine pancreatic elastase revealed that all the extracts possessed a dose dependent inhibitory effect. The concentration exerting 50% inhibition (IC 50) towards porcine pancreas elastase using Acetone, Ethanol extract of and Ethyl Acetate and ethanol extract of *B.sensitivum* were found to be 495.47; 676.43; 736.02 and 431.32 (μg/ml) respectively. It was observed that the ethanol extract and

hexane extracts of *B.sensitivum* showed significantly higher anti elastase activity as they had lower IC 50 value when compared with other extracts at a significant level $\alpha \leq 0.05$. To the best of our knowledge, the anti elastase activity of the selected plant *B.sensitivum* was not studied earlier before. This will be the first report of elastase inhibition of *B.sensitivum*. Our result supports the traditional use of *B. sensitivum* for various diseases.

**ICTAM: OP: 66:- ROLE OF ANTI-OXIDANTS &
BIO-FLAVANOIDS PRESENT IN *THEOBROMA CACAO* AGAINST
DIABETES MELLITUS TYPE 2**

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One of the world's most magical and incredible trees is the cocoa tree, *Theobroma cacao* which means "food of the gods". It is a small evergreen tree in the family Malvaceae. Diabetes mellitus is a group of metabolic disorder characterized by high blood sugar, insulin resistance and relative lack of insulin. The main objective of the study is to present cocoa powder for anti-diabetic purposes. Cocoa powder is rich in minerals but very low in fat. We looked at because it contains a lot of polyphenolic compounds .So it is thousand times more effective than things like green tea, redwine and berries. Epicatechin, a main flavanol in cocoa, abundant in dark chocolate, improve insulin levels, thus help people to manage diabetes. Our studies suggest that epicatechin and cocoa phenolic extract strengthen the insulin signalling by activating key proteins of that pathway and regulating glucose production through activated protein kinase Studies said that current medications to maintain long term glycemic control in most diabetics were inadequate and cocoa may be the answer. After the run -in-phase and after both intervention phases, OGTTs using 75g of D-glucose were performed according to standard procedures after an overnight fast and ≥ 12 hours from the last cocoa powder intake. Plasma glucose and insulin were assessed at baseline (0 minutes) and 30, 60, 90,120 and 180 minutes after the 75g glucose load. OGTT results were used for the homeostasis model assessment of insulin resistance (HOMA-IR, the quantitative insulin sensitivity check index and the insulin sensitivity index).

**ICTAM: OP: 67:-PIPER BETLE (VETILLA) LEAF POWDER
AS AN ALTERNATE ANTIBIOTIC GROWTH PROMOTER IN
BROILER CHICKEN**

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The effect of feeding broiler chicks diets containing different levels of *Piper betle* leaf powder as an alternate antibiotic growth promoter on growth performance and serum lipid profile was studied. A total of one hundred twenty day-old, unsexed broiler chicks were randomly divided into three experimental groups. Each group was further subdivided into four replicates at the rate of ten chicks per pen in complete randomized design. The birds were fed with three basal diets (pre starter, starter and finisher diets). The *Piper betle* leaf powder was added to the basal diets at level (0.0, 0.1 and 0.2 per cent) resulting in three formulae respectively to groups A, B and C with group A serving as control group. The experimental diets were fed for 6 weeks duration. Body weight of birds were recorded weekly interval at replication wise. Blood samples were collected from four birds of each group at six weeks of age for serum lipid profile analysis. The results showed that, the diet with 0.1 and 0.2 per cent *Piper betle* leaf powder had better body weight gain, feed conversion efficiency and reduced total cholesterol and LDL cholesterol level compared to control group. Inclusion of *Piper betle* leaf powder at 0.1 and 0.2 per cent level in broiler diet had adverse effect on growth performance and serum lipid profile.

Key words: *Piper betle* leaf powder, Alternate antibiotic growth promoter, Broiler chicks

ICTAM: OP:68:-THE EFFECT OF *ALLIUM CEPA* (LINN) AND *BRASSICA JUNICEA* (L.) ON *IN VITRO* GLUCOSE DIFFUSION

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Plants represents a vast source of potentially useful dietary supplements for improving blood glucose levels and preventing longterm complications in type2 diabetes mellitus. Aqueous extracts of *Allium cepa* bulbs(onion) and *Brassica junicea*(mustards) seeds were used for this study. *In vitro* dialysis based model was used to investigate how onionbulbs and mustard seeds extracts exhibits antidiabetic properties. The present study was undertaken to investigate the effect of extracts on glucose movement across dialysis membrane into an external solution using passive glucose diffusion method. Among two plant extracts *Allium cepa*(onion)bulbs showed a significant reduction in glucose diffusion when compared to *Brassicajunicea*(mustard) seeds. The results suggests the usefulness of *Allium cepa*(onion)bulbs as a dietary supplement to reduce the postprandial hyperglycaemia

ICTAM: OP: 69:- PHYTOCHEMICAL ANALYSIS OF CHLOROFORM FRACTION OF METHANOLIC EXTRACT OF *THESPESIA POPULNEA*

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Thespesia populnea (Poovarasu), belonging to family Malvaceae, is a tropical evergreen tree found abundantly in coastal regions of India. It is traditionally known for its hepatoprotective, antitumour, antioxidant and wound healing activities. Earlier research in our laboratory proved that chloroform soluble fraction of methanolic extract of *Thespesia populnea* (CSF) possess anticancer activity. Hence the present study was undertaken to find out different phytochemical principles of CSF using Gas chromatography mass spectroscopy (GCMS-MS) and Fourier-

transform infrared (FTIR) spectroscopy. Results of the present study revealed presence of various phytochemical constituents that might be attributed for the anticancer property of the extract.

Keywords: Phytochemical principles, chloroform soluble fraction of methanolic extract, *Thespesia populnea*, GCMS-MS, FTIR spectroscopy.

ICTAM: OP: 70:- PROTECTIVE ROLE OF *BOERHAVIA DIFFUSA* L. AGAINST LIVER DAMAGE

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The liver is the largest and most metabolically complex organ in humans. Because of its unique metabolism and relationship to the gastrointestinal tract, the liver is an important target of the toxicity of drugs, xenobiotics and oxidative stress. Most of the hepatotoxic chemicals damage liver cells mainly by inducing lipid peroxidation and other oxidative damages in liver. Worldwide, over a million deaths per year can be attributed to hepatocellular carcinoma (HCC) and the major cause is hepatitis C virus. The limited treatment options and poor treatment success are one of the reasons for a higher incidence of HCC in developing countries. A possible way to increase the efficacy of anti cancer drugs and reducing their toxicities is to develop complementary and alternative medicine. In India traditional medicine plays a vital role in the management of various liver disorders. Hence, the study was focused on the identification of naturally occurring active compounds from *B. diffusa* that could function as agents for treatment as well as for hepatoprotection. And the results obtained emphasizes that the plant and /or its extract can be used for the treatment of liver cancer and for hepatoprotection.

**ICTAM: OP: 71:-ANTIHYPERTENSIVE PEPTIDES IN
FERMENTED GOAT MILK**

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The ability of specific lactic acid bacterial cultures to hydrolyze milk proteins and to release angiotensin converting enzyme (ACE) inhibitory peptides was evaluated. Fermented goat milk samples were prepared by using different lactic acid bacterial cultures such as *Lactobacillus helveticus* 192, *Lactobacillus bulgaricus* 009, *Lactobacillus plantarum* 379 and *Lactobacillus casei* 017 at 4 per cent inoculum level. Fermented goat milk samples were analyzed for Proteolytic activity and ACE inhibitory activity. The ACE inhibitory activity of fermented goat milk samples ranged from 70.648±2.024 to 97.555±0.965 per cent. The proteolytic activity of fermented goat milk samples ranged from 0.390±0.019 to 0.696±0.042. Maximum proteolytic activity and ACE inhibitory activity was observed in milk fermented with *Lactobacillus plantarum* 379. The values were 0.696±0.042 and 97.558±0.965 per cent. Fermented milk samples with high ACE inhibitory activity (*Lactobacillus plantarum* 379, *Lactobacillus bulgaricus* 009) were subjected to Reverse phase high performance liquid chromatography to identify the ACE inhibitory peptides. Positive correlation between proteolytic activity and ACE inhibitory activity was observed in fermented goat milk samples. Fermented milk containing ACE inhibitory peptides can be used as a functional food to reduce hypertension.

Key words: Goat milk, Lactic acid bacteria, ACEI peptides, Hypertension

**ICTAM: OP: 72:- CYCLOOXYGENASE, LIPOXYGENASE,
MYELOPEROXIDASE AND NITRIC OXIDE SYNTHASE
INHIBITING ACTIVITY OF ZERUMBONE – AN *IN VITRO*
STUDY USING THP1 CELL LINE**

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Inflammation arises as a healthy response of a host to natural or manmade stresses like infection, injury and irritation. It is also involved in natural processes like ageing and wound healing. But chronic or runaway inflammation is pathological and is responsible for various diseases like asthma, arthritis, cancer, autoimmune disease, cardiovascular disease and dermatitis. Inflammation is mediated by different chemical messengers which act via multiple and interrelated pathways. The enzymes cyclooxygenase, lipoxygenase, myeloperoxidase and nitric oxide synthase which are responsible for the synthesis of different inflammatory mediators are attractive targets in the development of new anti-inflammatory drugs. In this study we have investigated cyclooxygenase, lipoxygenase, myeloperoxidase and nitric oxide synthase inhibiting activity of zerumbone isolated from the rhizome of *Zingiber zerumbet* using THP1 cell line. The cell line was induced with bacterial lipopolysaccharide and the stimulated cells were exposed with different concentrations of zerumbone - 6.25 µg, 12.5µg, 25 µg, 50 µg, 100µg and 200µg and incubated for 24 hours. Then the inhibitory effect of zerumbone on cyclooxygenase, lipoxygenase, myeloperoxidase and nitric oxide synthase activities were evaluated according to standard protocols. Diclofenac sodium was used as the reference drug. The IC₅₀ values of zerumbone were 47 µg, 60 µg, 5 µg and 47 µg respectively for the enzymes cyclooxygenase, lipoxygenase, myeloperoxidase and nitric oxide synthase. The potentiality of zerumbone to inhibit diverse pathways of inflammation makes it a novel target for new anti-inflammatory drug.

**ICTAM: OP: 73:- INVITRO ANTIOXIDANT ACTIVITY OF
9, 12-TETRADECADENE-1-OL ISOLATED FROM
ASPERGILLUS TERREUS**

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Invitro antioxidant activity of a compound named 9, 12-tetradecadene-1-ol from pigmented *Aspergillus terreus* was evaluated in the current study. The organism isolated from the sediments of Banasura Sagar Dam was characterized and identified by microscopic, macroscopic, biochemical and molecular methods. The intracellular red pigment from the organism was extracted by the solvent extraction method using ethyl acetate. The mass production of the red pigment was done using submerged fermentation conditions. Upon fractionation of the crude pigment by silica gel column chromatography, the bioactive principle from fraction 6 of the crude pigment was characterized and identified using TLC, HPTLC, UV-Visible spectrophotometry, FTIR and GC- MSMS as 9, 12-tetradecadene-1-ol with an area percentage of 64.12 and molecular weight of 210. The *R_f* value of 0.59 was observed for fraction 6. The fraction was also subjected to UV-Visible spectrophotometry where a single absorption peak at 276 nm was observed with a maximum absorbance of 4.000. The partially purified fraction 6, 9, 12-tetradecadene-1-ol in the concentration range of 50-250 µg/ml has exhibited a good total anti oxidant activity and reducing power compared with the standard ascorbic acid in the phosphomolybdenum (PM) method and ferric reducing antioxidant power (FRAP) assay. The antioxidant activities increased with the increasing concentrations of the sample in a dose dependent manner suggesting a favorable antioxidant activity by the compound. Hence being derived from a natural source the completely purified compound may be used as an antioxidant agent.

Key words: *Aspergillus terreus*, Antioxidant, FRAP, PM.

**ICTAM: OP: 74:- BIOSYNTHESIS OF FLAVORED ESTERS
USING IMMOBILIZED LIPASE**

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Acetic ethers are aroma compounds formed by the condensation of carboxylic acids and alcohols. Immobilisation furnishes an increase in the functional efficiency of the lipolytic enzyme and enhanced reproductibility of the process. The introduction of immobilised lipase leaves the process of esterification. High activity of the enzyme replaces the traditional chemicals in the process which are highly energy intensive and can be more environmental friendly, thereby providing a gateway into the field of green chemistry. Ethyl butyrate and butyl acetate are value added pineapple flavour producing esters, used as solvents in perfumery products and in the field of therapeutics, is a potential candidate for mood stabilizing therapy. In the present study, the lipolytic enzyme was immobilised by CLEAs with a yield of 44.84% which in turn aids in the biochemical production of flavoured esters. The production parameters - substrate concentration was optimized at 150mM and 100mM for the highest productivity of the respective esters, which was later used during enzyme concentration optimisation, which showed maximum at 800mg/L for both esters. It can positively be used as a stabiliser for many novel compounds, opening a wide area of possibilities for future research.

Key words: Green chemistry, Biosynthesis, Butyl acetate, Ethyl butyrate, Immobilisation, Mood stabilizer.

**ICTAM: OP: 75:- HOMOEOPATHIC TREATMENT FOR
DIFFERENT CLINICAL CONDITIONS IN ANIMALS**

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Homoeopathy, a very gentle useful and powerful system of medicine, is bringing extraordinary results in animals. The importance of veterinary homoeopathy is felt when the other conventional systems of medicine fail miserably in the treatment of numerous conditions in animals. All kinds of animals from pets to farm animals, horses to laboratory animals, wild animals, birds to fish respond to homoeopathic treatment. Homoeopathic medicines are selected by a veterinarian to stimulate natural healing processes in the animal patient and their bodies dictate the reactions leading to cure. It's a form of therapy free of side effects and the benefits are reaped both by conventional and organic farmers. Here, we present, treatment of different clinical conditions in animals like downer cow syndrome, multiple fracture of forelimb, warts, mycotic dermatitis, infectious arthritis, eczema, haemagalactia, acute mastitis and colic using homoeopathic drugs.

**ICTAM: OP: 76:- HOMOEOPATHIC TREATMENT OF FOOT AND
MOUTH DISEASE IN CATTLE**

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Foot-and-Mouth Disease (FMD) is an acute, infectious and highly contagious viral disease of cloven-footed animals. The natural hosts are cattle, buffaloes, sheep, goats and pigs. Its incidence is more rampant in India. This abstract deal with case study of homoeopathic treatment of FMD affected animals in the 31 villages of DevanaHalli Taluk of Bangalore Rural District coming under the Bangalore Milk Co-operative Society in Karnatakaduring the month of January and February 2017. A total of 389 animals which included cross breed cows, heifers and calves were affected

with mild to severe form of the disease. The symptoms included fever (100°F to 105°F), blisters and ulcers in the mouth and on feet, drop in milk production, weight loss, loss of appetite with anorexia, quivering lips and frothing of mouth. A few cows developed blisters on teats. Lameness combined with mouth lesions was observed in most of the cases. Mild to moderately affected animals were administered orally Mercurius solubilis 200 once daily for 5 days. Borax 30 daily was administered orally once daily for 7 days. Arsenicum Album 200 and Silicia 200 were also administered orally once daily for 65 animals affected with severe foot lesions for 3 days along with first aid with calendula lotion and bandaging. Intravenous administration of fluids, B complex and Vitamin AD₃E was given as supportive therapy only for severely affected animals. No Antibiotics were advised to any of the animals and only 73 animals were given follow-up treatment out of 389 total cases treated. Along with the medical management using homoeopathic drugs, certain management strategies for controlling the disease was also adopted. Rectal temperature subsided to normal range within one day of homoeopathic treatment. Healing of inflamed mucosal areas, foot lesions and appetite tremendously improved during the first three days of treatment. It took less number of follow-up visits to treat the cases with homoeopathic drugs. Hence it can be inferred that the use of Mercurius solubilis, Arsenicum Album, Silicia and Borax was found to be useful in the treatment of FMD in animals.

ICTAM: OP: 77:- ROLE OF HOMOEOPATHIC MEDICINE IN MANAGEMENT OF RHEUMATIC DISEASES

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Rheumatic diseases are characterized by inflammation that affects the connecting or supporting structures of the body, most commonly the joints, but also sometimes the tendons, ligaments, bones, and muscles. Some rheumatic diseases even affect the organs.

A rheumatic special OPD was running on Government district homoeopathy Hospital Muttom since 2012. OPD was working on every Tuesday from 9am -2 Pm. Medicine are given according to homoeopathic principles. Every cases are recorded in special case records and software

repertorisations are done in difficult cases and homoeopathic individualised medicinal treatment are given to each patient. In addition to homoeopathic higher dilution medicine, Homoeopathic Oils and Ointments are used for topical application. Physical exercise and hot and cold therapy are used. An evaluation report was prepared for the 2016-17 financial year, about 625 new cases and 4918 old OPD cases are treated through these OPD.

Treatment analysis is done by medical officer and staffs in charge of OPD. For this 629 randomly selected different rheumatic disease cases are selected and evaluation done on interview methods and questionnaire methods (table) and treatment effectiveness are grouped in **three different headings as complete relieved, partial relief and no relief**. In these cases about 49.22% cases we got complete relief with treatment and about 41.49% cases we got partial relief and 9.22% cases no relief at all.

In considering the above selected cases 30% of cases are coming in acute inflammation and these cases are well responded to our treatment. About 40% of cases are coming under cases of pathological changes and most of cases we got partial relief and also found that these cases need long term treatment. Remaining 30% cases are coming under rheumatic cases complicated with deformity in these we got partial relief and in some cases no relief at all. These cases need more evaluation and long treatment course.

From the above analysis we found that individualised homoeopathic medicinal treatment is very effectively curing acute rheumatic diseases and also effectively controlling chronic rheumatologic diseases.

ICTAM: OP: 78:- INVITRO ANTIOXIDANT AND CYTOTOXIC ACTIVITY OF PIGMENTED SOIL ACTINOMYCETES

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Actinomycetes are always a fascination among the invisible organisms due to its contribution to various biological properties. In the present study, a pigmented actinomycete was isolated from soil sample by serial dilution method and was subjected to microscopic, macroscopic and biochemical characterization. The pigment was produced in broth culture using submerged fermentation method. The intracellular pigment was

extracted using methanol by solvent extraction method. On SCN agar, the isolate PCPGMB01 forms fluffy, white colony with intracellular orange to red pigmentation. Various growth parameters such as carbon source, nitrogen sources and minerals were optimized to study the maximum pigment production. Fructose, yeast extract and sodium pyruvate were found to produce prominent pigmentation during optimization studies. The crude pigment was subjected to partial purification by silica gel column chromatography. From the various fractions eluted, fraction 1 of the crude pigment was characterized and identified by TLC, UV Visible spectrophotometry, FT-IR and GC-MSMS analysis. The thin layer chromatograms of the pigment were developed with chloroform: methanol (9:1) solvent system. The R_f value of fraction were calculated as 0.83. FTIR absorption in KBr exhibits a weak and broad absorption bands at 3417 cm^{-1} and Strong bands at 2916 cm^{-1} . The anti oxidant activity of the pigment was evaluated using phosphomolybdenum (PM) method. The pigment exhibited a significant antioxidant capacity compared with the standard ascorbic acid. In the *invitro* cytotoxicity screening of the compound by using *Artemia salina*, the LC_{50} was found to be 0.359 by using probit analysis.

Key words: Antioxidant, Cytotoxicity, probit analysis.

ICTAM: OP: 79:- FORMULATION AND OPTIMIZATION OF CROSS LINKED NARINGINASE AGGREGATES: AN EFFICIENT AND STABLE BIOCATALYST

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Immobilization of an enzyme plays a vital role in obtaining the optimum performance of the enzyme, as most of the free enzymes are inherently devoid of operational stability. Cross linking is one such method of immobilization which is considered advantageous over other conceptual methods known, as it does not hamper the catalytic productivity, volumetric and space time yields. In this study, an industrially important enzyme, naringinase from *Aspergillus niger* which converts naringin to rhamnose- a potential raw material used in the medical and cosmetic industries, was immobilised onto silica particles where gluteraldehyde was used as the

cross-linking agent. Parameters such pH, particle to enzyme ratio, cross linking time, cross linker concentration were optimised and the results were compared with that of the free enzyme. A maximum biocatalytic loading was obtained within 0.5 hour of cross linking at pH 9. The immobilized biocatalyst retained its activity over 10 cycles of reuse.

Keywords: Naringinase, Immobilisation, CLEAs, Silica particle, gluteraldehyde.

**ICTAM: OP: 80:-MOLECULAR CHARACTERIZATION
AND PHYLOGENETIC ANALYSIS OF NBS-LRR GENES IN
CULTIVATED AND WILD VARIETIES OF BRINJAL
(*S. MELONGENA* L)**

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Brinjal or egg plant is an agronomically and economically important solanaceous crop. It is rich in nutrients and is very much beneficial to human health. However the crop is prone to infection by fungal, bacterial and viral pathogens as well as insect pests leading to significant economic loss. Some of the diseases that affect brinjal are fruit rot, *Verticillium* wilt, bacterial wilt etc. In such circumstances, the identification of resistance gene analogs and understanding the molecular basis of disease occurrence holds great promise to minimize the extensive use of fungicides and to develop disease resistant plants. In the present study, degenerate primers based on conserved regions of NBS-LRR were used to amplify and clone Resistant Gene Analogs (*RGAs*) from cultivated (*Solanum melongena*) / wild species (*Solanum surattense*, *Solanum*

torvum) of brinjal. Sequence analysis of the amplified genes and comparison of their predicted amino acid sequences with each other and to other amino acid sequences of known *R*-genes revealed high level of identity with NBS-LRR family of *RGAs* deposited in GenBank. A phylogenetic tree constructed by incorporating the sequences of the closest type of *RGAs* using MEGA 6.0 software, revealed genetic divergence among the three isolated *RGAs*. *S. melongena* and *S.torvum* were very close together, while *S surattense* was in another sub-cluster. The *NBS* analogs that we isolated

can be used as guideline to eventually isolate numerous *R*-genes in brinjal and pave way for the production of disease free brinjal plants.

Key words: *NBS-LRR*, *Solanum* sp, Resistance Gene Analogs (RGAs)

ICTAM: OP: 81:- EVALUATION OF *MOLLUGO PENTAPHYLLA* AND *TRICHOPUS ZEYLANICUS* METHANOLIC EXTRACTS FOR ANTICANCER ACTIVITY IN A375 SKIN CANCER CELL LINE

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Cancer is the second leading cause of death worldwide and is characterized by the abnormal cell growth with the ability to spread to other parts of the body. Although great advancements have been made in the treatment and control of cancer progression, undesired side effects are a cause of concern. Natural therapies, such as the use of plant-derived products in cancer treatment, may reduce adverse side effects. Evaluation of medicinal plants with anticancer potential, identification of novel therapeutics and their exploitation will contribute significantly in reducing the healthcare burden caused by this disease. The present study deals with phytochemical characterization and anticancer activity assay of methanolic extracts of the areal parts of *Mollugo pentaphylla* and leaves of *Trichopus zeylanicus*. Anticancer activity of the extracts was evaluated using A375 skin cancer cell lines. MTT assay was adopted for the assessment of cell viability. Anticancer activities of the extracts was monitored by the gene expression profile of p53, Bax, Bcl2 and Caspase 7, key players in apoptosis or programmed cell death. Phytochemical analysis showed the presence of Alkaloids, Saponins, Tannins, Phenols, Flavonoids, Terpenes, Coumarins and Phlobatannins in *Mollugo pentaphylla* and Alkaloids, Tannins, Flavonoids, Terpenes, Coumarins and Anthraquinones in *Trichopus zeylanicus*. The methanolic extracts showed appreciable anticancer activity as indicated by the diminished cell viability, upregulated expression of p53, Bax, Caspase 7 and downregulated expression of Bcl2 in extract treated groups, when compared to the standard drug cisplatin. Comparatively, *Trichopus zeylanicus* ME showed more anticancer activity than *Mollugo*

pentaphylla ME. The present study revealed the potential usage of methanolic extract of *Mollugo pentaphylla* and *Trichopus zeylanicus* as a potent source of anticancer agents.

ICTAM: OP: 82:- SCREENING OF ANTICANCER ACTIVITY OF TRADITIONAL HERBS (*ANNONAMURICATA* AND *SIMAROUBAGLAUCA*) ON MCF-7 CELL LINES BY IN-VITRO METHODS

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Simaroubaglauca and *Annonamuricata* is traditional herbs used in formulation of traditional medicines for cancer treatments by traditional herbal practitioners. *Simaroubaglauca* (commonly known as Lakshmi tharu) belongs under the family of simaroubaceae and *Annonamuricata* (commonly known as mullataha) in Annonaceae. The plants are multi-utility plants with invaluable medicinal applications. Anti-cancer research is an important area on both plants and its phyto-compounds focused on tumour and leukaemia. *Simaroubaglauca* barks shown in clinically possess cancer killing properties. According to the data from National Cancer Institute in 1976 indicated that an alcoholic extracts of *Simaroubaglauca* possess anti-cancer activity in low dosages. Scientists discovered that presence of quassinoids compounds in *Simaroubaglauca* having anti-cancer activity. Many Indian herbal traditional practitioners especially in South India use combination of *Simaroubaglauca* and *Annonamuricata* against tumour and cancer treatment without any scientific clarification. World Health Organization suggested the detailed scientific examinations for the traditional herbal drugs. The LD-50 value was calculated as 36.7955 µl/ml of extracts needed for the 50% of cell death. Results indicated that *Simaroubaglauca* extract had significant activity against human breast cancer cell lines

**ICTAM:OP:83:-BIOGENIC SYNTHESIS OF HESPIRIDIN -
GOLD NANOPARTICLES CONJUGATE FOR MEDICINAL
APPLICATIONS**

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Functionalized gold nanoparticles with controlled geometrical and optical properties are the subject of intensive studies and biomedical applications, including genomics, biosensorics, immunoassays, clinical chemistry, laser phototherapy of cancer cells and tumors, the targeted delivery of drugs, DNA and antigens, optical bioimaging and the monitoring of cells and tissues with the use of state-of-the-art detection systems. Therefore we used the nano mediated Au-Nps drug delivery system as it can yield a more effective drug accumulation in tissues and body fluids, with minimal side effects and enhance the pharmacokinetics of easily degradable peptides and proteins that have half-lives *in vivo*. Therefore the gold nanoparticles were synthesized biologically using aqueous garlic extract as it produces biocompatible gold nanoparticles without agglomeration. Garlic is rich in phytochemicals and helps in liver protection. The SEM images of garlic synthesized gold nanoparticles showed spherical gold nanoparticles with size varying from 10 nm-11.8nm. The synthesized gold nanoparticle was conjugated to hesperidin and characterized by SEM and it showed the size varying between 30-45nm. The possible functional groups involved in the reduction of gold nanoparticle and AU-NPs-Hes conjugate was analysed using FT-IR. The crystalline structure was analysed using XRD. The synthesized gold nanoparticle was conjugated with a flavonoid hesperidin to effectively treat many ailments.

Keywords: SEM, Gold nanoparticles, FT-IR, XRD, conjugates

**ICTAM:OP:84:- PROTOCOL FOR *PIPER SARMENTOSUM* ROXB.
(PIPERACEAE) – A RARE SPECIES FROM THE ANDAMAN
ISLANDS**

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The tropical rain forests of the Andaman – Nicobar Islands are known to host several rare and potentially useful wild relatives of cultivated crops. *Piper sarmentosum* is a lesser known wild species of piper from Andaman – Nicobar Islands. The present study was initiated to explore *in vitro* propagation of *Piper sarmentosum* using nodal explant on MS medium supplemented with varying concentration and combination of different cytokinin viz. BAP, KIN and 2ip. Of the different cytokinin used higher number of shoots (8.2 ± 0.748) and higher shoot length (6.4 ± 0.800 cm) was observed on MS medium with 1mg/l BAP after 45 days of culture. Compared to BAP, KIN and 2ip and combination of cytokinin gave reduced number of shoots. For rooting *in vitro* shoots having (6.4 ± 0.800 cm) length were harvested and transformed to rooting media. For rooting half strength MS media supplemented with different auxins. Highest number of roots (29 ± 0.894) and root length (3.8 ± 0.322 cm) were recorded on MS medium with 1mg/l IBA with 30 days of culture. After 30 days, the rooted plant were handed in pots containing sand and garden soil (1:1) and transformed to greenhouse condition wherein 90% plants established successfully. The regenerated plants have not showed any morphological abnormalities compared to mother plant. Therefore this protocol is considered more efficient and reliable method for rapid and mass propagation of this valuable plant.

Keywords: *Piper sarmentosum*, murashige and skoog, cytokinin

ICTAM: OP: 85:- SURFACE ENGROSSMENT OF A PROTEAN ENZYME AND OPTIMIZATION OF IMMOBILIZED CONDITIONS

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Pertaining to the current trends of mass usage of enzymes in various spheres of our life has lead to the usage of the same for the production of useful products. One such important enzyme is naringinase which is profound in the food and pharmaceutical industries. The production of a efficacious enzyme of this sort remains a asset to the industries. To fortify the utilization of these enzymes , there is a need to ensure the sustenance of the enzyme thus making sure there is no enzyme denaturation allowing its reusability which is accomplished by immobilization. There are a humpty number of immobilization methods but adsorption stands out being a facile method with no chemical modification of the enzymes In this study an industrially important enzyme,naringinase from *Aspergillusniger*VB07 .The enzyme is adsorbed on mesoporous functionalized supports and monitoring of various parameters like pH, time,particle: enzyme ratio. The operational stability like temperature and pH to be maintained with a clear study of the operational reusability is also accomplished. These immobilized enzymes thus surpass the ill effects of free enzymes and can thus be used in various spheres. The paper thus encapsulates the optimum conditions obtained by the immobilization of the enzyme which has applications ranging from food to pharmaceutical industries where it is used for the biotransformation of steroids and antibiotics.

Keywords: Naringinase , adsorption , mesoporous functionalized support ,operational stability , reusability.

ICTAM: OP: 86:- DETECTION OF NON-O157 SEROPATHOTYPES OF ESCHERICHIA COLI IN MILK SAMPLES

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Pathogenic *Escherichia coli* capable of virulent food related extra-intestinal infections like Hemolytic Uremic Syndrome (HUS) is a serious threat in public health. Cattle is identified as the natural reservoir of these virulent strains of *E. coli* and milk is one of food implicated in reported outbreaks. The present study envisages the detection of seropathotypes of *Escherichia coli* in milk samples collected from small scale distribution system like milk marketing societies (n=12), household retailers (n=10) and pasteurized milk (n=12). A total of 122 isolates of sorbitol non fermenting, novobiocin and cefexime resistant shigatoxigenic strains were screened for the study. Identity of the shigatoxigenic isolates were confirmed by analyzing the presence of virulence markers like *stx1* and *stx2* genes using specific primer based Polymerase Chain Reaction assay. Polymerase Chain Reaction (PCR) detection showed that 4 isolates harboured *stx 1* and *stx2* genes. Seropathotypes O157 and non-O157 group were screened using latex agglutination method. *Escherichia coli* O157 is detected using LK-13 HiE.coli O157 Latex Test Kit, Himedia, India. Three out of 122 (2.45%) isolates were detected as *E. coli* O157 strains. Non-O157 group comprises six emerged pathogens generally termed 'Big Six' group which comprises O26, O45, O103, O111, O121, and O145. Non O157 group is detected using a pooled serum '*E. coli* OK O Antisera', SSI Diagnostica, Denmark and 5 out of 122 isolates belong to non O157 group. Out of the tested milk samples, 8.8% (3 out of 34) contained shigatoxigenic pathotypes. All of the detected seropathotypes of *E. coli* were isolated from raw milk samples. Thus raw milk might pose a risk as contamination source for the virulent serotypes of foodborne pathogens.

Key words: Shigatoxigenic *E. coli*, O157 & non O157 strains, milk samples

ICTAM: OP: 87:-IN-VITRO CYTOTOXIC STUDIES OF MIMOSINE ON HUMAN NEURONAL CELL LINES USING SRB ASSAY.

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Mimosine, a non-protein amino acid isolated from *M. pudica* is evaluated for its neuronal protective effects using cell lines IMR-32, U373-MG and SK-N-SH. The cytotoxic activity was measured by using Sulforhodamine B assay. The parameters like GI50, TGI and LC50 were calculated. The concentration of Mimosine causing 50% inhibition of cell growth (GI50) was measured while Adriamycin was used as positive control. Mimosine showed activity on IMR32 and U373MG cell lines with GI50 values of 55.2 and 37.3, while Adriamycin showed less than 10 µg/ml. Mimosine failed to exhibit significant activity on SK-N-SH cell lines. It was concluded that Mimosine is producing cytoprotective effect when compared to Adriamycin on neuronal cell lines

ICTAM: OP: 88:- PHYTOCHEMICAL SCREENING AND ANTIOXIDANT ACTIVITY OF METHANOLIC EXTRACT OF *SALACIA RETICULATA*.

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The aim of this study was to investigate the phytochemical composition and antioxidant activity of *Salacia reticulata*. *Salacia reticulata* belongs to the family Celastraceae Hippocrateaceae. The leaf part of *salacia reticulata* was dried, extracted with methanolic solvent by soxhlet extraction method. The phytochemical composition was carried on the leaf extract of *Salacia reticulata*, revealed the presence of active ingredients such as flavanoids, alkaloids, glycosides, carbohydrates, phytosterol, phenols and diterpenes. Phytochemical analysis conducted on this plant extract revealed the presence of constituents which exhibit medicinal activities, The phytochemical result confirm that the extract contains more important chemical constituents for various biological activities. The leaf extract of *salacia reticulata* was evaluated for antioxidant activities by phosphomolybdenum assay. The

results indicates that the extract posses strong antioxidant effect. The present study reveals that the plant leaf extract can be potential source of natural antioxidant activity.

Keywords: *Salacia reticulata*, Phytochemicals, Antioxidant activity, Phosphomolybdenum assay, Celastraceae Hippocrateacea.

**ICTAM: OP: 89:-GREEN SYNTHESIS OF SILVER
NANOPARTICLE USING LEAF EXTRACT OF AYAPANA
TRIPLINERVIS AND MICROPROPAGATION BY CALLUS
CULTURE**

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Nanotechnology is a developing branch of science. One of the most important fields of research in nanotechnology is the synthesis of silver nanoparticles because of their wide range of applications. However, when silver nanoparticles are synthesized by chemical and physical methods, it leads to usage of chemicals which are toxic and leads to non-eco-friendly by-products. This paved way for the development of a novel method of biosynthesis of nanoparticles via green route – an environment friendly process. *Ayapana triplinervis* is an aromatic herb with many medicinal properties. The leaves contain ayapanine and ayapine, both of which have excellent haemostatic, antiseptic, antineoplastic, antitussive, anti ulcerous, astringent, cardio tonic and laxative properties. Silver nanoparticles were produced from the leaf extract of Ayapana and characterized using UV-Vis spectroscopy, FTIR and SEM. UV-Vis spectroscopy of prepared silver colloidal solution showed absorption maximum between 460 - 490nm. The FTIR spectrum of the Ag nanoparticles obtained with the leaf extract showed peaks at 3431, 2065, 1635 and 530 cm⁻¹. The SEM analysis revealed that AgNPs are clustered. The AgNPs were tested for antibacterial activity against six pathogens *E.coli*, *Bacillus*, *Salmonella*, *Staphylococcus*, *Klebsiella* and *Pseudomonas*.

Keywords: Silver nanoparticles, *Ayapana triplinervis*, UV-Vis spectroscopy, FTIR, SEM

**ICTAM: OP: 90:- PRODUCTION AND CHARACTERISATION OF
FIBRINOLYTIC PROTEASE FROM BACTERIAL ISOLATES.**

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Cardiovascular diseases have become one of the biggest concerns all over the world. Among these, thrombosis is the most widespread within the elderly population. The disease results from severe blood-clotting, which leads to obstruction of the blood flow in the circulation. It causes a variety of diseases such as myocardial Infarction or other cardiovascular diseases. Fibrinolytic enzymes from bacterial sources removes clots adding to its significant role in curing human health issues saving millions. Microorganism are important sources of thrombolytic agents. The aim of the present work is to isolate and identify fibrinolytic protease producing microorganisms as well as optimize the medium and cultural conditions for maximum enzyme production. The fibrinolytic protease producing bacteria was isolated from different environments in and around Ernakulam Dist, Kerala. Isolates were examined for protease production by comparing the halo zone formed on skimmed milk agar medium. The isolate showing maximum activity was further evaluated by fibrinolytic plate assay for enzyme production. Optimization of various medium parameters was carried out for maximum production of fibrinolytic protease enzyme by the efficient isolate. Submerged fermentation process was carried out under different pH, temperature, incubation period and under different carbon and nitrogen sources to find out the optimum condition where the enzyme production is maximum. The potential fibrinolytic protease producing strains from the submerged fermentation was identified by cultural, morphological biochemical analysis. The preliminary identification was further confirmed by ABIS online tool. The enzyme produced under all the optimum conditions studied was then purified by ammonium sulphate precipitation and dialysis.

Key words: 16srDNA, Fibrinolytic protease, Skimmed milk agar, BLAST, Dialysis, PCR

**ICTAM: OP: 91:- NOOTROPIC ACTIVITY OF ENRICHED
RESVERATROL (RFK) IN IBOTENIC ACID INDUCED
EXCITOTOXICITY**

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Current possibilities of Alzheimer's disease (AD) are very limited and are based on the cholinesterase inhibition or NMDA receptor antagonistic effects, none of them have a sufficient potency to prevent or reverse the progression towards the disease. Enriched Resveratrol RFK is a unique formulation by Akay flavours and aromatics pvt. Ltd with 20% of Resveratrol (RES). The low bioavailability of pure RES is enhanced by the addition of a natural compound from *Trigonella foenum-graecum*. The present study is aimed to access possible protective effect of RFK using the Ibotenic acid (IBO) induced excitotoxicity and cognitive dysfunction. Intracerebroventricular (ICV) injection of IBO (5µg/µl) lesioned rats impaired learning and memory compared to the control. Male Wistar albino rats of 140-180gm were used for the study. The animals were divided into six groups; viz control, IBO, DPZL and three treatment groups which include RFK (40mg/kg), RFK (20mg/kg), and pure RES (20mg/kg) groups. Spatial learning and working memory were analysed by Morris water maze (MWM) and Radial arm maze (RAM) respectively. At the end of the study the animals were sacrificed, whole brain isolated and brain tissue homogenised using a tissue homogenizer. The homogenate was used for the estimation of acetyl cholinesterase (AChE), nitrite, malonedialdehyde (MDA) in the brain. The brain tissue were also stored in 10% formalin was subjected to histopathological analysis. An in vitro study was done with SH-SY5Y cell line and the LD₅₀ values of RFK and RES were noted. RFK administration significantly reduced the escape latency time in MWM, number of wrong entries in RAM, AChE, nitrite and MDA level compared to the IBO treated group and also significantly lowered the brain lesion area. This indicates the nootropic and neuroprotective activity of RFK.

**ICTAM: OP:92:- INVESTIGATIONS ON THE ROLE OF
ADENOSINE RECEPTORS IN THE M2b ALTERNATE
ACTIVATION OF MACROPHAGES**

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Macrophages are characterized by vast phenotypic plasticity, and investing their heterogeneity has become the focus of multitude of studies. Activation of macrophages has emerged as a key area of immunology, tissue homeostasis, disease pathogenesis, and in resolving and non resolving inflammation. Based on the cytokine environment, macrophages can exhibit two types of activation – classical and alternative. Differentiation of classically activated macrophages requires a priming signal in the form of IFN- γ via the IFN- γ R followed by a subsequent encounter of appropriate stimuli and they exhibit a pro-inflammatory phenotype. Differentiation of alternatively activated macrophages does not require any priming. They can be activated by cytokines such as IL4/IL13 (M2a), TLRs + immune complexes (M2b) and cytokine IL-10 (M2c) and all these alternate activated macrophages express an anti-inflammatory phenotype. The purine nucleoside adenosine, which is generated at the site of inflammation, plays a prominent role in macrophage activation. Adenosine exerts its biological function by binding and activation of its specific receptors termed adenosine receptors. While the role of adenosine receptors in regulating classical macrophage activation has been studied in detail, the role of adenosine receptors in governing alternative macrophage activation remains unknown. Hence the aim of the present study was to investigate the role of adenosine receptors in the M2b alternate activation of macrophages. RAW 264.7 macrophages were used for the study and were supplemented with LPS at a concentration of 1 μ g/ml and the non selective adenosine receptor agonist NECA at a concentration of 5 μ g/ml. Gene expression profile of TNF α , IL-6, IL-1 β , CCL-2, IL-4, IL-10, IL-13, Arginase -1, Timp-1, CD83 and CD38 at various time points post LPS stimulation were carried out. A time course profile of M2b alternative activation of macrophages and the influence of adenosine receptors in this process was generated from this study.

ICTAM: OP: 93:- IN VITRO ANTIBACTERIAL ACTIVITY OF 1, 8- CINEOLE AGAINST ANTIBIOTIC RESISTANT STRAINS OF ESCHERICHIA COLI AND STAPHYLOCOCCUS AUREUS

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Antimicrobial resistance (AMR) threatens the effective prevention and treatment of an ever-increasing range of infections caused by bacteria, parasites, viruses and fungi. The enhanced activity of plant-derived antimicrobials is being researched and is considered as the future treatment strategy to cure the incurable infections. 1, 8- cineole is a naturally occurring monocyclic monoterpene ether with an aromatic and camphor like odour found in essential oils of various plant species like *Eucalyptus globus*, *Eucalyptus polybractea*, *Helichrysum gymnocephalum*, *Zingiber chrysanthum*, *Rosamarinus officinalis*, *Artemisia australis* and many more. The antibacterial effect of 1, 8-cineole at different concentration was tested against tetracycline resistant *Escherichia coli* (*E. coli*) and Methicillin resistant strain of *Staphylococcus aureus* (MRSA) by using agar disc diffusion method. 1,8 cineole elicited excellent antibacterial activity against tetracycline resistant *E.coli* but was ineffective against MRSA. The results indicated that 1,8-cineole can be exploited for treatment of infections caused by resistant strains of *E.coli*.

ICTAM: OP: 94:- ASSOCIATION OF CYP2C19 POLYMORPHISM WITH CLOPIDOGREL AMONG GENERAL POPULATION OF KERALA

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Patients vary widely in their response to drug treatment. There are many factors causing variability in drug response on individuals, polymorphism in genes encoding drug metabolizing enzymes is one of the

reason for this variability. Cytochrome P450 enzymes plays a central role in the metabolism of many therapeutic agents. CYP2C19 is a member of cytochrome P450 isoenzymes family and it metabolize a large number of clinically important drugs such as omeprazole, citalopram, clopidogrel etc. Clopidogrel is a antiplatelet agent used to reduce the formation of blood clots. The variability in clopidogrel metabolism and treatment outcome among individuals is determined by variant alleles of the CYP2C19 gene. The present study summarizes the associaton of CYP2C19*17 and CYP2C19*2 allelic variants of CYP2C19 with clopidogrel among general population of kerala. Based on PCR-RFLP technique, CYP2C19*17 and CYP2C19*2 allele frequencies were studied in healthy samples of kerala population. Results are comparable with the mutations in other population. So this study represents the importance of considering the genotypic frequencies of a particular population before prescribing this drug.

ICTAM: OP: 95:- ISOLATION AND SCREENING OF PLASTIC DEGRADING BACTERIA FROM POLYTHENE DUMPED GARBAGE SOIL

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Plastics are the most commonly used polymers for routine applications. Plastic wastes accumulating the environment are posing an ever increasing ecological threat. Low Density Polyethylene (LDPE) is a major cause of persistence and long term environmental pollution. The ways to degrade plastic have not been successful. At the same time natural degradation of plastics is time consuming. The most eco- friendly approach to resolve this ever growing and persistent issue is the microbial degradation route. The main objective of the present study is to isolate and screen for bacteria having the capability to degrade low density polyethylene (LDPE). The bacteria were isolated from various garbage dumped soil. The isolates are grown in MSA medium contain plastic strips. The clear zone method to detect the PEG utilization. From these best five strains selected and inoculated with Bushnell Haas Broth with pre-weighed LDPE plastic strip. Degradation monitored by observing weight loss and change in physical structure by SEM analysis and FTIR spectroscopy. Genomic DNA will be isolated and genes will be amplified with specific primers 27 forward

primer and 1492 reverse primer. The sequencing will be carried out and sequences will be compared with existing on redundant database using BLAST Algorithm and Phylogenetic tree. The isolate was found to be *Bacillus* sp. We can conclude that *Bacillus* sp. may act as solution for the problem caused by polythene in nature. Hence from this study it can be speculated that microbes has enough potential to degrade plastic with due course of time.

Key Words: Plastics, LDPE, FTIR, SEM, Biodegradation, *Bacillus* sp.

ICTAM:OP:96:- POST CONDITIONING WITH BIOACTIVE COMPOUNDS FROM TERMINALIA ARJUNA PREVENTS ISCHEMIA REPERFUSION INJURY - ROLE OF NUCLEAR RELATED FACTOR 2

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Myocardial ischemic injury results from severe impairment of coronary blood supply and produces a spectrum of clinical syndromes. As a result of intensive investigation over decades, a detailed understanding is now available of the complexity of the response of the myocardium to an ischemic insult. Myocardial ischemia results in a characteristic pattern of metabolic and ultrastructural changes that lead to irreversible injury. Post conditioning with antioxidant compounds are recently found as a potent method to combat the apoptosis and necrosis induced as a part of ischemic assault. Terminalia arjuna, commonly known as arjuna, belongs to the family of Combretaceae. We measured the extent of apigenin a potent cardioprotective flavanoid by HPLC analysis and apigenin was found in the range of 1.2mg which can be considered significant. MTT assay the most commonly and widely used cell viability assay was used to check the cardioprotective effects of T arjuna. There was a decrease of cell viability in ethanol extraction ,which was of 30 % of viable cells whereas in the case of distilled water extraction an increase to 60% cell viability was observed. Hence the distilled water fraction was selected for further studies.The cell morphology was also bettered by treatment with RA suggesting cytoprotection. In attempts to clarify the contribution of free radicals to specific metabolic and physiological processes altered by ischemia–reperfusion, experiments using a wide array of antioxidants have

yielded positive results. We measured the effect of T arjuna reperfusion on intracellular antioxidant and markers such as catalase, reduced glutathione, and lipid peroxidation. Polyunsaturated fatty acids of membrane lipids are highly susceptible to peroxidation by oxygen radicals and not surprisingly, reperfusion-induced increases in the level of free radicals are paralleled by elevated rates of lipid peroxidation. Peroxidation of membrane lipids results in the fragmentation of polyunsaturated fatty acids giving rise to various aldehydes, alkenals, and hydroxyalkenals such as malonaldehyde and 4-hydroxy-2-nonenal (HNE) . Many of these products are cytotoxic when introduced into cells in culture and into whole animals, effects believed to be mediated in large part by their reactivity toward protein. From the results it can be observed that ischemic treatment increased the lipid peroxidation products which were effectively reduced by T arjuna treatment. Reactive oxygen species (ROS) generation increases during both ischemia and reperfusion and it plays a central role in the pathophysiology of intraoperative myocardial injury. an increase ROS generation in ischemic buffer treated cells which is already reported. The ROS generation was limited when reperfused with T arjuna when compared with normal media. The decrease in ROS generation has offered more cytoprotection and increased cell viability. PCR analysis has shown a considerable decrease in expression of Nrf 2 gene when treated with ischemic buffer whereas reperfusion with T arjuna has significantly increased Nrf2 gene expression contributing to the cardioprotective effect of T. arjuna. It can be concluded that T .arjuna at lower concentrations can effectively be used as a post conditioning agent to prevent cardiac ischemic reperfusion injury.

**ICTAM:OP:97:- ISOLATION OF PIPERINE FROM
PIPERNIGRAMAND ITS ANTIBACTERIAL EFFECT ON
METHICILLIN RESISTANT *STAPHYLOCOCCUS AUREUS***

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Antibacterial resistance is global issue both for the clinicians and for the patients. Many bacteria are showing resistance to various chemotherapeutic agents due to indiscriminate, un scientific use. It is challenge in the field of science to overcome the resistance mechanism to get better therapeutic response for disease causing bacterial agents. In the recent years various herbal agents are used to overcome the resistance mechanism. Many plant

derived molecules have shown antibacterial action on different bacteria and piperine is one among them having antibacterial action on various classes of bacteria. Piperine is active compound present in *Piper nigrum* seeds and is an alkaloid having wide therapeutic actions. Along with antibacterial action it is proved as anti-oxidant, anti-inflammatory agent, anti-fungal, anti-cancer agent etc. In this experiment piperine is used to check for the antibacterial action against *Staphylococcus aureus* and methicillin resistant *Staphylococcus aureus*. Piperine is isolated from black pepper by using soxhlet apparatus. Methanolic extract is treated with alcoholic KOH. The HPTLC is done with the filtrate and antimicrobial susceptibility test is done against methicillin resistant *Staphylococcus aureus*. The extracted piperine shows antibacterial action in methicillin susceptible *Staphylococcus aureus* but not against methicillin resistant *Staphylococcus aureus*.

**ICTAM:OP:98:- PRELIMINARY PHYTOCHEMICAL
SCREENING OF CRUDE METHANOLIC EXTRACT OF SOME
ETHNOMEDICINAL PLANTS USED BY MUTHUVAN TRIBE
FROM KULACHUVAYAL TRIBAL COLONY, KANTHALLOOR,
IDUKKI**

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The present investigation encompasses preliminary phytochemical screening of crude methanolic extract of eight ethnomedicinal plants used by *Muthuvan* tribe in *Kulachuvayal* tribal colony, Kanthalloor, Idukki district of Kerala. Antibacterial activity of the selected plants were also tested.

The plants studied were *Atlantia monophylla*, *Cymbopogon flexuosus*, *Datura stramonium*, *Melia dubia*, *Ruta graveolens*, *Solanum villosum*, *Triumfetta rhomboidea* and *Vitex negundo* which were used for treating various ailments among *Muthuvans*.

The plant materials were extracted in a soxhlet extractor using methanol as solvent. The methanol extract of plants was subjected to qualitative phytochemical tests. It includes the tests for alkaloids, flavonoids, phenols, tannins, phyllotannins, steroids, terpenoids, carbohydrates,

glycosides, saponins and proteins. The methanol extract of the plants were evaluated against four bacterial strains (*Staphylococcus aureus*, *Escherichia coli*, *Klebsiella pneumoniae* and *Pseudomonas aeruginosa*).

The phytochemical screening of plant extract revealed the presence and absence of various phytochemicals responsible for the curative property of selected ethnomedicinal plants. The methanol extract of plants exhibited no antibacterial activity against the tested bacterial strains.

Key words ; Ethnomedicinal plants, Phytochemical screening, Muthuvan, Kanthalloor

**ICTAM: OP: 99:- DAMPENING OF LPS INDUCED ACUTE
INFLAMMATION BY METHANOLIC EXTRACT OF *MOLLUGO
CERVIANA***

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Acute inflammation is a complex process involving a network of cytokines responsible for the hyper-reactivity of immune system. The bacterial endotoxin LPS induces immunological response involving leukocytes, particularly macrophages. Macrophage activation and oxidative stress are primary mediators of most of the inflammatory events. Identification of anti-inflammatory pharmacological agents could help patients in critical care units exposed to acute inflammation leading to sepsis. Traditional medicinal plants and their bioactive components hold unknown phytochemicals with potential therapeutic application against acute inflammation and sepsis. *Mollugo cerviana* (L.) Ser. is an annual herb extensively referred to in traditional healing, including Ayurveda and Siddha systems of medicine, for its anti-septic, anti-inflammatory and fever mitigating potential. It is known by the common name ‘Threadstem carpetweed’. The present study deals with the anti-inflammatory activity assay of the methanolic extract of areal parts of *Mollugo cerviana*. Antiinflammatory activity of the extracts was evaluated using RAW 264.7 macrophage cell lines. MTT assay was adopted for the assessment of cell viability. Anti-inflammatory activities of the extracts were monitored by the gene expression profile of TNF α , IL6, IL1 β and CCL2, the major proinflammatory cytokines which play major role

in mediating inflammation. The methanolic extracts showed appreciable anti-inflammatory activity as indicated by the downregulated expression of TNF α , IL6, IL1 β and CCL2 in methanolic extract and LPS coadministered group. Also the methanolic extract showed diminished cytotoxicity as indicated by the MTT assay. Hence, the present study revealed the potential usage of methanolic extract of *Mollugo cerviana* as a potent source of anti-inflammatory agents.

**ICTAM: OP: 100:- HEMIGRAPHIS COLORATA SILVER
NANOPARTICLES INCORPORATED SCAFFOLD DRESSINGS
FOR BURNS AND WOUNDS**

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Natural products are a birthplace of artificial and traditional herbal medicine. The present study focuses on a blend of these natural polymers (glycosaminoglycans, chitosan and gelatin) with incorporated herbal nanoparticles that may perhaps guarantee a well-designed and multipurpose scaffold with pharmaceutical properties. *Hemigraphis colorata* silver nanoparticles incorporated Glycosaminoglycan-chitosan-gelatin (GCG) scaffold were prepared. TEM images ensured the proper formation of silver nanoparticles with an average size of 23.0nm (as per TEM analysis). MTT assays and *invitro* scratch wound healing assay was performed and results proved that this scaffold have potent wound healing property, antimicrobial activity and antioxidant activity. Silver nanoparticles of *Hemigraphis colorata* incorporated in this scaffold heighten its potential application as burn wound dressing material by enhancing wound contraction and epithelialisation. The incorporation of H.colAgNp (5%) in GCG scaffolds improved the biological properties of GCG scaffolds and provides a highly hydrated, pericellular environment that mimics the ECM. The scaffold with bioactive molecules and glycosaminoglycans (GAGs) is an efficient way to design new generation tissue engineered biomaterials.

Keywords: Biomaterial, chitosan, Glycosaminoglycan, nanoparticles, scaffold.

**ICTAM: OP: 101:- EFFECT OF CURQFEN® ON IBOTENIC ACID
INDUCED MEMORY IMPAIRMENT IN RATS**

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CurQfen® (CF) is a unique product from the Akay Flavours and Aromatics Pvt.Ltd, Cochin, Kerala, CF is an enhanced bioavailable form of curcumin. Our previous studies shows that CF possess protective actions against demyelination and neuroinflammation. In the present study an attempt is made to investigate possible protective effect of CF using the Ibotenic acid (IBO) induced excitotoxicity and brain-lesion. Methods: Male Wistar albino rats were treated orally with CF(200 and 400mg/kg, Curcumin(CC) 200mg/kg daily for 28 days. Ibotenicacid(IBO,5µg/µl,ICV) were used to induce memory impairment, and were injected once on day 1. The neurotransmitter levels was assessed by UV spectrophotometrically and neuronal damages was assessed by taking histopathology of brain. The behavioral parameters were analyzed by radial arm maze and morris water maze. Results: The present study shows that IBO significantly increased ($P<0.001$) the brain levels of acetyl cholinesterase, nitrite and malondialdehyde while CF and CC restored it. The number of entries and escape latency in treatment groups (CF&CC) were reduced as compared with IBO. The working memory and learning memory errors were enhanced following IBO treatment, while CF and CC significantly reduced them. Conclusion: It concluded that treatment with CF offers a protection against IBO induced excitotoxicity and brain-leasions, as evidenced by the brain levels of neurotransmitters and histopathology, and also from the behavioral parameters assessed by radial arm maze and morris water maze.

ICTAM: OP: 102:- *INVITRO* ANTIOXIDANT AND ACUTE TOXICITY STUDIES OF EXTRACT OF FLOWER OF *MALLOTUS PHILIPPENSIS*

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Mallotus philippensis, belonging to the euphorbiaceae family, is a deciduous tree mostly found in Indian subcontinent. It is traditionally known for its antioxidant, anti-bacterial, anti-fungal, anti-microbial, insecticidal/pesticidal, anti-microfilarial and hepatoprotective activities. In the present study, methanolic extract of flower of *Mallotus philippensis* was analysed for its antioxidant potential. Phytochemical analysis was done using qualitative chemical tests and acute oral toxicity was tested in rats using OECD guideline 420. The *in vitro* antioxidant potential of the extract was assessed by total antioxidant and 1,1-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assays using the extract serially diluted from 500 to 0.95 µg/mL and compared with Vitamin C at same concentrations. Phytochemical screening showed the presence of phenolics, alkaloids, steroids, tannins, terpenes and flavonoids. The extract did not show any toxicity during acute toxicity testing. The extract showed an increase antioxidant activity in a dose dependent manner in the total antioxidant assay. The extract exhibited highest antioxidant activity at 62.5 µg/mL with inhibition 93.5673±0.1063 per cent which was comparable to vitamin C (96.3849±0.0532 per cent) when assayed with DPPH. The EC₅₀ value for DPPH radical inhibition was 17.77±1.51 µg/mL. Hence it could be concluded that the flowers of *Mallotus philippensis* is rich in potent phytochemicals which are free of any toxic effects and these phytochemicals may contribute to the antioxidant activity.

Key words: *Mallotus philippensis*, Phytochemicals, Acute oral toxicity, Antioxidant

**ICTAM: OP: 103:- REGULATION OF LPS INDUCED
INFLAMMATORY RESPONSE BY METHANOLIC EXTRACT OF
*ARTOCARPUS HIRSUTUS***

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Sepsis is a potentially deadly medical condition characterized by a whole body inflammatory state (called a systemic inflammatory response syndrome or SIRS) caused by severe infection. Sepsis, an inflammatory response to an infection that may lead to severe organ dysfunction and death, is the leading cause of death in medical intensive care units. The common causative agent of septic shock is LPS, the major component of the cell surface of gram-negative bacteria, and is often associated with a high mortality. Identification of anti-inflammatory pharmacological agents could help patients in critical care units exposed to acute inflammation leading to sepsis. Natural products play a significant role not only in the design, synthesis and discovery of new drugs, but also as the most promising source of bioactive substances and innovative drugs. *Artocarpus hirsutus* is commonly referred to as Wild Jackfruit tree in English and Anjali in Malayalam. The tree is also referred to as a source of food and application as a traditional medicine. The present study deals with the anti-inflammatory activity assay of the methanolic extract of *Artocarpus hirsutus* seed kernels. Anti-inflammatory activity of the extracts was evaluated using RAW 264.7 macrophage cell lines. MTT assay was adopted for the assessment of cell viability. Anti-inflammatory activities of the extracts were monitored by the gene expression profile of TNF α , IL-6, IL-1 β and CCL-2, the major pro-inflammatory cytokines which play major role in mediating inflammation. The methanolic extracts showed appreciable anti-inflammatory activity as indicated by the downregulated expression of TNF α , IL-6, IL-1 β and CCL2 in methanolic extract and LPS coadministered group. Also the methanolic extract of *Artocarpus hirsutus* showed diminished cytotoxicity as indicated by the MTT assay. Hence, the present study revealed the potential usage of methanolic extract of *Artocarpus hirsutus* as a potent source of anti-inflammatory agents.

**ICTAM:OP: 104:- EVALUATION OF ANTI-INFLAMMATORY
AND ANTI-MICROBIAL PROPERTIES OF METHANOLIC
EXTRACT OF *MOLLUGO PENTAPHYLLA***

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Plants contain many chemical compounds that may be in one way or another responsible for their healing properties and other biological functions. Medicinal plants play vital roles in disease prevention. *Mollugo pentaphylla*. Linn commonly known as five stem carpet weed is a traditionally used medicinal plant with anti-inflammatory and antimicrobial properties. The present study deals with the anti-inflammatory and antimicrobial activity assays on the methanolic extract of aerial parts of *Mollugo pentaphylla*. Anti-inflammatory activity of the extract was evaluated by using RAW 264.7 macrophage cell lines. Cell viability was assessed by MTT assay. Gene expression studies of TNF α , IL-6, IL-1 β and CCL2, the major pro-inflammatory cytokines which plays major role in mediating inflammation was carried out. The methanolic extracts showed appreciable anti-inflammatory activity as indicated by the downregulated expression of TNF α , IL6, IL1 β and CCL2 in methanolic extract and LPS co-administered group. Also the methanolic extract of *Mollugo pentaphylla* showed diminished cytotoxicity as indicated by the MTT assay. Antimicrobial activity of methanolic extract was evaluated in both gram positive (*Bacillus subtilis* and *Staphylococcus aureus*) and gram negative (*Escherichia coli* and *Psuedomonas aeruginosa*) bacterial strains by disk diffusion method. Methanolic extract exhibited potent activity against gram negative and a moderate activity against gram positive bacteria. Methanolic extract was found to be a promising source of potent antimicrobial and anti-inflammatory agents. This only forms a preliminary work and needs more investigation for the isolation and characterization of individual component responsible for these activities.

ICTAM: OP: 105:- EVALUATION OF INSECTICIDAL AND ANTIOXIDANT POTENTIALS OF THE METHANOLIC EXTRACT OF *AGERATUM HOSTONIANUM*-MILL

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Medicinal plants have been screened from the time immemorial for its insecticidal properties. *Ageratum houstonianum*, a medicinal plant belonging to the family Asteraceae, has been reported to possess antimicrobial and insecticidal activity. In the present study the insecticidal and antioxidant activities of the Methanolic extract of *Ageratum houstonianum* Mill have been evaluated. Gravid female *Aedes albopictus* adults were collected from the field and were used for the study. *Aedes albopictus* is an important vector for the transmission of many viral pathogens, including the yellow fever virus, dengue fever, and Chikungunya fever, as well as several filarial nematodes such as *Dirofilaria immitis*. *Aedes albopictus* is capable of hosting the Zika virus and is considered a potential vector for Zika transmission among humans. Methanolic extract of *Ageratum houstonianum* Mill found to have very good insecticidal property with an LC 50 value of 0.278%. Antioxidant potential of the plant is confirmed by DPPH assay and total antioxidant activity testing. Thus *Ageratum houstonianum* Mill can be used as a major ingredient in Ayurvedic mosquito repellent preparations.

ICTAM: OP: 106:- EVALUATION OF *IN VITRO* ANTIOXIDANT AND CYTOTOXIC PROPERTIES OF LEAF EXTRACTS OF *COCCINIA GRANDIS* L.VOIGT.

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Although herbs had been prized for their medicinal, flavouring and aromatic potentials for centuries, the synthetic products of the modern age surpassed their importance, for a while. However, the blind dependence on synthetics is over and people are returning to the naturals

with hope of safety and security. *Cocciniagrandis* L. Voigt belonging to the family *cucurbitaceae* is a perennial herbaceous vine. The present study was aimed to establish the antioxidant and cytotoxic potential of the leaf extracts of *Coccinia grandis*. The studies were conducted on petroleum ether (PE), chloroform (CH), ethyl acetate (EA), and alcohol (AL) fractions. The free-radical scavenging activity of prepared extracts of *Coccinia grandis* were carried out using FRAP method. The results showed that all extracts of *Coccinia grandis* had radical scavenging activity. Compared to other fractions alcoholic extract (IC_{50} 13.0 μ g/ml) possessed maximum antioxidant activity. The cytotoxic potential was evaluated by MTT method on Dalton Lymphoma Ascites (DLA-cells) and colon (HCT-15) carcinoma cells. The results on DLA-cell lines showed that all extracts had cytotoxic potential. Compared to other fractions alcoholic extract (IC_{50} 158 μ g/ml) possessed maximum cytotoxic potential. The extract (AL) which showed the maximum cytotoxic potential on DLA-cell lines was selected to evaluate its cytotoxic potential on HCT-15 cells by MTT assay. The IC_{50} of alcoholic extract of *Coccinia grandis* on HCT-15 cells was found to be 251 μ g/ml.

ICTAM:OP:107:- ANTIMICROBIAL ACTIVITY AND PHYTOCHEMICAL ANALYSIS OF *COSTUS IGNEUS* LEAF EXTRACT

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Costus igneus is a medicinal plant belongs to family of *COSTACEAE*, commonly known as Insulin Plant is used for its anti-diabetic property. Extract from leaves of *Costus igneus* are investigated for phytochemical constituents and anti-microbial activity. The test shows antimicrobial activity against *E.coli*, *S.aureus*, *B.subtilis* and *K.pnuemoniae*. Leaf extract with methanol, acetone, distilled water revealed the presence of Tanins, Saponins, Flavonoids, Alkaloids, Terpenoids, Glycosides and reducing sugars.

**ICTAM: OP: 108:- MODE OF ACTION OF ANTIMICROBIAL
COMPOUND ISOLATED FROM FOOD
GRADE LACTIC ACID BACTERIA**

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The bio preservation of foods using Lactic Acid Bacteria (LAB) isolated directly from food is an inventive approach. Lactic acid bacteria are generally known as safe and play a key role in food and feed fermentation and preservation. The objective of this study was to isolate the antimicrobial compound produced by LAB isolated from various milk based fermented products and to evaluate their antimicrobial effects and mode of action on selected food borne microorganisms. Initially a total of 20 LAB cultures were isolated from 9 different milk based fermented products by serial dilution and plating technique followed by the overlay assay for the selection of antimicrobial compound producing LAB. All the 20 cultures were checked for antimicrobial activity by well diffusion assay and AU units were calculated. Further 16 LAB cultures were subjected for preliminary characterisation by Gram's staining and catalase test. Finally 5 cultures were selected for the purification of antimicrobial compound by chloroform extraction and the molecular weight was determined by SDS-PAGE and activity assay. On comparison with SDS-PAGE the molecular weight of the all 4 bacteriocin in the activity assay was ~14.3 kDa, however BM2-13 was ~40 kDa. RAPD was performed to check the diversity of the selected 5 isolates. Modes of action of antimicrobial compounds were checked by using biosensor culture (BS2470) which is specific for cell wall inhibiting compounds.

Key words: Lactic acid bacteria, antimicrobial, bacteriocin

ICTAM:OP:109:- CHARACTERIZATION OF DESTAINING ABILITY OF PROTEASE FROM *BACILLUS* SPECIES OF FISH WASTE

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Proteases are one among the most important groups of industrial enzymes, accounts for more than 65% of the total industrial enzyme market and finds application in detergents, food processing, pharmaceuticals. In this present study, the destaining ability of protease from *Bacillus* sp. of fish waste was determined. Initially 14 heat resistant *Bacillus* sp. were isolated from 6 different fish waste samples. Screening for proteolytic *Bacillus* sp. was performed and the *Bacillus* cultures were subjected for preliminary characterization. The culture supernatants of 12 isolates were quantified for protein content and the protease activity. The culture (INT-1) which found to be potent protease producer was subjected for the partial purification. The supernatant of the isolate "INT-1" recorded specific activity of 20.44 U/mg. Further, partially purified protease found to have increased specific activity of 664.48 U/mg with 32.5 fold purity than the crude enzyme. The protease enzyme was characterized by different temperature, pH and metal ions. The protease has an optimum temperature of 60°C, pH 7 and the activity was found to enhance in presence of MnCl₂. Molecular weight of purified protease was estimated to be in the range of 97.4 kDa to 66 kDa. In zymogram, 4 proteases were observed as clear bands against blue background. The partially purified protease was able to remove stains of chocolate, coffee, beetroot, jam and tomato kechup. Hence it was observed that the protease from "INT-1" was efficient in removing the stain from the cloth. This study shows the possible utility of protease from *Bacillus* sp. as an alternative and environmental safe method for removing stain.

Key words: *Bacillus*, Protease, Zymogram

ICTAM:OP:110:- PROTEOMIC ANALYSIS OF ACID STRESS IN PROBIOTIC BACTERIA

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The probiotic cultures have long history of safe use and widely used in the production of various fermented products. In this regard the present study was performed to enumerate the survival percentage of the probiotic cultures under acidic condition. By simulating the human gastrointestinal pH, the growth as well as protein profiling of stress protein under acidic condition of probiotic cultures were determined. Among the laboratory native isolates, three *Bacillus* and three *Lactic acid bacteria* were selected and studied for acid tolerance under pH 2 and pH 3 with pH 7 as control. The growth was analysed at an interval of 0 h, 30 min and 60 min respectively in the experimental pH condition. The cell count was observed and percentage survival was calculated. From the study, 2 cultures *i.e.*, *Bacillus* (L-2) and *Lactic acid bacteria* (M-8) were selected which showed highest percentage survival. These cultures were exposed to pH 2 and the cell protein expressed was extracted using whole cell protein extraction method. The protein profile of the selected cultures was analyzed by SDS-PAGE. The proteins expressed in the SDS-PAGE were determined for the approximate molecular weight and was observed for the proteomic variation occurred under acidic condition. In cell lysate, L-2 cultures showing 12 over expressed proteins was in the range of > 97.4 – 24kDa and M-8 showed 4 intense proteins was in the range of 80 – 17 kDa at pH 2. In lyzed pellet, L-2 culture showed 9 over expressed proteins between 80 – 17kDa and M-8 showed 6 intense proteins between > 97.4 – 17kDa to pH 2.

Key words: Probiotic, *Bacillus*, *Lactic acid bacteria*, acid tolerance, SDS PAGE, protein profiling

**ICTAM: OP:111:- ASSESMENT OF *TAMARINDUS INDICA*
EXTRACTS FOR CHOLESTROL LOWERING EFFECT**

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Aqueous extract of the fruit pulp of *Tamarindus indica* were evaluated for cholesterol lowering effect, *in vitro*, against various fatty food materials . People consume food items made by chicken , beef , mutton egg, and fish and it contains large amount of fat . This study aims to analyse the effect of *Tamarindus indica* in reducing the cholesterol level in this fat using water extract of the pulp. For this food sample like egg yolk , pork fat , chicken fat, ghee and cod liver oil were treated with the extract and cholesterol level was estimated by Zak's method.

Key words - *Tamarindus indica* , Cholesterol , Zak's Method

**ICTAM:OP:112:- MEDICINAL PROPERTIES
OF BACOPA MONNIERI**

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It is a Ayurvedic plant mainly a creeping herb found in southern and eastern India, Australia, Europe etc.It is powerful and effective plant for boosting memory power and combating stress. It helps the body to adapt to new or stressful situation.

Main features:

- 1) Supports the Brain.
- 2) Promotes liver health.
- 3) Encourage normal blood pressure.
- 4) Strong antioxidant activity.

ICTAM:OP:113:- QUORUM SENSING

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Bacteria communicate with one another with chemical signalling molecules. As in higher organisms, information supplied by these molecules is critical for synchronising the activities of large group of cells. In bacteria chemical communication involves producing, detecting and responding to small hormone like molecules termed autoinducers. This process termed quorum sensing, allows bacteria to monitor the environment for other bacteria and to alter behaviour on a population wide scale on response to changes in the number and/species present in a community. Gram-positive and Gram-negative bacteria use quorum sensing communication circuits to regulate a diverse array of physiological activities. These processes include symbiosis, virulence, competence, conjugation, antibiotic production, motility, sporulation, and biofilm formation. This review focuses on the mechanism; how chemical information is integrated, processed and transduced to control gene expression; intriguing possibility of prokaryote-eukaryote cross-communication; and quorum sensing system analysis in plant growth promoters.

Keywords: Quorum sensing, autoinducers, plant growth promoters

**ICTAM:OP:114:-COMPARATIVE STUDY OF THE
ANTIBACTERIAL ACTIVITY OF *KAEMPFERIA GALANGA* AND
*ZINGIBER OFFICINALE***

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Herbal medicines are gaining priorities in treating various health ailment in humans. Zingiberaceae family member show active principle in health treatments. This study was conducted for the comparative evaluation of antibacterial activity of *Kaempferia galangal* and *Zingiber officinale* rhizome juices, both are belongs to the *Zingiberaceae* family. The antibacterial activity was determined by using disc diffusion method against *E.coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* and *Bacillus subtilis*. The rhizome juice of *K.galanga* show significant zone of inhibition against *B.subtilis*, *S.aureus* and *P.aeruginosa* and no zone of

inhibition against *E.coli*. The rhizome juice of *Z.officinale* shown activity against *Paeroginosa* and no zone of inhibition was shown against the other three strains. Therefore in this comparative study, *Kaempferia galanga* was found to be more effective than *Zingiber officinale* against the test strains .Thus *Kaempferia galanga* can be used in drug preparations,against bacterial infections.

Keywords: Antibacterial activity, Bacillus subtilis, Escherichia coli, Kaempferia galanga, Pseudomonas aeruginosa, Staphylococcus aureus, Zingiber officinale.

ABSTRACTS OF POSTER PRESENTATIONS

**ICTAM: P: 1:- KMICROWAVE ASSISTED EXTRACTION AND
BIOLOGICAL ACTIVITY STUDIES OF MACARANGA
PELTATA M.ARG**

**Aida Maria Mathew, Hafeesa A, Nishamol T.T, Preethy Poullose, Punya Kurian, Bobby S Prasad, Jyoti Harindran.*

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Herbals are seen as potential medicine for variety of disease often supercede the pharmacological efficacy of allopathic drugs. An individual plant may consist of several active phytoconstituents existing in abundance along with certain constituents of low activity profile. Thus, there arises a need for the development of extraction and analysis techniques with high performance. The studies were performed on the leaves of *Macaranga peltata* belonging to the family *Euphorbiaceae*. Collected leaves were shade dried, powdered and extracted with water using Microwave Assisted Extraction (MAE) method in which the whole procedure was less time consuming, decreased solvent consumption and high performance than other conventional methods. Preliminary phytochemical studies revealed the presence of carbohydrates, glycosides, tannins, flavones and flavanones. *In-vitro* anti-inflammatory activity study was carried out using human blood cell stabilization method (HRBC). The membrane protection activity of extract (23.99%) was found to be comparable with standard diclofenac sodium (23.69%). Anti-oxidant activity studies were carried out using O-phenanthroline method. The percentage inhibition obtained in different concentration of sample extract (IC_{50} -23 μ g/ml) were compared to standard ascorbic acid (IC_{50} -13.5 μ g/ml). A significant anti-oxidant & anti-inflammatory activity were found when compared to standards.

ICTAM: P:2:- MIMOSA (Touch me not)

Jins Niclavous

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Mimosa belongs to the taxonomic group Magnoliopsida and family Mimosaceae. In Latin it is called as *Mimosa pudica* Linn. *Mimosa pudica* grows most effectively in nutrient poor soil that allows for substantial

water drainage. It is used in the treatment of leprosy, dysentery, vaginal and uterine complaints, and inflammations, burning sensation, asthma, leucoderma and fatigue and blood diseases. Decoction of root is used as gargle to reduce toothache. It is very useful in diarrhoea, amoebic dysentery bleeding piles and urinary infections. Due to *Mimosa's* unique response to touch, it became an ideal plant for many experiments regarding plant habituation and memory.

ICTAM: P: 3:- THE MULTITALENTED ELEPHANTOPUS SCABER HERB

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Elephantopus scaber is a versatile medicinal plant. It is popularly known as Elephants Foot (Annaccuvati-Malayalam). It belongs to Asteraceae plant family. Elephants Foot commonly occurs in India, Mexico, America and some other countries. The whole plant part has many medicinal uses. The plant is mucilaginous, astringent and tonic. This is a powerful anticancer, antidiarrheal, antidote, anti-inflammatory, antioxidant, antipyretic, antitumor, antibacterial and blood purifier cardio tonic. Elephantopus scaber has wide traditional and pharmacological uses in various disease conditions.

It is a good herbal treatment for respiratory ailments like Bronchitis, cough and Asthma. The root mixture is used to treat liver disorders like Jaundice, Biliousness (high bile secretions) and blood impurity. A paste made from the plant is used to treat diseases like Gall bladder stone pain in the abdomen etc. It is favorable for women, the pill made from this plant is used to treat Heavy menstrual bleeding. A mixture or blend of its root or leaves is used to treat venereal disease (sexually transmitted diseases). The plant is very good for brain tonic. It is also used for the alignment of cardiac disorder. The plant mixture is used to treat Hemorrhoids (piles). A blend of its root is used to treat Leucorrhoea and Anemia. Its constituent sesquiterpene lactone is used to treat Cancer. It is an effective herbal remedy for the ailments like intermittent fever, diarrhea and cold. The paste prepared from elephantopus scaber leaves is used to combat stomach pain. Its fresh roots are used to prepare a blend which is best for combating vomiting. A warm infusion or mixture of its leaves is beneficial for weight loss. A plant decoction

tion is used to increase urination. The paste made of its leaves is applied over ulcer. The plant is also used for Hair fall and skin disease.

ICTAM: P: 4:- PROXIMATE ANALYSIS OF FRUIT AND LEAF OF DIFFERENT VARIETIES OF PEPPER NIGRUM IN KERALA

¹ *Deepthi Jame's*, ² *Dr. Prem Jose V*, ³ *Dr. Hemand Aravind*,
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Black pepper (*piper nigrum*) the flowering wine belongs to the family *piperaceae*, cultivated for its fruit, which is usually dried and used as spice and seasoning. The black pepper high variability was also noticed for yield contributing characters like runner shoot production, holding capacity, adventitious root production, lateral branch habit, fruit set, dry weight, Pharmacological, toxicological, clinical applications. General uses of pepper are bioavailability enhancement, carminative, anti-cancer, natural antioxidant, black pepper as an anti-inflammatory drug, cholesterol lowering and immune enhancer, anti-pyretic, anti-periodic and rubefacient. Black pepper improves digestion and promotes intestinal health, preservation of the flavor content. Four different pepper varieties in Kerala were selected based on a baseline survey. The proximate composition include estimation of dry matter and moisture content, estimation of crude protein, estimation of crude fiber, estimation of crude ash and insoluble ash, ether extract, determination of dietary fiber, gross energy, analysis of component of different varieties of piper nigram were determined. The sample munthirimunda fruit has high moisture content. The sample chenganoor leaf has high dry matter content. The sample chenganoor leaf has high crude protein content. The sample pannioor leaf has high crude fiber content. Ether extract is high in sample chenganoor leaf. The sample munthirimunda leaf has high comparatively high Total Ash content. Gross Energy is high in sample pannioor fruit. A wide gap in the nutritional properties of *Piper nigrum*.

Key words: piper nigrum, Black pepper, munthirimunda, chenganoor, pannioor

ICTAM: P: 5:- HERBAL MEDICINE FOR OLIGOHYDRAMNIO-SIS IN SIDDHA SYSTEM.

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The traditional dravidian system of medicine referred to popularly as siddha system. Herbs play a vital role in the siddha system. Herbs are easily available and are ready to dissolve in the body. Herbs give safe and faster recovery. Perunjchirakam (Pimpinella anisum) is one of the herbs found all over India and Europe. Perunjchirakam, which is carminative and stomachic and used to cure cough, fever, stomach pain, flatulence and indigestion, are stated in ancient manuscripts. This study is further to explain the action of perunjchirakam, the nearer for oligohydramniosis under clinical study.

ICTAM: P: 6:- ALOE VERA

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Aloe vera is a natural product that is now a day frequently used in the field of cosmetology. Though there are various indications for its use, controlled trials are needed to determine its real efficacy. The aloe vera plant, its properties, mechanism of action and clinical uses are briefly reviewed in this abstract.

Aloe Vera plant has been known and used for centuries for its health, beauty, medicinal and skin care properties. The Egyptians called Aloe "the plant of immortality." Today, the Aloe Vera plant has been used for various purposes in dermatology. The botanical name of Aloe Vera is *Aloe barbadensis miller*. It belongs to Asphodelaceae (Liliaceae) family, and is a shrubby or arborescent, perennial, xerophytic, succulent, pea-green color plant. It grows mainly in the dry regions of Africa, Asia, Europe and America. In India, it is found in Rajasthan, Andhra Pradesh, Gujarat, Maharashtra and Tamil Nadu.

Aloe Vera was historically used to heal wounds and treat various skin conditions; Aloe was also taken orally as a laxative. Nowadays, aloe extract is still popularly used as a home remedy for skin problems such as

psoriasis, burns, sunburns, insect bites and others. Aloe Vera can be found in many skin products such as lotions, gels and sun blocks. Other folkloric uses include treatment of arthritis, asthma, diabetes, epilepsy and osteoarthritis.

Keywords: *Aloe vera, health and beauty, skin*

**ICTAM: P: 7:- PHYTOCHEMICAL SCREENING AND GC-MS
ANALYSIS OF THE ESSENTIAL OIL FROM
CITRUS GRANDIS (LINN.) OSBECK PEEL**

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Plants have been used as traditional medicine for several thousands of years. Herbal medicine is still widely used for about 70-80% of the World's population as they are easily available for health care purpose. *Citrus grandis* (Linn.) osbeck is a bushy tree which is distributed throughout India. The fruit is traditionally considered to be nutritive and refrigerant. The present study aims at the phytochemical screening and GC-MS analysis of essential oil from the peel of *Citrus grandis* also known as pomelo. The essential oil was extracted from the fruit peel by hydro distillation. Preliminary phytochemical Screening on the various fractions showed the presence tannins, phenolics, flavanoids, carbohydrates, terpenoids, steroids, saponins. The phenolics and flavanoids content were estimated by folin.cio-calteu method and aluminium chloride colorimetric method respectively. The phenolics content was found to be 17.87mg equivalent of gallic acid per 100g and the flavanoids content was found to be 5.8 mg equivalent of rutin per 100g. GC-MS analysis of essential oil was carried out and various chemical constituents were identified. The spectrum of the unknown compound was compared with the spectrum of known components stored in NIST library

ICTAM: P: 8:- PHARMACOGNOSTIC AND PHYTOCHEMICAL STUDIES OF BIOPHYTUM SENSITIVUM.

Gopika Jayan

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The present study deals with the pharmacognostic and phytochemical studies of *Biophytum sensitivum* (L.)DC., an important medicinal plant belonging to the family Oxalidaceae. *Biophytum sensitivum*, one of the auspicious herb in 'Dasapushpam', is significant for the people of Kerala, both for its medicinal and cultural values.

Preliminary pharmacognostic studies were done on macroscopic and microscopic characters of stem, leaf, root and inflorescence. Qualitative phytochemical analysis were also done on methanolic plant extract to find out the presence or absence of bioactive components. The wedge shaped xylem vessels in stem and Calcium oxalate crystals in different plant parts, especially in leaves, were characteristic to the plant will help in the proper identification of the species. The phytochemical analysis showed the presence of active components such as alkaloids, tannin, terpenoids and saponins.

ICTAM: P: 9:- NEEM

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Neem (*Azadirachta indica*) commonly called 'Indian Lilac' or 'Margosa', belongs to the family Meliaceae, subfamily Meloideae and tribe Melieae. The neem tree (*Azadirachta indica*) is a tropical evergreen tree native to India and is also found in other southeast countries. In India, neem is known as "the village pharmacy" because of its healing versatility. It has been used in Ayurvedic medicine for more than 4,000 years due to its medicinal properties. Neem is also called '*arista*' in Sanskrit- a word that means 'perfect, complete and imperishable'. The seeds bark and leaves contain compounds with proven antiseptic, antiviral, antipyretic, anti-inflammatory, anti-ulcer and antifungal uses. The various parts of this tree have many uses that aptly give neem its name in Sanskrit- "*sarva roga nivarini*", meaning 'the curer of all ailments'.

Products made from neem trees have been used in India for over two millennia for their medicinal properties. Neem products are believed by Siddha and Ayurvedic practitioners to be Anthelmintic, antifungal, antidiabetic, antibacterial, antiviral, contraceptive, and sedative. It is considered a major component in siddha medicine and Ayurvedic and Unani medicine and is particularly prescribed for skin diseases. Neem oil is also used for healthy hair, to improve liver function, detoxify the blood, and balance blood sugar levels. Neem leaves have also been used to treat skin diseases like eczema, psoriasis, etc. Neem leaves are dried in India and placed in cupboards to prevent insects eating the clothes, and also in tins where rice is stored. Neem leaves are dried and burnt in the tropical regions to keep away mosquitoes.

ICTAM: P: 10:- EFFECTIVENESS OF HOMEOPATHIC MEDICINE FOR THE MANAGEMENT OF DENGUE FEVER

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Homoeopathy is gaining popularity.It is accepted in many countries all over the world.It is successfully practicing in Kerala. It is very useful in the management of acute as well as chronic diseases. Public is almost unaware of the hidden potential of Homeopathic medicines for the treatment of Dengue fever. Homeopathic medicines are very useful for managing Dengue fever. The current study has been done to find out the effectiveness of Homeopathic medicines for the management of Dengue fever. Individualized Homoeopathic Medicines were very useful in the management of dengue Fever.

Keywords: Homoeopathy; Acute Disease; Homoeopathic Medicines; Small N Design; Non-parametric Tests. .

ICTAM: P: 11:- CHARACTERIZATION OF INVERTASE FROM SACCHAROMYCES CEREVISIAE OBTAINED FROM LOCAL MARKET

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Enzymatic activity and stability of invertase obtained from locally purchased from common market *Saccharomyces cerevisiae* were characterized for optimal pH and temperature. The pH stability of this enzyme was observed between pH 4 to pH 10. The crude enzyme showed optimum activity at pH 6 and 35°C. Km and Vmax were observed under concentrations ranging between 1.47 milli Mol to 24.83 milli Mole of sucrose as substrate and Km and Vmax are 11.36mmol and 58.54milli Mol/Min.

ICTAM: P:12:- NEERA

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Neera also known as palm nectar, is a sweet oyster white, translucent, and highly nutritious extract collected by slicing the spathes of coconut and palm trees. It is a sugar containing, non-alcoholic drink and a rich natural source of minerals, vitamins and amino acids.

A recent study conducted by Biochemistry Department of St. Thomas College Pala and Indian Institute of Science, Bangalore shows that neera can help cure liver diseases following consumption of alcohol. Neera has the ability to get rid of acetaldehyde, which is the toxic metabolic product of alcohol that causes liver damage. Neera has a low glycemic index and is therefore considered a safe and healthy drink for people suffering from diabetes. Unlike many traditional sweetening agents, the products made from Neera is capable of providing the same sweetness without causing spikes in blood sugar levels.

Studies indicate that coconut neera is effective in managing hypertension and associated complications without causing any side effects. It

regulates the body's fluid balance and controls body temperature. Neera has applications for various health conditions including asthma, anemia, bronchial suffocation, tuberculosis, kidney stones, urinary problems, high cholesterol levels in the blood, piles, cardiovascular diseases, obesity, various types of cancers including breast, colon, pancreas and prostate cancers and shows anti-aging properties.

ICTAM: P:13:- PHYTOCHEMICAL SCREENING AND IN VITRO CYTOTOXIC ACTIVITY OF AQUEOUS AND ETHANOLIC SEED EXTRACTS OF NIGELLA SATIVA LINN.

***Anandu Sathesh, Shakkeela Yusuf, Anjana Sunil, Lakshmi Radhakrishnan, Nayana P N, Jyoti Harindran**

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Plants are invaluable sources of new drugs. The Indian traditional system of medicine namely Ayurveda and Siddha are primarily plant based system. *Nigella sativa* Linn. Family ranunculaceae is a small elegant annual herb distributed and cultivated all over India. In Islam, it is regarded as one of the greatest form of healing medicine available. The Islamic prophet Muhammad once stated that 'black seed can heal every disease except death'. In the present study ethanol and aqueous seed extracts *Nigella sativa* Linn. was evaluated for its phytochemical screening and *in vitro* cytotoxic study. Phytochemical screening showed the presence of phenolics, carbohydrates, saponins, alkaloids, steroids, flavanoids etc. *in vitro* cytotoxic study was carried out by MTT assay, using human neuroblastoma cell line (SH-SY5Y). The ethanolic extract showed higher activity with lower IC₅₀ value of 60.46 µg/ml compare with the aqueous extract. The study supports the good cytotoxic effect of ethanolic extract, which may contain some active constituent responsible for the anti-proliferative activity in brain cell.

ICTAM: P:14:- EVALUATION ON THE EFFECT OF GREEN TEA ON ESCHERICHIA COLI ISOLATED FROM URINARY TRACT INFECTIONS

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Urinary Tract Infections (UTIs) are most common type of infection worldwide and costs billions of dollars in medical care. Escherichia coli is the infective agent for 80-90% of all UTIs. Green tea, derived from the leaves of the Camellia sinensis plant have various potential health benefits. The major beneficial components of green tea have been characterized and are known to be polyphenolic catechins. The main catechins in green tea are (-)-epicatechin-3-gallate (ECG), (-)-epigallocatechin (EGC), (-)-epicatechin (EC) and (-)-epigallocatechin-3-gallate (EGCG). EGCG and EGC have shown to be excreted in urine. E. coli was isolated from urine samples of people diagnosed with UTIs. These isolates were tested at different concentration green tea aqueous extract using agar well diffusion method. The isolates were found to be susceptible to ≥ 100 mg/ml of green tea. Intake of minimum of 150 mg of EGC per cup of green tea could have curing effect on UTIs.

ICTAM: P:15:- THIPPILI- AYURVEDIC MEDICINE

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Long pepper, sometimes proudly called as Indian Long Pepper, is a flowering, fruit-bearing plant that is used for its medicinal properties. Long Pepper is commonly known as Arisi Thippili or Thippili in Tamil, Pippali in Hindi and has the scientific name, Piper longum. Thippili plant or Pippali plant is related to the commonly used black and white pepper family, Piper nigrum. Evidence of Thippili or Pippali being used in Ayurveda centuries back is available in scriptures.

Thippili has long been used in Siddha and Ayurveda medicine to cure several diseases. Fruit of Thippili is used for diseases of the respiratory tract (cough, bronchitis, asthma); as sedative (in insomnia and epilepsy);

as cholagogue (in obstruction of bile duct and bladder), as emmenagogue, as digestive, appetizer and carminative (in indigestion); as general tonic and haematinic (in anaemia, chronic fevers and for improving intellect). It is applied locally on muscular pains and inflammations. Long pepper along with salt can alleviate toothaches. Thippili augments the thyroid hormone levels in blood and ensures bioavailability of nutritional compounds. Long pepper has useful antibiotic and antiseptic properties. Thippili along with salt can alleviate toothaches. Thippili augments the thyroid hormone levels in blood and ensures bioavailability of nutritional compounds. Long pepper has useful antibiotic and antiseptic properties.

ICTAM: P:16:- ANTIMICROBIAL ACTIVITY OF SELECTED MEDICINAL PLANTS IN KANCHIPURAM Dt. AGAINST COLD

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In this present study various extracts of acetone, ethanol and chloroform of medicinal plant *Achyranthes aspera*, *Leucas aspera*, *Acalypha indica*, *Erythrina indica*, *Mukia scabrella* was evaluated for their antimicrobial activity against certain organisms such as *Pseudomonas*, *Micrococcus*, *Staphylococcus*, *Bacillus subtilis*, *E.coli*, *Proteus vulgaris*, *Candida albicans* and *Candia tropicalis*. The plant leaf extract at a concentration of 5 mg/ml and their activities were measured by estimating zones of inhibition as produced by antibiotic sensitivity method on nutrient agar. The corresponding inhibitory zone was measured in (Table 1 and 2) The results of this research support the use for further analysis in the treatment of infectious diseases such as cold an infection caused by bacteria and fungi has significant scope for antimicrobial research.

Key words: Acetone, Ethanol, and chloroform, Antimicrobial activity, disease

ICTAM: P:17:- ASHAWAGANDHA

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Withania somnifera (Ashawagandha) is very revered herb of the Indian Ayurvedic system of medicine as a Rasayana (tonic). It is used for various kinds of disease processes and specially as a nervine tonic. Considering these facts many scientific studies were carried out and its adaptogenic / anti-stress activities were studied in detail. In experimental models it increases the stamina of rats during swimming endurance test and prevented adrenal gland changes of ascorbic acid and cortisol content produce by swimming stress. Pretreatment with *Withania somnifera* (WS) showed significance protection against stress induced gastric ulcers. WS have anti-tumor effect on Chinese Hamster Ovary (CHO) cell carcinoma. It was also found effective against urethane induced lung-adenoma in mice. In some cases of uterine fibroids, dermatosarcoma, long term treatment with WS controlled the condition. It has a Cognition Promoting Effect and was useful in children with memory deficit and in old age people loss of memory. It was also found useful in neurodegenerative diseases such as Parkinson's, Huntington's and Alzheimer's diseases. It has GABA mimetic effect and was shown to promote formation of dendrites. It has anxiolytic effect and improves energy levels and mitochondrial health. It is an anti-inflammatory and anti-arthritis agent and was found useful in clinical cases of Rheumatoid and Osteoarthritis. Large scale studies are needed to prove its clinical efficacy in stress related disorders, neuronal disorders and cancers.

ICTAM: P:18:- MANGO TREE

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Mangoes are juicy stone fruit(drupe) from numerous species of tropical trees belonging to the Angiosperms(Flowering plant)genusi.e. *Mangifera*, .The genus belong to the cashew family Anacardiaceae. Mangoes are native to South Asia,from where the common mango or Indian mango,*Mangifera indica*,has been distributed worldwide to become one of the most widely cultivated fruits in the tropics. Other mangifera

species(e.g.horse mango,*Mangifera foetida*)are also grown on a more localized basis.

Dried Mango flowers containing 15% tannin,serve as astringents in case of diarrhoea,chronic dysentery,catarrh of the bladder.The resinous gum from the trunk is applied on cracks in the skin of the feet and on scabies,and is believed helpful in case of syphilis.Seed fat of mango Having high stearic acid content,the fat is desirable for soap making.The seed residue after fat extraction is usable for cattle feed and oil enrichment.The bark possesses 16% to 20% tannin and has been employed for tanning hides.It yields a yellow dye,or,with turmeric and lime,a bright rosepink.The component of mango tree act on diseases like Mental Weakness,Dysentery,Gall and Kidney stones,Diabetes, Fire Burns,Dry Cough.

**ICTAM: P:19:- ANTIOXIDENT, ANTIMICROBIAL AND
CYTOTOXICITY PROPERTIES OF SILVER NANOPARTICLES
SYNTHESISED BY NARINGI CRENULATA**

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In recent science Nanotechnology is a emerging field for the researchers. Nanotechnology deals with the Nanoparticles having a size of 1-100 nm in one dimension used significantly concerning medical chemistry, atomic physics, and all other known fields. Nanoparticles are used immensely due to its small size, orientation, physical properties, which are reportedly shown to change the performance of any other material which is in contact with these tiny particles. These particles can be prepared easily by different chemical, physical, and biological approaches. But the biological approach is the most emerging approach of preparation, because, this method is easier than the other methods, ecofriendly and less time consuming. The Green synthesis was done by using the aqueous solution of *Naringi crenulata* leaf extract. The silver nanoparticles formation was observed by colour change and further confirmed with the help of UV-vis Spectroscopy. And size range of silver nanoparticles formed are in between 10-30nm. The silver nanoparticles has shown considerable antibacterial activity against *E coli* and *Klebsiella sp.* Anti oxidant propertie and Anticancer property were also shown by these synthesized nanoparticles. Silver Nanoparticles are relevant in the field of bio medical nanotechnology and nanomedicine.

**ICTAM: P:20:- 1 WEEK RESIDENTIAL INTEGRATED YOGA
BASED ON LIFESTYLE DISEASE DIABETES MELLITUS
TYPE II**

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Diabetes mellitus Type II and Hypertension are the two most major lifestyle disease affecting the people all over the world. Now there are about 422 million adults are suffering from Diabetes mellitus type II all over the world and in this INDIA is the most leading country due to the low socio-economic status, poor sanitation, sedentary lifestyle, obesity, Diet etc... By 2030 according to WHO there will be double the actual rate. This, can be fortunately reduced by improving the lifestyle, reducing obesity, diet, and start following exercises and physical activities like yoga. Nowadays according to the research papers it is considered that yoga may reduce the risk factors and aid in a patient's psychological healing power.

This is the study based on the effects of 1 week residential integrated yoga therapy in patients suffering from type 2 Diabetes mellitus. The study had 15 patients out of which there were 10 males and 5 females of Age range (54.86±8.56) and results showed that there was considerable reduction in their FBS from (157.2±57.2 to 119.75±22.8), PPBS from (218.73±81.8 to 169.5±30.3), weight from (75.98±10.56 to 74.05±9.97), Systolic BP from (130.9±15.11 to 118.67±12.45), Diastolic BP from (81.06±10.1 to 73.3±6.17), BMI from (29.04±3.72 to 28.3±3.60) and there was considerable reduction in their insulin injection from (18±24.05 to 9.73±15) and reduction in their symptom score from (2.8±1.93 to 0.4±0.82).

This concludes that there is considerable reduction in their fasting blood glucose levels, post prandial blood glucose levels, blood pressure, weight after the 1 week residential integrated yoga therapy along with their reduction in their medication score.

ICTAM: P:21:- BRAHMI*Arun Raj**Department of Botany(Complimentary Biochemistry)
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Brahmi is a creeping herb, generally found in muddy wetlands, enriched with many bio-chemical compounds such as Brahmine, Herpestine, flavonoids, saponins, sterols, alkaloids, Betulic acid, stimastorol, betasitosterol, bacoside, and bacopasaponins. This Ayurvedic medicine is used as aphrodisiac, memory booster, boosting health and tonic for many ailments. Bacopa is an edible plant, has small oval leaves, which are succulent. Its fruits are oval and sharp at the apex.

This Indian Ayurvedic herb is known for multiple health and medicinal benefits..Brahmi for hair loss: Applying this oil on the scalp is good to strengthening the hair follicles and invigorating hair growth. The presence of antioxidants in the Ayurvedic herb help to dispel toxins from the body, especially from the epithelium layer thus improves skin complexion and stimulates skin cell regeneration. Brahmi is used in treating of psoriasis, eczema, abscess and ulceration Treatsinsomnia: Massaging the scalp with Brahmi oil helps to overcome sleep disorder. It is helpful with hyperactive children too. Deals with mental problems: Brahmi oil has refreshing effects on mind, used as mental tonic that helps in focused concentration, increasing memory power, mental alertness, amnesia and Alzheimer's. Brahmi treats Alzheimer's.

ICTAM: P:22:- ESTIMATION OF TOTAL PHENOLICS AND FLAVANOIDS, AND INVITRO ANTIOXIDANT ACTIVITY OF BARLERIA PRIONITISL.(ACANTHACEAE)*Jayakishnan C, Athulya M.P. Roshan K V Remesh,
Saradha M, Paul Samy s**Dept.Of Biotechnology, Sree Narayana Arts And Science college
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The present study was carried out to estimate the content of total phenolics and flavanoids and display the potential in vitro antioxidant activity of methanolic leaf extract of *Barleria prionitis* to know the presence of novel anti oxidants which can be used for pharmaceutical

formulations in future. Anti oxidant activity for methanolic leaf extract of this species was determined in vitro using DPPH, Metal chelating ,ABTS and reducing power assays. Results of the study revealed that *B.Prionitis* exhibited the presence of alkaloids, flavanoids, glycosids, steroids, phenols and tannins. The leaf extract of this species was found to consists of high content of phenolics(7.03GAEmicrogamme/100mg) and flavanoids(2.94QE µg/100mg)in terms of gallic acid and quercetin equivalent respectively. It was determined tht IC50 value of leaf extract of studied species for DPPH radical scavenging activity and metal chelating activity was 188.92µg/ml and 196.8µg/ml respectively. Total antioxidant capacity determined by ABTS was 3199.5µmol TE/g extract. Therefore, methanolic leaf extract of *B.prionitis* can be considered as a new potential souse of natural anti oxidants.

ICTAM: P:23:- THERAPEUTIC EFFICACY OF JACK FRUIT

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Jackfruit (*Atrocarpus heterophyllus*) belongs to family Moraceae and is widely consumed as a fresh fruit. It grows abundantly in India and many parts of the South East Asia. The use of jackfruit bulb and its part have been reported for their therapeutic qualities. It contain high level of protein, starch, calcium and thymine. In addition to the ripe fruit jackfruit seed is widely consumed. It could be considered as a functional fruit because it has valuable components in different parts of the fruit that display functional and medicinal effect. The rich bioactive profile of jackfruit makes it highly nutritious and desirable fruit crop. The health benefits of jackfruit includes strengthening of immune system, protection against cancer, healthy digestion, bone strengthening and lowering of high blood pressure. It also act as an energy booster. Jackfruit lectin has antiviral properties and found to have inhibitory activity in vitro with a cytopathic effect towards Herpes symplex virus, Varicellazoster, Cytomegalovirus.

ICTAM: P:24:- SCOPARIADULCIS- A PERMANENT SOLUTION FOR KIDNEY DISEASES

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Scopariadulcis is a traditional Ayurvedic plant belonging to the family Plantaginaceae. It is commonly known as *Asmagani*, *Mithi Patti*, *Kallurukki*. Although this plant is considered as a weed, it has been mentioned in many ancient Indian literature including *Charaka Samhita* and *AstangaHridayam*.

One of the most important organs in our body is our kidney. Kidneys are very important because they regulate water, remove waste products and help to balance body's minerals, produce hormones. But nowadays increase in number diseases leads to consuming large amount of generic medicines. Regular usage of any medicine causes kidney damages which leads to many chronic kidney diseases. So abnormalities in kidney function directly affects our health.

Scopariadulcis is a natural remedy for kidney related diseases and kidney stones. This plant contain Scoparic acid, Scopadulic acid, scopadulciol and Scopadulin. The whole plant can be used for medicinal purposes. This plant can be used for treating analgesics, diuretic and anti-inflammatory, to control pita and kapha, fever, wound, skin diseases.

ICTAM: P:25:- STUDY OF THE UTILITY OF BANANA PEEL WASTES AS SUBSTRATE FOR PECTINASE PRODUCTION USING BACILLUS SUBTILIS

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Pectin is a structural heteropolysaccharide contained in the primary cell walls of terrestrial plants. It consists of long galacturonic acid chain residues of carboxyl groups and varying degrees of methyl esters the jelly-like matrix which helps to cement plant cells together and in which other cell wall components, such as cellulose fibrils, are embedded. Nowadays agricultural, fruit processing industrial wastes are major factor to concern.

Pectinase an enzyme that can degrade pectins. These enzymes are commonly used in processes involving the degradation of plant materials, such as speeding up the extraction of fruit juice from fruit, including apples and sapota, in wine production etc.

Different varieties of banana such as Nntran, PlayamkOdan,, Padathi and Robusta were chosen and biochemical parameters like carbohydrates, pectin content and total proteins were observed spectrophotometrically. Submerged fermentations of Bacillus Subtilis with all four banana peel wastes shown significant pectinase production and a maximum activity of 1.42×10^{-1} IU /ml was observed for Nentran substrates.

The enzyme kinetics of Bacillus Subtilis pectinase was studied in detail which yielded a n optimum pH of 6 and temperature of 50°C .Fermentation studies shows optimum enzyme production in submerged state while we compared to solid state fermentation .These study confirms the utility of Nenthran Banana peel wastes as a significant substrate for Pectinase production under submerged fementation using Bacillus Subtilis

ICTAM: P:26:- APPROCH ON SIDDHA METHODOLOGY OF SKIN DISEASE

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Traditional system of medicine follows the way of nature and maintenance of healthy life. Andathil(space)Ullathae Pindam(body), Pindathil Ullathey Andam.Panchabootham is the core concept of both Andam and Pindam.Physiological and Pathological stages of pindam are only provoked through Uyirhadhukal by means of Naadi Parishodhana method.Fusion of Panchabootham is the reason for the birth of Arusuvaigal(6 tastes).Changes in the pindam are due to the changes in the Panchabootham. The way of treating diseases through suvaigal is Important in Siddha System. Skin disease is one of the important disease which is more prevalent which emerges in all seasons.It plays a vital role in every stage of life.This study establishes , Theriyar's concept of skin diseases under "Theriyar Pinigaluku mudhal kaaranam" and its treatment by Tamil traditional method.

Keywords : Panchabootham, Uyirathathukal, Naadi Parishodhana, Arusuvaigal, Pinigaluku mudhal kaaranam, Skin disease.

ICTAM: P:27:- PULIYARAL***Mobin K George****Department of botany (complementary bio chemistry)
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Puliyaral helps in indigestion and diarrhoea in children, by boiling the leave juice in butter milk and drink.Helps in Chronic dysentery, by consuming the juice of the leaves mixed with honey.Useful in treating jaundice, by taking buttermilk mixed with 2 tsp. of the juice of this herb, twice a day.Useful in treating wrinkles and warts by applying the paste of Puliyarila juice mixed with sandal powder.Useful in treating gum problems by gargling the juice mixed with alum.Helpful in treating bleeding piles by taking its juice twice a day, and also for prolapse rectum. For headache, applying the paste of this leaves relieves the pain.Helpful in treating overbleeding in women by consuming the juice mixed with honey. Helps in healing insomnia and induces sleep, by taking the juice of the leaves mixed with castor oil.The leaves of puliyarila are good source of Calcium, vitamin C, and carotene.

ICTAM: P:28:- ANTIBIOTIC EFFECTS OF PLANT EXTRACTS ON ESCHERICHIA COLI****Maria George, **Dr.Simimol Sebastian*****Dept. Of Zoology, SB College ,Changanacherry, **Dept of Zoology,
Alphonsa college,Pala*

The present study was carried out to find out the antibacterial activities of twelve locally available medicinal plants –Allium sativum (garlic), Azadirachta indica (neem), Biophytumsensitivum (mukkutti in malayalam), Citrus limon(lemon) ,Curcuma longa(turmeric), Glycosmismauritiana (panal in malayalam), Mimosa pudica(touch-me-not plant), Murrayakoenigii(curryleaf plant), Ocimum sanctum(tulsi), Piper nigrum(pepper) , Psodiumguajava (guava) and Zingiberofficinale (ginger) against the gram negative bacterium *Escherichiacoli*. The microbiological technique used was agar disc diffusion method. It was found that Allium sativum has maximum activity against Escherichia coli with a zone of inhibition of 15 mm. However, Azadirachta indica, Curcuma longa and Mimosa pudica showed no activity against Escherichia coli. Further studies are needed to be conducted on the therapeutic effects of these plants and to isolate the compounds present in them.

**ICTAM: P:29:- EFFECT OF MUCUNAPRURIENS
ON MALE INFERTILITY**

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Infertility and low libido are the common symptoms associated with male dysfunction. The Male Infertility may be due to an inadequate number of spermatozoa in the semen, the failure of the spermatozoa to move with sufficient vigor towards their goal or that they are deficient in other respects. Chances for reproduction becomes minute when the quality and the quantity of sperm is relatively low. If sperm isn't mobile, it can't get to where it needs to be in order for reproduction to take place.

Mucunapruriens is a potent herb for promoting male sexual health. This tropical plant acts as an aphrodisiac, supports fertility and sperm quality and may encourage a healthy sexual response. As an added bonus, this plant also has the potency in stress reduction.

**ICTAM: P:30:- EDICINAL PROPERTIES OF ALLIUM
SALIVATUM**

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Garlic (scientific name *Allium sativum*) is a species in the onion genus, *Allium*. *Allium sativum* is a bulbous plant. The bulb is covered with membranous skin and encloses up to 20 edible bulblets called cloves. *Hypoglycemic and Related antidiabetic effect of garlic*:The blood sugar lowering action of Garlic is ascribed to allicin and their precursor which inactivate thiol enzymes and spare insulin from inactivation and they may enhance insulin secretion. Antimicrobial activity: Fresh Garlic juice is moderately bactericidal because of the action of allicin type compound. The reaction between allicins/disulfides present in the Garlic juice and thiols inhibit the growth of bacteria. Antioxidant action:Garlic sulfur compounds, flavonoids, and tannins have antioxidant activities. The use of 2-3 cloves of garlic daily can do the job of scavenging a lot of free radicals in the body and save it from cancer, ageing, cataract and CHD. Effects on blood Fibrinolysis:Garlic feeding prevents the rise of plasma fibrinogen and

the fall in clotting time and fibrinolysis. Lipid lowering effects in serum and tissues: Mechanism of action.

ICTAM: P:31:- A REVIEW ON CAUSES OF AGEING AND ROLE OF SIDDHA'S KAYA KALPHAM

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Ageing can be defined as a progressive accumulation through life of random molecular defects that build up within tissues and cells. Once maturity is reached, it causes diminished body functions and structures. Many theories have been put forth in the process of ageing of which cellular theories due to wear and tear mechanism, age pigments and free radical formations are challenging ones that can be resolved, thus delaying the ageing process. Modern medicine has moved to a greater extent on this accord which has led to various drastic efforts. Traditional medicine is the sum total of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness. Siddha medicine is one among them, a medicine of India which is purely scientific with complex philosophy. It manipulates the physical body and retains the soul with everlasting bliss. Siddha's unique *kayakalpham* described in Siddha literatures rejuvenates the body by enveloping the soul within it and making humans faster, most accurate and well sustained in midst of ageing. This paper deals with the various reviews on ageing and Siddha's *kayakalpham*, making everyone know a boon of humanity.

ICTAM: P:32:- ANTIHISTAMINE ACTIVITY OF SUDARSANA CHOORNAM

***Keerthi.V.R, **Dr.S.Thara Lakshmi, *** Premlal S**

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Prevalence of allergy has been dramatically increasing, Most of the Antihistaminic Drugs have serious, long standing side effects. Global community is looking forward for an alternative and natural medicine for the treatment of allergy with least side effects and maximum efficacy. Several unexploited, simple, cost effective, herbal formulations having promising positive effects for allergy are detailed in the nook and corners of Ayurveda. Scientific probing, Systemic validation and documentation of such formulations incorporating currently available sophisticated analytical techniques are the need of the hour. Sudarsana choornam is one among the most widely practiced Ayurvedic formulation for fever and respiratory allergies. Its antipyretic and antimicrobial effect was scientifically proved. Most of the ingredients have proven antihistaminic activity. In the present study antihistaminic effect of Sudarsana choornam on H1 receptors was evaluated. Sudarsana choornam was prepared as per the classical methods. In this experimental study, antihistaminic effect of the formulation was assessed using pheniramine maleate as the standard drug and guinea pig ileum as the study material. Histamine response was taken in isolated and stabilized guinea pig ileum. Then the histamine response were recorded in presence of pheniramine maleate and aqueous extract of Sudarsana choornam. Responses were compared. The results were statistically analyzed by One way ANOVA and LSD. The study reveals that Sudarsana choornam has no effect on H1 receptors

Key words: Antihistamine, Sudarsana choornam, Pheniramine maleate, Guinea pig.

**ICTAM: P:33:- MEDICINAL IMPORTANCE OF WILD ONION
(ALIU M VINEALE)**

Akhil Hashim

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This plant is high in Vitamins A and C. It is also quite rich in potassium, calcium, manganese, and selenium. This plant is most closely related to cultivated garlic, which has many medicinal properties. It is effective at lowering bad cholesterol (LDL), while not changing good cholesterol (HDL) levels. Garlic widens blood arteries and decreases sticking of platelets, therefore lowering blood pressure and risk for blood clots. It is an antibiotic, killing bacteria, fungi, and other microbes, and can be used for bacterial diseases or as a preventative method when you first feel a cold coming on. Besides the whole plant is antiasthmatic, blood purifier, cathartic and hypotensive stimulant. It is used to prevent worms and colic in children. And also the juice of this plant can be used to repel biting insects etc, Wild onion can be considered as one of the main medicinal plants available around us. Almost all parts of this plant has specific medicinal properties.

**ICTAM: P:34:- EVALUATION OF ANTI-OXIDANT AND
HYPOLIPIDEMIC EFFECT OF COCUS NUCIFERA SHELL
EXTRACT**

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Cocus nucifera or the coconut palm is the oldest know tropical tree. Many families rely on coconut as their source of income and livelihood. For many years coconut has been the source of food, water, oil, fuel, medicine, fiber and timber. Various parts of coconut have been used as a traditional medicine for treatment of variety of diseases. Several studies showed the potential effects of phenolic extracts in food and pharmaceutical industries. Phenolic compounds possess antioxidant and antimicrobial properties. For many years, different parts of coconut have been studied for its medicinal

effects but the coconut shell is not well studied yet. In this present study, polyphenol fractions are extracted from the coconut shell and checked the effect on hypolipidemia. An experimental set up to screen the therapeutic effect of coconut shell extract on high fat fed rat experimental model. Anti-inflammatory assays were performed to check the levels of superoxide dismutase, glutathione peroxidase, catalase, nitric oxide and thiobarbituric acid reactive substances. Also, a complete lipid profile was done. There were significant decrease in the oxidant level in the aorta, liver and heart tissues of the shell extract treated rat models as compared to the positive control. According to the lipid profile of the blood serum, total cholesterol, HDL cholesterol, LDL cholesterol and triglycerides level were also less in the shell extract treated group as compared to the positive control.

**ICTAM: P:35:- ANTIBACTERIAL ACTIVITY OF OCIMUM
SANCTUM AND AZADIRACHTA INDICA AGAINST SOME
PATHOLOGICAL ORGANISMS.**

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Many plants are known to show antibacterial, antifungal, antioxidant, antimutagenic, antiinflammatory and antipyretic properties. Common medicinal plants namely tulsi (*Ocimum sanctum*) and neem (*Azadirachta indica*) were taken for studying the effect of its methanol extract against infectious pathogens. A Gram positive bacteria (*Staphylococcus aureus*) and Gram negative bacteria (*Escherichia coli*) were taken as test organisms. Antibacterial activity was checked by well diffusion method. Wells were made in the agar plates using sterile cork borer and extract was added after spreading the culture on the plates. Observation after 24 hours of incubation showed zone of inhibition of different sizes. Hence it was concluded that the leaf extracts of both the plants showed anti-bacterial activity against both strains of bacteria.

ICTAM: P:36:- TARMARICUSINDICA:KEYTO CURE CANCER

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While lemon composes citric acid, tamarind is rich tartaric acid. Tartaric acid gives the sour taste to food besides its intrinsic activity as a potent antioxidant. (Antioxidant E-number is E334). It, thus, helps the human body protect from harmful free radicals. Tamarind fruit contains many volatile phytochemicals such as limonene, geraniol, safrole, cinnamic acid, methyl salicylate, pyrazine, and alkylthiazoles. Together, these compounds account for the medicinal properties of tamarind. This prized condiment spice is a good source of minerals like copper, potassium, calcium, iron, selenium, zinc and magnesium. Potassium is an important component of cell and body fluids that helps control heart rate and blood pressure. Iron is essential for red blood cell production and as a co-factor for cytochrome oxidase enzymes.

Its pulp has been used in many traditional medicines as a laxative, digestive, and as a remedy for biliousness and bile disorders. This spice condiment is also used as an emulsifying agent in syrups, decoctions, etc., in different pharmaceutical products. Tamarinds also have very high levels of tartaric acid (thus the tart taste), a powerful antioxidant that can help scavenge harmful free radicals from the system. The other phytochemicals present in tamarind include limonene, geraniol, safrole, cinnamic acid, pyrazine, methyl salicylate, and alkyl thiazoles.

It is effective in the treatment of burn and healing of skin by preventing oedema. Oedema is same as edema and is build of excess of fluid around skin tissues, which is a characteristic in many burn victims. The partially dried fruit of the Tamarind is predominantly used in Medicine. The slab, which is a thick piece or chunk of the tamarind, is crushed and mash into a paste and then a pass through a sieve. Tamarind is a good medicinal plant with less side effects.

ICTAM: P:37:- COMPARITIVE ANALYSIS OF ANTIMICROBIAL ACTIVITY OF CLOVE EXTRACT (SYZYGIUM AROMATICUM), CLOVE OIL AND OTHER ESSENTIAL OILS

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The increasing resistance rates in microbes toward antibiotics add a need for alternative natural microbial controllers, therefore the highlight of this study is to learn and find about the antimicrobial properties of extract of clove, oils of clove, Lemon grass and *Eucalyptus globulus*. The antibacterial activity of clove oil and its extract and other two essential oils were tested against both against gram positive and gram negative bacteria and fungi. This study shows the potential of essential oils to be used as food bio-preservative and as natural antimicrobial agents.

ICTAM: P:38:- PROMISING ANTHELMINTIC ACTIVITY OF CAREYA ARBOREA AND AMORPHOPHALLUS PAEONIIFOLIUS

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Herbs are plants that have acquired significance for humankind because of their particular flavours, aromas, medicinal qualities or other attributes. Herbal preparations are less toxic than their synthetic counterparts and offer less risk of side effects. About 80% of the world's population relies on herbal medicines. The present study aim at the screening of anthelmintic activity of *Careya arborea* and *Amorphophallus paeoniifolius*. The anthelmintic activity of extract, powder & juice of tubers of *A. paeoniifolius* and extract of stem bark of *C. arborea* were evaluated using earthworm *Pheretima posthuma*. Results showed that fresh juice of *A. paeoniifolius* and ethanolic extract of *C. arborea* are good anthelmintic agents, confirming their traditional claim. Phytochemical studies for isolation of constituents are suggested to identify the components responsible for the activity.

**ICTAM: P:39:- SHANKUPUSHPAM CLITORIA TER-
NATEA-HEALING PLANT IN AYURVEDA**

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Sankupushpam medicinal plant contains tannins and glucose. It is widely used in traditional systems of medicine as a brain tonic. Sacred or healing plant in ayurveda Shankupushpam commonly known as butterfly pea, blue pea, Cordofan pea and Asian pigeon wings, is a plant species belonging to the Fabaceae family. The flowers of this vine have the shape of human female genitals, hence the Latin name of the genus “Clitoria”, from “clitoris”. This is an ayurvedic traditional medicine various qualities including memory enhancing, anti stress, anxiolytic, anti convulsant, tranquilizing, and sedative properties. Its medicinal values are many, its leaves, roots, flowers and the plant itself are used for preparing ayurvedic medicines. Its leaves powdered used for treating brain.

Besides its medicinal property butterfly pea is also a good source of phytochemical substances. It contains anti fungal proteins and has been shown to be homologous to plant defensins. Further these healing flower used in cases of sperm debility due to its spermatogenic properties and also it used to cure sexual disorders like infertility and gonorrhoea. It is valuable in many ways. In Ayurveda the whole plant i.e. leaves, roots, flowers of this plant for preparation of many traditional ancient herbal medicines. Its leaves powdered used for treating brain disorders. Further these healing flower used in cases of sperm debility due to its spermatogenic properties and also it used to cure sexual disorders like infertility and gonorrhoea. In addition to that, this flower is considered to be a sacred flower and is used in temples for rituals and pujas.

**ICTAM: P:40:- EVALUATION OF IN VITRO ANTIDIABETIC
ACTIVITY OF THE GENUS SYZYGIUM GAERTN.**

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India, presently, has the largest number of diabetic patients in the world and has been infamously known as the “diabetic capital of the

world". In recent years, drug therapies have been in use for the treatment of diabetes. Some of the standard synthetic drugs used for the treatment of diabetes are sulfonylureas, biguanides, α -glucosidase inhibitors, glinides, etc. These drugs tend to cause side effects like nausea, vomiting, abdominal pain, diarrhoea, head ache, abnormal weight gain, allergic reaction, low blood glucose, darkurine, fluid retention, or swelling. Moreover, they are not safe for use during pregnancy. Active research has been performed on traditionally available medicinal plants for the discovery of new antidiabetic drug as an alternative for synthetic drugs. Hence the current study is focused to evaluate the antidiabetic potential of selected Genus *Syzygium* Gaertn. The plant extracts were subjected to inhibitory effect of enzymatic alpha-amylase inhibition assay to determine its antidiabetic potential.

Keywords: Diabetes, Antidiabetic drug, *Syzygium*, α amylase

ICTAM: P:41:- HOLISTIC APPROACH OF ALTERNATIVE MEDICINE ON HEMORROIDS, FISSURE AND FISTULA

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A holistic approach might be just be your solution. In this case the treatment work to eradicate the hemorrhoids together with the cause, so as to prevent further recurrences. Philosophy of treating mind and body together. Alternative medicine healing system includes siddha . In siddha medicine heals with jeevam preparation and prevent from diseases by diagnosing early and heals the mind also. In ayurveda it incorporates treatments including yoga, meditation, diet and herbs. Homeopathy uses minute doses of substance that cause symptoms to stimulates the body's self healing response. Naturopathy focus on non invasive treatments to help your body to its on healing.

Follow up the use of the comfrey plant with a change in diet . Changing to a fruit deit will increase fiber intakes as well as adding flavanoid for circulation. This has the effect of preventing any further constipation which is a primary cause of this. Certain yoga exercise such as Halasana & Gomukhasana were good. By holistic approach of alternative medicine can treat and prevent the illness and diseases of body and mind.

**ICTAM: P:42:- ANTIMICROBIAL ACTIVITY
OF ZINGIBERACEAE**

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Several *Zingiberaceae* family members show active principles in treatment of various human ailments. We study the comparative evaluation of antibacterial activity of *Kaempferia galangal* and *Zingiber officinale* rhizome juices, both belongs to *Zingiberaceae* family. In the comparative study *Kaempferia galangal* was found to be more effective against the test bacteria than *Zingiber officinale*.

ICTAM: P:43:- ASOKAM (SARACA ASOKA)

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Ashoka is an important Ayurvedic herb used mainly in bleeding gynecological conditions. Its botanical name is Saraka indica or Saraca asoca and it belongs to Leguminosae family. All parts of the tree such as bark, leaves, flowers and seeds are used medicinally. Due to its medicinal value, it is known as a universal plant. Ashok is grown in India, Burma, and Malaysia.

The bark is comprised of sodium, silica, magnesium, iron, calcium, aluminum and strontium. Other components include sterol, tannins, catechol and other calcium compounds. The barks, seeds and flowers of the tree are helpful in preparing capsules and tonics to solve various gynecological problems of women. It also reduces excessive and painful bleeding, leucorrhoea and headache for women. Because of chloroform and methanol properties, the bark is used to cure bacterial and fungal infections. As the bark contains ketosterol, it treats uterine fibroids and other internal fibroids and is one of the most common household remedies for uterine disorders. Medicine prepared from bark also helps in removing worms and comforts from stomach. Capsules and ointments prepared from Ashok tree can be used as a natural supplement of great benefit to treat irritations and burning sensation in the skin and complexion. Dried flowers are used to cure diabetes. It adds ease for indigestion. The extracted juice from the

flower is used to cure dysentery. Medicine prepared from leaves, flowers and barks are used to cure diarrhea and purification of blood.

**ICTAM: P:44:- WASTEWATER TREATMENT EMPLOYING
PHYTOREMEDIATION**

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The present study was conducted to elucidate the role of four plant species as biofiltering agents in water purification. Five artificial wastewater treatment systems (gravel-sand-gravel) were made, four different plant species were planted and grown in 4 systems and one was kept as control. The kitchen waste water was treated using the four plant species which include *Scirpus lacustris*, *Juncus effusus*, *Chrysopogon zizanioides*, *Canna species*. The water sample collected after filtration were analyzed for various physio-chemical characteristics like pH, salinity, conductivity, TDS, dissolved oxygen, nitrate, phosphate, potassium and were compared with reference to WHO standards. The data obtained on each day were recorded and graphical representation of data was made. It was noted that all the plant species were able to neutralize the pH of wastewater. While *Juncus effusus* helped to increase the DO at an average of 2.5mg/l, the nitrate and phosphate reduction was tremendous shown by *Chrysopogon zizanioides* and *Scirpus lacustris*. E.coli. was not present in the treated wastewater, enabling it to be reused for agricultural purpose.

**ICTAM: P:45:- PRELIMINARY EVALUATION OF CYP2C19
GENE POLYMORPHISM IN HEALTHY POPULATION
OF KERALA**

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Drug metabolism, the process of biotransformation, where pharmacological substances are converted to their active form is mediated primarily by certain enzymes. CYP2C19, a member of cytochrome P450 enzymes family, metabolizes a range of such clinically significant drugs, and

this enzyme is highly polymorphic. Most of the changes in the CYP2C19 gene are due to Single Nucleotide Polymorphism (SNPs). CYP2C19*3 is one of the important loss-of-function allele of CYP2C19, which is also responsible for the formation of active metabolites of clopidogrel, is a prodrug which is responsible for reduced platelet inhibition. Several clinical trials have shown that clopidogrel effectively prevents thrombotic events in patients with cardiovascular diseases.

CYP2C plays a clinical role in determining inters individual and interethnic differences in drug effectiveness. The ethnic differences in the frequency of CYP2C19 mutant alleles continue to be a study topic. In this present study was to preliminarily evaluate the genotypic frequency of the allelic variant CYP2C19*3 in general Kerala population. Genomic DNA was extracted from healthy individuals. The presence or absence of polymorphism was confirmed by PCR-RFLP and analysed through Agarose Gel Electrophoresis. The genotypic frequency of samples was calculated. Analysis of the population revealed that CYP2C19*3 genotypic frequency in general Kerala population is 2%. Therefore the result reveals that, the CYP2C19*3 gene polymorphism have a relation with drug metabolism since the mutated genes are poor metabolizers. Therefore, genotype analysis before drug therapy seems to be a promising approach to reduce adverse effects and to enhance efficacy of drugs.

ICTAM: P:46:- TULSI (HOLY BASIL)

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Tulsi is extremely beneficial for humans. From warding off some of the most common ailments, strengthening immunity, fighting bacterial & viral infections to combating and treating various hair and skin disorders just a few leaves of tulsi when used regularly can help resolve a host of health and lifestyle related issues. Tulsi has very potent germicidal, fungicidal, anti-bacterial and anti-biotic properties that are great for resolving fevers. It has the potential to cure any fever right from those caused due to common infections to those caused due to malaria as well. In ayurveda, it is strongly advised that a person suffering from fever should have a decoction made of tulsi leaves

Leaves of holy basil are packed with antioxidants and essential oils that produce eugenol, methyl eugenol and caryophyllene. Collectively these substances help the pancreatic beta cells (cells that store and release insulin) function properly. This in turn helps increase sensitivity to insulin. Lowering one's blood sugar and treating diabetes effectively. Tulsi has a powerful anti-oxidant component called Eugenol. This compound helps protect the heart by keeping one's blood pressure under control and lowering his/her cholesterol levels. Chewing a few leaves of tulsi on an empty stomach everyday can both prevent and protect any heart ailments. According to a study conducted by the Central Drug Research Institute, Lucknow, India, tulsi helps to maintain the normal levels of the stress hormone – cortisol in the body. The leaf also has powerful adaptogen properties (also known as anti-stress agents). It helps soothe the nerves, regulates blood circulation and beats free radicals that are produced during an episode of stress. With strong anti-oxidant and anti-carcinogenic properties tulsi has been found to help stop the progression of breast cancer and oral cancer (caused due to chewing tobacco).

**ICTAM: P:47:- EVALUATION OF ANTIOXIDANT AND
ANTICONVULSANT ACTIVITY OF CITRUS GRANDIS (LINN.)
OSBECK LEAF EXTRACT**

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Herbal medicine is widely used about 75-80% of world's population for primary health care. *Citrus grandis* (Linn.) osbeck belonging to the family rutaceae is a bushy tree and its fruit is considered to be nutritive and refrigerant. The leaves are useful in epilepsy, cholera, convulsive cough, asthma, general weakness, burning sensation and febrile fits in children. The aim of this study was to evaluate the anti oxidant and anti convulsant activity of leaf extract from the plant *Citrus grandis*(Linn.) osbeck. The ethylacetate fraction of leaf showed maximum antioxidant potential when analysed by iron chelating and nitric oxide scavenging assays. *In vivo* anti convulsant activity of total ethanolic extract of leaf was carried out by maximal electroshock induced seizures and pentylene tetrazole induced seizures. It was found that the leaf extract was effective in maximal electroshock induced seizures.

**ICTAM: P:48:- IN VITRO ANTI-PROLIFERATIVE EFFECT OF
EUGENIA UNIFLORA ETHANOL EXTRACT ON LUNG CANCER
(A549 CELL LINE)**

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Plants have been used as medicine from the beginning of human civilization. Recent studies revealed the role of plant extracts as anticancer agents. Nowadays plant extract are used to develop and produce new and novel products or drugs that can be used for the treatment of various diseases. Antiproliferative activity refers to the efficiency of a drug to stop or retard the spreading of cells that are malignant into the surrounding tissues. Anti-proliferative activity can be measured using colorimetric MTT assay. *Eugenia uniflora* which belongs to myrtaceae family has medicinal importance. So this plant is selected for the present study. *Eugenia uniflora* leaves showed the presence of secondary metabolites like flavonoids, tannins, alkaloids in the phytochemical studies. Qualitative and quantitative phytochemical analysis is performed on the shade dried and powdered leaves of *Eugenia uniflora*. This leaf powder is sequentially extracted with solvents of increasing polarity. Phytochemical analysis revealed that ethylacetate extract exhibited greater flavonoid content and ethanol extract showed greater tannin and phenolic content. Results of the antioxidant assay showed that ethanol extract is the most active when compared to other plant extracts (Petroleum ether, Chloroform, Ethyl acetate, Methanol and Water extract). This active extract is then subjected to MTT assay. For MTT assay Lung cancer cell line A 549 is selected. Ethanol extract exhibited significant antiproliferative activity against cancer cell line with an LD50 value of 56.7985 μ g/mL. Thus, in future active principle from the plant may be used as an anticancer drug.

ICTAM: P:49:- KOOVALAM

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It's one of the few Ayurvedic plants whose entire parts from root to leaves are used for different diseases. The fruit balances Kaph and Vata doshas, its roots improve digestion, leaves are good for. The fruit takes about

10 to 11 months to ripen. Wood Apple is a sweet, aromatic and astringent in nature. Bel has many benefits and uses such as to cure tuberculosis, hepatitis, dysentery, constipation, peptic ulcer, piles and many more, useful in worm infestation and stomach related problems. It's one of the few Ayurvedic plants whose entire parts from root to leaves are used for different diseases. The fruit balances Kaph and Vata doshas, its roots improve digestion. Bael or *Aegle marmelos* is a spiritual, religious and medicinal plant, native of India and Bangladesh and spread throughout South East Asia.

**ICTAM: P:50:- BENEFICIAL EFFECT OF SHAYAPUGAI IN
SIDDHA SYSTEM OF MEDICINE.**

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The traditional Dravidian system of medicine referred to popularly as Siddha medicine is a vast repository of external therapies particularly, administration of drugs through routes other than oral. Fumigation is one of the type of external therapy stated in literature. The fumes are easily carry over to clear the mucous passages. The application of fumes can be on different parts of the body apart from inhalation. The main purpose of this procedure is infection control . Fumigation is a method by which medicines can be taken to the deeper organs by the process of respiration . Shayapugai is one the fumigation method which is more beneficial to treat shayam than other fumigation process. The aim of this study is to approach shayapugai under clinical studies.

**ICTAM: P:51:- HPTLC FINGERPRINTING AND
ANTIBACTERIAL ACTIVITY OF ALKALOIDS AMONG
AMARANTHUS L.**

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A comparative account of the alkaloids present in the methanolic extract of *Amaranthus* species were done using HPTLC with colchicine as standard and also antibacterial studies was carried out to find the antibacterial potential of the alkaloid extracted among the plants. CAMAG HPTLC

system equipped with Linomat5 applicator, TLC scanner 3 and winCATS software were used. The methanolic extract of the plants were fingerprinted in Ethyl Acetate: Methanol:Water (10:1.35:1) solvent system and scanned under 366nm. Antibacterial activity of extracted alkaloids from Amaranth species showed antibacterial activity with zone of inhibition ranges from 6 to 11mm. This study can be taken as a tool for chemotaxonomic identification and also for the formulation of new drugs.

Keywords: HPTLC finger printing, alkaloids, colchicine, *Amaranthus*.

ICTAM: P:52:- PAPAYA

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There are many health benefits to consuming fruits and vegetables, and papaya is no different. However, there are benefits related specifically to papaya, and some are quite surprising. The risk of developing asthma is lower in people who consume a high amount of certain nutrients. One of these nutrients is beta-carotene, contained in foods like papaya, apricots, broccoli, cantaloupe, pumpkin, and carrots. Consuming the antioxidant beta-carotene, found in papayas, may reduce cancer risk. Among younger men, diets rich in beta-carotene may play a protective role against prostate cancer, according to a study published in the journal *Cancer Epidemiology and Prevention Biomarkers*. Studies have shown that people with type 1 diabetes who consume high-fiber diets have lower blood glucose levels, and people with type 2 diabetes may have improved blood sugar, lipid, and insulin levels. The fiber, potassium, and vitamin content in papaya all help to ward off heart disease. An increase in potassium intake along with a decrease in sodium intake is the most important dietary change that a person can make to reduce their risk of cardiovascular disease. Choline is a very important and versatile nutrient found in papayas that aids our bodies in sleep, muscle movement, learning, and memory. Choline also helps to maintain the structure of cellular membranes, aids in the transmission of nerve impulses, assists in the absorption of fat, and reduces chronic inflammation. When used topically, mashed papaya appears to be beneficial for promoting wound healing and preventing infection of burned areas.

ICTAM: P:53:- ANTIBACTERIAL ACTIVITY OF PUNICA GRANATUM

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The present study is under taken to determine the antibacterial activity of *Punica granatum* is screened by using agar disk diffusion method, against three bacterial strains such as Bacillus species, Psuedomonas species and *E.coli* species. The different concentration of peel and juice extracts were used for this test. The peel of *Punica granatum* was found to be effective against Bacillus species and Psuedomonas species while the juice of *Punica granatum* is found to be effective against *E.coli* species and Bacillus species. The data clearly shows that extract of *Punica granatum* possess strong inhibitory action against all the test bacteria pathogens.

ICTAM: P:54:- THE ANALGESIC ACTIVITY OF SIDDHA SINGLE DRUG FORMULATION OF “SEENDHIL SARKKARAI” IN ALBINO RATS

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SeendhilSarkkarai is a powder form of medicine extracted from *Seendhil*Stem (stem of *Tinosporacordifolia*) was evaluated by acetic acid induced writhing reflex in albino rats. Painful reaction in animals was produced by acetic acid; pain reaction which is characterized as a writhing response was recorded. The analgesic activity of *SeendhilSarkkarai* by acetic acid induced writhing reflex revealed the analgesic activity both at the oral dose of 100mg/kg BW and 200mg/kg BW of *SeendhilSarkkarai* possess significant analgesic activity at $p < 0.01$ compared to control drug. The results obtained support the use of siddha single drug formulation of “*seendhilsarkkarai*” in painful conditions acting both centrally and peripherally.

Keywords: Siddha; SeendhilSarkkarai; Analgesic; *Tinosporacordifolia*; Mice; Acetic acid

**ICTAM: P:55:- MEDICINAL PROPERTIES OF
SARPAGANDHA(RAUWOLFA SERPENTINA)**

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Sarpagandha (*Rauwolfia Serpentina*) is a species of flowering plant in the family “*Apocynaceae*”.It has been traditionally used in Ayurveda for many years to treat a variety of diseases.The diseases include *hypertension,mental disorders,insomnia,epilepsy,hysteria*.The root of Sarpagandha is the major plant part used for preparing medicines. Leaf parts of Sarpagandha is applied externally to cure *injuries,scabies* etc. Sarpagandha is used as a topical medicine for snakebite and sting and also as a tranquilizer and antipsychotic herb.

In the fifty decade Sarpagandha gained popularity for its effect on *hypertension*.The alkaloid found in its root is attributed to anti-hypertensive pharmacological action.Due to its apparent benefit over the extract,Ayurveda believes in use of whole herb.The whole herb has many component which can *Help in biotransformation into pharmino active forms,Enhance bioavailability,Reduce the possible side effects,Help in smooth excretion*. The above hypothesis is proved to be in case of Sarpagandha.The chart will be review the concepts of whole herb and its extracts.The given information will draw a possible suggestive conclusion for effective use of Sarpagandha and to know more about Sarpagandha.

ICTAM: P:56:- MEDICINAL VALUES OF LEUCAS ASPERA

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Leucas aspera commonly known as ‘Thumbai’ is distributed throughout India from the Himalayas down to Ceylon. The plant is used traditionally as an antipyretic and insecticide. Medicinally, it has been proven to possess various pharmacological activities like antifungal, antioxidant, antimicrobial, antinociceptive and cytotoxic activity. The presence of various phytochemical constituents mainly triterpenoids, oleanolic acid,

ursolic acid and b-sitosterol, nicotine, sterols, glucoside, diterpenes, phenolic compounds (4-(24-hydroxy-1-oxo-5-n-propyltetracosanyl)-phenol) are proved from different studies carried out worldwide. These studies reveals that *L. aspera* is a source of medicinally active compounds and have various pharmacological effects; hence, this drug encourage finding its new therapeutic uses.

Keywords: Antimicrobial activity, *Lamiaceae*, *Leucas aspera*, Triterpenoid

ICTAM: P:57:- THE CLINICAL STUDY ON PCOS USING HERBAL MEDICINE

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Polycystic ovary syndrome (PCOS) is one of the most commonest lifestyle disorder in females. Currently it is called “Polycystic Ovarian Disease, Hyper Androgenic Chronic Anovulation, Functional Ovarian Hyperandrogenism, Stein Leventhal Syndrome”. Hormonal variation is the main cause of this syndrome. Most often the age onset is premenarchal and it is characterised by increased risk of menstrual disturbance, obesity, Hirsutism, Acne, Insulin resistance with hyperinsulinemia, Stress. In Siddha literature PCOS is called “Karpavaayu”. In this clinical study the following plants have more potential activity. For this disease we tried the combination of medicine in Siddha system and its includes *Moringa oleifera*, *Mucuna pruriens*, *Withania somnifera*, *Ficus religiosa*, *Ficus benghalensis*, *Vngarapattai*, *boomi chakaraikilangu* with the combination of the *Asta chooranam*, *Kazharchikai chooranam*, *Nithiyam*. This herbal medicine act on the ovary and regulate hormone level. The aim of this clinical study is to discuss the available therapy in Siddha for the management of PCOS & its clinical conditions. In future this clinical study develops with more clinical analysis.

ICTAM: P:58:- BIOPHYTUM SENSITIVUM*Abhijith Sasi**Department of Botany(Complimentary Biochemistry)
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Medicinal plants are very interesting, have the ability to produce remarkable chemical structures with diverse biological activities. *Biophytum sensitivum* [Mukkutty-in Malayalam] is used as traditional medicine to cure variety of diseases. Phytochemical analysis have shown that the plant parts are rich in various beneficial compounds which include amentoflavone, cupressuflavone, and isoorientin. Extracts and its bioactive compounds have been known to possess antibacterial, anti-inflammatory, antioxidant, antitumor, radioprotective, chemoprotective, antimetastatic, antiangiogenesis, wound-healing, immunomodulation, anti-diabetic, and cardioprotective activity.

It has been used as traditional medicine for several purposes. It is recommended to be used in the treatment of stomach ache, asthma, treating insomnia, convulsions, cramps, chest complaints, inflammations, tumors, and remedying chronic skin diseases. Commonly, the whole plant decoction is used for asthma and phthisis and the decoction of root is used for gonorrhea and lithiasis . The administration of *B. sensitivum* stimulates the immune system, leading to enhanced immune cell proliferation of splenocytes, thymocytes, and bone marrow cells by stimulating the mitogenic potential of various mitogens. The leaves extracts of *B. sensitivum* (methanol, chloroform, acetone, and petroleum ether) was evaluated for its antibacterial activity by them against several human pathogenic bacterial strains.

ICTAM: P:59:- EVALUATION OF INVITRO ANTIOXIDANT AND CYTOTOXIC ASSAY BY BRINE SHRIMP METHOD OF COCCINIA GRANDIS L. VOIGT. LEAVES** Fathima A, Shakkeela Yusuf, Anjali M S, Jyoti Harindran**Department Of Pharmaceutical Sciences, Cheruvandoor Campus,
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The characteristic property of medicinal plants is due to variety of complex chemical compounds and hence plants are referred as natural biochemical factories. Their therapeutic applications can be light established in modern

medicines. Preliminary phytochemical studies of the four fractions (petroleum ether, chloroform, ethyl acetate and ethanol) of the crude extract of the plant *Coccinia grandis* showed the presence of carbohydrates, tannins and phenolics, flavanoids, glycosides and steroids. In the present anti oxidant activity studies using ABTS scavenging assay, the IC₅₀ value of petroleum ether, chloroform, ethyl acetate and alcoholic extract was found to be 27.35, 16.63, 25.16, 21.0 mcg/ml respectively. Plant derived extracts containing anti oxidant principle such as flavanoids, phenolic compounds and tannins showed cytotoxicity towards tumor cells. Various fractions of the plant were tested for their toxicity against the brine shrimp using brine shrimp lethality assay. The alcoholic extract of *Coccinia grandis* showed significant cytotoxicity against brine shrimp (LC₅₀ = 75mcg/ml), all other fractions have non significant activity. It was observed that the alcoholic extract was more potent than the other two extracts. Thus the activity revealed concentration dependence nature of the different extracts.

ICTAM: P:60:- ALLELOPATHIC EFFECT OF AQUEOUS LEAF EXTRACT OF WEDELIA TRILOBATA L. ON CICER ARIETINUM, VIGNA RADIATA AND VIGNA UNGUICULATA

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The present study was conducted to investigate the allelopathic effect of the weed *Wedelia trilobata* L. against *Cicer arietinum*, *Vigna radiata* and *Vigna unguiculata*. The aqueous leaf extract of *Wedelia* at 25, 50 and 75% were applied to determine their effect on seed germination and seedling growth of the test plant under laboratory conditions. The *Wedelia* had allelopathic activity against the test explants, it inhibited the root length shoot length and drymass of the tested plant decreased progressively when the seeds and plants were exposed to increasing concentration.

**ICTAM: P:61:- BOERHAVIA DIFFUSA: REJUVENATE OR
RENEW BODY USING AYURVEDA**

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Punarnava is rightly called so as it can bring back missing vigor and vitality. It is a brilliant natural diuretic and very important herb for urinary system. It can be white or red. It has been used since long times for the treatment of liver disorders such as jaundice and hepatitis. Throughout the tropical region, it is used as a natural remedy for Guinea worms. Boerhavia diffusa has important property as of being an anti-inflammatory, diuretic agent.

The name and properties of Red Punarnava is Raktapunarnava, Rak-tapushpa, Shilatika, Shothaghni, Vashketu and Kathillaka. It is bitter in taste and cold in potency. It increases Vata. It binds stools and manges Kapha and Pitta Diseases and impurities of blood. In Ayurveda, Punarnava is considered bitter, cooling and pungent. It acts on plasma, blood, muscles, fat, nerves and reproductive organs. The herb exhibits significant anti-inflammatory, laxative and diuretic action along with stomachic, expectorant, rejuvenative, diaphoretic and emetic properties. It is one of the best herb used for diseases of liver and kidney. It is very effective in treatment of dengue fever and very good for curing jaundice and hepatitis b. It is prescribed in urinary problems, kidney-bladder stones, kidney disorders, enlargement of liver, cirrhosis of liver, jaundice, dropsy, oedema and similar inflammatory conditions. The leaves and roots of plant are eaten as vegetable for better health. The plant is cooling and helps to reduce excessive heat in body. For medicinal purpose the juice, decoction, infusion, powder or paste of plant is used. During rainy season the plant is abundantly available and can be used fresh. Otherwise the capsules and root powder are also available in market.

**ICTAM: P:62:- MOTHER DRUG AND AADHI DRUG
THEME: HERBAL MEDICINE AND PLANT REMEDIES**

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The Siddha System of Medicine is one of the oldest system of medicine which flourished in South India along with Dravidian culture. The term 'Siddha' was derived from the root word 'Siddhi' which means attainment of spiritual perfection or to become one with the supreme, which is the premier goal of life. The Siddha System has certain features and characteristics of Dravidian civilization of South India, a great portion of which had submerged in the sea and its period is considered to be pre-Vedic.

Kadukkai cures various types of ailments. Mothers give only milk and food to nourish their babies; this food has some disease curing capacity too. Gall nut is considered to be superior to mother, as it heals many diseases by eliminating its root cause. Thippili is known as 'Kozhaiyakattri' (Expectorant) or 'Aadhimarunthu', which means the one which is prior to all the drugs in its action and properties. We are going to disclose some unrevealed facts about Kadukkai (*Terminalia chebula*) and Thippili (*Piper longum*)

Keywords: Siddha, Expectorant, Laxative, Kadukkai, Thippili, Gall nut

**ICTAM: P:63:- MUD CRAB SCYLLA SERRATA AS A SOURCE
OF ANTIMICROBIAL PEPTIDES**

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Antimicrobial Peptides (AMPs) are found in all classes of living organism and they constitute an important component of the innate immune system. The present work was undertaken to study the AMPs from the mud crab, *Scylla serrata*. The muscle tissue was taken as the source to extract the peptides. The antimicrobial activity of the crude peptide was determined

by Disc Diffusion Assay. For the muscle extract, the highest activity was recorded against *Vibrio harveyi* followed by *Bacillus cereus* and *Vibrio parahaemolyticus*. Further confirmation of the muscle peptide was done by the Liquid Growth Inhibition Assay using the HPLC purified 40% Sep-pak Fractions. Eleven HPLC fractions (Ss1-Ss11) collected based on peak intensities and time of elution showed antimicrobial activity in the Liquid Growth Inhibition Assay employing MTT(3-(4, 5 – Di Methylthiazol – 2 – yl) – 2, 5 – diphenyl tetrazolium – bromide). *Vibrio harveyi* was inhibited by all the fractions. The protein concentrations in the active fractions (HPLC) were also determined. The antimicrobial activity of haemolymph was also estimated. The haemolymph extract showed inhibition against *Bacillus licheniformes* and *Listeria monocytogenes*. However no zone of inhibition was observed against *Vibrio harveyi* and *Candida albicans*. The present study indicated that the mud crab *Scylla serrata* is a potent source of Antimicrobial Peptides.

Key words- Antimicrobial peptides, mud crab, muscle tissue, haemolymph

ICTAM: P:64:- CLOVE

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Clove is the dried bud of the flower from the tree *Syzygium aromaticum*. It belongs to the plant family named *Myrtaceae*. The plant is an evergreen plant growing in tropical and subtropical conditions. Clove is a herb and people use various parts of the plant, including the dried bud, stems, and leaves to make medicine. Clove oil is also famous for its medicinal properties.

Certain bioactive compounds have been isolated from clove extracts. Some of them include: flavonoids, hexane, methylene chloride, ethanol, thymol, eugenol, and benzene. These biochemicals have been reported to possess various properties, including antioxidant, hepato-protective, anti-microbia, and anti-inflammatory properties. Cloves improve digestion by stimulating the secretion of digestive enzymes. Cloves are also good for reducing flatulence, gastric irritability, dyspepsia and nausea. Clove extracts are also effective against the specific bacteria that spreads cholera. Tests have

showed that they are helpful in controlling lung cancer in its early stages. Cloves contain high amounts of antioxidants, which are ideal for protecting the organs from the effects of free radicals, especially the liver. Cloves have been used in many traditional remedies for a number of diseases. One such disease is diabetes.

ICTAM: P:65:- IN VITRO CULTURE STUDIES IN VERNONIA ANTHELMINTICA (L.)

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Micropropagation of *Vernoniaantheilmintica*, an important medicinal and under exploited oilyielding herb of asteraceae has been achieved through leaf explants. The basal medium used for callus induction was MS medium with different levels of auxins and cytokinins. 6mg/L of BA, IAA and IBA are found to be suitable for callus induction from leaf. Of the various combinations of plant growth factors better callusing was obtained on MS medium supplemented with (6mg/L) IBA and Kn (6mg/L) combination is also suitable for callus induction, which shows a frequency of 81%. IAA & Kn, NAA & BA combinations also responded well which showed a frequency of 80% and 70% callus induction respectively. Multiple shoot induction also has been achieved the best response of shoot proliferation was observed in nodal explants on the MS medium supplemented with 2mg/L of BA. Adventitious roots were induced from leaves of in vitro grown plants. The best response of root proliferation was observed in explants on the medium supplemented with IBA. The auxin IBA was found to be effective in proliferation of roots and improves the biomass accumulation. Thus, for the first time, a reliable method for efficient regeneration was achieved as an economically important crop that has been developed.

**ICTAM: P:66:- A REPORT ON ALTERNATIVE
HERBAL MEDICINES USED BY THE TRIBALS OF
WAYANADDISTRICT: BENEFITS AND PITFALLS**

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Use of herbal medicines is practiced in India from nearly 5000 years ago. Due to side effects on various systems, development of tolerance, resistance and cost of allopathic medicine, herbal medicines gaining importance both in developed and developing countries. The study is conducted on the doorstep of the tribals surrounding Kalpetta, Kerala in the year 2017. People of different age group subjected to study randomly. Data is collected regarding use of herbal medicines for various conditions, type of plant used, their availability, mode of applications, their side effects and benefits over allopathic medicine and subjected to statistical analysis. Response of herbal medicines varies with disease conditions. In cardiac, renal and endocrine disease herbal medicines are not much effective and hence they switch to allopathy or homeopathy to get better results. In the other cases like fever, pain, wound, animal bites, infections the herbal medicines shows better results. Use of herbal remedies for different conditions based on the scientific approach for the disease condition, severity, type organ involved, duration of action have benefits over allopathic medicines to overcome their ill effects, over cost, tolerance and resistance mechanism. There is huge scope for identification of active compound involved, their mechanism of action, to identify their effectiveness over other medicines at molecular level and to find out the better drugs for various diseases to save the life in the world wide.

ICTAM: P:67:- CAPSICUM FRUTESCENCE

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The Bird Eye pepper is a slow-growing short-term perennial or perennial sub-shrub. It is also called by the name bird's chili or Thai chili. In India, it is commonly seen in Meghalaya, Assam and Kerala. It is known for weight

reducing qualities. They can play a key role in increasing the metabolism of the body. As a result of this, your body temperature would increase. In order to bring back the body to original temperature body would burn more calories, thereby speeding up the metabolism rate. The chemical compound present in bird's chili which results in burning sensation is called Capsaicin. The effects of this compound can vary among individuals. However, most of them experience a burning sensation of the mouth, throat, and stomach upon ingestion. The consumption of bird's eye chili thus increases the metabolism and hence reduces the body weight. Capsicum is used for various problems including upset of stomach, intestinal gas, stomach pain, diarrhea, cramps, poor circulation, excessive blood clotting, high cholesterol, preventing heart disease, toothache, seasickness, alcoholism, malaria, fever, shingles, osteoarthritis, rheumatoid arthritis, fibromyalgia, relieve muscle spasms, as a gargle for laryngitis, and to discourage thumb-sucking or nail-biting.

ICTAM: P: 68:- IN VITRO ANTIPROLIFERATIVE ACTIVITY AND ANTIOXIDANT EVALUATION ON ETHANOLIC EXTRACT OF COSTUS MALORTIEANUS. H.WENDL LEAVES.

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Herbal medicine is the oldest form of healthcare known to mankind. The use of herbal remedies for prevention and use of ailments is of increasing interest due to superiority and efficiency of activity provided by phytoconstituents in herbs and undesirable effects of modern medicine. The study aim at the screening of plant *Costus malortieanus*. H.Wendli belonging to the family Costaceae, it is commonly known as stepladder ginger. The plant was traditionally used for antidiabetic and anti-inflammatory activity. Preliminary phytochemical screening shows the presence of alkaloid, carbohydrate, flavanoids and phenolics. Total ethanolic extract of the leaves were subjected to antioxidant study by ferric reduction assay method and antiproliferative screening in HeLa cells by MTT assay method. The result shows that the extract is a good source of antioxidant component and it has cytotoxic activity against HeLa cell lines. Bioassay guided fractionation might be worthy in purifying and identifying the active constituents present in the extract.

ICTAM: P: 69:- EFFECT OF CURCUMIN AGAINST SELECTED MICROBIAL PATHOGENS

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Curcuma longa L. (turmeric) is a medicinal plant that botanically is related to Zingiberaceae family. Turmeric powder, derived from the rhizome of *Curcuma longa*, is commonly used as a spice, food preservative, and food-coloring agent. It contains a number of curcuminoids, monoterpenoids and sesquiterpenoids. The compounds showing yellow colour are three curcuminoid compounds; curcumin, demethoxycurcumin and bisdemethoxycurcumin.

Curcumin, (diferuloylmethane) the main yellow bioactive component of turmeric has a wide spectrum of biological actions and this provides a basis for exploring its endodontic applications. Curcumin was first isolated in 1815. Its chemical structure, was determined by Roughley and Whiting 1973. The aim was to study the antibacterial activity of turmeric. The objective was to find out the curcumin concentration using different solvents in each concentration of turmeric and to determine the minimum inhibitory concentration of turmeric against different bacteria. The rhizome of *C. longa* (turmeric) was collected, dried turmeric was ground and then was subjected to separation through a vibrating sieving machine. Different concentration of sample was prepared. The sample was mixed with both Acetone and water separately and then filtered. The absorbance is measured using spectrophotometer at 425 nm. The antibiotic sensitivity test was performed on *Bacillus* species, *Pseudomonas fluorescens*, *Bacillus subtilis*, *Pseudomonas aeruginosa* and *Staphylococcus aureus*. Acetone is considered as the solvent, among the tested samples of different concentration. Curcumin exhibited very good activity against *B. subtilis*, *E. coli*, *S. aureus* and *P. mirabilis*, whereas it showed moderate activity against *K. pneumonia*, *Enterobacter aerogenes* and *Pseudomonas aeruginosa*. Curcumin was equally effective against all the tested bacterial genera from both Gram-positive and Gram-negative groups, and the extent of killing showed an increase with dosage and incubation time.

**ICTAM: P:70:- PLECTRANTHUS AMBOINICUS:REMEDY IN
AYURVEDA FOR COUGH**

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Panikoorka is popularly used in South Indian states, especially Kerala, to treat cough and cold in children. Leaves of panikoorka is used for treating different health problems. Panikoorka is the herb with the name *Plectranthus amboinicus*. It is known as Pathar choor (in hindi), Navara (in Malayalam), karpooravalli (in Tamil) or Indian borage. Panikoorka is traditionally known to be having numerous therapeutic effects. *Plectranthus amboinicus* is attributed to have antiseptic, antimicrobial, appetizing, digestive, carminative, stomachic, anthelmintic, binding, deodorant, diuretic and tonic properties. It is commonly used in respiratory tract disorders as a bronchodilator, antitussive, and expectorant. The antiseptic and antimicrobial properties of the plant have been attributed to the presence of compounds such as carvacrol, thymol, flavones, phenols, tannins and aromatic acids. The leaves are traditionally used for the treatment of coughs, sore throats and nasal congestion, but also for a range of other problems such as infections, rheumatism and flatulence.

The plant is cultivated in home-gardens throughout India for use in traditional medicine, being used to treat malarial fever, hepatopathy, renal and vesical calculi, cough, chronic asthma, hiccup, bronchitis, helminthiasis, colic, convulsions, and epilepsy. Shenoy and others refer to further Indian traditional medicinal uses such as for skin ulcerations, scorpion bite, skin allergy, wounds, diarrhoea, with emphasis on the leaves being used as a hepatoprotective, to promote liver health.

ICTAM: P:71:- ANTIMICROBIAL ACTIVITY OF ALOE VERA

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Aloe vera is an ornamental and medicinal plant. It is being used therapeutically, since Roman times. Extract of *Aloe vera* gel were studied for their antimicrobial activity against four Gram-positive and Gram-negative

bacteria using agar well diffusion method. The extracts showed varied levels of antimicrobial activity against the tested pathogens. With the broad spectral antimicrobial effect of *A. vera* gel, it could be further recommended in the treatment of various bacterial diseases.

ICTAM: P:72:- HERBAL MEDICINE AND IT'S REMEDIES IN ALTERNATIVE MEDICINE.

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Among the various method of alternative medicine the most common and valuable is siddha medicine. Herbal system is the most prevalent and easier manner by using herbs and plants.piper nigrum the family of piperaceae is the most common ingredient used for various types of diseases and it is peculiarly used to cure diseases like oedema, anemia, cough,sinusitis, headache,allergy,vatha diseases, pyrexia.The focus of my study is to review the uses of piperaceaeis nigrum oil in treating the more prevalent diseases given in the literature of Agasthiyar gunavagadam.

Keywords :Piper nigrum, herbal remedy,siddha medicine.

**ICTAM: P:73:- COCOSNUCIFERA-COCONUT
THIS PLANTPLECTRANTHUS AMBOINICUS HAS VERY
IMPORTANT MEDICINAL PROPERTIES WITH LESS
SIDE EFFECTS**

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The coconut tree (*Cocosnucifera*) is a member of the family *Arecaceae* (palm family) and the only species of the genus *Cocos*. Coconut meat take the main part for food product but beside coconut meat we can get coconut water as a energy drink product also. Coconut milk, coconut cream and coconut oil are the main product form coconut meat and there are more unimaginable recipes can be created out of this three products.

Convenience products from tender and mature coconut water - Packed tender coconut water, packed coconut water, tender coconut water concentrate, coconut vinegar, canned tender coconut water. A large number of coconut products are manufactured in the country which have both domestic and export market. Vinegar and soft drink are manufactured in the country from coconut water. Tender coconut water concentrate is another product which is manufactured and marketed successfully. Know-how for the preservation and packing of tender coconut water has been transferred to six firms in the country. Nata-de-coco is a gelatinous delicacy formed by the action of a micro-organism *Acetobacter xylinum* in a culture medium of coconut water. The know-how for its manufacture is available with the Board.

ICTAM: P:74:- ANTIOXIDANT AND TOXICOLOGICAL EVALUATION OF MANGROVE PLANT, AVICENNIA OFFICINALIS, L.

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The present study is to explore the antioxidant activity, Heavy metal pollution and accumulation of *Avicennia officinalis*, L. grown in the polluted site of Chirackal, Ernakulam. The plant extracts of *A. officinalis*, L. were examined for its antioxidant potential in three different solvents. The analysis was done in leaf, stem and root of the plant for the heavy metals like Cu, Zn, Mn, Cd, Co, Ni, Pb and Cr using ICP-AES to trace out the extent of their deposition. The IC₅₀ values were observed as 217 µg/ml, 258 µg/ml, 354 µg/ml for DPPH, SOD and ABT respectively. The highest antioxidant activity was reported in methanol extract of *A. officinalis*, L. leaf. In case of heavy metals, the presence of Zn (24 µg/g) in exceeding limit of MLRL thereby alerting high environmental risk. The highest estimate for Cu was observed as 7.23 µg/g in leaf, 3.05 µg/g in the stem and 5.618 µg/g in root. The Pb content was 3.25 µg/g in stem, 0.97 µg/g in the leaves and 1.21 µg/g in root. From the study, it is confirmed that *A. officinalis*, L. showed accumulation of Cu, Zn, Mn, Cd, Co, Ni, Pb and Cr and heavy metal concentrations in the studied plant indicates toxic level of the food chain contamination related to Zinc.

Key words : Accumulation, pollution, spectroscopy, antioxidant, heavy metals.

**ICTAM: P:75:- EVALUATION OF ANTHELMINTIC ACTIVITY OF
AQUEOUS EXTRACT OF OXALIS CORNICULATA**

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Herbal medicines are the oldest form of health care known to mankind. *Oxalis corniculata* Linn. (Family Oxalidaceae) is a well known plant in India and is one of the most versatile medicinal plants having a wide spectrum of biological activity. It is commonly known as creeping wood sorrel, an excellent plant in the nature having composition of all the essential constituents that are required for normal and good health of humans. Preliminary phytochemical screening of aqueous extract of *Oxalis corniculata* was conducted. In vitro anthelmintic activity of aqueous extract of *Oxalis corniculata* leaves were carried out using earthworms. Preliminary phytochemical screening of aqueous extract of *Oxalis corniculata* showed the presence of alkaloids, saponin, glycosides, flavones and flavanones, tannins and phenolics, proteins and amino acids and steroids. Anthelmintic activity screening showed a dose dependent effect; stating that a dose 7.5 ml gives a better anthelmintic activity, taking Piperazine citrate 10 mg/ml as standard reference. The present work was an indicative of the aqueous extract of *Oxalis corniculata* possess potent anthelmintic activity. Phytochemical studies to identify the components responsible for the activity are suggested.

**ICTAM: P:76:- MOLECULAR IDENTIFICATION AND
EPIDEMIOLOGICAL STUDIES ON ENVIRONMENTAL VIBRIO
CHOLERAЕ FROM CHENNAI POST-FLOOD WATER**

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Cholera is an overriding infectious diarrheal disease which leads to high mortality rate. Therefore cholera remains as a major threat which commonly affects vulnerable populations residing in substandard sanitary conditions and with unreliable water supply. Pathological studies and researches are dynamic with the ever transforming and adaptive nature of *V. cholerae* to the immune responses offered by the host and changing climatic

conditions. This study mainly focuses on biochemical and molecular identification of environmental *V. cholerae* isolated from aquatic sources post flood and identification of virulence associated genes in environmental *V. cholerae* viz., *ctxA*, *ctxB*, *tcpA*, *hlyA* and *toxR*. Multi-locus Sequence Typing (MLST) of environmental *V. cholerae* was performed to identify genetic relatedness of the isolates collected from different water bodies. The isolates were confirmed to be *V. cholerae* by ISR (Intergenic Spacer Region) amplification. Virulence genes *ctxA*, *ctxB*, *tcpA* were absent for all strains. Transcriptional activator *toxR* genes were present and this describes the probability of the strains to become virulent. MLST analysis revealed that the STs of strains isolated from Adayar Lake, Cholavaram, Koovam and Marina beach were novel and were not reported earlier in the pubMLST database. The ST of strains isolated from Puzhal Lake was identified to be ST403 and this was highly similar to the environmental strains isolated from China during 2009.

ICTAM: P:77:- PIPER NIGRUM

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Black pepper is the fruit of the black pepper plant from the *Piperaceae* family and is used as both, a spice and a medicine. The chemical piperine, which is present in black pepper, causes the spiciness. It is native to Kerala, the southern state of India. Black pepper is also a very good anti-inflammatory agent.

Pepper helps to cure vitiligo, which is a skin disease that causes some areas of skin to lose its normal pigmentation and turn white. The piperine content of pepper can stimulate the skin to produce melanocytes pigment. In Ayurvedic practices, pepper is added to tonics for treating cold and cough. Pepper also provides relief from sinusitis and nasal congestion. It has an expectorant property that helps to break up the mucus and phlegm depositions in the respiratory tract and its natural irritant quality helps you to expel these loosened materials through the act of sneezing or coughing, which eliminates the material from the body and helps you recover from whatever infection or illness that caused the deposition in the first place. Piperine, one of the key components of black pepper, has been shown in numerous studies to reduce memory impairment and cognitive

malfunction. Chemical pathways in the brain appear to be stimulated by this organic compound, so early research demonstrates the possibility for pepper to benefit Alzheimer's patients and those that are suffering from dementia and other age-related or free radical-related malfunctions in cognition.

ICTAM: P:78:- EXTERNAL THERAPIES FOR ARTHRITIS IN SIDDHA SYSTEM.

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Siddha medicine is considered as one of the oldest medical system which helps mankind to lead a healthy life. Siddha system has 32 types of external therapies which cures diseases by maintaining the equilibrium of physiological factors (Barham,Pitham,kabham). This 32 types of therapies are safe and efficient, one among them is pattru. Poulitices (pattru), is spread over the skin to treat on aching, Inflammation etc., Many of the pattru stated on literature cure diseases which are under chronic stages. The aim of the study is to establish the varies types pattru to treat Arthritis.

ICTAM: P:79:- PHYTOCHEMICAL INVESTIGATION AND ANTI-INFLAMMATORY ACTIVITY SCREENING OF PLANT EUPHORBIA THYMIFOLIA LINN.

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Euphorbia thymifolia Linn .F. is small branched more or less pubescent prostrate annual herb. Petroleum ether and ethyl acetate fraction of the whole plant were subjected to preliminary phytochemical screening. In the present work the secondary metabolites, phenolics and flavonoids were evaluated by folin cio cateau and aluminium chloride calorimetric method. Petroleum ether and ethyl acetate fraction of *Euphorbia thymifolia* was studied for its *in vitro* anti-inflammatory screening by Human red blood cells (HRBC) membrane stabilization method. The phytochemical evaluation

revealed the presence of alkaloids, phenolics, flavones and flavanoids, terpenoids, sterols, sponging. Estimation of phenolics in petroleum ether fraction and ethyl acetate fraction was found to be 15mcg/ml and 12.38mcg/ml in 100g/Gallic acid and flavanoid content was found to be 50.5mcg/ml and 39.95mcg/ml in 100g/rutin respectively. The results showed that they are good source of phenolics and flavonoids. The petroleum ether fraction of *Euphorbia thymifolia* Linn was found to possess good anti-inflammatory activity when compared with ethyl acetate fraction.

**ICTAM: P: 80:- FRESH WATER FISH DIVERSITY:
THREATS AND CONSERVATION**

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Fresh water ecosystems are rich in fish diversity. Introduction of organisms outside its natural distributional range are one of the major threats to the biodiversity of any ecosystem. The indiscriminate transfer of fishes causes various problems in fresh water aquatic ecosystems and adversely affects its diversity. The major reasons for these introductions are aquaculture, sport fishing, ornamental fish trade, vector control etc. Introduction of these fishes causes competition with indigenous fauna for food and space, pathological agent transfer, gene pool manipulation and habitat alteration. This adversely affects the existence of indigenous fauna and ultimately leads to the biodiversity loss. This paper reviews the various reported cases of fresh water exotic invasions, their routes, how they become a threat to biodiversity and discussed about the various management measures for conservation of Fresh water fish diversity.

ICTAM: P:81:- EVALUATION OF IN VITRO ANTIOXIDANT AND ANTI-INFLAMMATORY ACTIVITY OF AQUEOUS EXTRACT OF ADIANTUM PHILIPPENSE,L.

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Plants, a rich source of variety of chemicals with nutritive and therapeutic properties are used for medicinal purposes across history and cultures. *Adiantum philippense*,L. belonging to the family adiantaceae is used in blood disease, burning sensation, epileptic fits, dysentery and as a cooling lotion in case of erysipelas. The fronds are used in leprosy and fever. The rhizome is prescribed for strangory and for fever due to elephantiasis. Aqueous extract of *Adiantum philippense* was subjected to phytochemical evaluation. Antioxidant activity of the plant was carried out by reduction of ferric ion by o-phenanthroline method using ascorbic acid as standard. Anti-inflammatory studies of aqueous extract was screened by human red blood cells method (HRBC) using indomethacin as standard. Phytochemical evaluation reveals the presence of alkaloids, cardiac glycosides, flavonoids, carbohydrates. The antioxidant activity study showed an IC₅₀ value of 22.70 µg/mL for the aqueous extract and 13.72 µg/ml for the standard ascorbic acid. The percentage protection produced by the aqueous extract was proportional to the concentration. The anti-inflammatory activity also showed good activity.

ICTAM: P:82:- CONSERVATION AND MEDICINAL UTILITY OF MEDICINAL PLANTS

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The main aim is to provide frame work for conservation and sustainable use of medicinal plants. The changes in society and the increasing pace of development mean that the scale of the impacts have catastrophically grown. It leads to even climate change. The origin of conservation were rooted in a general concern to protect nature because of its intrinsic and aesthetic medicinal values .Medicinal plants provide

quality products so it was the first choice of users as immediate therapy and by pharmaceutical companies as valuable ingredients. conservation of medicinal plants involves to protect, restoration and enhancing variety of medicinal plants. It also deals about preventing damage and loss to our cultural heritage. Management of medicinal plants is to obtain benefit for present generation and maintain potential for future. conservation of medicinal plants resources is wide in concern because we don't know what we are losing and what we will need in future? Hence conservation of medicinal plants is essential in current status.

ICTAM: P:-83:- NONI

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Polynesian healers have used noni fruits for thousands of years to help treat a variety of health problems such as diabetes, high blood pressure, aches, pains, burns, arthritis, inflammation, tumors, the effects of aging, and parasitic, viral, and bacterial infections. Ancient healing manuscripts cite the fruit as a primary ingredient in natural healing formulations. Today, fruit preparations are sold as juice, in dried "fruit-leather" form, and as a dry extract in capsules.

Noni has traditionally been used for colds, flu, diabetes, anxiety, and high blood pressure, as well as for depression and anxiety. All plant parts are used for a variety of illnesses in Samoan culture, and noni is one of the most frequently used Hawaiian plant medicines. Claims that have not been proven in clinical trials include: the use of bark for the treatment of bacterial infections, cough, diarrhea in infants, and stomach ailments; the flowers for sore or irritated eyes, styes, conjunctivitis, ocular inflammation, and coughs; the fruit for asthma, wounds, broken bones, mouth and throat infections, tuberculosis, worms, diarrhea, fever, vomiting, eye ailments, arthritis, depression, seizures, bacterial and fungal infections, viruses, and as a tonic; the fresh fruit juice for cancer; the dried leaves used externally for infections, burns, children's chest colds, and inflammation, and internally for boils, pleurisy, inflamed gums, and arthritic pain; the fresh leaves used externally for burns and internally for fevers, hemorrhage, bacterial infections, and inflammation; and the roots for oral ulcerations, fevers, and cancerous swellings.

ICTAM: P:84:- PRELIMINARY PHYTOCHEMICAL SCREENING AND ANTIBACTERIAL EVALUATION OF FORMULATION FROM BIOPHYTUM SENSITIVUM LINN CRUDE EXTRACT

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Herbal medicines sometimes referred to as herbalism or botanical medicine is use of herbs for their therapeutic or medicinal value. Plants contain a variety of chemical substances act upon the body. The study aims at the formulation and evaluation of herbal ointment of plant *Biophytum sensitivum Linn*. The plant was traditionally used for antibacterial and cytotoxic activity. Preliminary phytochemical screening showed the presence of alkaloids, flavanoids and phenols. The crude extract of the plant was subjected to antibacterial study by agar diffusion well method using bacterial culture medium. The zone of inhibition of the formulation was found to be 12 mm when compared with that of the standard amoxicillin 18 mm. The results showed that the extract has promising antibacterial activity against staphylococcus aureus.

ICTAM: P:85:- MANAGEMENT OF ARTHRITIS BY VARMA THERAPY

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Varma points are the vital points mwhich regulates energy flow in the body and balances 3 body humours i.e vadham, pitham and kanam. Siddha system states diseases as the deviation or disturbances in these 3 humours. By regulating humours, fruitful prognosis can be achieved. Among various life style disorders, joint pain is more commonest and Causes a greater tragedy in our day to day life. With a view of fundamentals of Siddha system, deviation of vadha causes pain. Thus anti vadha pills, oils, creams are used as medication. Our motive is to apply varma therapy in Arthritis. Literature describes some Varma points for balancing humours

around the pain area. Giving optimum pressure to the affected area relieves pain and increases blood circulation to repairs the cause of pain. Clinical trials on Arthritis patients showed a significant pain reducing effect and hence it would be beneficial in management of Arthritis in clinical practice.

Keywords : Siddha, humours, Varma, Arthritis,

ICTAM: P:86:- TERMINALIA ARJUNA: A PERMANENT SOLUTION FOR ATHEROSCLEROSIS

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Terminalia arjuna is a traditional Ayurvedic plant belonging to the family Combretaceae. It is commonly known as *Neermaruthu /Arjuna tree*. Traditionally, it is of great therapeutic value by providing a cardioprotective role by restoring the depleted endogenous myocardial antioxidants and improving myocardial function. And also it speeds up the recovery process for cardiac injury. In addition, the cardiac tonic action of the bark of Arjuna improves tone and strength of the heart muscle and thus improves the ability of the heart to pump the blood efficiently and increase left ventricular stroke volume index and left ventricular ejection fraction (which is indicated by improved E/A ratio), in people suffering from heart diseases. It helps to lower the systolic blood pressure.

It is most commonly used for prevention from Myocardial Infarction (Heart attack) caused by coronary artery disease, because it has anti-atherogenic property, which helps to reduce low-grade inflammation and plaque buildup in the coronary arteries and improves the blood flow to the heart tissue. The *Neermaruthu* helps in Vasoconstriction and in Vasodilation because the bark of the Arjun tree is a rich source of coenzyme Q10. This enzyme can reduce the blood pressure. Thus this is used for high BP. This prevents hypertension like giddiness, Insomnia, headache and inability to concentrate. Arjun tree is an effective wound healer. Anti hyper lipidemic action of the Arjun tree can prevent the oxidation of LDL and thus lowers serum concentration of total cholesterol, LDL cholesterol, VLDL total cholesterol, and triglycerides.

**ICTAM: P:87:- PRELIMINARY LC-MS PROFILING
OF FLAVONOIDS AND INVESTIGATING THEIR
PHARMACOLOGICAL ACTIVITIES IN SELECTED MEMBERS
OF ASERACEAE**

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The plants in Asteraceae family are commonly used in the treatment of common diseases. Several researchers have systematically investigated the plants for their utilities in therapeutics. The plants have been proven for their healing properties. Among the natural polyphenolics, the flavonoids are the largest and most wide spread. Flavonoids exhibit a wide range of biological activities. Presently plants taken into consideration are *Adenostemma lavelia*, O.Kze. and *Acanthospermum hispidum*, DC. For the LC-Q-TOF analysis Ultra Performance Liquid Chromatography system was used with a Column BEH C18 column (50 mm × 2.1 mm × 1.7 μm). Mobile phase was Water+0.1% formic acid and Methanol. Total run time was 9 minutes with a flow rate of 0.3 ml/min. Source temperature was 135^o C and Desolvation temperature was 350^o C. The common flavonoids such as quercetin, kaempferol, di hydroxyl coumarin, wedelolactone and many more other compounds were identified. Wedelolactone possess potent anti-hepatotoxic effect and is incorporated as a major ingredient in a number of developed potent anti-hepatotoxic phyto pharmaceutical formulations. More over the presence of the above mentioned flavonoids proves the immense potential of the plants in the treatment of diarrhoea, as an antiviral, antitrypsomal, antiplasmodial, antimicrobial, antitumour, anthelmintic and many more. The present work emphasizes onto the investigation pharmacological properties of flavonoids and emphasizing the therapeutic potential of the plants as medicinal drugs.

Key words: flavonoids, quercetin, kaempferol, di hydroxyl coumarin, wedelolactone

ICTAM: P:88:- GINSENG THE WONDER PLANT

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Ginseng is one of the most popular herbal medicines in the world that has been used for centuries dating back to 100 AD. Ginseng is a slow growing perennial plant with fleshy roots that typically grows in Northern China, Korea and Siberia. The two main types of Ginseng include Asian [Panax Ginseng] and American [Panax quinque folius]

This plant is now widely used all over the world due to its wide range of health benefits. Unfortunately, Ginseng is becoming endangered in the wild and so is now grown in farms to protect it from extinction. Older plants are more valuable and expensive as their benefits are more abundant in aged roots. Korea is the world's largest provider of Ginseng and China is the world's largest consumer.

**ICTAM: P: 89:- NATURAL PROTECTION FROM ANDROGRA-
PHISPANICULATA (BURM.F.) NEES**

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It is commonly known as THE KING OF BITTER. This official herbal medicine is used as an anti-inflammatory and antipyretic drug. In case of nausea and vomiting, the *Andrographispaniculata* is given with honey. The decoction of *Andrographispaniculata* is given in a dose of 20-30ml to treat fever, inflammation of the liver and jaundice. The cold infusion of the plant is given in a dose of 40-50ml to treat impurity of the blood and is used as blood purifier. The paste of the plant is used to treat skin diseases like eczema, de-pigmentation of skin etc. The powder of the dried plant is given in a dose of 2-3g with hot water or juice of shunti to improve the appetite and digestion. The powder of *Andrographispaniculata* is given in a dose of 2-3 g with powder of black pepper to treat malaria and fever. Cardiovascular diseases are the leading cause of death in both men and women all over the world.

ICTAM: P:90:- HOMONOIA RIPARIA LOUR. - A POTENT ANTI-INFLAMMATORY AND ANTIOXIDANT PLANT

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Herbal medicines are being used by 80% of world population for the primary health care. The plant *Homonoia riparia* Lour. (family-Euphorbiaceae) was reported to have numerous potent constituent and the same plant was used in traditional medicines. Present work describe the extraction and evaluation of anti-inflammatory and antioxidant activities of *H.riparia*. The *in vitro* anti-inflammatory activity was determined by inhibition of protein denaturation and proteinase inhibitory method. The powdered and dried bark of *H.riparia* was extracted with ethanol and fractionated in different solvents of increasing polarity. The ethyl acetate extract of *H.riparia* was found to have more inhibitory activity on protein denaturation when compared with other extract. The *in vitro* antioxidant activity was determined by FRAP (ferric reducing antioxidant power) assay and nitric oxide scavenging method. The nitric oxide scavenging method was determined and IC₅₀ value was found to be 29.6mcg and IC₅₀ value by FRAP assay was found to be 37.79mcg. The result showed that the plant *H.riparia* have significant anti-inflammatory and antioxidant activity.

ICTAM: P:91:- A REVIEW ON PHARMACOLOGICAL ASPECTS OF THE SIDDHA FORMULATION NILAVEEMBU KUDINEER

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In the recent past till the near present we have become the victims of the relentless and spontaneous outbreaks of a wide spectrum of viral infections causing ravages in the society, becoming a threat to it in many ways causing a wide spread dilemma. It was in such a span of time that the now well known and accepted multi herbal Siddha decoction “Nilaveembu Kudineer” was administered through out to delimit the menace. Even in such a scenario the explicit knowledge about what and how this drug yields its results are still obscure to many. Innumerable researchers have focused on the Siddha drug centering on its countless beneficial properties. Here an

attempt is done to sum up most of the now known activities and properties of the ingredients in order to help to gain a much better clarity about the complete drug.

ICTAM: P:92:- NUTMEG

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Nutmeg is one of two spices that grow on an evergreen tree with the scientific classification *Myristica fragrans*, also known as common nutmeg. One of the components of nutmeg is a compound similar to menthol, which has natural pain-relieving characteristics. Therefore, by adding nutmeg as a spice in your cooking, you can reduce associated pain from wounds, injuries, strains, and chronic inflammation from conditions like arthritis. One of the lesser known benefits of adding nutmeg in any variety to your diet are the various components of its essential oil, called myristicin and macelignan. These compounds have been proven to reduce the degradation of neural pathways and cognitive function that commonly afflicts people with dementia or Alzheimer's disease. Studies have shown myristicin and macelignan slow those effects, and keep your brain functioning at a normal, healthy level. Nutmeg acts as a tonic in many different ways, and therefore boosts the overall health of your body. More specifically, in terms of liver and kidney, where many of the toxins are stored and accumulated from the body, nutmeg can help eliminate them.

**ICTAM: P:93:- INVITRO ANTI-INFLAMMATORY
AND ANTIOXIDANT STUDY ON LEAF EXTRACTS OF
HIBISCUSFURCATUS. ROXB**

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The use of natural products,especially plants,for healing is as ancient as human civilization. The leaves of *Hibiscus furcatus*.Roxbare acidic, edible after cooking and juice of the leaves mixed with honey is

applied in eye diseases. In the present study, different extracts of leaves of *Hibiscus furcatus* were evaluated for antioxidant and anti-inflammatory activities. *In vitro* anti-inflammatory activity determined by inhibition of protein denaturation and proteinase inhibitory method. Antioxidant activity of the different extracts were evaluated by iron chelation assay and nitric oxide scavenging assay. The ethyl acetate extract was found to have more anti-inflammatory activity compared to other extracts. Ethyl acetate extract were also found to be rich in antioxidant components. Further studies are suggested to reveal mechanism of action underlying the biological activities of these extracts.

ICTAM: P:94:- EFFECT OF YOGA THERAPY ON HEALTH STATUS OF DIABETIC PATIENTS

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Yoga gives lifestyle modification which produces remarkable improvements and can make an appreciable contribution to the prevention as well as management of lifestyle diseases. Yogic practice may aid in the prevention and management of diabetes mellitus and reduce cardiovascular complications in the population. The inclusion criteria of 10 patients for type 2 DM were recruited and biochemical investigations were done before and after a comprehensive yoga therapy. This present study was undertaken to evaluate the effect of yoga therapy on biochemical parameters and wellness score of diabetic patients.

Keywords: Yoga, lifestyle, diabetes mellitus, biochemical parameters.

ICTAM: P:95:- SIDA RHOMBIFOLIA

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Sida rhombifolia (arrowleaf sida) is a perennial or sometimes annual plant in the Family Malvaceae, native to the tropics and subtropics. Free radical stress leads to tissue injury and progression of disease conditions such as arthritis, hemorrhagic shock, atherosclerosis, diabetes, hepatic injury, aging and ischemia, reperfusion injury of many tissues, gastritis, tumor promotion, neurodegenerative diseases and carcinogenesis. Safer anti-oxidants suitable for long term use are needed to prevent or stop the progression of free radical mediated disorders. Herbal medicine provides a foundation for various traditional medicine systems worldwide. The *Sida* species is one of the most important families of medicinal plants in India. Hence, the present study was aimed to investigate the possible anti-oxidant potential of *Sida rhombifolia* extracts for 30 days on adjuvant induced arthritis in experimental rats. The altered levels of hematological parameters were reverted to near normal levels, especially the elevated rate of erythrocyte sedimentation was significantly reduced by *S. rhombifolia* extracts in experimental rats. Oral administration of root and stem of *S. rhombifolia* extracts significantly increased the levels of thiobarbituric acid reactive substances and activities of catalase and glutathione peroxidase and decreased the levels of reduced glutathione and superoxide dismutase activity in arthritis induced rats. The free radical scavenging activity of the plant was further evidenced by histological and transmission electron microscopy observations made on the hind limb tissue.

**ICTAM: P:96:- ANTIBACTERIAL ACTIVITY SCREENING OF
EMBLICA OFFICINALIS**

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The screening is done to determine the antibacterial activity of *Embllica officinalis*. It was screened using agar disk diffusion against three bacterial strains including bacillus species , *E.coli* , and pseudomonas

species. For this test fruit extracts of varying concentration was used. The result of experiment conducted is that *Emblica officinalis* is effective against bacillus and pseudomonas species and not effective against *E.coli*.

ICTAM: P:97:- SPECTROPHOTOMETRIC DETERMINATION OF FLAVANOID CONTENT IN LEAVES OF ANNONA MURICATA

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Annona muricata is a species of the genus *Annona* of the custard apple tree family Annonaceae native to Caribbean and Central America. It is commonly known as mullaatha. Now it is widely cultivated in tropical climates throughout the world. The fruit possess anticancer, antioxidant as well as anti-inflammatory properties. The fruit is usually called soursop due its slight acidic taste. The study was designed to determine the total flavanoid content in the leaves of *Annona muricata* and thereby to check its antioxidant activities in different solvents such as ethanol, petroleum ether and distilled water. Preliminary tests was performed on these solvents. Carbohydrates and saponins were present in these three solvents. The aluminum chloride method was used for the determination of the total flavanoid content of sample extract. The standard calibration plot was generated at 415 nm using known concentration of quercetin. The concentration of flavanoid in the sample was calculated from the calibration plot. Concentration of flavanoid content was higher in ethanol extract compared to petroleum ether and water.

Key words: *Annona muricata*, phytochemistry, flavanoids, antioxidants, calibration plot

ICTAM: P:98:- APPROACH OF USING COCONUT USED IN ALTERNATIVE MEDICINE.

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Coconut is the most useful crop have been cultivated all over the places of India for its Vast medicative and commercial values. Siddha system

of medicine is most prevalently used around all the places in relieving Several disease. In Siddha System of medicine, The oil from pericarp of coconut is used in treatment. Not only the value added products gives importance of coconut. It has numerous active in its milk from fruit. Also the focus of our study is for the treatment of oil namely Sirattai thylam prepared from the external coverings as pericarp for application of vitiligo, dermatophytosis and Ringworm infection .We clinically try out the clinical uses of prepared oil on the basis of literary evidence a ruled by Siddhars.

**ICTAM: P:99: - HEALTH IMPORTANCE OF VIRGIN
COCONUT OIL**

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Coconut oil is one of the world's oldest oils. People from countries where the coconut palms are grown have made use of it to cure all kinds of ailments for thousands of years. Its amazing properties include having saturated fatty acids (SFAs), medium chain fatty acids (MCFAs) that are directly converted into energy in the liver; antimicrobial property of lauric acid and other MCFAs that kill pathogenic micro organisms. Antioxidants in the form of vitamin E. In addition to its numerous beneficial health effects, coconut oil has proven to be effective against heart disease, cancer and diabetes which are considered as emerging new diseases simply because of the adoption of modern lifestyle of the people, for example consuming processed foods, changing from saturated to unsaturated oils, having no exercise, staying away from sunlight, having not enough rest and too much stress, etc.

Several new viral diseases occur as a result of changing climate, convenient and rapid transportation, and many other viral diseases that cannot be treated by the use of chemical drugs and antibiotics because they possess lipid coat that does not allow drugs to penetrate the viral particles, but surrender to the coconut oil, which, being lipid itself, could dissolve and break down their lipid coat, thereby penetrating them. Reaserches has shown that Coconut oil has the potential to protect against not only heart disease but a wide variety of chronic health problems including diabetes and cancer as well as a whole range of infectious diseases too.

ICTAM: P:100:- A NOVEL APPROACH ON ANTI AGEING BY REGULATING ENDOCRINE SYSTEM

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Ageing is a biological process of growing older and showing the effects of increasing age. As a consequence of ageing, functions of all tissues and organs declines gradually. This leads to loss of ability to restore homeostasis which results in ageing related diseases. There is a significant change in rhythm, sequence and amount of hormones secreted by endocrine cells. Some ageing related hormonal changes plays a protective role in ageing. In long surviving individual, there is low- normal or slightly decreased activity of pituitary-thyroid axis. The secretion of growth hormone and sex hormone decreases while the secretion of TSH, cortisol increases in aged individual without disease. Siddhar given a description on endocrine system in their text as Aatharaam (6 kinds). They are the crux of the system, also called energy centres and are compared with each endocrine gland. Thus body's homeostasis and functions are coordinated by healthy endocrine system. The deterioration and physiological changes and also age dependent disorders can be delayed by regulating the rhythm of all of its secretions. Our work focuses on the various means of Siddha medications both internal and external involved in the enhancement of proper endocrine function and its influence on anti ageing process.

Keywords: endocrine system, Aatharaam, Siddha medications, anti ageing

ICTAM: P:101:- HYPOLIPIDEMIC ACTIVITY OF HYDRO ALCOHOLIC EXTRACT OF ARECA CATECHU LINN ON B-AMYLOID INDUCED ALZHEIMER'S

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Plants had been used for medicinal purposes long before recorded history. World Health Organization estimated that 80% of people worldwide rely on herbal medicines for some part of their primary health care. Herbal remedies for Alzheimer's disease have become more and more popular in the recent years. Anti hyperlipidemic medications (Statins) used to appear to be protective against Alzheimer's treatment. In this study the hydro alcoholic extract of *Areca catechu* Linn. is estimated for its hypolipidemic activity on β -amyloid induced Alzheimer's in rats. The parameters like HDL, LDL, VLDL, Triglycerides and Total cholesterol were estimated. Lipid parameters such as total cholesterol and triglycerides revealed their reduced states in the drug treated groups and a further significant rise in the HDL level was noticed which may be responsible for the delayed progression and / or retardation of Alzheimer's. The reduction in the triglycerides was correspondingly matched with the reduced VLDL levels. It can be concluded that if active ingredient is isolated and optimised from *Areca catechu* it may lead to the development of new therapy for Alzheimer's.

**ICTAM: P:102:- MEDICINAL PROPERTY OF DESMODIUM
GANGETICUM(MOOVILA)**

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The medicinal plant moovila (*Desmodium gangeticum*). It is one of the ten roots of famous anti-inflammatory formulation of Ayurveda, Dasmoola which is used since time immemorial to treat swelling inside body. Intake of Dasmoola balances Vata and Kapha, digests the ama and gives relief in pain. For medicinal use, whole plant is use.

Traditionally, it is a great therapeutic value in treating diseases such as typhoid, piles, asthma, and bronchitis. It has high medicinal value and is used as bitter tonic, febrifuge, digestive, anti catarrhal, anti-emetic, in inflammatory conditions of the chest and in various other inflammatory conditions. The whole plant decoction is given to treat digestive disorders, edema, diahea, intermittent fevers, malaria and urinary tract infections. The aqueous extract of *D.gangeticum* plant has strong anti-writhing and moderate CNS depressant activities, wound healing, potential prophylactic and therapeutic efficacy against *Leishmania donovani* infection, anti-oxidant activity and anti-microbial activities of roots. The roots contain several alkaloids, flavonoids, pterocarpanoids (gives anti-inflammatory activity), gangetinin, and desmodin. The aerial parts contain indole-3-alkaloids and their derivatives.

**ICTAM: P:103:- IN-VITRO ANTI INFLAMMATORY STUDIES
ON ROOT EXTRACTS OF MORINDA UMBELLATE LINN.**

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Medicinal plants are the oldest known health care products and used as medicine for millennia. Their importance is still growing although it varies depending on the ethnological, medical and historical background of each country. There is a growing tendency all over the world to shift from synthetic

based to natural based products including medicinal plants. According to traditional healers *AMorinda umbellate* possess potent anti-inflammatory properties. In this study various root extracts of *M.umbellate*were used to evaluate the anti-inflammatory activity by proteinase inhibitory assay, cyclooxygenase and 5-lipooxygenase inhibitory assays. In proteinase inhibitory assay the ethyl acetate extract showed significant activity whereas in cyclooxygenase and 5-lipooxygenase inhibitory assay the ethyl acetate extract showed activity on dose dependent manner. From this study the ethyl acetate extract of *M.umbellates*showed significant anti-inflammatory activity. If further work with active molecule isolation and optimisation is done in the future, it might lead to the development of a better anti-inflammatory agent.

ICTAM: P:104:- RESPONSE OF LEECH THERAPY IN VARICOSE VEINS

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Varicose veins are gnarled, enlarged veins most commonly appearing in the legs and feet. In India, more than million cases per year were recorded. Routine management like bandaging and laser technique are less helpful in the treatment of varicosities. In ancient periods, Siddhars used Leeches in treating varicosities. Literary sources given a valuable note on Leech therapy. Our motive is to assess the beneficial outcome of leech therapy in Leg varicose ulcer. Practically we employed *Hirudinamedicinalis* type of Leech on affected part of patients and observed a significant improvement. There is a reduction in pain, itching and ulcer formation. Thus in future, Leech therapy would be a beneficial, non-surgical management in the treatment of varicosities.

Keywords: Varicose veins, Leech therapy, *Hirudinamedicinalis*, non-surgical

ICTAM: P:105:- EMILIA SONCHIFOLIA*Arun V M**Department of Botany(Complementary Biochemistry)
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An annual herb; root a branched taproot; stems weak, erect or often branched at the base, smooth or sparingly hairy, 10 to 60 cm tall; lower leaves deeply and irregularly pinnately or bluntly toothed; lobes nearly round, kidney-shaped, ovate, triangular-ovate or obovate, 4 to 16 cm long, 1 to 8 cm wide with narrowly winged petioles; upper leaves smaller than lower leaves, alternate, usually entire, sometimes coarsely dentate, sessile and somewhat clasping the main stem. Occurs in open grassy or waste areas, dry stony areas, roadsides, plantation crops such as tea and bananas, and cultivated annual crops.

The herb is used as a folk medicine. According to ayurveda the plant has katu, kasaya and tikta rasa, lakhu and grahi guna healer sheeth veerya. The plant is effective in treating fever, tonsillitis. juice is a natural for eye diseases. It is also good in conditions like worm infections and allergy. The herb is useful in treating cough and bronchitis. Applying a paste on the thyroid region helps to cure the swelling in is sometimes used in cases of diabetes. In Sidda branch of medicine it used to cure intestinal worms and bleeding pills.

**ICTAM: P:106:- PRELIMINARY PHYTOCHEMICAL ANALYSIS
AND EVALUATION OF CHOLESTEROL LOWERING
EFFICIENCY OF FRUIT EXTRACT OF BACCAUREA
COURTALENSIS**

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Baccaurea courtallensis is an interesting plant widely used by the tribal community as a nutritional supplement and also for health issues. It is commonly known as 'Mooti puli', because its fruits are developed from its bottom trunk. The experiment was carried out to extract and analyze the

phytochemical constituents of *Baccaurea courtallensis* fruit and to find out the cholesterol lowering efficiency of the extract. *Baccaurea courtallensis* is a flowering plant belonging to the family Euphorbiaceae. The water extract of *Baccaurea courtallensis* fruit were subjected to preliminary phytochemical analysis and they showed the presence of Alkaloids, Flavonoids, Terpenoids, Saponnins, Phlobatannins, Coumarin, Anthocyanin, Leucoanthocyanin, Phenols and Carbohydrates. The extract was evaluated for cholesterol lowering efficiency against different fatty food materials like egg yolk, pork ,chicken fat, ghee and cod liver oil by Zak's method. The maximum efficiency was observed on egg yolk and chicken fat followed by pork fat and ghee. In cod liver oil no beneficial change were noticed.

Keywords: *Baccaurea courtallensis*, *phytochemistry*, *Zak's method*, *cholesterol*.

ICTAM: P:107:- HOLISTIC APPROACH ON RED OCHREIN SIDDHA SYSTEM.

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The siddha system of medicine usually compiles with the holistic therapies. Red ochre (kavikal)- Anhydrous iron oxide is a natural hematite mineral found in igneous and metamorphic rocks. From the ancient time, kavikal has been used both internally and externally, which contains more iron. Kavikal have antibilious, astringent, cooling action which treats perumpadu (both menorrhagea and metrorrhagia), Akki(herpes), Vandhi (vomiting), Eye diseases, Diarrhoea, Urticaria, Rathapitham (Hypertension).The aim of this study is to further establish the action of kavikal on Rathapitham (Hypertension). Further clinical study will be held under this path.

ICTAM: P:108:- JUSTICA ADATHODA

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Justica adathoda is commonly known as vasica. Justicia adhatoda is a shrub with lance-shaped leaves 10 to 15 centimeters in length by

four wide. The epidermis bears simple one- to three-celled warty hairs, and small glandular hairs. Cystoliths occur beneath the epidermis of the underside of the blade. It is widely used in traditional medicine. Vasicine an active component present in the Adathoda is effective for inflammation caused by bacteria and reduces fever. The leaves of Adhatoda vasica contains phytochemicals such as alkaloids, tannins, saponins, phenolics and flavonoids.

ICTAM: P:109:- A CLINICAL STUDY ON WEDDELIA CHINENSIS FOR IRON DEFICIENCY ANEMIA

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A worldwide outlook shows that iron deficiency anaemia is a notable problem especially in developing countries. Unfortunately, India tops the list of nations with most anaemic women and children. It is established as a result of poverty, malnutrition, poor sanitation and imbalance diet. It has a greater impact on women after puberty and in young adults. The objective of this study is to explain the action of *Weddeliachinensis* against the Iron deficiency anaemia. It comprises of biochemical substance such as Ecliptol, Vedilolactone, Resmethyl which act as an antioxidant and liver tonic. A clinical study was undergone to analyse the activity of the malt prepared using the leaf extract of manjalkarisalanganni. This study showed a positive prognosis with improvement in healthy red blood cells in the body. Thus, ultimately rectifying the cause of Iron deficiency anaemia. Further study on this drug may pave way for the usage of karisalai malt in the treatment and presentation of Iron deficiency anaemia.

KEYWORDS: *Weddeliachinensis*, Anaemia, Iron deficiency, Anti-oxidant.

**ICTAM: P:110:- SURVEY ON SELECTED AYURVEDIC DRUGS
AND THEIR PLANT SOURCES: A CRITICAL ANALYSIS OF
ADULTERATION AND SUBSTITUTION OF HERBAL DRUGS**

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Adulteration/substitution is a practice of replacing the original crude drug partially or fully with other substances which is either free from or inferior in therapeutic and chemical properties or entirely different drug similar to that of original drug replaced with an intention of enhancement of profits. This tells upon the efficacy of drugs and ultimately erodes the reliability of the system. Inventorisation of source plants of selected ayurvedic drugs will be of immense use in the Ayurvedic industry. The raw drugs *Amrita*, *Asokah*, *Bilva*, *Goksurah*, *Daruharidra*, *Sariva* and *Vasa* used in Ayurvedic health care system were selected for market survey for identifying source plants in the form of genuine drugs/substitutes/adulterants in the market. All samples of *Amrita* collected from different markets were identified as *Tinospora cordifolia*, *Asokah* as *Saraca asoca* (Caesalpinaceae) and *Goksurah* as *Tribulus terrestris* (Zygophyllaceae). In the present investigation *Aegle marmelos* the source plant of the drug '*Bilva*' was found adulterated using an entirely different plant *Atlantia monophylla*. *Coscinium fenestratum* (Menispermaceae) the source plant of the drug '*Daruharidra*' was found adulterated using entirely different plants *Anamirta coculus* and *Tinospora cordifolia*. *Hemidesmus indicus* (Asclepiadaceae) the genuine source plant of the drug '*Sariva*' was found adulterated using *Decalepis hamiltonii* and *Ichnocarpus frutescens*. *Justicia adhatoda* the genuine source plant of the drug '*Vasa*' was found substituted using *Justicia betonica*, *Justicia gendarussa* and *Justicia santapovi* of the same family.

ICTAM: P:111:- STUDY ON THE EFFECTIVENESS OF HOUSEHOLD CLEANING SOLUTIONS IN REMOVING ORGANOCHLORINE PESTICIDES IN CAULIFLOWER AND PESTICIDE RESIDUE ANALYSIS OF SOME READILY AVAILABLE FRUITS AND VEGETABLES FROM THE MARKET

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Nowadays the presence of pesticide residues in fruits and vegetables had become an important aspect related to human health. Pesticides have numerous beneficial effects. The production of pesticides started in India in 1952 with the establishment of a plant for the production of BHC near Calcutta, and India is now the second largest manufacturer of pesticides in Asia after China and ranks twelfth globally (Mathur, 1999) .

Pesticides are chemicals that kill or manage the population of pests. There are many different types of pesticides on the market today, but the most common are herbicides and insecticides, which kill or manage unwanted plants and insects. The damage caused by agricultural pests is a global problem, and over the past half-century, the amount of pesticides used has increased fourfold. Benefits of pesticides include improving productivity, protection of crop losses/yield reduction, vector disease control and quality of food. Hazards of pesticides include direct impact on humans, impact through food commodities, impact on environment, surface water contamination, ground water contamination, soil contamination, effect on soil fertility and destroys non-target organisms

The study conducted here was to find out effects of removal of pesticides by washing with three household solutions, tamarind juice solution, turmeric solution and vinegar solution on fourteen pesticides (OCPs) residues levels in raw cauliflower were investigated. Tamarind juice solution had the most removal effect than other two solutions. So the tamarind juice solution can be used as a general-purpose cleaning solution to remove these 14 pesticide residues in cauliflower. A monitoring study in the analysis of 14 organochlorine pesticides was carried out in some fruits and vegetables collected from the market in Kollam. The results show that all of the fruits and vegetables collected from the market had the presence of these 14 organochlorine pesticide residues.

**ICTAM: P: 112:- ROLE OF TECTONA GRANDIS
IN THE TREATMENT OF ANURIA**

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Teak (*Tectona grandis*) is a tropical hardwood tree species placed in the flowering plant family Lamiaceae. *Tectona grandis* is a large, deciduous tree that occurs in mixed hardwood forests. The Teak tree is well known for its durable wood which has great commercial value. It is a large deciduous tree with its leaf size ranging from 30 to 60 cm long and 15 to 30 cm broad. A single leaf could replace a large straw hat. The elliptic or obovate leaves have a rough upper surface and the lower surface is covered with veins and vein lets. The white flowers which are not attractive are found in clusters at the terminal. ends of the branches. The fruit is sub globose and four-lobed with dense stellate hairs.

Anuria, sometimes called anuresis, is nonpassage of urine, in practice is defined as passage of less than 100 milliliters of urine in a day. Anuria is often caused by failure in the function of kidneys. It may also occur because of some severe obstruction like kidney stones or tumours. High blood calcium, oxalate, or uric acid, can contribute to the risk of stone formation. It may occur with end stage renal disease. It is a more extreme reduction than oliguria (hypouresis), with 400 mL/ day being the conventional cutoff point between the two.

Failure of kidney function, which can have multiple causes including medications or toxins, diabetes, high blood pressure. In males, an enlarged prostate gland is a common cause of obstructive anuria. Acute anuria, where the decline in urine production occurs quickly, is usually a sign of obstruction or acute renal failure. Acute renal failure can be caused by factors not related to the kidney, such as heart failure, mercury poisoning, infection and other conditions that cause the kidney to be deprived of blood flow.

ICTAM: P:113:- EVALUATION OF THE ANTIMICROBIAL ACTIVITY OF SARGASSUM SPECIES ON GRAM POSITIVE AND GRAM NEGATIVE BACTERIA

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Seaweed of Phaeophyceae namely, *Sargassum* sp is collected from the South Eastern Coast of Tamilnadu (Rameshwaram). The extract is subjected to antimicrobial assay by agar well diffusion method. Clinical isolates of two gram positive (*Staphylococcus* sp, *Bacillus* sp), five gram negative (*Proteus* sp, *Pseudomonas* sp, *Klebsiella* sp, *E.coli*, and *Salmonella* sp) were used for the antimicrobial assay. Large inhibitory zone against *Staphylococcus* sp, *Bacillus* sp, *Proteus* sp, *Klebsiella* sp and *E.coli* was formed by chloroform and ethanol extracts of *Sargassum* sp.

Keywords; Phaeophyceae, antimicrobial, *Sargassum*,

ICTAM: P:114:- IN VITRO PHARMACOLOGICAL EVALUATION OF SELECTED SPECIES OF SPILANTHES JACQ.(TOOTHACHE PLANT).

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Many medicinal plants are used in medicine, against a variety of diseases. *Spilanthes* Jacq. plant includes Asteraceae family, mainly known as toothache plant. The purpose of this study is to evaluate the anti-inflammatory and anti-diabetic potential among the selected seven species of *Spilanthes* Jacq. Anti-inflammatory and anti-diabetic property of *Spilanthes* species showed better result and thus it has immense role in ethno medicine and preparation of new drug formulation in near future. *Spilanthes calva* D C shows good biological activity among the seven species. *Spilanthes vazhachalensis* sheela shows good anti-diabetic effect. The study can show better impact on pharmacological studies of the underutilised plant.

Keywords: Asteraceae , Anti-inflammatory, anti-diabetic, *Spilanthes* Jacq..

**ICTAM: P:115:- MEDICINAL PROPERTY OF CINNAMON
(CINNAMOMUM CASSIA)**

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Type 2 diabetes, also called adult-onset diabetes, affects some 300 million people worldwide. It arises due to the inability of beta cells of the pancreas to produce sufficient quantities of the peptide hormone, insulin. Studies have also shown that this condition may be increased by obesity or other factors. Recent studies by Richard A. Anderson, Zhiwei Zhan, RencaiLuo, XiuhuaGuo, QingqingGuo, Jin Zhou, Jiang Kong, Paul A. Davis and Barbara J. Stoecker(2015) showed that extracts of the medicinal plant, Cinnamomum cassiaca reduce fasting serum glucose levels as well as significantly increase insulin-sensitivity. Cinnamon extracts also possess a particularly high oxygen radical absorbance capacity.

Cinnamon is known to contain a Type-A procyanidin which has insulin potentiating, antioxidant and anti-inflammatory activities. The extract is thought to possess an ability to inactivate a tyrosine phosphatase that plays a role in inactivating insulin-receptors, thereby increasing the sensitivity to insulin. Cao et al also reported that the water soluble polyphenols in the cinnamon extracts also increases the concentration of insulin-dependent GLUT4 glucose transporters, resulting in a fall in blood glucose levels. Cinnamon extract also seems to have the potential to increase proteins involved in insulin signaling, glucose transport and the anti-inflammatory responses and decreases those involved in gluconeogenesis. The proanthocyanins in Cinnamon increase insulin action of glucose uptake by enhancing the insulin-signaling pathway by inhibiting inflammatory compounds. Studies conducted by Richard et al showed that a minimum of 500mg of Cinnamon extract per day for 2 months was needed to bring about significant changes in adults with hyperglycemia.

ICTAM: P:116:- TECHNIQUE FOR EXPULSION OF STILL BORN FROM HYSTERUS IN SIDDHA SYSTEM.

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Herbs are long been held a holistic place in our well-being. They have magical power in curing diseases. Its nutrition delivers us many benefits and eliminates more deficiency from our body. Adhimadhuram is scientifically called as Glycyrrhiza glabra and it's cultivated by liquorice plant hailed for its medicinal properties. It is used for treating common cold and cough. Especially leprosy, jaundice, epilepsy, eye diseases, ulcer, expulsion of dead foetus before labour, etc... our focus is to use adhimadhuram for the purpose of expulsion of the dead foetus before labour by providing the prepared drug in water.

ICTAM: P:117:-CONSUMPTION OF TEA AND ITS RELATION TO RISK OF TYPE 2 DIABETES MELLITUS

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The prevalence of type 2 diabetes mellitus has increased dramatically in the past decades. Type 2 diabetes mellitus is caused by insulin resistance, which occurs when we stop being sensitive to insulin, so blood sugar level go up. Several studies have indicated that through a complex biochemical reaction, tea helps sensitize cells so they are better able to metabolize sugar. The present study aims to examine the association of consumption of tea with the risk of type 2 diabetes mellitus.

The result from our study suggests that consumption of 3 to 4 cups of tea per day has a decreased risk of type 2 diabetes mellitus. The results from our study also suggest that adjusting for mediating factors did not alter the results and hence other unknown factors may explain inverse relation between tea consumption and type 2 diabetes mellitus.

**ICTAM: P:118:- SUB-CHRONIC TOXICITY STUDY OF
SIDDHA HERBAL PREPARATION OF “AVARAIVITHTHATHI
CHLOORANAM” IN WISTAR RATS**

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Avaraiviththathi Chooranam is an herbal formulation and is an effective medicine in Diabetes type 2 as well as secondary hyperlipidaemia. The purpose of the experiment evaluates the toxicity potential of *Avaraiviththathi Chooranam*. Sub-chronic toxicity *Avaraiviththathi Chooranam* was evaluated in wistar rats. It was done as per OECD guidelines 423. *Avaraiviththathi Chooranam* is a formulation of herbs that contains herbal ingredients. The study was done on male and female wistar rats weighing 180 ± 10 g which were administered an initial dose of 50 mg/kg body weight followed by 100 mg/kg, 200mg/kg & 400 mg/kg body weight for 20 days. While rats in the control group treated with normal saline (5ml/kg). Body weight was recorded at every five days, from the start of the treatment and which is analyzed for TC, TGL, LDL, HDL-cholesterol levels, plasma glucose, ALT, creatinine and urea were measured to evaluate the toxicity of the formulation. The effect of *Avaraiviththathi Chooranam* was significant increase ($p < 0.05$) in body weight in all the animals observed, significant decrease ($p < 0.05$) in the plasma glucose level and significant decrease ($p < 0.05$) in the plasma TC, TGL and LDL-cholesterol levels were observed, but a significant increase ($p < 0.05$) in HDL-cholesterol levels were observed, AST, ALT and ALP levels were also normal in the *Avaraiviththathi Chooranam* treated especially at higher dose (400 mg/kg) compared with control animals. There was no evidence of severe toxicity associated with the administration of higher dose of *Avaraiviththathi Chooranam*. These results indicate the safety of the oral administration of *Avaraiviththathi Chooranam* and no mortality was observed in any of the animals indicating its safety.

Key words: *Siddha Medicine, Avaraiviththathi Chooranam, Wistar Rats, Sub-Chronic Toxicity, Dose*

ICTAM: P:119:- EVALUATION OF ARTOCARPUS HIRSUTUS AND ARTOCARPUS HETEROPHYLLUS METHANOLIC EXTRACTS FOR PHYTOCHEMICAL CONTENT AND ANTICANCER ACTIVITY IN A375 SKIN CANCER CELL LINE

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Cancer refers to a group disease, characterized by uncontrolled growth and spread of abnormal immortal cells. Several anticancer drugs are available in the market to treat various types of cancer but no drug is found to be fully safe and effective. Natural products with anticancer activity have generated considerable research interest as they are considered to have less toxic side effects when compared to chemotherapy. The present study is aimed at evaluating the phytochemical constitution and anticancer activity of methanolic extract of dried seeds of *Artocarpus hirsutus* and *Artocarpus heterophyllus*. Methanolic extract (ME) was prepared from shade dried seeds of *Artocarpus hirsutus* (Wild Jackfruit) and *Artocarpus heterophyllus* (Jackfruit), by soxhlet extraction and condensation by rotary flash evaporation. Qualitative phytochemical screening was carried out on the extracts. Anticancer activity of the extracts was assayed on A375 skin cancer cell lines. Effect of treatment on cell viability was studied by MTT assay. Anticancer activities of the extracts was monitored by the gene expression profile of p53, Bax, Bcl2 and Caspase 7, key players in apoptosis or programmed cell death. 100g dry weight of *Artocarpus hirsutus* and *Artocarpus heterophyllus* yielded 23.47 g and 3.703g respectively of dry ME. Phytochemical analysis showed the presence of Alkaloids, Saponins, Tannins, Phenols, Flavonoids, Phlobatannins and Anthraquinones in *Artocarpus hirsutus*, Alkaloids, Coumarins and Anthraquinones in *Artocarpus heterophyllus*. The methanolic extracts showed appreciable anticancer activity as indicated by the diminished cell viability, upregulated expression of p53, Bax, Caspase 7 and downregulated expression of Bcl2 in extract treated groups, when compared to the standard drug cisplatin. *Artocarpus hirsutus* ME showed superior anticancer activity when compared to *Artocarpus heterophyllus* ME.

**ICTAM: P:120:- CHARACTERIZATION OF INVERTASE
FROM SACCHAROMYCES CEREVISIAE OBTAINED
FROM LOCAL MARKETS ACROSS KOTTAYAM KOLLAM
THIUVANATHAPUAM THRISSUR DISTRICT.**

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Enzymatic activity and stability of invertase obtained from locally purchased from common market *Saccharomyces cerevisiae* were characterized for optimal pH and temperature. The pH stability of this enzyme was observed between pH 4 to pH 10. The crude enzyme showed optimum activity at pH 6 and 35 °C. K_m and V_{max} were observed under concentrations ranging between 1.47 milli Mol to 24.83 milli Mole of sucrose as substrate and K_m and V_{max} are varied from 11.36 to 25.6mmol and 58.54 to 70.27 milli Mol/Min.