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**WILLIAM RESEARCH CENTRE  
THIRD INTERNATIONAL CONFERENCE  
ON  
“CONSERVATION OF NATURE  
AND SIDDHA MEDICINE”**

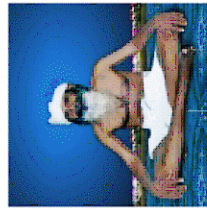
**CNRTSPA – 2020**

**14 & 15 DECEMBER, 2020.**

**Organized by:  
William Research Centre  
Nagercoil -1.**

**THIRD INTERNATIONAL CONFERENCE ON “CONSERVATION OF NATURE AND SIDDHA MEDICINE”**

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ON  
“CONSERVATION OF  
NATURE AND SIDDHA MEDICINE”**



**Editors : Dr. R.Mary Suja  
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### PRESIDENT MESSAGE

**Dr. B. Christudhas Williams**  
President  
William Research Centre  
Nagercoil – 1



Thank you for your interest in participating THIRD INTERNATIONAL CONFERENCE ON “CONSERVATION OF NATURE AND SIDDHA MEDICINE”. WRC has grown and progressed significantly gaining a wealth of scientific research and social involvement that have served to position us as an effective partner in the society. As a registered society, we recognize our responsibility to uplift the socio-economic status through conserving the natural resources. Our vision and the development strategies, under its Social Development encourage you to visit our website to become better acquainted with developments, our achievements and plans unyielding commitment to realizing our mission and vision. We are currently endorsing diversity of field's - Book publications, Journal Publication, Identification of Plants, Scientific Assessment of Traditional Siddha Medicines, Guiding BSc, MSc, MPhil, PhD scholars and NET Exam coaching. Our Director Dr. R. Mary Suja was invited as a Key Note Speaker, as Chair Person in International Conferences and Seminars also as an Advisory Committee Member and Organizing Committee Member. She is an Editorial Board Member and Reviewer of Journals. I strongly hope that CNRTSPA 2020 would surely induce modern ideas among the participants paving way for new inventions in the field.

Wishing you all a wonderful CNRTSPA 2020

B. Christudhas Williams



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### DIRECTOR MESSAGE

As an Organizing Secretary, I am excited to extend my warm welcome to the delegates from all around the world to 3<sup>rd</sup> International Conference CNRTSPA 2020 on 14-15 December, 2020, India. The theme of the third International Conference “CONSERVATION OF NATURE AND SIDDHA MEDICINE” will underpin the need for collaboration and co-operation of individuals from a wide range of professional backgrounds. The CNRTSPA 2020 Conference will provide a wonderful forum for you to refresh your knowledge base and explore the innovations in Research. The principal goal of the conference is to update recent trends to provide a platform to young scientist.

The International Conference will strive to offer plenty of networking opportunities to interact with the leading scientists and researchers, friends and Colleagues. CNRTSPA 2020 serves as a multidisciplinary conference which brings together experts from various systems of medicine and in all areas of Life Science to share their knowledge about various diseases, experiences in treating cases and discuss about conservation of Nature.

AYUSH System of medicine is a unique holistic approach, special diets, YOGA, Relaxation methods and lifestyle management are key strategies for curing chronic diseases. Unlike other conferences this CNRTSPA 2020 ties together Scientists with Doctors of Modern Medicine and alternative system of medicines which paves the way for more research in the area of drug screening therapeutics approaches or identifying the efficacy of various medicinal plants. This helps the Young Scientist and Research Scholars to upgrade their knowledge in Indian System of medicinal plants and their curative properties to strengthen existing research works in the area of drug targeting.

I convey my heartfelt thanks and appreciations to all the members who have actively participated in the conference arrangement. I strongly believe CNRTSPA2020 will enlighten the minds of all the researchers and Scientists.

**R. MARY SUJA**



## केंद्रीय सिद्ध अनुसन्धान संस्थान

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8<sup>th</sup> December, 2020

**प्रो. डॉ. के. कनकवल्ली**  
**महानिदेशक**

**Prof. Dr. K. Kanakavalli**  
**Director General**

### FOREWORD



The world is witnessing a change in the health-seeking behavior with more people inclining towards traditional health care systems in the wake of current pandemic. India has a rich heritage of Indigenous plant based traditional systems, the Siddha system of Medicine which has long history of usage.

I congratulate William Research Centre, Nagercoil for organizing the third “International Conference on the theme Conservation of Nature and Siddha system of Medicine (CNRTSPA - 2020), which is the need of the hour. This will provide a scientific platform for constructive dialogue and exchange of ideas among professionals from various backgrounds, both technical and traditional.

The increasing demand in natural/herbal products has triggered the debate to conserve medicinal plants and create a background for sustainable management of natural resources. This vital call can be accomplished through the collective efforts of various governmental agencies and non-governmental organizations. I certainly believe that through this platform new perspectives pertaining to nature conservation and Siddha medicine can together bring about a paradigm shift in eco-conservation and public health management in the wake of steady supply-demand culture.

Central Council for Research in Siddha, Ministry of AYUSH, Govt. of India is dedicated to research in Siddha medicine and steps are being taken in carrying out scientific validation with the focus on drug development with respect to new innovative processes and products especially common challenges of traditional health care systems.

My best wishes to all the presenters, researchers, students and delegates. I appreciate the organizers for bringing out the proceedings volume on this occasion and wish this event a grand success.

**(Prof. Dr. K. Kanakavalli)**

# Foreword for Proceedings of the 3rd International Conference on Conservation of Nature and Siddha Medicine



It is with deep satisfaction that I write this Foreword to the Proceedings of the 3<sup>rd</sup> International Conference on Conservation of Nature and Siddha Medicine organized by William Research Centre, Nagercoil, and December 14-15, 2020. It is our pleasure to welcome everyone to the historic event. A major goal and feature of it is to bring academic scientists, biologists, industry researchers together to exchange and share their experiences and research results about most aspects of nature, Siddha its conservation, and discuss the practical challenges encountered and the solutions adopted towards the preservation of our own traditional systems of medicine. I hope everyone will gain in-depth knowledge about the conservation about our nature and Siddha medicine.

CNRTSPA 2020 promises to be both stimulating and informative with a wonderful array of keynote and plenary speakers from all over the world. Delegates will have a wide range of sessions to choose from and will have a difficult decision in deciding which sessions to attend. The papers contributed the most recent scientific knowledge known in the field of orchid biology, cancer, herbal pharmacology, drug delivery, natural products research and its conservation, preservation of Siddha system, etc., I trust also that this will be an impetus to stimulate further study and search in all these areas towards the preservation of nature and Siddha medicine.

The program consists of plenary sessions and discussions with eminent speakers covering a wide range of topics in Nature and Siddha Medicine. This rich program provides all attendees with the opportunities to meet and interact with one another. We hope your experience with CNRTSPA 2020 would be fruitful and long lasting one. With your support and participation, the conference will continue its success for a long time.

I would like to thank the organizing secretary Dr.R.Mary Suja, Director, WRC, and the members of the conference organizing and advisory committees and reviewers.

We wish all attendees of CNRTSPA 2020 an enjoyable scientific gathering. We look forward to seeing all of you next year at the 4<sup>th</sup> conference.

**Prof.Dr.R.Meenakumari**

Director,  
National Institute of Siddha, Chennai.

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## **PLENARY LECTURE**

### **ABSTRACT : 1**

#### **“BUILDING PERSONAL AND COMMUNITY RESILIENCE AGAINST**

Ann Holoday, UK

Resilience means “having the ability to rebound after difficulties, barriers or obstacles.” Covid 19 and effects of Climate Change have created unanticipated difficulties, barriers and obstacles around the world and it is clear that humanity cannot continue to abuse the earth as it has done and continues to do so. Ayurveda says that the only person we can change is ourself, so we must build resilience against these forces by looking to nature itself, working in harmony with it and abiding by its laws. We must strengthen human immunity and manage the inevitable stresses that these crises present. The ethics and principles of Permaculture show us what we must do to correct our behaviour so that human activity will benefit the earth rather than contributing to its decline. Global crises require people to unite globally but act locally to make significant, incremental changes,

### **ABSTRACT: 2**

#### **POTENTIALS OF SIDDHA SYSTEM OF MEDICINE INCLUDING CONSERVATION OF MEDICINAL PLANTS**

**Prof. Dr. K. Kanakavalli,  
Director General,**

**Central Council for Research in Siddha, Chennai**

More than 80% of people living in developing countries are totally dependent on herbal drugs for their primary health care. According to IUCN and WWF, there are between 50,000 – 80,000 flowering species that are used for herbal medicine worldwide among which 15,000 species are being threatened with extinction from overharvesting and habitat destruction. India is one among the Asian countries with the risk of extinction of medicinal plants. Concerns have been raised about the unsustainable collection from wild forests resulting in many species entering into red data book. Red data book is a document created by IUCN for recording endangered and rare species of plants.

Siddha system of medicine was earlier considered as a system useful only for chronic illnesses, but with advent of epidemics and pandemics, it is evident beyond doubt that Siddha therapeutics can work at par with the conventional drugs in providing relief for acute illnesses as well can work in synergy with modern drugs in providing restorative care. The outcome of Siddha standalone Covid Care Centres in the state of Tamil Nadu in

successfully treating more than 28,000 Covid patients in 33 centres is commendable. The effectiveness of Siddha drugs could also be witnessed through clinical trials and pre-clinical trials with few studies accomplished and few more in progress including a double blind randomized control trial. The Siddha formulations has improved the recovery rate and reduced the mortality even during previous epidemic outbreaks of dengue, chikungunya, swine flu, etc.

Central council for Research in Siddha has been actively involved in the conservation of herbal plant species especially endangered species. The recommendations for herbal conservation strategies can be broadly explained in terms of in situ, ex situ conservation and cultivation practice. While the natural reserves and wild nurseries are typical examples of in situ conservation to retain the efficacy of plants in their natural habitats, while botanical gardens and seed banks are important paradigms for ex situ conservation and future replanting.

Techniques of ex-situ conservation strategies is being followed in Siddha Medicinal Plants Garden, (SMPG) in Mettur Dam, Tamil Nadu a peripheral Unit of CCRS. Two individual model herbal gardens with more than 250 species in each are being conserved. Cultivation of important medicinal plants is carried out. A seed bank with seeds from around 232 different medicinal plant species are being preserved. Techniques of eco-conservation to harvest roots for medicinal/economic purposes without terminating the plants are one of the key strategies being followed in SMPG, Mettur Dam. Furthermore, a polygreen house and an arboretum are being maintained.

The maintenance of quality, safety, efficacy of herbal medicines are the major challenges in the growth and outreach of the traditional medicines. Concentrating on following good agricultural & collection practices (GACP) will go a long way in quality improvement. Siddha classifies drug sources into three broad categories namely, plant products (*moola vargam*), norganic substances (*thathu vargam*) and animal products (*jiva vargam*). In Siddha system of medicine, more than 1300 plant species are being used for medicine purposes (Indian Pharmacopeia 2010).

The classical texts say, “*Ver paaru, thazhai paaru, minjinakaaal mella mella parpa chenduram pare*”, advocating the primary use of drugs of herbal origin. In Siddha classics, emphasis has been made on how to collect different parts of the plant in different seasons. This was to get the optimal concentration of the secondary metabolites. Further, particular phonemes were spelled out before uprooting a plant so as to neutralize the negativity. The roots of the annual plants must be taken after they are well developed and mature. Moreover, the collection of roots and rhizomes must be done after seed shedding so as to help regeneration of species. The standard guidelines in this regard have been published by the National Medicinal Plants Board, Ministry of AYUSH, Government of India.

Considering the above facts, it is the need of the hour to focus on scientific methods of cultivation, harvesting, processing, grading, transport, storage, labelling and marketing practices involved so as to capitalize on the expanding opportunities in the international

herbal market. Under the aegis of Ministry of AYUSH, Central Council for Research in Siddha (CCRS) and its peripheral Institutes/units is working towards the goal of bringing out the benefits of Siddha medicine to the common people. CCRS encourages scientific innovative ideas in this regard and has always advocated the translation of traditional knowledge from lab to layman.

### **ABSTRACT: 3**

#### **SCOPE AND OPPORTUNITIES OF NANOTECHNOLOGY RESEARCH IN SIDDHA SYSTEM OF MEDICINE**

**Prof.Dr.R.Meenakumari**

**Director**

National Institute of Siddha,  
Tambaram Sanatorium, Chennai.

Incorporation of Nanotechnology on Siddha medicine constituents to tailoring for its potential benefits has been gained an imperative circumstance in recent times. The purposeful advantage emerges if the traditional system of medicine combines based with nanomedicine. (1) Siddha system of medicine can serve as an excellent tool for human in nanomedicine category. These preparations have been used since long and are claimed to be the very effective and potent nanomedicine form (2). Plants, metals, minerals and animals are very vital in Siddha Medicine which is advocated for various debilitating diseases (3) since time immortal. This unique blend alchemical process was practiced by our Saint Siddhars, even before the advent of this scientific era (4).

Medicinal preparations called Parapam, Chenduram, Kattu, Kalangu, Guru are unique to Siddha systems of medicine. These are made from a variety of base materials, e.g. Mercury, Iron, Arsenic, Zinc, Copper and Lead etc., These medicines are taken orally and the dose is very small, commonly a small heap of powder the size of a grains. Some preparations have been pasted with honey, butter, or ghee, and the paste has been taken orally (5). However, the mechanism of action of these unique preparations is not clearly understood yet.

Chemical evaluation of different preparations of iron has been done by Pandit et al. (6) with the help of atomic absorption spectroscopy. Evaluation of chemical constituents of Thanga Bhasma (gold ash) was studied by Mitra et al. (7), with the help of atomic absorption spectroscopy. The preparation process and structural characterization of Velli Bhasma (Silver ash) were studied by Bhgawat et al.(8). It was reported that to reduction (titration) in particle size even up to nano levels (less than 100 nm) enabling increased potency (9) making them effective even low doses (10). The primary objective is to obtain the nanoparticles, devoiding the stresses it incurring during the method of preparation of

the formulations which involves typical oxidation, hydrolysis and other environmental degradations. The aforementioned has provided a shelter to indexing importance of safeguarding the formulations Shelf life.

Siddha concepts of nanotechnology as metal vessels used for the preparation, storage, serving of the food and water have got lot of properties to help the human body and is described in detail, the effect may be explained by the dissolving of nano size particles from the concerned metal dissolved in to the liquid of use which is not possible to see by naked eyes. The fanning of the body using the feathers and using the tree leaves have got different effects on the human body is well described and the effect may be related to the nanoparticle effect on the body through the inhalation mode by the air getting the nano particles from the used materials. The use of different types of leaves for serving the food and its uses are well written and the same mixing of the nano particles from the leaves due to the heat effect may be responsible. The use of external medications such as medicated oils and sandal paste etc., passes through the pores in the skin which are almost quantifiable for the nano pore level may open the gate of nanotechnology for the Nano Pharmacology and Nano Anatomy. In this review our presentation describes scientific appraisal of Siddha Nanotechnology.

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## **ABSTRACT : 4**

### **PREVENTION AND MANAGEMENT OF CARDIO VASCULAR DISEASES THRO' SIDDHA SYSTEM OF MEDICINE WITH VARMAM THERAPY AND ITS RAMIFICATIONS**

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Plants have the ability to synthesize a wide variety of chemical compounds that are used to perform important biological function. These plants having phytochemicals have beneficial effect on long term health when consumed by human. The usage of plants as medicine predates written human history.

We Indians especially tamilians have strong bondage between plants with our routine life. Thus we have a medical system known as siddha system. Like all the system of medicine it has its own principle and theory. In this system, we use herbs, metals & minerals, animal products as medicine. Varmam one of the branches in siddha system helps human society in curing disease. Varmam means the vital life force in the body. Medical Varmology deals with the study of such vital energy in the basis of prevention and curing diseases. Varmam has its own anatomy, physiology, pathology, medicine etc,

Cardio vascular disease is one of the major killer ailments in developing countries now days. Varmam texts speaks about blood vessels, vital organs, like heart, lungs, liver, kidney, brain etc, In Varmam treatment we tune the varmam points and use only herbs as medicine which are safe on internal organs. Standardized preparation of herbal medicine and proper varmam stimulation will manage and cure, CVD such as MI, CAD, Septal defects, HT, Hyperlipedemia, etc in an effective manner.

#### **Introduction:**

The plants that posses therapeutic properties or exert beneficial pharmacological effects on humans are generally designated as medicinal plants. Human beings have been

utilizing plants having phytochemicals for basic preventive and curative health care since time immemorial. The usage of plants as medicine predates human history. Medicinal plants are considered to be an imported wealth of a country. They serve as therapeutic agents as well as raw materials for manufacturing of both traditional medicine and modern medicine.

Cardiovascular disease is one of the major killer ailments in developing countries nowadays. There is a need for an effective management for such diseases. The Indian system of medicine (Siddha and Varmam) along with modern techniques will be a permanent solution in treating CVD patients and help them to lead a long and healthy life.

### **Siddha System of Medicine:**

We Indians, especially Tamilians have strong bondage with plants in our routine life. This laid the foundation for a medical system known as Siddha system. Siddha system is purely a scientific based system which has got lot of treasure in flora, fauna, and mineral resources and healing. Tamil medicine was contributed to the human kind by Siddhars, who were the great premier scientists of ancient days. Siddhars were of the concept that a healthy soul can only be developed through a healthy body. So they developed methods and medication that strengthen the physical body, mind and soul.

Like all systems of medicine, it has its own principles and theories Siddha system is based on 96 philosophies including 5 primordial elements (5 Bhoothas). This principle also includes sense organs, motor organs and its functions. It also consists of Intellectual faculties, Intellect; Vital channels (Naadis), vital air force (Vayu), vital system, nerve plexus, regions, mental binders, life humors, physical bindings, qualities, acts, passions and state of conscious. Siddhars have mentioned that all the elements in the universe are present also in the human body (i.e.) Macrocosm-Microcosm; or all matters living organisms are made up of 5 elements (Boothas)

Among the things mentioned above, 3 humors Vatham (creative factor), Pitham (maintenance factor) and Kapham (degenerative factor) are very important for the vital functioning of the body. The disproportion of these thathus leads to disease. Siddha system claimed to revitalize and rejuvenate dysfunctional organs that cause disease and to maintain the ratio of these 3 humors. Predominance of any one of vatha, pitha, kapha dhosas leads to disease. This may be due to environment, climatic conditions, diet, stress and physical activities.

Siddha system also has unique Anatomy and Physiology. According to Siddha medicine, various psychological and physiological functions of the body are attributed to 7 elements. They are saaram (gastric section), senneer (blood), oon (muscle), kozhuppu (fat lubrication),



Enbu (bone), majjai (bone marrow), sukilam. For the diagnosis of diseases, siddhars used 7 diagnostic tools: Na, Niram, Mozhi, Vizhi, Sparisam, Malam, Neer, Naadi. Among these, Naadi parichai (i.e.) pulse diagnosis is a vital diagnostic tool to confirm the disease. The variation of vatha, pitha, kapha dhosas are impression at the pulse.

In this system, we use herbo mineral resources, (i.e.) organic and inorganic materials as medicine. These are properly identified and prepared and given for the treatment after testing the taste, character, potency, class and action. According to the mode of application medicines are categorized into two classes.

1. Internal 32 - based on preparation and shelf life
2. External 32 - (external application oil, heat, massage) Instill drops, leech therapy etc

Siddha system is not only a medical system it is an Art of Living. Its main principle is "Food is medicine". Our Tamizh civilization is well versed in identifying and using the plant resources around us to keeps away the diseases. Since we forgot the old lifestyle like 6 (arusuvai) tasted food, exercises, our country suffers from all metabolic and systemic disorders.

#### **Varmam:**

Varmam is an ancient system of medicine and defense in India. Varmam is one of the branches in Siddha system. It helps human society in curing diseases. Varmam is the basic vital energy flow in the body. It is the basic force needed for the function of the body. It is inherited from our parents. This energy flow meets in some site which is called as varmam point.

This subtle energy is the manifestation of five elements (5 boothas), vayu (gases), naadi, vaasi. Varmam literally means Air. That place where the energy resides activates both body and life is varmam. They are located in nerves, bones and muscles.

In Tamil literature this energy is described as various energy during various periods. In one literature it is denoted as

- Mano sakthi - energy from brain transmitted throughout the body.
- Arul sakthi - energy flowing from perineum reaching brain and transmitted region through the body.
- Peroli sakthi
- Kaaya sakthi - body energy
- Kaantha sakthi - magnetic energy received by the body from the earth.

### **Age of Varmam and Evidence:**

We can get reference of varmam from 'Tholkappiam'. This is an ancient text which is the base for grammar in Tamil language and literature period of (5000 BC- Tholkappiam) use the term 'Vali Aatral'.

- There are nearly 120 books in various titles available in the name of varmam.
- Around 30,000 verses speak about varmam and its units.
- Most of them are available in palm leaf name scripts.

All these texts have names from the heritage of siddhars–Agasthiars, Bogar, Ramadevar, Thirumoolar, Theraiyar.

### **Varmam Art and its Ramifications:**

Origin of varmam art is Tamilnadu, especially southern part of Kanyakumari, Tuticorin, Tirunelveli and Southern part of Kerala. It has various branches. It includes defence, spiritual, yogic, astronomy, tantric, dietic, philosophical, medical varmalogy etc., All the branches are necessary for the well being of mankind. Varmalogy is the systemic study of varmam points in the body.

Varmam texts describe that functional change in Varmam points are the main cause for diseases. Medical Varmalogy is the basis for prevention and management of diseases. Medical varmalogy refers to the rhythmic tuning of points for curing various diseases by varmam experts. Right vibration in the points promotes health.

As per text, about 8000 varmam points are there in our human body. So far we have found exact locations of about 2000 points. But majority of the texts limits the number of points to 108. These 108 points are divided into 2 categories. 12 padu varmam and 96 thodu varmam.

- Padu Varmam - major varmam points (primary) 'Padu' means Perarivu (connected to brain)
- Thodu Varmam – minor varmam points situated by touching. 'Thodu' – touch, connection. The energy can be stimulated by tuning with fingers.
- Thattu Varmam – Varmam points stimulated by tapping method.
- Inai Varmam – Varmam points that works along with another varmam
- Pakkavarmam – varmam points that are found in the vicinity of a single varmam.
- Naal varmam – varmam linked with 27 stars (eg.) Revathi star linked to Thivalai Kaalam (heart)
- Ellidai varmam – varmam in between bone joint points.
- Podu varmam – Points varmam points activated by blowing air especially used in case of pregnant women.

- Nakku varmam – varmam stimulated by licking especially used for new born babies.
- Nokku varmam – stimulated by eye energy to cure various diseases
- Kraha varmam – varmam receives and converts planetary energy into body energy
- Patchi varmam – related to internal organs.
- Vatha varmam – regulates air functioning in the body (oxygen)
- Pitha varmam – regulates heat function (thermal energy)
- Silethuma varmam – regulates blood constituents and secretions (phlegm) in the body.

### **Treatment Methodology: Energy Transfer**

If the person has insufficient energy we can use the following kinds of energy.

- Body energy – use once own energy for curing disease.
- Herbal energy – use plants
- Metal energy – in varmam, we are not using metals directly. Herbs containing metal are used (eg) Nelumbo -> Silver micronutrients – heart function
- Animal energy – the extracts from animal and birds organs are used as medicine.
- Celestial energy – transfer cosmic energy -> body energy
- Tantra energy – transfer of energy from one human to another human especially in the case of children – we transfer energy from parents to offspring.

### **Function:**

Varmam points function through various mechanisms. It can do maximum 10 functions

- |                |   |               |
|----------------|---|---------------|
| ○ Urinjal      | - | receiving     |
| ○ Oothal       | - | sending       |
| ○ Iyakkal      | - | activating    |
| ○ Iraithal     | - | pumping       |
| ○ Uruthiakkal  | - | strengthening |
| ○ Pirithal     | - | separating    |
| ○ Thotruvithal | - | creating      |
| ○ Valarthal    | - | increasing    |
| ○ Matruthal    | - | modification  |
| ○ Thadaval     | - | leaping       |

These functions vary on the basis of need of organs. Each point will carry out minimum of 2 functions. Disease in the body result if any one function mentioned about is affected.

It also describes about Naadies. 10 vital airs (Thasa vayu) function in the body through the Naadies. Naadi act not only as a channel of blood flow but also extends to vital energy streams Naadi refers to both physical pathways and to subtle energy flows.

**Varmam and Angular connection:**

The body functions only because of proper link of the varmam points among them. This links are known as Konanilagal/Angular connection. On the head, the varmam points are connected in a circular manner, on neck crescent, on chest it is hexagon, square on stomach, triangle on lower abdomen, pentagon on back. For proper varmam treatment we should know about this angular connection.

**Varmam - Measurement:**

Every varmam point has its own size and shape. In order to activate the points properly we should know the specific length, width, breadth and shape of each varmam point. Each varmam point has 3 basic units of their dhosam *Vatham, Pitham and Silethuman*.

**Varmam – Treatment Techniques:**

Vamam can be stimulated by six types of medical methods to treat diseases.

They are

- stimulation of varmam points
- herbal treatment
- metal treatment
- extract of animal and birds as medicine
- astronomical treatment
- tantric treatment

The stimulation of varmam points is the basic method. For proper tuning we have to know about

- Kai baham ( fingering method) - 4
- Sei baham (application method) – 12
- Mathirai Kanakku – depth of touch
- Pathi Kanakku – pressure of touch.

So a single varmam point can be tuned in 48 different methods to cure different kinds of diseases. We should have proper Gurukula training for this treatment.

**Diagnosis:**

Since varmam points have 3 dhosas in them, pulse reading, signs and symptoms helps in the diagnosis. Through pulse, loss of energy in a particular varmam can be identified and diagnosed. Treatment is given on this basis.

**Methods:**

Every varmam has its positive and negative part. Loss of energy in one point can be corrected using other point. Positive of one point will be negative for another. If the required amount of energy is made to reside in a varmam, the disease can be treated.

Adangal and Thiravukol are important techniques used for the emergency treatment especially in raising the unconscious person to consciousness. Varmam treatment will be helpful in chronic as well as acute conditions.

### **CVD in Siddha System:**

In Siddha system, CVDs are described as ‘*Thamaraga Noi*’ (thamaragam – heart) ‘Rudhra Roham’, Rudhra Vayu’.

#### Etiology:

*“Vayu vinale Valarum Rudhra Rogam”*

Disproportion of vayu especially udanan and pranana causes heart diseases. Factors causing this disproportion are sedentary food habits, excessive intake of sour, salty, bitter, astringent taste food items, strenuous work, exertion, excessive emotion, etc. Also worm infestation infections are said to be a cause of CVD in Siddha system.

Heart lies on the ‘pitham’ predominant area in the body. Circulation of blood is said to be controlled by vatham. These disproportions are also caused by sedentary life style. Intake of Alcohol, oily food items, carbohydrate rich foods, smoking etc.,

The clinical symptoms mentioned include chest pain, dyspnoea, chest tightness, fatigueness, pedal oedema; at times it leads to death. The important cause for CVD is said to be increase in Vayu dhosam.

#### **Pathology:**

Here we discuss pathology behind some of the ailments related to CVS that are treated by Siddha medicine.

HTN It is due to the disproportion of vatham in the blood.  
IHD

CAD- In this condition kapham thosam block the motion of vatham, pitham and thereby circulation is affected.

MI This is due to the inappropriate increase of Vayu, especially  
Heart Failure Vyana vayu.

#### **Diagnosis:**

In ancient days, heart diseases were diagnosed through pulse. Increased silethuma naadi, decreased pitha naadi, splitted vatha naadi, conjunction of vatha and silethuma naadi reveals problems with heart.

**Herbal Treatment:**

One of the main drugs used in Siddha system in the case of CVDs is ‘Marutham’ – Terminalia arjuna. Marutham tree itself has a special important in Tamil literature. One of the classifications of living place in the Tamizh society was named as “Marutham” which may be because of this tree. Marutham, which is a delightful dwelling place in the earth, is a wealthiest and healthiest place than other. This tree has a place in Mythology: Arjun tree was the favourite tree of Sita.

- It is a deciduous tree which native is India. It grows about 27metre high.
- Its bark is mainly used as medicine.
- It is large, evergreen tree; spreading crown and drooping branches.
- Bark is grey and smooth.
- Flowers are white, small, long hanging raceme.
- Its root and seed are also used as medicine.

Agasthiar Gunapadam, one of the important pharmacological texts in Tamil describes Marutham’s property. It cures Genito urinary tract infections-leucorrhoea, poly uria like problems helpful in skin disorders including leprosy, worm infestation, and colicky pain. It is a very good cardiac tonic. It also has Anti vatha property.

**Constituents:**

Bark – Casuarin saponin glycoside (Arjunic acid, arjunolic acid, tannins, cardenolide, teriterpenoids, arjunogenin, flavanoids, (arjunone, lubeolen).

Gallic acid, ellagic acid (OPCS (oligomeric), phytosterols)  
Root and Seeds Cardenolide Cardiac glycoside

**Action:**

Alexteric, styptic, tonic, Anthelmintic, Cardia tonic, healing property.

**Uses:**

Saponin glycoside – Iontropic effect  
Flavanoids, OPC -> Anti oxidant activity and vascular strengthening.

Cardiac glycoside – Increased force of cardiac contraction by means of rise in Intracellular Na and Ca. Mild diuretic, anti, ulcer, healing property. Blood thinning, prostaglandin (E2) enhancing and blood lipid lowering property, helps dilation of blood vessels.

Marutham Pattai Chooranam reduces the symptoms and complication of the HT-Dizziness, insomnia, lassitude, occipital headache, and breathlessness. It alleviates the symptom of asthma. Thus it protects the coronary artery and cardiac tissue from Ischemic damage.

Marutham bark decoction/chooranam will promote health and has cardio protective property. Since it has the property of correcting the Vayus, it can be used to normalize the prana vayu and udana vayu which as the main cause for CVDs.

*“Indran parathanin podi neeruna  
Banthamakiya valipaiyulelam marum”* (Therayar Karisal)

Indian Par -> Other synonym for Marutham bark (pattai)

#### **Varmam and CVD:**

Varmam text describes about CVS in a detailed manner.

- It describes CVS as '*Rathaasayam*', heart as Koombeeral.
- Blood vessels and nerves as Naadi. Naadi also refers to the rate of flow of blood. Arterial and Venous system as Sengathali Vana thottam and Karungathali Vana thottam.
- Pancha Varna Kugai – refers to Thoracic case (Rib case) with its organ. Heart, liver, lungs, spleen, gall bladder.
- We should know the code words (*Paribaashai*) to understand the matters properly in ancient text.

Varmam text, Varma Sootcham-1500, explains blood vessels supplying heart (coronary artery), properties of cardiac muscle, chambers of heart, systolic and diastolic functions and its dysfunctions. Varmam text explains six chambers in the heart.

#### **Varmam points related to heart functions:**

- ***Thivalaikaalam***: it lies four fingers below left infraclavicular fossa or four fingers above nipple. It improves heart functions and reduces heart related stress. Only the text Varam Sootcham-1500 describes about right side Thivalaikaalam. This point is tuned using three fingers since it is three fingers breadth. This Varmam point is linked to Revathy Star. Right side Thivalaikaalam helps in liver and lungs functions.
- ***Koombu Varmam***: it lies on the left side of the chest, right to the heart. It energise heart, reduces palpitation, corrects septal dysfunction. It improves right atrium and ventricular functions. We are using this point in the case of ASD, VSD, CAD.

- **Vitil Varmam:** it lies three fingers lateral to left nipple. It regulates blood flow in to the heart especially to left ventricle, reduces tachycardia.
  - **Thisai Varmam:** it lies one finger above left nipple. It gives energy to chambers of the heart, arteries and veins.
  - **Anuman Kaalam:** it lies one finger below left nipple. It strengthens cardiac muscle, liver and stomach.
  - **Thatchanai Kaalam:** it lies on the palm. Strengthen the heart, reduces dyspnoea. While clapping, eating, licking the food this point is stimulated.
  - **Munmudichu:** it lies on the sternum. It regulates the blood supply to brain (carotid artery), reduces body tiredness.
  - **Adimoottu:** it lies on the wrist. It improves cardiac and thyroid functions. It also strengthens urinary system.
  - **Nadukku:** it lies on the dorsal surface of the palm. It increases brain perfusion, increases blood pressure, controls tremor, strengthens heart-lungs-liver and gall bladder.
  - **Uthirakaalam:** it lies near sternocleido mastoid. It regulates thyroid functions and control jugular pressure.
  - **Muthu Thamarai:** it lies on the sole. It improves ejection function of heart (i.e.) systolic and diastolic functions.
- These points can be stimulated after getting proper *Guru's* training/guidance.

The imbalance or injury to a particular varmam points due to any reason is recorded in the heart through the flow of naadis. This results in the disease because the 3 dhosas Vatha, Pitham, Silethumam which besides in heart get affected. Loss of energy in blood vessels, heart, lungs leads to imbalance in circulation of air leading to diseases.

In our Institute ARI, TVR&TC, Coimbatore we are treating various diseases like neurological disorder, gastro intestinal disorders, joint disorder, genetic disorders, CVD, gynecological, paediatric etc., Among those 15% cases are related to CVD like,

- ASD, VSD – septal defect
- Hypertension
- Valvular heart disease – AR, MR
- Chronic heart failure
- Ischemic heart (failure) disease
- Left ventricular hypertrophy
- CAD – TVD
- RHD – post valvuloplasty
- Post CABG surgical patients
- Arrhythmia
- Rheumatoid heart disease



Those patients took varmam treatment along with their Allopathy, Siddha, Homeopathy or Ayurveda medicine. Varmam treatment (tuning) is given twice a week.

Most of the patients had clinical symptoms of dyspnoea, palpitation, pedal oedema, fatigueness, giddiness, occipital headache, insomnia, hemoptysis (in some cases) even though they are under medicines. Using varmam literature as evidence, we have given treatment for their related ailments. We stimulated the varmam points strengthening the heart and blood vessels, immune system as per the need. The response to the varmam tuning produced better results in this cardiac function. Dyspnoea, palpitation, fatigueness, headache were controlled very well. Ejection fraction EF and cardiac function are raised to normal level. All patients responded very well to varmam therapy.

### **Varmam in Emergency:**

Varmam stimulation will be very helpful in case of emergency. It will be useful in handling cardiac patients. In this conference, we can discuss one important varmam point that we can use for emergencies like acute MI, Angina pectoris etc.,

**Vittil Varmam:** This varmam point is present 3 fingers lateral to left nipple deeply.

- The stimulation of Vittil varmam with middle 3 fingers immediately reduces the heart rate.
- Thereby conditions like (tachycardia) Arrythemia, HT, etc., can be controlled immediately
- This varmam can also be used in the cases of acquired valvular heart, IHD, congenital heart disease.
- Arrhythmia of various causes
- We can use this Varmam point in case of emergency to stabilize the person before hospitalization.
- This may be due to the activation of Vagus nerve. Since vagal activity has direct effect on ventricular contractility, heart rate is slow down by stimulating this point.
- We should know about varmam anatomy and physiology, for knowing proper mechanism behind the stimulation of every varmam and standardize the treatment procedure.

There are other varmam points which improve cardiac function, strengthen cardiac muscle, circulation, (diastolic and systolic) blood thinning, and control hyper tension, diabetes, hyper cholesterol etc.,

**Conclusion:**

The improper functioning of vayus leads to disease, CVDs results in the improper functioning of ‘pranan’ and ‘udanan’ vayus. Varmalogy is purely related to medical field. It has its own theory and practices and also fully developed Anatomy and physiology. The texts describes about surface anatomy, internal anatomy, physiology, pathology of disease, diagnostic methods, line of treatment, varmam stimulation, preventive measures and management of diseases.

Hence to maintain a healthy life, it is very important to protect the vayus and their flow in the body. The management of CVDs is very difficult in the modern world. IT is associated with many complicated diseases at its later stage. Siddha medicine-Marutham Pattai Chooranam along with varmam points will tremendously work in case of CVDs.

The specialty of varmam treatment is that it works without medicines, but it can be used in conjugation with any other medical field. It has no adverse reaction.

Ultimately it is cost effective and less expensive treatment. If all the system of medicines (Allopathy, Siddha, Ayurveda, Homeopathy) join hands with varmam we can create healthy world.

**Acknowledgement:**

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**ABSTRACT : 5****Siddha was effective in the management of COVID-19, but evidence is hidden**

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During the COVID-19 pandemic, Ministry of AYUSH has released the ‘Guidelines for Siddha Practitioners for COVID 19’. Based on that Government of Tamil Nadu introduced kabasura kudineer as a prophylactic agent, which is a polyherbal formulation containing 15 herbs. Freshly prepared decoction was given daily twice for public and COVID frontline workers. In-silico studies have shown that this drug blocks viral entry into human body as well as viral multiplication. Pharmacologist suggested that alternate days’ consumption of this drug could act as chemoprophylaxis of COVID. Government of Tamil Nadu has setup 32 Siddha COVID care centers in each district, where kabasura kudineer, nilavembu kudineer, adhathodai manappagu, brammanandha bairavam pills were used to treat COVID positive patients. There were more than 10 clinical trials started at various centers and they had shown benefits with Siddha therapy.

Adathodai kudineer, athimathura chooranam, Vitex negundo steaming, vajrakandi chendooram, are some of the other drugs used by various Siddha practitioners to treat their COVID-19 patients. Siddha drugs became so popular for COVID across India and globally. Siddha was effective in prevention and treatment of COVID-19 patients. All the asymptomatic, mild and moderate patients were managed with siddha therapies. Even Varmam therapy also proposed to improve immunity. The death rate was remarkably reduced among severe cases who received Siddha along with allopathy. Siddha drugs are also given for the comorbid conditions such as diabetes, COPD, cardiovascular diseases and other immunocompromised people. Ministry of AYUSH introduced the “Ayush Sanjivani” mobile app to collect the details of traditional medicines or home remedies used for COVID by Indian population.

However, research also should be focused parallel to clinical practice. Without research evidence, Siddha therapy may not cross the borders of nation. The chemistry, mechanism, toxicity of each drugs and the substitute for rare herbs should be studied in detail, which are essential to study the drug interactions when used an integrative therapy. More pregnancy women might have consumed these drugs and delivered babies. Instead of a separate clinical trial, it is the time to observe the mother and babies to answer whether any risk during pregnancy.

We must analyze the data from Ayush Sanjivani app to get more details, that could be utilized for public health. We must encourage all individual Siddha doctors to publish case reports that will be a great clinical evidence on COVID management. The pharmacovigilance division must bring the data to the public. The basic medical scientists could move forward for drug discovery and development. The patient compliance for kabasura kudineer was less on long term basis due to bitter taste and the preparation procedure, during which the dose was not uniform. Hence, the pharmaceutical researchers may work to convert the decoction formulation into a palatable syrup or tablets. Overall,

the Siddha has contributed for the management of COVID-19, but needs systematic data collection to create evidence.

### **ABSTRACT: 6**

#### **Conservation of important Indian Siddha Plants & Enhanced production of valuable phytochemicals**

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The demand for *in vitro* derived phytochemicals is increasing day-to-day because of their wide range biological activity and higher safety margin. Plant tissue culture is a potential tool for rapid multiplication of plants and *in vitro* production of phytochemicals is really an attractive alternative. *Bacopa monnieri* (L.), commonly known as “Brahmi” is a sprawling succulent ayurvedic herb traditionally used as a brain tonic to enhance memory and to prepare popular ayurvedic preparations. To date, commercial production of bacosides is met solely from the natural populations and this may question the future availability of the plant in enormous quantities. Similarly, *Solanum trilobatum* (L.) is one of the most esteemed medicinal plants among Ayurveda and Siddha medical practitioners in India. The need for these plants is increasing day by day and to date, commercial production of solasodine and bacosides are met solely from the natural populations and this may question the future availability of the plants in enormous quantities. Therefore, biotechnological approaches such as hairy root cultures and elicitation are the best way to preserve the plant and to meet the increasing market demand of phytochemicals. *A. rhizogenes* mediated transformation has been experimented in leaf explants of *S. trilobatum* and *B. monnieri* and in order to assess the regeneration potential of hairy roots followed by the elicitation of transformed plants for increased bacoside A and solasodine production. Four wild type *A. rhizogenes* strains, MTCC 532, MTCC 2364, A4 and R1000 were used in this study. In *B. monnieri*, MTCC 532 derived HR displayed maximum regrowth frequency of about  $85.71 \pm 1.84$  % with an increase in biomass to threefold. In *S. trilobatum*, 5 clones were scrutinized based on their rapid growth in MS solid medium and exemplified for biomass and solasodine accumulation. PCR and Southern hybridization analysis revealed the integration of rolA gene (280 bp) in transformed roots.

## ABSTRACT: 7

### Planery lecture on Nature of Biodiversity and CoViD-19 Pandemic

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*“Humankind Must Live in Harmony with Nature, World Leaders Stress,  
Warning One Million Species at Risk of Extinction if Current Trends  
Continue”.*

This COVID 19 pandemic is a wake up call to the world to halt an alarming decline in its rich biological diversity, but it is also a unique opportunity to put bold and ambitious environmental action at the heart of national post coronavirus economic recovery strategies as the international community strives to fulfil the Sustainable Development Goals, speakers said today as the General Assembly hosted the first ever global summit ever dedicated to biodiversity.

Humanity’s existence on Earth depends entirely on its ability to protect the natural world around it. Yet every year, 13 million hectares of forest are lost and 1 million species are at risk of extinction. In the last 50 years, species of vertebrates — a category that ranges from frogs to elephants — have declined by 68 per cent. To continue down this path is not only to lose natural riches, but also to jeopardize food security, water supplies, livelihoods and the ability to fight disease and face extreme events. Noting that more than half the world’s Gross Domestic Product (GDP), or 44 trillion, is dependent upon nature, he said that, according to the World Economic Forum, biodiversity loss and ecosystem collapse is among the top five threats facing the world today. That COVID 19, much like Zika, Ebola and HIV/AIDS, is among the 60 per cent of infectious diseases that originate from animal populations under severe environmental pressure.

Humanity must rebuild its relationship with nature. Deforestation, climate change and the conversion of wilderness for human food production are destroying Earth’s fragile web of life, which must be healthy for current and future generations to thrive. Biodiversity and ecosystems are essential for human progress and prosperity, and central to achieving the Sustainable Development Goals and implementing the Paris Agreement on climate change, yet none of the global biodiversity targets set for 2020 will be met. **“Much greater ambition is needed, not just from Governments, but from all actors in society.”** It emphasizing that degradation of nature is not purely an environmental issue; the topic spans economics, health, social justice and human rights, and that neglecting precious resources can exacerbate geopolitical tensions and conflicts.

“By living in harmony with nature, we can avert the worst impacts of climate change and recharge biodiversity for the benefit of people and the planet”. Nature based solutions must be embedded in COVID 19 recovery and wider development plans, given how the

preservation of biodiversity can create jobs and economic growth while also tackling the climate crisis. Economic systems and financial markets must account for and invest in nature. We required more attention for nature is far less than current levels of harmful subsidies for agriculture, mining and other destructive industries. The international community must also secure the most ambitious policies and targets that protect biodiversity and leave no one behind, stressing that nature offers business opportunities to poor communities from sustainable farming to ecotourism. The urgency to “bend the curve on biodiversity loss” and send a strong signal in the run up the “**Nature is resilient and it can recover if we ease our relentless assault,**”

Biodiversity and hospitability of planet accommodated the emergence and evolution of the human species, providing nutrition, clean air, fresh water, natural medicines and bountiful raw materials. The world’s holy books prescribe respect for each other, as well as for nature and its bounties. In the modern era, nature has been severely abused. Half the live coral cover on reefs has disappeared since the 1870s, with accelerating losses due to climate change. Humanity is at war with nature and nature is fighting back. The impacts of climate change are visible and biodiversity loss will be equally devastating for the future of humanity. Loss of biodiversity increases the likelihood of zoonotic diseases and COVID 19 is a grim reminder of the relation between humans and nature. If the biodiversity goals are not achieved, most of the other goals will be difficult to realize by 2030. A new social and economic paradigm is needed that values nature more than gross national product (GNP) and per capita incomes also. In promoting biodiversity goals there is a need to contain the economic greed and policy negligence that is driving humanity to destroy the planet.

Drew attention to a global assessment, which found that over 50 years, the world has lost, regulating contributions such as pollination or the capacity to regulate air quality have been lost, as have other non material contributions important for people’s sense of cultural identity or belonging: the production of food, fiber or energy, for example. People should care about these negative trends, because they imply that the 2020 biodiversity targets will not be achieved, nor will the Mayors’ 2030 Vision — especially goals related to poverty, hunger, climate, water, health, land and oceans. “We need to listen to the science and take decisions accordingly,” most of researches and naturalist asserted. Clearly, we must heed the lessons we have learned and respect the world in which we live, describing COVID 19 as an opportunity to do just that. A post pandemic green recovery that emphasizes the protection of biodiversity can lead to a more sustainable and resilient world.

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## ABSTRACT : 8

### ***IN SILICO* SCREENING OF NATURAL COMPOUNDS AGAINST SARS-CoV-2**

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**The novel Betacoronavirus, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), caused acute onset pneumonia of Coronavirus Disease 2019 (COVID-19), emerged in Wuhan City, China at the end of 2019 and became a global pandemic. To date, there have been no proven medications or vaccines against this virus. It is an urgent need to explore all possible therapeutic options that can be made available to avoid disease proliferation and to improve patient upshots. Due to the non-availability of clinically proven treatments, the natural products strategy is currently being used for their potential benefits in the treatment of COVID-19. This presentation analyzes how both structure and ligand-based drug discovery helps to design better natural products to inhibit the proliferation of SARS-CoV-2.**

**Keywords: Betacoronavirus, Coronavirus, Spike Protein, ACE2 receptors, AYUSH**

## ORAL PRESENTATION

### ABSTRACT : 1

#### NATURAL APPROACH TOWARDS COVID-19

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Natural compounds have received increasing attention for various antiviral potential. Rasayana (medicinal plants used in the Indian Traditional System) used to enhance body's resistance have attracted the eye of scientists all over world as a possible source of therapeutics for unmet medical demands. On 24, January 2020, the primary patient having symptoms of COVID-19 pneumonia, was recovered from hospital after treatment with Traditional Chinese Medicine (TCM), although its effectiveness remains uncertainly. Respiratory Syncytial Virus (RSV) is that the commonest childhood respiratory pathogen, infecting approximately 90 percent of all infants within the primary 12-18 months of life. The intake of human milk all of its immunomodulatory constituents may contribute to guard against RSV disease and also diminished properties for variety of chronic diseases, including Chronic wheeze and asthma. WHO (World Health Organization) acknowledge that herbal plants like sweet wormwood are being considered as possible treatment for COVID-19. Although no antiviral treatment has been approved and no vaccine is currently available, currently drug repurposing is an encouraging strategy to quickly find an safe and effective treatment for COVID-19, several approaches have been suspect such as Lopinavir/ Ritonavir (400/100 mg orally in every 24 hours). These natural approaches against viruses, because of their natural origin, safety and low cost compared to psychoactive substances. In January 27, 2020 notify FDA (Food and Drug Administration) and FTC (Federal Trade Commission), the natural products association was the foremost trade associated to urge the agency to take action against nutritional supplements claiming to "treat/ prevent infection by the COVID-19". Thus licensing of herbal remedies with ambiguous benefits and few risks, as evidence by an extended history of safe medicinal use and rise societal healthcare costs.

**Keywords:** Rasayana, Traditional Chinese Medicine, Respiratory Syncytial Virus, sweet wormwood, natural products association.

### ABSTRACT : 2

#### MOLECULAR PATHWAYS AND ITS THERAPEUTIC TARGETS OF MCF-7 HUMAN CARCINOMA FROM A PLANT DERIVED NATURAL PRODUCT

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Stem bark of *Cansjera rheedhii* J. Gmelin is widely used as a traditional medicine to treat so many ailments. The present study was carried out to identify the anticancer activity of the bark extract of ethanol extract of the plant *Cansjera rheedhii* J. Gmelin. The objective of this project is to carry out a detailed investigation including antioxidant and cytotoxicity, by using MTT assay and Trypan blue dye exclusion, antigenicity, antibacterial and antifungal potential of the extract. Agar well diffusion assay was conducted to determine the inhibitory effect of bark extract against *Staphylococcus aureus*, *Streptococcus pyogenes*, *E.coli* and *Salmonella* sp.

**Key words** - Molecular pathways, Natural products, Human carcinoma

### ABSTRACT : 3

#### ZERO WASTE POLICY BY PRODUCTION OF LIQUID BIO-FERTILIZERS FROM ENVIRONMENTAL WASTE

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Lignin is a byproduct from Kraft and sulphite pulping industry. It is a complex biopolymer obtained after cellulose fibre extraction from plants. Effective treatment of this lignin is essential for reducing the pollution of water bodies. In the present study, the alkalophilic NaOH effluent from an industry was nullified using acid, HCL, treatment. The effluent was treated with fresh strains of *Bacillus subtilis* and *Trichoderma* spp. The efficiency and quality of strains confirmed using plate count. The fertilizer incubated for 14 days and applied to *Vigna unguiculata* seeds. Biometric evaluations were performed and the yield has found to be increased compared to control and absolute control. This potential treatment of chemical slurry can be compensated for lignite and peat base of phosphate solubilizes potassium and nitrogen fixers. The GC-MS analysis of the formulated fertilizer detected the presence of components like diene pentylesters which stimulate its biocontrol activity. Plant growth promoting factors like macro nutrients and micro nutrients are confirmed by total Kjeldahl digests, UV-Visible Spectrophotometry and Flame Photometer.

**Keywords:** Industry effluent, *Bacillus-Trichoderma*, HCl-NaOH, *Vigna unguiculata*.

ABSTRACT : 4

**PHYTOCHEMICAL SCREENING AND NANOSUSPENSION  
FORMULATION OF *Dryopteris filixmas* RHIZOME  
(TAMIL NAME: IRUVI)**

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*Dryopteris filixmas* (DF) plant is customarily known as “Iruvi” in Tamil and its Rhizome part has been traditionally used against fever, tapeworm infections and gout. It is one of the important constituents in Siddha medicine like Sivanar Amirtham. However, no scientific evidence delineated its therapeutic uses until now. The current study is proposed in a consequence to assess the preliminary phytochemical analysis of the rhizome and development of nanoformulation of the processed rhizome extract. The rhizome part was dried, processed and evaluated for the physico-chemical characterization. The values obtained for loss on drying, total ash, water soluble ash, acid insoluble ash, water soluble extractive, ethanol soluble extractive and ether soluble extractive were within the Pharmacopeia standards, which had confirmed the purity and originality of the sample. The rhizome was extracted with aqueous and organic solvent separately by cold extraction method. The phytochemical screening of both extracts of the processed rhizome sample confirmed the presence of phytoconstituents like alkaloids, tannins, steroids, triterpenoids, phenolics, carbohydrates, saponins and the absence of flavonoids, anthroquinones, fats and oils. Subsequently a nanosuspension was formulated for the DF rhizome extract by Nano-precipitation method. The selected nanosuspension exhibited average particle size of 117.5 nm with PdI value 0.122 and zeta potential value of 4.55 mV, which confirmed monodisperse size distribution and moderate surface charge colloidal stability. The nanoformulation is expected to provide remarkable advantages over conventional crude extract and its incorporation in Siddha medicine could deliver the herbal drug with better therapeutic efficacy at low dose and side effects. The *in vivo* studies of the rhizome extract shall be conducted for anti-gout activity using monosodium urate – induced gout models, and also the acute oral toxicity and sub-acute toxicity studies performed as per OECD guidelines in Wistar rats. The data could reveal the toxicity profile and anti-gout efficiency of the rhizome part of the plant to provide scientific proof-of-evidence for its traditional application.

**Keywords:** *Dryopteris filixmas*, Extraction, Phytochemistry, Nanosuspension, Anti-gout

**ABSTRACT : 5**

**AN ASSESSMENT ON MEDICINAL IMPORTANCE AND TRADITIONAL KNOWLEDGE OF LICHENS IN KARNATAKA, SOUTH INDIA**

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Lichens were non-flowering plants, which consist of symbiont partners of a fungus and an alga. Across the world including India, lichen is one of the important non-timber forest products, which provide food and shelter for small organisms and a source of readily available nutrient capital. *Parmotremachinense*, *Peltigeracanina*, *Everniastrumcirrhatum* and *Usnealongissima* are the widely exploited indifferent parts of the country in traditional medicine and for biological screening. They have a varied chemistry and produce many polypeptide derived phenolic compounds such as depsides and depsidone most of which are not known from other groups of plants. About 800 metabolites produced by lichens are identified. An ethnobotanical study of lichens was carried out in the Western Ghats of Karnataka. The information on lichens collected through interviews with different ethnic communities of Western Ghats by standard questionnaires. All the lichen species are identified with the help of standard manuals and chemical tests. In this study we found that 25 species of lichens and their traditional utilization was observed in this area. Among 25 species 12 species are used as food and 8 were used for medicine and five species used for other purposes. The ethnic/tribal groups such as Kudabi, Banagar, Jenukurabas, Kadukurabas and Soligas are using commonly a lichen species *Parmotrema* as medicine and food in Karnataka.

*Key words:* Lichens, *Parmotrema*, Ethnolichenology, Tribes, Western Ghats

**ABSTRACT : 6**

**A FACILE AND GREEN SYNTHETIC APPROACH TOWARDS THE FABRICATION OF CUO NANOPARTICLES USING *Azadirachta indica* AND ITS CHARACTERISATION**

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One of the things which make unique among the sciences is the synthesis. Chemists generally make things, new pharmaceuticals, food additives, materials, agriculture chemicals and all sorts of useful new molecules. It is prepared from readily available simpler materials. Chemical synthesis is the artificial execution of useful chemical reactions to obtain one or several products. Green chemistry is an area of chemistry and chemical engineering focused on the designing of products and processes that minimized or eliminate the use and generation of hazardous substances. Green chemistry focuses on the environmental impact of chemistry, including reducing consumption of non-renewable resources and technological approaches for preventing pollution. In material science “green synthesis” has gained extensive attention as a reliable, sustainable and eco-friendly protocol for synthesizing a wide range of nanomaterials including metal/metal oxides nanomaterials, hybrid materials and bio inspired materials. Green synthesis is considered as an important tool to reduce the traditional methods of synthesis for nanoparticles commonly utilized in laboratory and industry. In this article, it is summarized that the fundamental process and mechanism of “green synthesis” approaches, especially for metal and metal oxide. Over the last decade, novel synthesis approaches/methods for nanomaterials have been an interesting area in nanoscience and technology. Two different synthetic routes have been adopted from literature to obtain the nanomaterials of desired shape, size and functionalities. The objective of the work is to synthesize CuO nanoparticles by an environmental benign method using the extracts of fresh leaf of neem as a bio reductant and to characterize the prepared CuO by XRD and FTIR. The key applications of copper oxide nanoparticles are as burning rate catalyst in rocket propellant. It can greatly improve the homogeneous propellant burning rate and can be applied to the catalyst, super conducting materials, thermoelectric materials, sensing materials, glass, ceramics and other fields.

Keywords : XRD, FTIR, CuO

ABSTRACT : 7

**GREEN SYNTHESIS, CHARACTERIZATION AND APPLICATIONS OF SILVER NANOPARTICLES OF *Hypnea spinella* (C.Agardh) Kutz Harvey**

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Green synthesis of noble metal nanoparticles (NPs) is a developing area of current nanotechnology research. In this paper we report the green synthesis of silver nanoparticles (AgNPs) using the aqueous extract of red seaweed *Hypnea spinella* as reducing agent

and stabilizing agent. The reduction of silver ions occurred when silver nitrate solution was treated with aqueous extract of seaweed at 40°C. The AgNPs obtained were characterized by UV-Visible Spectroscopy, FESEM, EDAX, XRD and FTIR techniques. The formation of AgNPs is confirmed by the appearance of a dark brown colour of the solution and a characteristic peak at 452 nm in the UV-Vis spectrum. The AgNP lattice is unaffected by other molecules in the algal extract as revealed in the XRD pattern. FESEM images revealed that the synthesized NPs are spherical with size in the range of 64.4 - 66.52 nm. FTIR spectrum indicates the presence of different functional groups in capping the nanoparticles. The seedling growth was positively affected by certain concentration of AgNPs. The time taken for the mortality of the earthworm, *Lampito mauritii* in AgNO<sub>3</sub> was 3 minutes. The 1, 1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging activities were highest in the concentration 500 µl (50.07%). Seaweeds are cost-effective, renewable marine resources. Their abundance and ease of availability also make them good green reagents for the green synthesis of novel AgNPs. Exposure to nano-materials can encourage earlier seed germination and improve plant production as our results indicated in *Vigna unguiculata*, *V. radiata* and *Cicer arietinum*. The outcome of this basic research piece of work is useful to determine the biocompatibility of AgNPs of *Hypnea spinella*.

Keywords : Green synthesis, Silver nanoparticles, *Hypnea spinella*, Characterization, Seed germination, Embryonic axis length, *Lampito mauritii*, Antioxidant activity.

#### ABSTRACT : 8

### HEPATOPROTECTIVE EFFICACY OF COCONUT HAUSTORIUM EXTRACT AGAINST RIFAMPICIN INDUCED HEPATOTOXICITY IN RATS

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Tuberculosis (TB) is one of the infectious diseases which cause number of deaths globally. Tuberculosis is ranked seventh among diseases. Drug induced liver injury (DILI) is one of the cause for acute liver failure. Antitubercular drugs such as Rifampicin and isoniazid contribute to be highly hepatotoxic. This study documented the hepatoprotective efficacy of Coconut haustorium, a spongy tissue found during germination of *Cocos nucifera*. The methanolic extract of Coconut haustorium was studied for *in vivo* models. Hepatoprotective effect of Coconut haustorium was determined using Wistar rats.

Hepatotoxicity was induced using Rifampicin and the biochemical parameters such as alkaline phosphatase (ALP), Lactose dehydrogenase (LDH), Cholesterol, Alanine Aminotransferase (ALT), Aspartate Aminotransferase (AST) was studied along with silymarin standard hepatoprotective agent. The phytochemical investigation of Coconut haustorium methanolic extract showed the presence of alkaloids, carbohydrates, phenol, flavonoid, terpenoids, saponin, protein, amino acid, fats & oil. Administration of Coconut haustorium methanolic extract to rifampicin induced animals reduced the serum transaminases level. The hepatoprotective activity was also supported by the histopathological studies of the liver tissues in control and treated group. This study indicated the hepatoprotective efficacy of Coconut haustorium methanolic extract in rifampicin induced hepatotoxicity in rats.

**Keywords:** Tuberculosis, Rifampicin, Cococnuthaustorium, Phytochemical, Biochemical analysis, histopathology.

**ABSTRACT : 9**

**COMPUTATIONAL ANALYSIS OF MICRORNA BASED  
PHARMACOGENOMIC REGULATION IN PSORIASIS  
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In the era of post-genomics, computational analysis of genomics and transcriptomics to understand the non-coding microRNA (miRNA) based regulated networks in autoimmune diseases like psoriasis is an uphill task. The Challenge was approached on the basis of MicroRNA based Pharmacogenomic regulation. The outcomes of the present study on the identification of a specific miRNA as a potential biomarker for treating psoriasis will be discussed in detail in the presentation.

**Keywords:** Autoimmune Diseases, Computational Analysis, MicroRNA and Psoriasis.

**ABSTRACT : 10**

**EFFICACY OF *Cucumis melo* Var *agrestis* ON HIGH FAT DIET INDUCED  
NON ALCOHOLIC FATTY LIVER DISEASE**

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Non- alcoholic fatty liver disease is a more prevalent disease that causes steatosis leading to advanced fibrosis. The individuals with obesity, insulin resistance and diabetes

mellitus, hyperlipidaemia and hypertension cardiovascular disease have a high risk to develop NAFLD. NAFLD represents a global health problem with no effective therapeutic approach. Therefore, the amelioration of steatosis and inflammation is essential for NAFLD therapy. *Cucumis melo* var *agrestis* is a traditionally used medicinal plant to treat liver diseases. This study is aimed to investigate the protective effect of *Cucumis melo* var *agrestis* methanolic extract on high fat diet induced NAFLD. In this study NAFLD was induced by High Fat Diet (HFD) in Wistar rat model. The phytochemical analysis of methanolic extract of *Cucumis melo* showed the presence of alkaloids, carbohydrates, glycosides, protein and amino acids, phenol, saponin, flavonoid, terpenoid and steroids. High fat diet increased the body weight, biochemical parameters such as cholesterol, triglycerides and serum transaminases level. Administration of *Cucumis melo* methanolic extract significantly lowered the body weight, TC, TG and serum transaminases level. Histopathological examination of hepatic tissue confirmed the therapeutic effect of *Cucumis melo* var *agrestis*. Thus, *Cucumis melo* var *agrestis* could be a promising lead to develop novel therapeutic agent or treat NAFLD.

**Keywords:** NAFLD; *Cucumis melo*; *invivo* model; HFD; biochemical; histopathology.

#### ABSTRACT : 11

### PHARMACOGNOSTIC EVALUATION OF *Clitoria ternatea* L. LEAVES

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Ayurveda is known for its oldest holistic healing system. The system also relates the mankind with nature. India is the center for such traditional herbal medicine. Due to commercialization of Ayurvedic medicine on a global level, these auspicious medicines need to be standardized. One such herb is *Clitoria ternatea* L. The plant belongs to family Fabaceae and popularly known as Aparajita or Shankapushpi. The ethnobotanical studies disclosed that the leaves of this plant are been used for hepatic problems, otalgia and eruptions. The present study is done to investigate pharmacognostical parameters for the said plants. For this, leaflets were studied for the macroscopy, microscopy, powder study and histochemical analysis. The macroscopy of the leaf such as shape, margin and the measurements are significant characters. The microscopic characters go concurrent with the powder study. It showed the presence of calcium oxalate crystals, stomata, vessels, tracheids etc. For physico-chemical constants, such as ash and extractive values were

determined. The physico-chemical studies showed, total ash (8.15 %), water soluble ash (1.88 %), acid insoluble ash (6.58 %), water soluble extractive value (14.92%) and alcohol soluble extractive value (8.34%). The preliminary phytochemical and histochemical studies revealed the presence of alkaloids, saponins, anthraquinone glycosides, terpenoids, flavonoids, etc.

**Key words:** *Clitoria ternatea* L., leaves, pharmacognosy

#### ABSTRACT : 12

### ANTIMICROBIALACTIVITY OF AQUEOUS – CHLOROFORM EXTRACT OF *Swietenia mahagoni* SEEDS AGAINST DISEASE CAUSING BACTERIAL STRAINS FOUND IN FOODS

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Medicinal plants are natural resources yielding valuable phytochemical products which are often used in the treatment of various diseases. A substantial part of the population in developing countries, use folk medicines for their daily healthcare. For this reason, research is carried out, to determine the toxicity of medicinal plants, the aim being to develop effective new drugs that are non-toxic and inexpensive. The phytochemical screening of aqueous seed extract of *Swietenia mahagoni* shows the presence of all metabolites except glycosides and tannin. The phenolic content in alkaloid rich fraction of *S.mahagoni* seed extract showed highest yield in chloroform. The antibacterial activity is carried out using disc diffusion method the maximum activity were shown against gram positive and gram negative bacteria of *E.coli* and *S.aureus*. In MIC method the plant extract shows maximum activity against *B.subtilis* and *S.aureus*. Antimicrobial mode of action using leakage of membrane and biofilm inhibition method maximum in *P.aureginosa* and in *E.coli*.

#### ABSTRACT : 13

### TOXIC PLANTS IN AYURVEDA

DR. SAIRA BANU A.H

Plants are the prime source of medicine in Ayurveda. Several compounds have been isolated from medicinal plants and introduced for the service of mankind. However most of these medicines have been withdrawn due to their toxicity or side effects. Ayurveda



involves the use of drugs obtained from plants, animals and mineral origin. All the three sources of drugs can be divided under poisonous and non-poisonous category. There are various crude drugs, which generally possess unwanted impurities and toxic substances, which can lead to harmful health problems. It is because of the harmful phytoconstituents in them.

‘Shodhana’ [detoxification] is the process that involves the conversion of any poisonous drug into beneficial non-poisonous ones. *Semecarpusanacardium*, *Aconitum*, *Strychnosnux-vomica*, *Acorus calamus*, *Abrus precatorius* etc are some toxic plants which are still used in Indian system of medicine. Aconite, bhilawanols, strychnine,  $\beta$ -asarone, abrin are toxic in nature. These poisonous plants are categorized as ‘Visa’ (poison) and ‘Upavisa’ (toxic but not lethal for human health) in Ayurvedic literatures. Sodhana is in practice since the time of Caraka Samhita but its use expanded with the development of Rasasastra since 8<sup>th</sup> century CE. It is believed that proper processing of these Visas, it can be converted into Amrutha [Nectar].

#### **ABSTRACT : 14**

#### **SIMPLE HERBAL MEDICINES**

#### **MINIJA**

Rigveda, the ancient Indian wisdom of healing has mentioned that all the living beings co-depend with the Prakriti. Prakriti includes Panchamahabhutha’s along with plant based remedies and also minerals. It is believed that all the living beings are made up of Panchamahabhuthas including plants, human beings. Hence plant based remedies plays an important role in Vedic system of medicine because all parts of plants have medicinal properties. There is no plant on this Earth that is devoid of medicinal properties. Plants have been used for medicinal purposes long before pre-historic period.

Ancient Unani manuscripts, Egyptian Papyrus and Chinese Writings described the use of herbs. Evidences exist that Indian Vaidyans, Unani Hakims, European & Meditervanean Cultures were using herbs for over 4000 years as medicine. Traditional system of medicine continue to be widely practised on many accounts. Among ancient civilisations, India has been known to be rich repository of medicinal plants. About 8,000 herbal remedies have been codified in AYUSH systems in India.

Ayurveda, Unani, Siddha, Folk (Tribal) medicines are the major systems of indigenous medicines. Recently WHO estimated 80% of people worldwide rely on Herbal medicines for some aspect of their primary healthcare needs. According to WHO, around 21,000 plant species have the potential for being used as medicinal plants. Treatment with medicinal plant is considered very safe as there is no or minimal side effects. These remedies

are in sync with nature. The Golden fact that use of herbal treatment is independent of any age groups and the sexes. There are 2000 medicinal herbs in Kerala, out of which here explains the most important and rare species. As our lifestyle is now getting techno savvy, it is also important to hold on to our nature and learn about it and its importance and to promote them globally.

**ABSTRACT : 15**

### **NATURAL PLANT PRODUCTS**

**Prasanna Kumar**

Natural products derived from plants for the treatment of diseases have proved that nature stands a golden marks to show the relationship between the interrelationship between man and his environment. The researches and utilisation of the herbal medicine for various diseases increases day by day. Plant is an important source of medicine and plays an important role in the World health. Medicinal plant have been known to be an important potential source of therapeutics or curative aid.

The use of medicinal plants has attained a commanding role in health system all over the World. This involves the use of medicinal plants not only for the treatment of diseases. But also as a potential material for maintaining good health and conditions. Many countries in the World that is one third of the World population depends on herbal medicine for primary health care. The reasons for this is because of their better cultural acceptability, better compatibility and adoptability with human body and pose lesser side effects. Though there are researches regarding plants suggestive of curative, therapeutic etc but traditional cures most especially the folk knowledge of indigenous people are irreplaceable despite the recent advancement in science and technology.

Herbal medicines proved to be the major remedy in traditional system of medicines. They have been used extensively in medicinal practices since ancient times. This prompts the development in the practices of medicinal plants. The reasons are because of their biomedical benefits as well as place in cultural beliefs in many parts of world in the development of potent therapeutic agents. These medicinal plants can be also cultivated in our home for some emergency diseases. It is believed that knowledge of herbal medicine for complicated treatments of diseases is confined to mostly the practising herbalists or plant scientists with the belief that herbal medicines will lose their potency if revealed to all people.

**ABSTRACT : 16**

### **MEDICINAL PLANTS IN HERBALISM**

**Arun R. Nath,**

The term ‘Medicinal Plant’ includes various types of plants used in herbalism. The ancient scholars believed that herbs are only solutions to cure a number of health related problems and diseases. Medicinal plants are considered as a rich resources of ingredients which can be used in drug development either pharmacopoeia, non-pharmacopoeial or synthetic drugs. Apart from that, these plants play a critical role around the whole world. More-over some plants are considered as important source of Nutrition and as a result of that they are recommended for their therapeutic values. Certain medicinal herbs like *Pinusroxhurgii*, have disinfectant property which destroys disease causing germs. They also inhibit the growth of pathogenic microbes that cause communicable disease where as *Tabernaemontanadivaricata* has been used for many conditions such as Antiepileptic, anti mania, anti-oxidant and brain tonic.

Healing with medicinal plants is an old treatment method as old as mankind itself. The connection between human and their search for drugs in nature dates from the far past, of which there are enormous evidences from different sources like written documents, preserved monuments, and even original plant medicines. Awareness of medicinal plants usage is a result of the many years of struggles against diseases and man learned to pursue drugs in barks, seeds, fruits and other parts of the plants. Ever since that, usage of specific medicinal plants gradually increased.

Prior to the commencement of conservation efforts, species rarity is imparted to assess the extinction risk of medicinal plants by identifying those species most at risk of extintinction. Therefore, it needs to address how rare each species differ from one another, whereas not all medicinal plants are affected in the same way by harvesting pressures. Hence all the rare species are to be saved and preserved and cultivated for the future benefits.

**ABSTRACT : 17**

**MEDICINAL PLANTS IN TRADITIONAL SYSTEMS OF MEDICINE  
SUNITHA KUMAR.I.P.D**

Medicinal plants may be defined as those plants that are commonly used in treating and preventing specific ailments and diseases. These plants are either “Wild plant species” those growing spontaneously in self-maintaining populations in natural or seminatural ecosystems and could exist independently of direct human actions or the contrasting ‘Domesticated plant species’ those that have arisen through human actions such as selection or breeding and depend on management for their existence.

Herbal medicine proved to be the major remedy in traditional system of medicine. They have been used extensively in medical practices since the ancient times. This prompts the development in the practices of medicinal plants. The reasons are because of their

biomedical benefits as well as place and cultural beliefs in many parts of world in the development of potent therapeutic agents.

Medicinal plants have provided mankind a large variety of potent drugs to alleviate or eradicate infections and sufferings from diseases inspite of advancement in synthetic drugs, some of the plants derived drugs still retained their importance and relevance. The use of plant based drug all over the world is increasing. There have been records of advances made in the modern medicine, there are still a larger number of ailments or infections for which suitable drugs are yet to be found. This have brought an urgent need to develop safer drugs for the treatment of inflammatory disorders, diabetes, liver diseases, and gastro intestinal disorder.

Through recent researches on herbal medicinal plants, there have been great development in the pharmacological evaluation of various plants used in traditional systems of medicine. Consequently, plants can be described as a major source of medicines, not only as isolated active principles to be dispensed in standardized dosage form but also as crude drugs for the population.

#### **ABSTRACT : 18**

#### **HERBALS IN SIDHA MEDICINE PRACTICE**

**Prins Shelton Ebenezer**

There are numerous known and unknown flora and fauna around us in this living earth. For the Existence of life in planet Earth, this environment has preserved food, fresh air, and water. Man identified the ailments and wounds and he has transferred whatever knowledge he had gained by experience and what he got verbal or non verbal diagrammatic and in written form from others for the future generation.

Animals using their insight only choose to consume what is required for their existence. In short, poisonous, non-poisonous and edible plants around us are essential for the sustenance of life and that has created awareness to preserve and protect these life forms.

The herbs *Aristo lochia*, *Elettariacardamomum*, *Cannabis sativa*, *Eugenia caryophyllata*, *Plumbago rosea*, *Gossypium arboretum*, *Mangifera indica* is useful for the treatment of various kinds of ailments and for nourishment of all kinds of tissues in the body starting from plasma cells to osteocytes.

These herbs can be used by itself or as a combination depending on situation and condition. Hope the future generation will benefits from this.

## ABSTRACT : 19

### MARMA POINT INJURY & TREATMENT

Dr. D. SURESHKUMAR

The word Marma comes from Sanskrit word 'mri' meaning death. The Sanskrit word "Marayatiitimarmani" means death or serious damage to body/ health after infliction to the point of their situation. Hence these special points are called Marma. In the sidha medicine it is called varma.

Marma in Sanskrit means Secret/Hidden. During the ancient times marma was known to kings and warriors. It was applied in Battle fields to hit and achieve maximum lethal effects on enemies.

In India, the southern states before 30,000 years ago, a unique system of Marma treatment believed to have been originated in ancient Tamil Nadu developed by the Chintharmani sages called as "Chintharmani Naattuvaidyam." It was very famous in present Kanyakumari and Thiruvananthapuram districts says the traditional literatures.

These traditional literatures are said to be hidden/not reveal to the common people for years and it was only been performed by some special group of people. In the later stage, this treatment modality was being suppressed by other sciences. But as the time goes by, the chintharmaninaattuvaidyam is proving its legacy by its strong come back.

It was the treatment methodology taught and followed in Traditional martial art forms of Kerala such as the 'Kalaripayattu.' As the warriors & soldiers of ancient kingdoms used to frequently fight in Battles, the demand for a treatment system that produced quick and at the same time efficient result was deemed paramount. The wounds had to heal and the soldiers had to return to good physical and mental condition as quickly as possible. Hence forth, into martial art form was inducted chintharmani marma shashtra. Slowly as the time passed, Chintharmani Naattuvaidyam got confined to just as Martial Arts which became its downfall.

Injury to the Marma points like, Bones, Vessels, Nerves, Muscles, Tendons etc can be treated better only through Marma therapy. Previous injury to any marma points develop as a disease in later stage. In these case also, marma therapy is the best solution. In certain situations, these treatments are being followed by other systems of medicines too.

It is believed that if injury to any marma point happens, treatment is given in marma point of view within the stipulated time. If not, there is a probability that the person may die or become a chronic patient. It has to be treated with the corresponding 'Adangals'

of that marma points. Such as Maruthattu, Amarthal, Kudayal, ThookkiKudayal, Valichedukkal, Madakkithattu, OothuMurakal, JapaMurukal, Medicine administration etc.

There are various Marma classifications such as

- Paduvarmam - 12
- Thoduvarmam - 96
- Thattuvarmam - 8
- Abhyasa Marmam - 64
- Rashi Varmam - 12
- Nakshathra Varmam- 27

The treatment and teaching modality are clearly based on these classifications. The Adangals done against this marma injury is also having several types of classifications. For the complete treatment, different medicinal herbs and minerals preparations and animal products are also used, but when if not available only marma treatment is given.

#### **ABSTRACT : 20**

### **YOGA THERAPY POSTURES & BENEFITS**

**Deva Raj Sharma**

The word yoga is coined from the word ‘Yuj’ means union. The origin is not exactly known. According to the legend, Shiva is the first Yogi, Adiyogi. He has seven disciples known as saptha rishi’s who are considered as the founders of spiritual tradition in this world. There are different approaches to yoga, including spiritual, therapeutic and developmental.

Many styles of yoga are based on the eight fold path outlined in Patanjali’s yoga sutra, also known as the eight limbs of yoga. The eight fold path includes.

- Attitude towards others or restrains (yama)
- Rituals or self-observances (Niyama)
- Physical practice of postures (Asana)
- Breathing practice (Pranayama)
- Withdrawal of the senses (Pratyahara)
- Concentration (Dharana)
- Meditation (Dhyana)
- State of enlightenment (Samadhi)

Yoga in the west is generally referred to as Hatha yoga, which includes exercises and postures (asana), Breathing (Pranayama) and sometimes meditation (Dhyana). It is a form of exercise more specifically, a mind body exercise. The physiological state of the body can affect the emotions, thoughts and attitudes and the mental state has an effect on the body. This is consistent with the suggested overall goal of yoga which is Samadhi. A state

of emotional, physical, spiritual and physiological wellbeing. There are many suggested benefits of yoga including emotional balance, improved awareness and increased energy. Yogasana can be effective in managing symptoms associated with musculo skeletal disorders, osteoarthritis, carpal tunnel syndrome, hyper kyphosis, low back pain.

Additionally improvements in motor skills and physiological measures including blood pressure, heart rate and body weight. Cardiopulmonary benefits of yoga includes cardiorespiratory fitness, improved forced expiratory volume, increased vital capacity, significant improvement in muscular strength, muscular endurance, flexibility and cardio respiratory endurance. Hence the fitness industry appears to include yoga in health and fitness setting. Known as fitness oriented yoga.

Various Hatha yoga postures includes Savasana, Halasana, Setubandasana, Matsyasana, Paschimothanasana etc..

Yoga therapy includes three paths such as Hatha yoga, Raja yoga and Vaidik yoga. Hatha yoga stress on purification of body, Rajayoga on mind and Vaidik yoga is the highest idealism.

#### **ABSTRACT : 21**

### **INDIGENOUS MEDICINAL PLANTS**

Susheela. J

The term ‘medicinal plants’ includes a various types of plants used in Herbalism and some of these plants have medicinal activities. Medicinal plants are the ‘Backbone’ of the Traditional Medicine, which means more than 3.3 Billion people in the less developed countries utilize medicinal plants on a regular Basis.

These medicinal plants are consider as a rich resources of ingredients which can be used in drug development and synthesis. Besides that these plants play a critical role in the development of Human cultures around the whole world.

The Indian Sub-continent has a very rich diversity of plant species in a wide range of ecosystems. There are about 17,000 species of higher plants, of which approximately 8,000 species are considered medicinal and used by village communities, particularly tribal communities or in traditional medicinal systems such as Ayurveda, Sidha etc.

Medicinal plants frequently used as a raw materials for extraction of active ingredients which used in the synthesis of different drugs. Like in, case of laxatives, blood thinners, antibiotics and anti-malarial medications, contains ingredients from plants. Moreover the active ingredients of Taxol, vincristine, morphine isolated from foxglove, periwinkle, yew and opism poppy respective.

During the past decade, traditional systems of medicine have become a topic of global importance. In the developing countries, a large proportion of the population relies heavily on traditional practitioners and medicinal plants to meet primary health care needs. Although modern medicine may be available in these countries, herbal medicines have often maintained popularity for historical and cultural reasons.

#### **ABSTRACT : 22**

### **HERBAL REMEDIES AND HEALTH CARE PREPARATIONS**

#### **Sumitha Kumari. P.D**

Medicinal plants have been used in virtually all cultures as a source of medicine. Assurance of the safety, Quality and Efficacy of medicinal plants and herbal products has now become a key issue in industrialized and in developing countries.

The Widespread use of herbal remedies and healthcare preparations is described in the Vedas and the Bible. Medicinal plants have been used for thousands of years to flavour and conserve food, to treat health disorders and to prevent diseases including epidemics.

The knowledge of their healing properties has been transmitted over the centuries within and among human communities. Active compounds produced during secondary metabolism are usually responsible for the biological properties of plant species, used throughout the globe for various purposes including treatment of infectious diseases.

Currently, data on the antimicrobial activity of numerous plants, so far considered empirical, have been scientifically confirmed, with the increasing number of reports on pathogenic microorganisms resistant to antimicrobials.

Products derived from plants may potentially control microbial growth in diverse situations and in the specific cases of disease treatment. Numerous studies aimed to describe the chemical composition of these plants, antimicrobials and the mechanisms involved in microbial growth inhibition, either separately or associated with conventional antimicrobials.

Cultivation and preservation of medicinal plants protects biological diversity, for example:- metabolic engineering of plants. The medicinal effects of plants are due to the metabolites especially secondary compounds produced by plant species. Plant metabolites includes primary metabolites and secondary metabolites.

It is a very important point for the open access journals to encourage researchers and clinicians to work hard in order to clarify the main active ingredients for the future use.



**ABSTRACT : 23**

**MEDICINAL PLANTS IN HERBS**

**G. Ramesh Kumar**

Since time immemorial people have tried to find medications to alleviate pain and cure different illnesses. In every period, every successive century from the development of human kind and advanced civilisations, the healing properties of certain medicinal plants were identified, noted and conveyed to the successive generations. The benefits of one society were passed on to another, which upgraded the old properties, discovered new ones till the present days. The continuous and perpetual people's interest in medical plants has brought about today's modern and sophisticated fashion of their processing and usage.

There is no doubt that plants have served mankind over the millennia as sources of potent drugs and have been used in crude form as drugs. Currently one can document that at least 137 species of plants are collected from the wild are cultivated in ton qualities.

Despite its alarming rapid depletion rate, the tropical rain forests still represent a great storehouse of medicinal genetic resource which may yield important drugs to treat a number of diseases or symptoms, for which improved or satisfactory cures still remains unavailable at present.

**ABSTRACT : 24**

**ADANKALS**

**K. Prakash**

MAN, is one of the living being in this world fought with other animals for his survival and coexistence, in the process he had lots of physical (falls and wounds) and mental (change of behaviour) issues because of animals, nature and fellow beings, to solve these issues, he tried lots of solutions through trial and errors and through observation and intuition. So the Varma Science can be said to be born with the early man while living his life. As years passed by, man developed the methods and standards for his approach to treat as "Nature Treatment" and then to the present level of modern treatment. The Eastern or Oriental knowledge in these fields have been mostly kept secret / hidden / buried, along with the social circumstances, especially in INDIA.

The Deep knowledge of the orientals in this field, when analysed in the methodical ways of research has certainly made the west wonder about the depth of knowledge in them. These knowledge gave them skills/ non human possibilities, which is gradually getting void because of Strange beliefs, negligence, solcial jealousy or indifference of the people or their administrators. Common people are attracted to these things easily but are not

ready to put the required efforts and dedication to deep dive into these culture and traditional treasures, eventually getting lost.

Varmakalai is easy to understand as science-art, which demonstrates the great power in man's body mind in turn related to this universe, is being hidden and buried from this world for various reasons. Though Varma Science has heart benefits for the humanity, it should be passed on through Guru Shisyaparampara, so it gets transferred in the right way to the right person in the right context.

This Science was transferred through oral tradition, gradually readable records were created for future reference by disciples or leaders of such social groups which slowly got acquired with religious importance, so common people can be instructed. Few examples like Thoppukkaranam (Ukki), Fasting, etc. This was the ancient "Touch Therapy" among Tamils, these practices / rituals energize the centres of the body were really actuated to alert their brain power, memory etc.

Varma Arriviyel (Varma Science) says that the universe is made up of smaller atoms and yet, still smallest particles of atoms called "paramaanu", this Prapancham or the Universe is a combination of such "paramaanus". From this "Union" of paramaanu comes the energy and through its separation comes the "Sound" or Natham, which is of immeasurable intensity and along with that sound has emanated the "Vinthu" or Light. The separation of the light is called Sathakkiyam, which is diversified into individual units, which can work independently (termed as Isa-Varmam = Isvarmam or life source or life itself) and as a group.

In the outer space the status of the Paramaanu is with life, without life, and also with the characters of life, which are empowered to energize and function within themselves. Whichever functions actuating itself is termed as ThoolaKaranam and because of this, based on the situations and changes in the nature, there occurs defects and disease in Man, this is the phenomenon of Varma Science as the first stage.

This Varma Science is an Art, which catches everyone's eye these days, which is recorded in an "hidden" or with "Deeper technical terms", it would be difficult to self learn, so "Guru's help is of immense help through "touch" and show it to us. Tamil Varma Proverb "ThottuKaattaVithai, ChuttuPottalumVaraathu" (This Wisdom that is taught without "Touching", can't be learnt even if we burn ourselves), the basic fact of this Science is that, unless one dedicatedly serves the Master and gets his confidence by devotion and gets this Science Art by direct contact, it will be impossible to learn this Science Art in the Correct Right way.

The Vittal points referred to in this Sastra are very much related to the system of physiological organs of the body. To understand the secrets of Varma Treatise, we need to

understand the “Thathuvams” (Basic Principles) of the science of “Udal” (body), the science of “Gnanam” (Wisdom), and the science of “Siddhar” (Guru or the Centre of Knowledge). This Secrets of Varma Science can be taught or demonstrated only by such “Aasans” (Masters) who knows the roots of the “Naadis” in the body, the Unions of the Naadis, the positions or the “Resting places” of Prana (Life), the status of “actuation, impact, dormancy” of the Panchabhoota Circulating in the body.

Others can mislead us, the varma texts are written in different periods and in different circumstances by different Aasans or Gurus. The Significance of this Science Art is that it can Create or Destroy a person / a group / a society, so the originators has mentioned that it should be give to the right / noble people / “Santors”, who have aptitude for the Science, Art, Love, Humanity, righteousness, fellow feeling and the same time the Valour to maintain and persevere it, which is followed by Aasans from time immemorial. If the Aasan considers that this Science Art has gone in wrong hands, the Aasans would confuse the disciples, which has resulted in differences and confusion in the available texts, which has been noted, investigated and rectified in this text / book.

Atmost efforts and care has been taken to describe, locate, pin-point, clarify all the 108 Varma Points :

Head : 25 Varma Points,

Neck : 9 Varma Points,

Anterior Part of the Body : 38 Varma Points,

Posterior Part of the Body : 13 Varma Points,

Hands : 11 Varma Points,

Legs : 12 Varma Points,

each Varma Points have been shown individually with pictorial chart. Meanwhile, we haven't blindly defined the Varma Points from the Varma Nools (Palm Leafs), instead its been reviewed, brain stormed, by Aasans, Ortho Doctors, Surgeons, Medical Professors, so that the modern technical terms must not be missed by Students. With respect to this we would like to offer our Special Hearty Thanks to Dr. Joel James, specialised in Ortho-Surgery and his team.

This Text's speciality is that, we have included depiction of the secret centres like locations of the “Sootchuma Naadis”, “Karana Naadis”, their contact mediums the “AatharaChakkrams” and the links and relationships between these are given for easy understanding for the Students. We have added “Synonyms” after referring hundreds of Manuscripts in Appendix.

This Text has been created after referring hundreds of texts, Varma Records, observation of numerous recorded and unrecorded experiences. Immediate Resultant effects of inflications of each Varma Points, it's after-effects, the methodical Adankals to rectify such symptoms, the time, "Mathirai" measurements along with the results after incorporation, in a very precise manner. These methods is a gift to develop One's Body, Mind and Spirit, in addition to the Cure for many of the ill-symptoms. With an Honest Hope, this VarmaKalai Treatise should be researched with Modern / Future Medical Equipments, many of the Universal Secrets linked with Human Body, Mind could be brought out for the benefits of Humanity and All things in this World.

#### **ABSTRACT 25**

#### **REVIEW ON *VATHA KAPHA SURAM* IN SIDDHA MEDICINE VIDHYA MILANO PRASAD 1, ANTONY DURAICHI2 , THAYALINI THILEEBAN3**

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3. Lecturer, Department of Sirorogachikitchai, Unit of Siddha Medicine, University of Jaffna, SriLanka

Siddha Medicine is one of the ancient Tamil medical system. Disease caused in the human body shows different symptoms. Siddha diagnosis of disease is based on eight types of diagnostic tools(en vagaithervu) in which naadi plays an important role. The treatment method of Siddha Medicine is based on three vital humours (Vatha,Pitha and Kapha) which in turn based on panchabootham. Siddhars said about various diseases and the treatment methods with herbs, minerals and animal products. The coronavirus(COVID 19) infection is a pandemic disease and it needs special attention. Diagnosis itself becomes a challenge to all medical fields. It is important to rule out the correct diagnosis. Therefore the authors decided to find out about what siddha medicine says about COVID 19 infection. Accordingly thirteen Siddha text books were reviewed, in which the term suram, kaichal and jevram were the names taken in to consideration. 182 types of suram along with their sign and symptoms are found in the review, mentioned in thirteen Siddha text books. Siddha Medicine consider fever as a disease and not a symptom and among these 182 types of suram(fever), the sign and symptoms of covid-19 infection can be compared to kapha suram, pitha kapha suram and vatha kapha suram. But from the review, Nineteen major and minor symptoms such as cough, fever, breathing difficulty, aches and pains, tiredness, sore throat, running nose,diarrhea, nausea, tingling sensation,loss of smell and taste,bluish lips or face, fever mild to moderate and high, new confusion or inability to

arouse, headache, general feeling of unwell, chills, sweating, malaise, dizziness were found to be related with Vatha kapha suram and also additionally some of the other minor symptoms are also mentioned in Classical Siddha texts for Vatha kapha Suram.

**Key words :** Vatha Kapha Suram, Siddha Medicine

**ABSTRACT : 26**

**SCREENING AND ISOLATION OF BIOACTIVE COMPOUNDS FROM  
ANISOMELES MALABARICA(L): ITS BIO-EFFICACY AGAINST  
HUMAN CANCER CELL LINES – AN IN VITRO APPROACH  
SUPRIYA K.A, LALI GROWTHER**

Medicinal plants contain various phytochemicals which could produce a great variety of secondary metabolites useful to human health. The present research was aimed to evaluate the phytochemicals, antioxidant, antimicrobial and anticancer activities of different extracts of *Anisomeles malabarica*. Screening of phytochemicals from 5 different solvent extracts by qualitative, quantitative and GC-MS analysis was also carried out to identify the different derivatives of *A. malabarica*. Free radical scavenging was evaluated by using DPPH, ABTS, nitric, hydroxyl, superoxide assays and ferrous ion chelation, *in vitro* antibacterial activity was done by Agar well diffusion method. Similarly, anticancer activity of *A. malabarica* was tried on different cancer cell lines. The results revealed that leaves extracts of *A. malabarica* inhibited the free radicals in a dose dependent manner (20-100 µg/mL). Moreover, they showed highest tumor inhibition of the cervical and breast cancer cell lines. The results indicated that *A. malabarica* contains different bioactive compounds and thus provide the scientific basis for the traditional uses of *A. malabarica* as well as it could act as a promising antioxidant, antibacterial and anticancer agents which might represent an application in the therapeutic uses in future.

**Keywords :** anticancer, *A.malabarica*, phytochemical, antioxidant, anticancer

**ABSTRACT : 27**

**ETHNOMEDICINAL PLANT DIVERSITY OF MALASAR TRIBE,  
KERALA, INDIA**

**Amitha Bachan K.H and Gouthami V**

Research Department of Botany, M.E.S Asmabi College, Vemballur, Thrissur India is known for its medicinal plant diversity, its use in Ayurvedic and traditional medicines and also as a land of indigenous culture. About 28% of the indigenous people are found in India and are classified as Scheduled Tribes, of which Kerala account for 36 different

ethnic communities. The Kerala part of Western Ghats, one of the Biodiversity hot spot of the world known as Malabar was historically epic centres of spices and medicinal plants trade even before 1000 BCE. The ethnic communities in Kerala are still a source medicinal plants to the Ayurveda drug industry especially from the Moist and Dry deciduous forest areas of the Western Ghats in the Central Kerala. The present study documents medicinal plants used by the Malasar Community distributed in the Nelliampathy and Nenmara regions of the Palakkad Districts comes within the foothills of the Nelliampathy hills within the Palakkad Gap. A preliminary analysis reveals 53 medicinal plants used by the Malasar Ethnic community which includes 12 trees, 17 shrub, 2 semi-erect shrub, 12 herbs and 8 climbers, 1 creeper and 1 grass. The study also documents the scientific names, its conservation status, ethnic use and knowledge pertaining to medicinal, cultural as well as ecological knowledge.

**ABSTRACT : 28**

**BIOACTIVE COMPOUNDS OF *Jasminum sambac* POTENTIAL FOR ANTIDIABETIC ACTIVITY**

**Mrs. Ezhil**

*Jasminum sambac* is one of the most useful traditional medicinal plants in India. It is now reflected as a precious source for the medicines against Diabetes Mellitus. The present study is to focus on the potential Phytochemicals, functional properties, Anti-oxidant and Antidiabetic activities of Jasmine flowers have been analyzed. The presence of flavonoids, Anthroquinones, Terpenoids, Steroids, and Tannins etc were confirmed through the preliminary phytochemical screening. Functional properties also rose than the aqueous extract. Nutrient contents such as protein 11.32 gm, carbohydrate 31.25 gm, starch 240.5 mg and amino acid 351.43 mg were found. The sample showed good Anti-oxidant activity in DPPH (186.73%) and Nitric oxide scavenging assay (305.83%), whereas in aqueous extract 162.34% and 283.36%. Jasmine flower exhibited excellent anti-diabetic activity. So finally confirmed that *Jasminum sambac* flower have the capacity to decrease the blood glucose in human population.

**Keywords :** *Jasminum sambac*, Phytochemical, Antioxidant activity, Antidiabetic activity.

**ABSTRACT : 29**

**ANTIBACTERIAL ACTIVITY OF EDIBLE LEGUME SPECIES *Macrotyloma uniflorum* (Lam) Verdc.**

**J. S. Jaya\* and J. Lohi Das\*\*,**

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This study was undertaken to examine the antibacterial property of Horse gram (*Macrotyloma uniflorum* (Lam) Verdc., ). The Aqueous, ethanol and Chloroform extracts of black colored Horse gram showed antibacterial effects against *Staphylococcus aureus*, *Streptococcus mutans*, *Bacillus subtilis*, *Klebsiella pneumonia*, *Proteus vulgaris* and *Escherichia coli* were purchased from Microbial Type Culture Collection and Gene Bank (MTCC) Chandigarh. The bacterial strains were maintained on Nutrient Agar (NA). The antibacterial activity of *Macrotyloma uniflorum* against a six pathogenic microorganisms were tested. The results show that ethanolic extract has maximum activity against *Klebsiella pneumoniae* gram negative bacteria with the zone of inhibition of 21 mm.

**Key words:** antibacterial, Horse gram, Chloroform, microorganism, inhibition.

ABSTRACT : 30

**CASE STUDY ON MANAGEMENT OF KERATOLYSIS EXFOLIATIVA  
IN SIDDHA MEDICINE THROUGH VETPALAI THAILAM**

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Siddha medicine is a traditional medicine originating in Tamil Nadu and practiced over thousands of years . The purpose of this study is to evaluate the therapeutic efficacy of siddha herbal drug vetpalaithailam in treatment of *Keratolysis exfoliativa*. Siddha system has safe herbal and herbo-mineral treatment for skin diseases. *Keratolysis exfoliativa* is a skin condition in which there is focal peeling of the palms and less often the soles. A single case is taken into this study and treated with siddha herbal drug vetpalaithailam for a course of period three months. The result of this study shows the siddha herbal drug vetpalaithailam is very efficient in treating *Keratolysis exfoliativa*.

**Key words :** exfoliativakeratolysis, vetpalaithailam, siddha , lamellar dyshidrosis, recurrent palmar peeling.

ABSTRACT : 31

**PRELIMINARY STUDY ON TESTING THE ABILITY OF  
*Sansevieria trifasciata* PLANT FIBRES IN THE DEVELOPMENT OF  
HERBAL FINISHED ECO FRIENDLY SANITARY NAPKIN**

*Dr. Mekala,*

*Associate Professor, Dept. of Microbiology Sri Ramakrishna College of Arts and Science for Women, Coimbatore*

Plastic materials have become an integral part of contemporary life due to their desirable properties as they are strong, convenient, lightweight and moldable. Plastics are important for every article of our daily life to the components of complicated engineered structures and heavy industrial applications. Women hygiene product manufacturing industry is one among those industries which employ plastics as raw materials in manufacturing sanitary napkins. Unfortunately these plastics are non biodegradable and non renewable causing accumulation of menstrual waste and degradation of environment. The best alternatives for these synthetic materials are agricultural and plant fiber based materials as they are non toxic, environmental friendly and bio degradable. The purpose of the research work focuses on preliminary testing of *Sansaviera trifasciata* plant fibers in an attempt to develop sanitary napkin with antimicrobial property. The present research work concludes that the microencapsulation of *Sansevieria trifasciata* fibers possess antimicrobial properties against different microorganisms such as *Escherichia* sp, *Staphylococcus* sp, *Pseudomonas* sp which makes these plant fibers desirable for making eco friendly sanitary napkins.

**Key words:** Antimicrobial property, Eco friendly, Non-biodegradable, plastics, rose, sanitary napkins, *Sansevieria trifasciata*.

**ABSTRACT : 32**

### **SYNTHESIS, CHARACTERIZATION AND ANTIBACTERIAL ACTIVITY OF WATER SOLUBLE GRAPHENE OXIDE**

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In the present work antibacterial activity of Water soluble graphene oxide [WGO] nanoparticles were studied. For the purpose WGO has been synthesized by modified hummer's method. Synthesized nanoparticles were structurally and morphologically characterized by XRD, FTIR and SEM techniques. The antibacterial activity of WGO nanoparticles have been also tested over *Escherichia coli*, *Staphylococcus* and Pleural fluid bacteria. Bacterial cells were treated with WGO powder, and the growth rates were investigated. As a result, *Staphylococcus* and *Escherichia coli* were shown to be substantially inhibited by WGO, and the antibacterial activity of WGO did not fluctuate with temperature. These results suggest that WGO could be used as an effective antibacterial material.



**Key words:** Water soluble Graphene oxide; Antibacterial activity; Staphylococcus; *Escherichia coli*.

ABSTRACT : 33

**REPURPOSED DRUGS ACTING ON HOST MECHANISMS OF *T. cruzi* INVASION SYNERGIZE WITH BENZNIDAZOLE: NEW THERAPIES FOR CHAGAS DISEASE**

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Chagas disease affects about 7 million people worldwide, up to 30% of chronically infected people develop cardiac alterations. Benznidazole and Nifurtimox are the only available trypanocidal drugs are effective only at the acute phase of infection. Our hypothesis is that treatment with repurposed drugs known to act on host cell mechanisms to block *T. cruzi* escape, combined with reduced doses of benznidazole, may show higher efficacy and less toxicity than high-dose benznidazole alone. *In vitro* and *in vivo* response of the colchicine and chloroquine, selected because of their known blocking effects on important steps of the host cell invasion/replication by *T. cruzi*. Experiments measuring *T. cruzi* strain (partially BZN-resistant) trypomastigote release to the supernatant of infected phagocytic and non-phagocytic mammalian cells indicated Chloroquine was as potent as BZN in suppressing *T. cruzi* parasitism, and that the combination of Chloroquine and Colchicine with BZN potentiated its effect several-folds.

Furthermore, Female BALB/c were infected intraperitoneally with blood trypomastigote forms of the Benznidazole-resistant Colombian strain of *T. cruzi*, followed by gavage treatment after 10 days of infection. The levels of parasitemia were significantly lower after 30 days of infection in the group of mice treated with the combination of Benznidazole and Chloroquine in comparison with either BZN alone or saline. These results indicate that the repurposed drugs could boost the anti-*T. cruzi* effect of the standard but suboptimal anti-*T. cruzi* drug Benznidazole (BZN), optimizing its therapeutic efficacy for Chagas disease.

**ABSTRACT : 34**

**COMPARATIVE STUDY OF BIOLOGICAL NLE [NEEM LEAVES EXTRACT] AND CHEMICAL SYNTHESIZED ZnO, MgO, NLEZnO/MgO ON SEEDLING GROWTH PARAMETERS OF TOMATO**

*(Lycopersiconesculentum L.)*

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The present paper reported the biologically (NEL) and chemically synthesized consequences of ZnO, [Mg(NO<sub>3</sub>)<sub>2</sub>] and NLE ZnO/ [Mg(NO<sub>3</sub>)<sub>2</sub>] nanoparticles on tomato (*Lycopersiconesculentum L.*) seed growth parameters. The increasing use of zinc oxide nanoparticles (ZnONPs) in agriculture and consumer products has created the need to evaluate their impact on crops. The seed growth parameters observed are Fresh stem length [FSL], fresh root length [FRL], root/shoot ratio. The results show that there is no reduction in the seed growth parameters of biological (NEL) synthesized ZnO, [Mg(NO<sub>3</sub>)<sub>2</sub>], ZnO/ [Mg(NO<sub>3</sub>)<sub>2</sub>] nanoparticles than the chemical approach, among the biological synthesized NLE ZnO/ [Mg(NO<sub>3</sub>)<sub>2</sub>] nanoparticle is determined to have observed and enhanced seed growth parameters than ZnO, [Mg(NO<sub>3</sub>)<sub>2</sub>] biological nanoparticles. This study shows that the exploit of aqueous extraction of neem leaves extracts act as a reducing and stabilizing agent for the preparation of nanoparticle causes a significant effect on the bioavailability of seed germination and seed growth parameters than the chemical methods of the tomato. The biological methods highlight the necessity for a sustainable study on the impacts of nanoparticles on agricultural and environmental sectors.

**Key words**-*Lycopersiconesculentum*, NLE, ZnO, [Mg(NO<sub>3</sub>)<sub>2</sub>], growth parameters

**ABSTRACT : 35**

**SUCCESSFUL HEALING TREATMENT OF HYPOTHYROIDISM USING INTEGRATED YOGA PRANA VIDYA (YPV) HEALING APPROACH AS COMPLEMENTARY MEDICINE: CASE REPORTS**

**REVATI**

YPV HEALER, RIDDI FOUNDATION TRUST, CHITRADURGA, KARNATAKA, INDIA & YPV HEALER AND TRUSTEE OF SRI RAMANA TRUST, THALLY-635118, TAMILNADU, INDIA

*Background:* This case study presents how patients with hypothyroidism were fully healed using Yoga Prana Vidya Healing system.

*Methods:* This is a case study method, going through full detailed records of a 64 year old female patient diagnosed as having Hypothyroidism, health conditions pre and post treatments using YPV healing system observed through lab reports, as well as data collected from follow-up interviews of the subject.

*Results:* Analysis of this case shows positive results of improvement obtained with use of YPV healing methods by healers and also some self-healing techniques practiced by the patient, enabling her to have controlled level of Hypothyroidism and overall health.

*Conclusions:* This case study documents the evidence gathered on the effective use of YPV in healing and treating thyroid condition, besides healing some other ailments of the patient holistically. To produce holistic and optimum results, YPV uses a combination of approaches such as, (1) physical exercises including rhythmic yogic breathing, (2) Salt free diet; fruit diet, (3) Meditation techniques, (4) healing by trained and experienced healers, patient participation in group healing, self-healing by patients with regular self-practice of some specified techniques. There is ample scope to conduct further research on the application of YPV as alternative, effective and low cost medicine for various other medical conditions.

**Key words** — Endocrine system, Hypothyroidism, multiple ailments, Treatment, Yoga Prana Vidya healing

ABSTRACT : 36

**THE IMPACT OF THE PESTICIDE PHOSMET ON THE ACUTE TOXICITY AND CARBOHYDRATE LEVELS IN MUSCLE, LIVER AND INTESTINAL TISSUES OF THE FRESH WATER TELEOST *LABEO ROHITA***

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THIRUVITHANCODE, KANYAKUMARI

The present investigation deals with  $LC_{50}$  determination of Phosmet on *Labeo rohita* gives an advice for the safe use of pesticides. The mortality rate was recorded after 24, 48, 72, 96 and 120 hours and  $LC_{50}$  values gives confidence levels (95%) of fish mortality where calculated for each metal concentrations for 24, 72, 96 and 120 hours of explosion the values was found to be 10.64, 7.15, 6.34, 5.61 and 0.36 mg/l respectively. The peak  $LC_{50}$  values phosmet of 10.64 mg/l (24 hour  $LC_{50}$ ) and the minimum  $LC_{50}$  values 5.6 mg/l at 120 hours the sublethal concentration of phosmet treated with *Labeo rohita* was observed. Carbohydrate level at different time interval was absorbed that the liver, muscle, intestine and carbohydrate level showed declined trend. Carbohydrate content in liver showed a similar trend as that of muscle, reduced to 3.23 mg/100mg wet tissue in the higher concentration (1.58 mg/l) on 15<sup>th</sup> day. The intestine carbohydrate showed the same

decline trend. The lowest carbohydrate content was absorbed in the intestine (3.88 mg/100mg wet tissue) after 45 days in the control fish. In the exposed fish the intestine carbohydrate level reduced to 2.09 mg/100mg wet tissue in 1.58 after 45 days. The tests of acute toxicity of the chemical to selected species of aquatic organisms and the present results proved the applications of phosmet is done in an appropriate way, the pesticide should degrade quickly and never be present in surface waters at lethal concentrations.

KEYWORDS: *Labeo rohita*, phosmet, pesticide

ABSTRACT : 37

**IMPROVED NUTRITIONAL VALUE OF TRADITIONAL POONGAR RICE CAKE WITH EDIBLE MUSHROOM ( *Pleurotus ostreatus* )**

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The present study designates the successful development of nutraceuticals rice cakes with value addition for the young generation. The *Pleurotousostreatus* powder and Poongaar rice were used to prepare the cake with different flavors such as Cardamom, Carom and Cumin for the likeliness of the people. It has unique flavor and fragrant residences nutritionally rich in protein, fiber, carbohydrates, minerals and vitamins with low fat. It was highly acceptable by the sensory evaluation study reported 10 out of 10 by the selected people. The present work concluded that, the prepared cake contains high nutritional and pharmacological property due the presence of more phytochemicals.

**Keywords :** Nutrition, Poongaar rice, mushroom, Nutraceuticals, Flavor, Pharmacology

ABSTRACT : 38

**ISOLATION OF FUNGAL ENDOPHYTES FROM *Acalypha indica* AND ITS ANTIBACTERIAL EFFECT**

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Fungal Endophytes are ubiquitous in the plant kingdom, with an estimate of at least few million species. Plants may serve as a reposition of innumerable number of organisms known as endophyte. The existence of endophytes has been known for over one hundred

years. The antibacterial activity of endophytic fungal isolates from the plant *Acalypha indica* showed antibacterial property inhibiting *Staphylococcus aureus*, the gram positive bacteria and *Klebsiella pneumonia*, the gram negative bacteria. The isolated fungal endophytes did not show any inhibition for *E. coli*, the normal flora in the human intestine is considered as mutualistic endosymbiont in the intestine. The fungi *Penicillium* sp. could produce aldehydes, ketones and less of phenols. The fungus *Gliocladium* sp. could produce only aldehydes and the *Fusarium* sp. showed the production of only ketones. All the fungal endophytes played a major role of medicinal importance by inhibiting the pathogenic bacteria.

#### ABSTRACT : 39

### PHYTOCHEMICAL INVESTIGATION OF SIDDHA FORMULATION VALLAREI NEI TO ASSESS ITS ANTI-INFLAMMATORY POTENTIAL

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#### Objective

Natural products have played a key role in Pharma research. Historically majority of new drugs are synthesized from natural products and due the presence of secondary metabolites found in them that gives them the potential to treat a disease. The Siddha Polyherbal formula *Vallarei nei* is being traditionally prescribed to enhance memory in Siddha medical practices and also to treat various skin ailments. The present investigation was done to assess the phytochemical constituents found in *Vallarai nei*, a ghee based Siddha formulation and to assess its anti-inflammatory potential.

#### Materials and Methods

Nei is a category of medicine that are prepared by boiling a mixture of ghee with specified drug pastes, juices, decoctions and milk, according to the composition of the recipes. *Vallarai (Centella asiatica)* is the plant which plays the major role in *Vallarei nei* preparation along with certain ingredients such as *Myristica fragrans*, *Quercus infectoria*, *Rhus succidinia*, *Piper cubeba*, *Woodfordia fraticosa*, *Syzgium aromaticum*, *Glycyrrhiza glabra*, *Elettaria cardamomum*, *Saccharum officinarum* and *Centella asiatica*. The commercial formulation was purchased from the Registered Siddha Pharmacy found in Chennai and that were located nearby Siddha Medical College,

Arumbakkam, Chennai. The extracts were prepared by refluxing at a concentration 1% in ethanol for 72 hours followed by solvent recovery using rotary evaporator. The extracts were resuspended in 1% DMSO in a final concentration of 10mg/ml. The extract was subjected to phytochemical analysis using the standard method of Harborne JB, Phytochemical Methods, 1984 and the qualitative assessment was done to test the presence or absence of alkaloids, flavanoids, phenols, glycosides, saponins and tannins.

### **Results**

Results of the Phytochemical investigations clearly shows the presence of tannins, saponins, phenols, flavonoids, terpenoids and glycosides.

### **Conclusions**

The presence of these novel metabolites shows that *Vallarei nei* is a potent antioxidant. The obtained results also show it's a potentiality as an anti-inflammatory formulation and hence serve as a potent therapeutic agent.

**Keywords :** Siddha formulation; memory enhancer; *Vallarei nei* ; phytochemicals

### **ABSTRACT : 40**

#### **STUDIES ON THE PROTEOME ANALYSIS OF SILK GLAND PROTIEN FROM THE SILKWORM *Bombyx mori* L. TREATED WITH VARIOUS NUTRIENTS**

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Proteomics Research provides the opportunity for direct investigation of protein expression patterns. The silk glands of *B.mori* have been used as a model system in the production of large amount of silk proteins prior to cocoon spinning. Variety of protein in the middle silk gland cells of the fifth instar larvae of silkworm was studied. The amount of silk proteins synthesized could be augmented by improving the nutritional status of silkworm larvae. This natural food contributes to the growth of the silkworm, thereby increasing the weight of larvae and silk glands, leading to the improvement of the cocoon characteristics in *B.mori*. The present investigation is carried out in the silkworm larvae fed with proteins like 7 per cent plant (Soybean) and 5 per cent animal protein (larvae of *Trifolium castaneum* Herbst), vitamins such as 1 per cent ascorbic acid, 2 per cent folic acid and minerals like 4 percent MgSo<sub>4</sub>, KCl<sub>2</sub> respectively. Electrophoretic study was carried out in the silk gland of fifth instar *B.mori* larvae supplied with plant and animal protein, ascorbic acid and folic acid, MgSo<sub>4</sub> and KCl<sub>2</sub>. Electrophoretic pattern of silk gland protein profile of *B.mori*

larvae in control, twelve bands were observed. The first band had the maximum molecular weight of 59292 with Rf value 0.181. Twelfth band was found to be in the low molecular weight (3795) at Rf value of 0.896. When the silkworm larvae fed with  $KCl_2$  maximum number of band (15 bands) were observed with molecular weight ranges from 3000 to 59727. The Rf value ranges from 0.914 to 0.184. The protein with molecular weight of 66000 was observed, when *B.mori* larvae fed with  $MgSO_4$ .

**Key words:** *Bombyx mori*, Oral supplementation, SDS-Page, Silk gland protein

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ABSTRACT : 41

**ASCERTAINING THE PHYTOCHEMICAL SCREENING AND  
ANTIMICROBIAL ACTIVITY OF *Averrhoa carambola* L. IN COURTALLUM  
HILLS OF TAMILNADU**

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The growing drug resistance of microorganisms and adverse result of antibiotic usage have led to the search for alternative medicines from nature. many plants have been exploited to cure infectious diseases from time immemorial. the aim of the phytochemical screening study to recognize the quantity of secondary compounds in the *averrhoa carambola* leaf extract and make new medicine in the medical fields. the phytochemical investigation of leaf extracts from water, ethanol, acetic acid and chloroform concentrate of indigenous *a. carambola* were researched and following the screening of profitable constituents like anthraquinones, quinones, coumarins, glycosides, carbohydrate, saponins, flavonoids, proteins, aminoacids, phenol, tannins, terpenoids and steroids. the antimicrobial activity obtained from agar well diffusion technique indicates that on top of the leaf extract of *a. carambola* showed the spectrum of inhibition on gram positive and gram negative bacteria. in this manner *a. carambola* has antimicrobial action and may be utilized clinically to seek out novel therapeutic drug mixes for tract pathogens. the outcomes of the present study indicate that *a. carambola* is endowed with potential antimicrobial activity and hold promise for development of pharmaceuticals and antimicrobial agents in future.

**Keywords:** Leaf extract, organic solvents, phytochemical, antimicrobial activity.

ABSTRACT : 42

**MICROALGAE SPIRULINA AS A DIETARY SUPPLEMENT: A REVIEW  
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Microalgae *Spirulina sp.* has been considered as a nutritional rich microorganism containing beta carotene. It has been a common dietary substance around the world from ancient times. It plays an important role as an antioxidant. In recent years, *Spirulina sp.* has attracted scientific attention, not only for its various health benefits, but also at a micro level of understanding the mechanisms of action of its various components. Being a protein source, *Spirulina sp.* components have been shown positive benefit across a range of human health indications from malnutrition to antioxidant properties. The review paper investigates the cyanobacterium, *Spirulina sp.* and its various techniques of isolation of carotenoids and its health benefits. Separations of these pigments are effective using HPLC technique. The antioxidant property of *Spirulina sp.* can be used as a dietary supplement can restore the richness and microbial diversity of organisms plays a significant role in overall health of an organism. This antioxidant property of carotenoids can be used to protect gut microbiota to relieve gastrointestinal disorders. This implies the wide application in pharmaceuticals and food supplements and their effect on the enhancement of gut microbiota. The administration of *Spirulina sp.* into the mice diet alters the gut microbial composition. This paper includes a review study that focus the *Spirulina sp.* derived bioactive pigments and to optimize production and application to reduce gut dysbiosis. The effects of *Spirulina sp.* on the gut microbiota and its response with respect to the dietary supplement can be effectively utilize to enhance immunity and diversity of the gut microflora.

ABSTRACT : 43

**COMPARISON OF FLAVONOID CONTENT IN RAINY SEASON OF  
*Combretum ovalifolium* FROM 3 AGRO CLIMATIC ZONES OF GUJARAT  
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Combretum species are used extensively in traditional medicine against microbial infections and several inflammatory conditions. It shows its potential source of various secondary metabolites. Secondary metabolites have an important role as defense compounds having biological properties. Three Agro climatic Zones were selected on the basis of climate condition. The dried leaves of *Combretum ovalifolium* were extracted with methanol. Preliminary Analysis and total Flavonoid content were carried out on the leaves of *Combretum ovalifolium*. Phytochemical analysis revealed the presence of Alkaloid, Steroids, Flavonoid, Tannins, Phenolic, Saponins, Coumarin and Carbohydrates.



Total Flavonoid content of Middle Gujarat Zone has been noted highest in almost all the concentration expects for one.

**Key words :** *Combretum ovalifolium*, Agroclimatic zones, Phytochemicals, Total Flavonoid content.

**ABSTRACT : 44**

**MEDICINAL USES AND CONSERVATION STATUS OF FIVE  
MEDICINALLY IMPORTANT PLANTS**

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M.N.COLLEGE, VISNAGAR

Since ancient time plants were used to cure diseases. People were aware about which part of the plant i.e leaf, stem, fruit, seed or root should be used to cure diseases. Ayurveda, Siddha, Unani are all different ways of traditional medicinal systems to cure diseases. But with the advancement of Allopathy the use of plants to cure diseases got reduced and this led to the reduction in knowledge about plants, their identification, importance and medicinal benefits. In the name of modern life style many medicinally important plants were destroyed in the name of development. Also due to of lack of knowledge it has been found that many plants have extinct or endangered and were been listed in IUCN red data book. This paper deals with medicinal uses, chemical composition, conservation status and propagation of five medicinally important plants i.e., *Gloriosa superba L.*, *Withania somnifera L.*, *Cissus quadrangularis L.*, *Rauwolfia serpentine L.*, and *Chloropytumborivillianum San.* It has been found that these plants are used to cure many simple and life threatening diseases such as vomiting, snake bite, infertility, skin disorder, diabetes and cancer.

**ABSTRACT : 45**

**IMPACT OF *Asparagus racemosus* ON THE GROWTH, ECONOMIC AND  
BIOCHEMICAL CONSTITUENT ASPECTS OF THE *Bombyx mori* L.**

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Silk culture is a high employment potential and economic benefits to agrarian families in India. Nutrition is an important role in improving the growth and development of the silkworm, *B. mori* L. and the silk production is dependent on the nutritive value of mulberry leaves and finally in producing good quality cocoons. The plant extracts may benefit

sericulture by improving the silk yield of *B. mori*. *Asparagus racemosus* also known by the name Shatavari contains steroid and saponins; root contains Asparagamine, isoflavones, polysaccharides, racemosol, mucilage, vitamins and folic acid. The impact of *A. racemosus* extract act as an effective nutrient to improve the silk worm growth, silk gland ratio, biochemical contents protein, carbohydrate and lipid content of silk gland, haemolymph, fatbody, muscles and economic characters.

**Keywords:** *Asparagus racemosus*, Shatavari, *B. mori*, Mulberry plant, Sericulture

#### ABSTRACT : 46

#### INTRODUCTION OF ‘SNOMED - CT’ TO SIDDHA COMMUNITY

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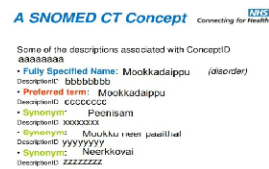
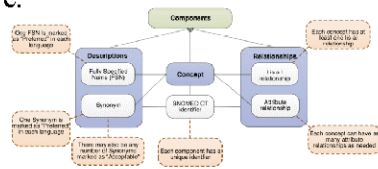
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The abbreviation of ‘SNOMED - CT’ is ‘Systematized Nomenclature of Medicine – Clinical Terms’. It is a standardized, multilingual vocabulary of clinical terminology that is used by physicians and other health care providers for the electronic exchange of clinical health information i.e. Electronic Health Records (EHR). According to the International Health Terminology Standards Development Organization (IHTSDO), which distributes the standard, SNOMED - CT currently contains more than 3,50,000 Medical concepts, divided into hierarchies as diverse as body structure, clinical findings, geographic location, and pharmaceutical/biological product. By using numbers to represent medical concepts, it provides a standard by which medical conditions and symptoms can be referred, eliminating the confusion that may result from the use of regional or colloquial terms. In March 2014, India became a Member, joining the global effort to develop, maintain, and enable the use of SNOMED - CT terminology to achieve semantic interoperability in health systems. A-HIMS (AYUSH – Hospital Management Information System, NAMASTE (National AYUSH Morbidity and Standardized Terminologies Electronic portal) and

SEARCH<sup>i</sup>(Siddha Encyclopedia and Android application for Research Community and Healthcare institutions) Applications of Ministry of AYUSH and TKDL (Traditional Knowledge Digital Library) of Ministry of Science and Technology are the greatest initiatives of Govt. of India in related with Terminologies and EHR. In addition, to give more strength, the Ministry of AYUSH, Govt. of India initiated the National SNOMED CT Extension project to develop Siddha, Ayurveda and Unani Terminologies through respective Research Council's (CCRS/CCRAS/CCRUM) in collaboration with National Resource Centre for EHR Standards (NRCeS), C – DAC (Centre for Development of Advanced Computing), Pune. The Literary Research and Documentation Department of Siddha Central Research Institute (SCRI) under the Central Council for Research in Siddha (CCRS) started the SNOMED – CT Siddha project in October 2020. The outcome of this project will be very useful to the Siddha Practitioners, Academicians, Researchers and Scholars, etc., in near future.



SNOMED – CT Logical Model

Example of proposed Siddha SNOMED – CT

**Keywords :** SNOMED CT, IHTSDO, C – DAC, AYUSH, Siddha, Terminology, Clinical terms.

**ABSTRACT : 47**

**VEGETATION ANALYSIS OF KANEWAL WETLAND THROUGH REMOTE SENSING BY USING QGIS SOFTWARE AND NDVI TOOL  
THEME: INTERVENTIONS OF SCIENCE AND ECONOMICS IN CONSERVATION OF NATURE**

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NDVI used to identify Multi-Spectral Remote Sensing data has many application areas including Vegetation Index, land cover classification, water bodies, open area, scrub area, hilly areas, agricultural area, soil moisture measurement, thick forest, thin forest, measurement of liquid water content of vegetation, snow mapping, sea ice type classification, oceanography with few band combinations of the remotely sensed data. Land Resources are easily interpreted by computing their Normalized Difference Vegetation Index for Land

Cover classification. The Simulation results show that the NDVI is highly useful in detecting the surface features of the visible area which are extremely beneficial for policy makers in decision making. The Vegetation analysis can be helpful in predicting the unfortunate natural disasters to provide humanitarian aid, damage assessment and furthermore to devise new protection strategies. NDVI is a measure of surface reflectance gives a quantitative estimation of vegetation growth and biomass. Plants and their roots affect the soil physical properties, such as infiltration rate, aggregate stability, moisture content and shear strength, which play a significant role in soil conservation. Plants and their roots decrease runoff and soil erosion in both dry and wet seasons. The value of NDVI varied between “ -1.0 and + 1.0. The healthy vegetation has lowered-light reflectance and high near-infrared reflectance that produce high NDVI values. The mounting amount of the positive NDVI values indicates the increase in the amounts of green vegetation. The NDVI values near zero and decreasing negative values indicate non vegetated features, such as barren surfaces (rock and soil), water, snow, ice and clouds.

**Keywords:** NDVI, Vegetation, Remote sensing, Soil

#### **ABSTRACT : 48**

### **PHYTOCHEMICAL SCREENING OF HALOPHYTIC PLANT *Suaeda nudiflora* FROM GULF OF KHAMBHAT, GUJARAT**

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A medicinal plant is any plant which, is one or more of its organs, contains substances that can be used for therapeutic purposes or which are precursors for synthesis of useful drugs. Examples of important drugs obtained from plants are digoxin from dried leaves of *Digitalis lanata*. Phytochemical Screening tests for determination of Secondary metabolites on *Suaeda nudiflora* in Methanol Extract were done. Phytochemical Screening tests were performed by Harborne method. Phytochemical tests determined the presence of tannins, Saponins, Flavonoids and terpenoids in *Suaeda nudiflora*. While, Steroids, Alkaloids, Quinones and Sugar/ Carbohydrates were absent in *Suaeda nudiflora*. When phytochemical tests were performed for tannins, blue colour appeared which indicated the presence of tannins in *Suaeda nudiflora* methanol. Tannins have the ability to precipitate proteins such as gelatin and this property is called astringency. Tannins are the important components involved in developing defense strategies by plants. For the determination of the presence of Flavonoids in the *Suaeda nudiflora* extracts chemical test was performed and appearance of yellow colour which disappeared on standing was

the evidence for the presence of Flavonoids in extracts. Flavonoids exhibit antioxidant property. Plant Saponins are soluble in water, have the property of stable soap formation on shaking and are glycosides of both triterpenes and sterols. Saponins were used as natural detergents and fish poison. Plants Saponins were also reported for biological activities such as spermicidal, molluscicidal, antimicrobial, anti-inflammatory and cytotoxic.

**Key words:** *Suaeda nudiflora*, Phytochemical screening, Phytoconstituents, secondary metabolites.

**ABSTRACT : 49**

### **GEOINFORMATICS FOR NATURAL RESOURCES**

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In this article, an attempt has been appraised natural resources through Geoinformatics, which is a method for collecting, storing, analyzing and mapping natural resources for comprehensive planning activities. Natural resources are the most important phenomena for determining the socio-economic development of any country. The evaluation of resource maps that carry into three dimensions of the real world for a set of purposes because this informatics system only has the ability to process the spatial and attribute data. On this basis, water resources, land use and land cover, agriculture, Soil, geology, geomorphology, minerals, relief, forestry and natural hazards maps were prepared and suggested to be an effectively adopted technique for Government action plans, programs at local micro level, in particular to the conservation and management of earth resources.

**ABSTRACT : 50**

### **ALGINATE PEG-STARCH BASED SEMI-INTERPENETRATING HYBRID HYDROGEL SCAFFOLD FOR GUIDED CARDIAC TISSUE ENGINEERING**

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Tissue engineering has been emerged as a promising treatment modality for cardiac dysfunctions such as myocardial infarction. This strategy includes the isolation and culturing

of specific cell phenotypes on a 3D scaffold to form a regenerative patch which is tailored on to infarcted heart. Proper designing of 3D scaffold is vital for the success for cardiac tissue engineering (CTE) approach. Diverse biomaterials have been proposed as scaffold materials. The hydrogels-based biomaterials, both natural and synthetic origin, are promising candidates as CTE scaffold, owing to their similarities with native cardiac ECM and other tunable features. The present study designed and fabricated a biocompatible hybrid hydrogel scaffold by the interpenetration and crosslinking of the natural polymers viz., alginate and starch with the synthetic polymer PEG to function as regenerative templates for cardiac regeneration. Physico-chemical characterization of the hybrid hydrogel scaffold was carried out by FT-IR, SEM, dynamic contact angle, equilibrium water content (EWC) and water holding capacity. The mechanical and thermal properties were evaluated using DSC and TGA. The hydrogels were biodegradable as evaluated by aging in simulated biological fluids and the cytocompatibility was assessed with MTT cell viability assay, direct contact assay and live/dead assay. The in vitro biological the performance of the hydrogels was carried by examining the growth and survival of H9c2 cardiomyoblasts onto the interstices. The overall findings of the study demonstrated that the hybrid hydrogel system is biocompatible and has optimum physico-chemical properties to support cardiac cell growth. **Keywords:** Tissue engineering, Hybrid hydrogel, Alginate, Starch Polyethylene glycol, FT-IR, SEM, MTT assay, H9c2 cells.

#### ABSTRACT : 51

### **BIOLOGICAL ROLE OF THE HEPATOPANCREAS LECTIN OF THE MARINE CRAB *Atergatis latissimus***

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Lectins are proteins/glycoproteins, which function as defense molecules and are found in nature from viruses to animals. Marine crabs are subjected to environmental pollutants and pathogenic organisms present in its vicinity and they defend themselves from these stressors by producing immune molecules. Hence, in the present study the biological role of the naturally occurring sialic acid specific hepatopancreas lectin of the marine crab, *Atergatis latissimus* was analyzed based on induction and clearance experiments. The role of sialic acid specific lectins on natural immunity of the crab was assessed by using buffalo and rabbit erythrocytes and marine bacteria *Streptomyces clavuligerus*, *Nocardioopsis dassonvillei*. Induction experiments

using native erythrocytes revealed a significant correlation between lectin production and the extent of erythrocyte agglutination. Further, injection of lectin coated erythrocytes showed a significant increase in lectin production than the uncoated ones and injection of bacteria increased the HA, suggesting the role of lectin in pathogen elimination. A significant correlation was observed between *in vivo* clearance of exogenous erythrocytes and erythrocyte agglutination by the lectin. Agglutinability and lectin coating of the erythrocytes is also reflected in the rate of clearance of the injected erythrocytes from circulation. Faster clearance of erythrocytes coated with lectin than the uncoated ones, connotes the role of lectin in the process of elimination of foreign pathogens. This study documents that “opsonization” of foreign pathogens with the native lectin was an important step in recognition and clearance of the pathogen.

**Keywords:** innate immunity; opsonin; induction; clearance

#### ABSTRACT : 52

#### PHYTOREMEDIATION OF HEAVY METALS USING PLANT EXTRACT ON VARIOUS SOIL BACTERIA

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HORAM SUPRITHA, THOKCHOM SANJEETA

Phytoremediation is a cost-effective plant-based approach of remediation that takes advantage of the ability of plants or plant extract to clean up soil, air and water contaminated with hazardous contaminants. It is a cost-effective plant-based approach of remediation that takes advantage of the ability of plants to concentrate elements and compounds from the environment and to metabolize various molecules in their tissues. The main objective of this study is to test certain plants extracts namely Moringa and Brassica their ability to absorb heavy metals like lead. Heavy metals are known to be one of the major soil pollutants and purification processes to eliminate these metals can be very expensive. The soil samples collected from places which are prone to heavy metal contaminants like factories were collected and bacteria from such soil samples were cultured and inoculated. The bacteria were later inoculated into media containing heavy metals in various concentrations. Mustard and Fenugreek plants are known to be the most viable hyperaccumulator for the phytoextraction of many metals such as lead, mercury, cadmium etc. The mercury and lead media were introduced to the grounded plant extracts of *Brassica juncea* and *Trigonella foenograecum* (Fenugreek) and the bacteria was inoculated separately in media containing extracts was compared to assess the effective mode for phytoremediation

**ABSTRACT : 53**

**A STUDY OF ENVIRONMENTAL AWARENESS AND ECO- FRIENDLY  
BEHAVIOUR OF COMMERCE UNDER GRADUATE STUDENTS AMONG  
VARIOUS COLLEGES IN SALEM DISTRICT**

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Man is the supreme of all creatures on this earth and god created nature for supporting man's life. The environment is undergoing rapid changes due to rapid scientific advancement. These changes in population have turned the structure of social values which has resulted in changes in peoples' attitude towards environment. This resulted in a disbalance between the natural resources and its consumers. Now humans started realizing the adverse effects and danger to his life due to excessive exploitations of nature. But just a handful of people are aware of the disastrous situations. It is very important that every mankind should be aware with regard towards his contributions to save the nature for the future generations. For this, the best way is to bring awareness among the younger generation through their academic curriculum. This study targets at finding out the environmental awareness and eco-friendly behaviour of commerce students of various Colleges (Government and Private) in Salem District. The thought provoking idea behind it was the fact that students from all the streams have environmental studies as part of their curriculum and hence an attempt is made with regard to the study of level of awareness and eco-friendly behaviour of commerce students.

**Key Words :** Awareness, Behaviour, Commerce, Environment, Eco-Friendly, Students, Under-Graduate

**ABSTRACT : 54**

**A STUDY ON CONSUMER AWARENESS AND PREFERENCE TOWARDS  
AYURVEDIC PRODUCTS IN DEPARTMENTAL STORES WITH SPECIAL  
REFERENCE TO SALEM CITY**

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The Indian Ayurvedic product is flooded with numerous well-known and recognized Ayurvedic brands. Consumers of this epoch have become more concerned about their health and also tending to maintain quality of life which is reflected through the preferential consumption of those products that protects the good state of their health as well as provide utmost satisfaction. The choice and usage of a particular brand by the consumer over the



time is afflicted by the quality benefits offered by the brand. In the present scenario, Ayurvedic products in different brands and categories are available in various retail and departmental stores. The modern day consumers are aware of Ayurvedic products and its numerous brands. Various factors influence them in selecting the best one which is very challenging. That interest made us to study the consumer awareness and preference towards Ayurvedic products in Departmental stores. They are made easily available through these outlets. This study is proposed to make an attempt to find out the awareness, attitude and preference towards familiar Ayurvedic products available in the departmental stores in Salem City.

**KEYWORDS:** Attitude, Awareness, Ayurvedic products, consumer, Departmental stores, Preference.

#### **ABSTRACT : 55**

### **ANALYSIS OF INFLUENCE OF MARKETING ON SALE OF SIDDHA DRUGS**

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In India there are 7.37 lakh practitioners of alternative medicine streams like Ayurveda, Siddha, Homeopathy and Unani registered with AYUSH. In Siddha, there are more than 264 Siddha hospitals and 8173 physicians registered in the country. This makes treatments and product prescriptions more readily accessible and widespread acceptance of Siddha. The retail value of the Ayurvedic products including Siddha in India is estimated to be 4.5 Billion US\$ and is expected to reach 14.9 Billion US\$ by 2026. The products of siddha medicine were not produced commercially earlier. The physician himself used to find the raw materials and prepare the medicine by himself or under his supervision. But due to change in lifestyles and scarcity of raw materials, the physician was unable to fulfill the rising demand. Thus commercial production of siddha medicine started in recent decades

As Siddha drugs industry deals mainly with those of herbal, mineral, animal or their combination, their quality of raw materials and in turn the quality of the products plays a very vital role in marketing when compared to the other three elements of marketing mix. Thus, this study is undertaken to determine the influence of marketing and its concepts on the sale of Siddha medicine.

**Key Words :** AYUSH, Marketing, Influence, Siddha

ABSTRACT : 56

THERAPEUTIC POTENTIAL OF KAEMPFEROL ON THE TRANSGENIC  
*DROSOPHILA* MODEL OF PARKINSON'S DISEASE

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Parkinson's disease (PD) is the second most common age related neurodegenerative disease with unclear pathogenesis. To date there are no neuro-protective drugs to slow down the progression of neuronal degeneration. Kaempferol is a polyphenol antioxidant found in many edible plants, fruits and vegetables. The present study indicates the possible usage of kaempferol, as a potent candidate for therapeutic use in Parkinson's disease. In the present study kaempferol was added in the diet at final concentration of 10, 20, 30 and 40  $\mu$ M and the effect was seen on various cognitive and oxidative stress markers. Histopathology of *Drosophila* brain sections was done by performing anti-tyrosine hydroxylase immunostaining. Docking studies were also carried out to study the plausible binding site of kaempferol on alpha synuclein molecule and its role in preventing the aggregation of the protein. The results of the study showed that kaempferol increased the life span, delayed the loss of climbing ability as well as the activity in PD flies in a dose dependent manner compared to unexposed PD flies. A dose-dependent reduction in oxidative stress and increase in dopamine content was also observed. Retinal degeneration also showed a dose dependent reduction with an improved morphology and ommatidial arrangements. Histopathological examination of fly brains using anti-tyrosine hydroxylase immunostaining has revealed a significant dose-dependent increase in the expression of tyrosine hydroxylase in PD flies exposed to kaempferol. Molecular docking results have revealed that kaempferol binds to human alpha synuclein at specific sites that might results in the inhibition of alpha synuclein aggregation prevents the formation of Lewy bodies. Hence, it is concluded from our study that kaempferol is potent in reducing the PD symptoms being mimicked in transgenic flies and can be used as possible therapeutic agent against neurodegenerative disorders.

## ABSTRACT : 57

### ANTITUMOR, ANTIVIRAL ACTIVITIES EVALUATION OF SCHIFF BASE METAL COMPLEX DERIVED FROM P-NITRO ANILINE WITH PYRROLE 2 CARBOXALDEHYDE AND ITS CHARACTERISATION

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Schiff bases and their metal complexes are versatile compounds with remarkable application in pharmaceutical and pharmacological properties act as an antibacterial, antifungal, antiviral and antitumor agent. Schiff bases is the condensed product of primary amino compound with carbonyl compounds like ketone or aldehyde. New potent Schiff base ligand has been derived by the condensation of pyrrole 2 carboxaldehyde with para nitro aniline. Transition metal complexes of Cu<sup>2+</sup>, Zn<sup>2+</sup>, Co<sup>2+</sup>, Ni<sup>2+</sup> and Mn<sup>2+</sup> have been synthesized using newly synthesized Schiff base ligands and selected metal nitrates. The synthesised ligand and its metal complexes were characterized by spectral analysis such as UV visible, <sup>1</sup>H NMR, FTIR, powder XRD and SEM analysis. Antitumor and antiviral activities of newly synthesized Schiff base ligand and its transition metal complexes were evaluated by potato disc method and in vivo assay. The present investigation proves that the metal complexes have more antiviral and antitumor activities than their parent ligand due to their chelating property.

**Keywords :** pyrrole 2 carboxaldehyde, p-nitro aniline, transition metal complex, UV visible, <sup>1</sup>H NMR, powder XRD, FTIR, SEM, antiviral, antitumor

**Abstract : 58**

**Qualitative Phytochemical Screening of *Aristolochia indica* L.**

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Phytochemicals have great potency as therapeutic agents. There is continuous and urgent need to discover new therapeutic compounds with diverse chemical structures and novel mechanism of action because there has been an alarming increase in the incidence of new and re-emerging infectious diseases. Hence, the present investigation was carried out to assess the phytoconstituents of root extracts of *Aristolochia indica*. The root samples were collected from their wild habitats, washed, air dried and then powdered. The solvent extracts of the respective leaves were prepared using Soxhlet apparatus with methanol, ethyl acetate and hexane. The extracts were subjected to preliminary phytochemical analyses as per standard procedures. The results showed that the results also revealed that only steroids and terpenoids were found in all the three solvents used, and coumarins, gums & mucilages and quinones were not found in the three solvents. Among the phytochemicals tested maximum number of compounds (9 nos.) were detected in methanol extract. The result of this study is encouraging further quantitative estimation and the need for clinical studies to determine the potential effectiveness of particular phytochemical *in vivo*.

**Keywords:** Qualitative phytochemical analyses, root extract, *Aristolochia indica*.

## **1. INTRODUCTION**

Plant-derived substances have recently become of great interest owing to their versatile applications. Medicinal plants are a group of species that accumulate different active principles, useful in treating various human or animal diseases. They are the richest bio-resource of drugs of traditional systems of medicine, modern medicines, nutraceuticals, food supplements, folk medicines, pharmaceutical intermediates and chemical entities for synthetic drugs <sup>1</sup>.

Phytochemicals are naturally occurring in different parts of the medicinal plants that have defense mechanism and protect from various diseases <sup>2</sup>. The medicinal plants are useful for healing as well as for curing of human diseases because of the presence of phytochemical constituents which produce definite physiological action on the human body and these bioactive substances include alkaloids, carbohydrates, terpenoids, steroids, flavonoids, tannins, etc. <sup>3</sup>.

Plants with prospective medicinal activity have recently come to the attention of scientists and researchers because of their bioactive potential. Preliminary screening of phytochemicals is a valuable step in the detection of the bioactive principles present in medicinal plants and subsequently may lead to drug discovery and development. Due to the significance in this above perspective, such preliminary phytochemical screening of plants is the need of the hour in order to discover and develop novel therapeutic agents with improved value. Thus, the present study was aimed to assess the various phytoconstituents present in the root extracts of *Aristolochia indica*.

## **2. MATERIALS AND METHODS**

### **2.1. Plant sample collection**

The root samples of *Aristolochia indica* L. (Aristolochiaceae – Eeswaramooli) were collected from Karandamalai located in Dindigul district of Tamil Nadu, India. It lies between 19.2849° N latitude and 78.2169° E longitude. The roots were washed with tap water and shade dried at room temperature to attain constant weight. The air dried samples were powdered in an electric blender and stored in plastic bags for further analysis. All the plants were botanically confirmed and authenticated as per APG IV classification <sup>4</sup>.

### **2.2. Preparation of plant extract**

The dried powder material was extracted sequentially in three different solvents viz., acetone, ethanol and petroleum ether. 15 g of the dried and powdered plant material were extracted with 150 ml of ethanol, acetone and petroleum ether using soxhlet apparatus for 6-8 hours at a temperature not exceeding the boiling point of the solvents. The obtained crude extracts were filtered by using Whatman No. 1 filter paper and then concentrated under vacuum at 40° C by using a rotary evaporator and later stored at 4° C for further use.

### 2.3. Qualitative phytochemical analysis

All the plant extracts were screened for the presence of various phytoconstituents such as alkaloids, coumarins, fats & oils, flavonoids, glycosides, gums & mucilages, phenols, saponins, steroids, sugars, tannins, terpenoids and quinones according to the standard phytochemical methods <sup>5-10</sup>. The qualitative results were expressed as (+) for the presence and (-) for the absence of phytochemical.

### 3. RESULT AND DISCUSSION

The phytochemical analysis of different solvent extracts of *Aristolochia indica* root was carried out by following the standard methods and the results indicated that the methanol extract showed the presence of alkaloids, fat & oils, glycosides, gums & mucilages, phenolics, steroids, sugars, tannins and terpenoids, meanwhile, the ethyl acetate extract had positive response for fat & oils, flavonoids, saponins, steroids and terpenoids and the hexane extract showed the presence of fat & oils, flavonoids, phenolics, saponins, steroids, tannins and terpenoids (Table 1).

**Table 1: Preliminary phytochemical screening of root extracts of *Aristolochia indica***

Sl. No.	Phytochemical constituents	Observations		
		Hexane	Ethyl acetate	Methanol
1	Alkaloids	-	-	+
2	Coumarins	-	-	-
3	Fats & Oils	+	+	+
4	Flavonoids	+	+	-
5	Glycosides	-	-	+
6	Gums & Mucilages	-	-	-
7	Phenolics	+	-	+
8	Saponins	+	+	-
9	Steroids	+	+	+
10	Sugars	-	-	+
11	Tannins	+	-	+
12	Terpenoids	+	+	+
13	Quinones	-	-	-

**Note: '-' = Absent; '+' = Present**

The results also revealed that only steroids and terpenoids were found in all the three solvents used, and coumarins, gums & mucilages and quinones were not found in the three solvents. Among the phytochemicals tested maximum number of compounds (9 nos.) were detected in methanol extract, it was followed by hexane extract (7 nos.) and minimum (5 nos.) in ethyl acetate extract (Table 1). This can be attributable to the higher solubility of the phytocompounds of plant material in methanol than other solvents. The recovery of phytochemical from plant sample could also be influenced by dielectric constant, chemical structure of solvents used, and as well as chemical properties of phytochemicals <sup>11</sup>.

#### 4. CONCLUSION

Further quantitative and chromatographic studies should be carried out on the phytochemical compounds present in *Aristolochia indica* to isolate, identify, characterize and elucidate the structure of the bioactive compounds. There may be a chance to discover a new compound which leads to the birth of new drug. Biological efficacies of the isolated compounds should also be tested using animal models.

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## ABSTRACT : 59

### **Sustainable Management of Manasbal Lake of Kashmir Himalaya: A New Environmental Challenge**

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In an aquatic ecosystems, water quality plays an important role in determining the status and condition of that fresh water ecosystem. During the present study, an attempt was made to assess the water quality and sustainable management of Manasbal Lake of Kashmir Himalaya. The Manasbal Lake is located in Ganderbal District in the UT of Jammu and Kashmir, India and has altitude position of about 1551m a.s.l. The lake catchment is having an area of about 22 km<sup>2</sup> located in Ganderbal District at a distance of 30 km north from the Srinagar city of Jammu and Kashmir.

The Manasbal Lake is a semi urban and deepest lake of Kashmir valley. The deepest lake is currently suffering from cultural eutrophication due to anthropogenic pressure, siltation and the waste water released from the nearby kilns and residential areas. From the present study, it can be concluded that the higher values of Phosphates (PO<sub>4</sub>), Alkalinity, Hardness, Electric Conductivity, Free carbon dioxide and lower values of dissolved oxygen and transparency clearly depicted higher trophic status of Manasbal Lake. It can also be concluded that the climatic factors, untreated sewage and solid garbage from surrounding population, fertilizers containing Nitrates and Phosphates and slit load were the main causes for degradation of water quality of the studied lake.

Therefore, periodic monitoring of Manasbal Lake is necessary for assessing the quality of water for human and animal consumption as well as for aquatic life. Besides, immediate remedial measures should be taken up for protection and sustainable management of this monomictic lake in order to save it from further pollution and deterioration.

**Keywords: Manasbal Lake, Sustainable, Cultural eutrophication, Conservation.**

## ABSTRACT : 60

### **An *Insilico* investigation of Andrographolide and its derivatives on SARS-CoV-1, MERS-CoV and SARS-CoV-2 Main protease target - A Molecular Docking Approach**

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Andrographolide is a labdanediterpenoid isolated from the leaves and roots of *Andrographis paniculata* that exhibits anti-HIV, anti-inflammatory and antineoplastic properties. It has a role as a metabolite, an anti-inflammatory drug, an anti-HIV agent and an antineoplastic agent. It is a gamma-lactone, a primary alcohol, a secondary alcohol, a labdanediterpenoid and a carbobicyclic compound. Andrographolide was shown to possess inhibitory action against SARS-CoV2 main protease. In this study, we explored the inhibitory potential of derivatives of Andrographolide. A comparative investigation was performed by analyzing the binding energy of three corona virus stains' main protease. A total of 22 derivatives were studied. These compounds were used as ligands to dock against the target protein. The 3D structures of these 22 compounds were obtained from PubChem and drawn using ChemSketch software. The ligands were geometrically optimized using Avogadro software. Three target proteins were chosen for study and their 3D structures were obtained from RCSB PDB. The proteins studied were - Main protease from SARS-CoV1 (3TNT), MERS-CoV(5WKK) and SARS-CoV2 (6YB7).The proteins were energy minimized using SPDBV and were then docked with the ligands using Autodock Vina. Post dock analysis was performed using PLIP and LigPlot plus. Among the 22 compounds, Bisandrographolide B showed a better binding energy with the three proteases, i.e., SARS-CoV1 (-8.3 kcal/mol), MERS-CoV(-9.6 kcal/mol) and SARS-CoV2 (-8.2 kcal/mol). Nelfinavir and favipiravir were used as control. ADMET properties of the compounds were analyzed using SwissADME servers.

**Keywords :** Andrographolide, SARS-Cov1, SARS-Cov2, MERS-Cov, Main protease

#### ABSTRACT : 61

### COVID-19 Pandemic data analysis and Forecasting using ARIMA and Exponential Smoothing Models

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**Background:** The novel pandemic of coronavirus (COVID-19) becomes a global threat. As of mid-Jun 2020, 7759691 COVID-19 cases in the world were total confirmed cases, including 430127 death cases, which illustrate how badly the pandemic affected the world. To examine the Confirmed and death case of the Corona Virus, We constructed ARIMA and Exponential

Smoothing models to prediction its trend in incidence in World. **Methods:** the novel epidemic of COVID-19 patient dataset has extracted from the World health origination (WHO) website includes confirmed and death cases from start-February to mid-Jun were used to establish. Estimate the ARIMA, Naïve model and Exponential Smoothing model to forecasting the prevalence of COVID-19 over the subsequent 60 days. **Results:** The best accuracy of ARIMA model with the lowest RMSE (root mean squared error), MAE (mean absolute error), MAP (mean absolute percentage) and MAPE was finally model selected for in sample simulation. The prediction of COVID-19 patients could obtain the value of total confirmed cases of 15853652, which could be a total death cases of 692639 at the mid of August. **Conclusions:** this study suggested that the most accurate prediction of COVID-19 prevalence in World using the ARIMA model was proposed as a useful tool for monitoring pandemic. This analytical tool offers a great contribution for researchers and healthcare managers in the evaluation of healthcare interventions in specific populations. **Keywords:** Prediction, COVID-19 outbreak, ARIMA, ETS model, Time series

#### ABSTRACT : 62

##### Estimating volatility of stock market using GARCH-type models

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The prediction of time-varying volatility plays an important role in financial data. In the paper, a comprehensive analysis of the mean return and conditional variance of NSE index is performed to use GARCH, EGARCH and TGARCH models with Normal innovation and Student's t innovation. Conducting a bootstrap simulation study which shows the Model Confidence Set (MCS) captures the superior models across a range of significance levels. The experimental results show that, under various loss functions, the GARCH using Student's t innovation model is the best model for volatility predictions of NSE among the six models.

**Keywords :** GARCH-Type Model, MCS, NSE, Volatility.

## ABSTRACT : 63

### **Prevalence and impact of COVID-19: K-nearest neighbors' approach-based time series analysis to forecast near future**

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**Background:** The pandemic of Coronavirus Disease 2019 (COVID-19) has caused a vast disaster throughout the world. Researchers from various scientific disciplines have attempted to forecast the spread of coronavirus disease 2019 (COVID-19). **Methods:** The proposed epidemic prediction methods range from K-nearest neighbors (KNN) Forecasting. The Prediction performance of the KNN models with the lowest RMSE, MAE and MAPE were eventually the best model selected. **Results:** From an overall perspective, the upcoming occurrence of COVID-19 from start-August 2020 to end-Sep 2020 will be peaking in September. The forecast results specified that the COVID-19 occurrence was likely to grow only slightly over the subsequent 58 days. **Conclusion:** We analyze a diverse set of COVID-19 forecast algorithms, including several modifications of KNN. Among the algorithms that we evaluated, the original KNN performed best at forecasting the spread of COVID-19 in United States, Brazil, India and Russia. In particular, we show that KNN forecasting is superior to any other forecasting algorithm.

**Keywords:** COVID-19, Forecast accuracy, Time series methods, K nearest neighbors (KNN)

## ABSTRACT : 64

### **OCCUPATIONAL STRESS AND COPING STRATEGIES OF WOMEN WORKERS IN CONSTRUCTION INDUSTRY**

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Construction industry is one of the unorganized sector, which employing a large number of people on its work force. A wide range of activities are involved in it. About one third of these workforce employed in this industry are women workers have to face difficulties at the work place. The pathetic conditions are that women workers in this industry are almost unskilled labourers. Occupational stress or workplace stress refers to stress experienced as a direct result of a person's occupation. Pressure at the workplace is unavoidable due to the demands of the contemporary work environment. Construction workers are posed with a lot of occupational demands and pressures. Due to high physical demands that cause injury in the construction industry, construction workers undergo variable amounts of stress. These construction workers are from poor families and are illiterates. Their lack of education and skill make their choice very limited. They have to face number of Stress because of their inexperience and lack of skill. They become ea victim of exploitation and gender discrimination for work allocation and wage distribution. Sexual harassment is a serious stress for women construction workers. They faced different health hazards, physical problems and adverse out comes. Women were exploited to a Workers who are stressed are more likely to be unhealthy, poorly motivated, less productive and less safe at work. Job stress is believed to be one of the causes of absenteeism, low workers morale, high rate of accident and poor turnover rates. Coping strategies adopted to deal with psychological health issues could have influences on the general health, productivity and task performance of the employee. The causes focused coping strategies were categorized under avoidance, alteration, adaptation, and acceptance. The effects focused coping strategies were also categorized under healthy and unhealthy coping strategies. Psychosocial factors like job satisfaction and social support might influence the prevalence of musculoskeletal symptoms like chronic low back pain in construction workers might be due to awkward posture and repetitive nature of work. Psychological Stress develops among construction workers is due to work load, fixed time frame, lack of training, poor communication among workers as well as with supervisors, inadequate room for innovation, lower wages, ambiguity of job requirement, inadequate knowledge of project objectives, long working hours, tight schedules and unfavorable working conditions etc. greater degree as they were paid less compared to men for similar nature of work hours spent on work. Findings show that majority of the women were engaged in the construction industry and were only employed in unskilled and low paying jobs as coolies, laborers and helpers. The

conditions of work in the unorganized sector were unsatisfactory and the problems confronted by them were acute. And that their illiteracy, poverty and indebtedness forced them to work for lower wages and under unjust conditions.

**Keywords:** Unorganised Sector, Construction Industry, Women Workers, Occupational Stress, Coping Strategies.

**ABSTRACT : 65**

**A Study on Practicality and Effectiveness of Ayush  
System in the Northeast India**

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Northeast India is located the easternmost part of India. The region constitutes of eight states – Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The Indian Council of Agricultural Research has identified as a centre of rich germplasm. The National Bureau of Plant Genetic Resources (NBPGR), India, has considered the area as being rich in wild relative of crop plants. The mostly mountainous region has an ample of medicinal plants and many other rare endangered species. It is rich in Flora and Fauna and a hot spot of biodiversity. The age old indigenous practice of medicine has been revived in the form of the AYUSH system, that provides to the health care service largely in the rural and the remotest parts of the North-eastern population. With higher use of AYUSH care among states are in Meghalaya, Assam, Arunachal and Manipur. The use of age old medicine in low-income households is higher in compared with the middle-income households. The holistic approach of practice has to be adopted to meet and reach out particularly in vulnerable society for better outcome in the health care system. The inclusive reception of tribal medicine suggests that tribal medicine needs to be sustained. Though, the dominant practice of medicine is allopathic, yet both Allopathic and Ayurveda can work parallel to cater the needs of health care facilities. In this article, it

is going to be discussed about Practicality and Effectiveness of Ayush System in the Northeast India in the detailed manner.

**Key words:** Ayurveda, Medicine, Tribal, Health Care & Ayush system

**ABSTRACT : 66**

**TRADITIONAL FOODS AND SIDDHA MEDICINE FOR HEALTHY PREGNANCY**

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Siddha Medicine was a contemporary of Tamil language.mankind utilize this traditional medicine in the various stages of their lives for their betterment. According to Siddha System “ Sakthi”(a type of Thirumeni) is meant for the work for creating. Women can be correlated to this work by giving a new creature to this world. Women’s reproductive life consists of three phases. In the account of pregnancy, healthy life should be practiced from the Menarche. Conception is a event that entails substantial physiological and psychological changes in mother. The end goal of various changes occur in pregnancy is to facilitate the growth of fetus. Gestational periodconsists of three trimesters. Organogenesis, Hyperplasia and Hypertrophy of organs are changes occur in the growth of ovum in the pregnancy period. A healthy lifestyle is very essential to meet up a healthy delivery with the healthy baby. To attain a proper quality of life during conception and lactation traditional food practices and Siddha medicines plays a vital role. Here, we explore the various food and Siddha medicine for a healthy pregnancy.

KEY WORDS: Siddha medicine, Pregnancy, Traditionl foods.

**ABSTRACT : 67**

**EVIDENCE BASED MEMORY ENHANCING ACTIVITY OF BRAHMI NEI  
“ A NOOTROPIC COMPOUND FROM SIDDHA”**

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Memory is perhaps the most vital of the aspects that differentiates human being from other animals. Since ages, drugs and natural remedies have been prescribed in people. The Indian system of Siddha has a treasure of such memory enhancing drugs, which are today popular all over the world due to their proven effective qualities. The herbs acting on brain are called as Nootropic herbs and their isolated constituents referred to as smart drugs. Memory enhancer herbs enhance the memory and increase blood circulation in the brain. Brahmi nei, a polyherbal siddha formulation drug used in traditional medicine for cognition and memory related problems blended with the drugs, which exert a variety of pharmacological actions including anti-inflammatory, anti-cholinesterase, anti-amnesic, effect on learning and memory and anti-oxidant properties. This paper encloses the brief descriptive information of different scientific studies on various ingredients of Brahmi Nei. Keywords: Siddha medicine, Brahmi nei, Memory enhancing activity.



## ABSTRACT : 68

### **Effect of Ropinirole silver nanocomposite on the transgenic *Drosophila melanogaster* model of Parkinson's disease**

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Parkinson's disease (PD) is a progressive neurodegenerative disease occurs mainly due to the degeneration of dopaminergic neurons in substantianigra pars compacta of mid brain. Aggregation of  $\alpha$ -synuclein in the form of Lewy bodies results in motor dysfunction that includes akinesia, bradykinesia, rigidity, tremor and postural instability. Ropinirole (RP) is a non-ergot D2/D3 dopamine agonist with higher affinity for D3 receptors than for D2 or D4 receptor subtypes. RP was developed as SKF-101468A and was reported to have anti-parkinsonian effects in primate models of PD. It has proven its efficacy against early PD symptoms and in combination with L-dopa for the advanced stages of disease. After oral administration, RP is rapidly absorbed exhibiting a bioavailability of approximately 50% due to the first pass metabolism. It has relatively low oral bioavailability, short plasma elimination half-life and is inactivated in the liver. Hence we decided to study the effect the neuroprotective role of synthesized Ropinirole silver nanocomposite (RPAgNC) in *Drosophila* model of PD.  $\alpha$ -synuclein accumulation in the brain of flies (PD flies) leads to the damage of dopaminergic neurons, dopamine depletion, impaired muscular coordination, memory decline and increase in oxidative stress. The results showed that the ingestion of the RPAgNC by *Drosophila* significantly prevented the neuronal degeneration compared to only ropinirole. The results confirm that the RPAgNC exerts more neuro-protective effect compared to dopamine agonist i.e. ropinirole as such drug in experimental PD flies.

## **ABSTRACT : 69**

### **CONSERVATION OF NATURE AND SIDDHA MEDICINE**

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Conservation of nature and natural resources has been a much challenging task in the present state of affairs where economy prevails over ecology. International treaties and conventions are signed and policies, laws and acts have been enacted by the countries across the world, however, hostilities remain while applying the protected area policies which largely deprive indigenous communities from their traditional right. It hurts their feeling and hence change their behaviour, which impact the objective, negatively. Historically, religion being a product of feelings and belief has been used as a powerful tool for nature conservation, making age old religious entities such as sacred landscape, sacred groves and sacred species by various cultural group are the lives manifestation of historical, cultural and emotional attachment of human being with nature and natural resources. The philosophy of religion can continue to be used as a powerful tool for mitigating negative impacts of current anthropogenic pressures on the nature and its resources. With this background, the present review aims to analyse various practice of nature and natural resources conservation as embedded in the religion.

The siddha system of medicine is an ancient system that is practised in Tamil nadu in South India and in other. Tamil speaking region of the world. SSM focuses on addressing the root cause of the diseases rather treating the diseases symptoms and combination of herbs, medicinal plants, animal and marine resources go on to make the required drugs. In the current scenario where pharmaceutical companies are increasingly turning to bio prospecting to get useful leads and side effects caused by the pharmaceutical are generating interest in research on the scope of personalized medicine. It is important that the various intellectual properties concerning SSM is protocoling an urgent basis. The peoples biodiversity register is an ideal solution to the issue of economic and knowledge loss the two bio piracy and lacuna in protecting the intellectual property in SSM, a well-documented PBR is an intellectual property registry of a village / facilitate in appropriate sharing of benefits acquired from exploitation of bio resources of a region.

## ABSTRACT : 70

### **Preliminary Phytochemical Appraisal of *Andrographis alata* (Vahl) Nees Yasothkumar N<sup>1\*</sup>, Sankaralingam S<sup>2</sup>**

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Preliminary phytochemical tests played a significant role in finding and locating chemical constituents which are source of pharmacologically active principles. By consider the medicinal importance of whole plant of *Andrographis alata*, the present study was designed to screen the phytochemical constituents present in entire plant extract preliminarily. The phytochemical analyses were conducted by employing standard methods. The results of present study revealed that alkaloids, gums & mucilages, phenolics, saponins, glycosides, steroids, tannins and terpenoids were found in all the three solvents used, and fats & oils and glycosides were not found in the three solvents. Among the phytochemicals analyzed maximum number of compounds (10 nos.) were detected in methanol extract. The potential active principles of the detected compounds should be quantified and pharmacologically evaluated.

**Keywords:** Preliminary phytochemical analyses, entire plant extract, *Andrographis alata*.

#### **1. INTRODUCTION**

Nearly 80% of the world's population relies on traditional medicines for primary health care, most of which involve the use of plant extracts<sup>1</sup>. The medicinal value of these plants lies in some chemical substances which are naturally occurring in various plant parts that produce a definite physiological action on the human body. The most important property of these bioactive constituents is that they are more effective with little or no side effects when compared to the commonly used synthetic chemotherapeutic agents. Qualitative phytochemical screening will help to understand a variety of chemical compounds produced by plants and also will help to extract, purify and identify the bioactive compounds for useful aspects to human beings<sup>2</sup>. Having these facts as research view and based on the ethnomedicinal importance of the whole plant of *Andrographis alata* such parts were selected to screen the phytochemical constituents preliminarily for present study.

## 2. MATERIALS AND METHODS

### 2.1. Collection of plant materials

Fresh plant samples of *Andrographis alata* (Vahl) Nees (Family: Acanthaceae; Local name: Periyaanangai) were collected from Karandamalai located in Dindigul district of Tamil Nadu, India. It lies between 19.2849° N latitude and 78.2169° E longitude. The plant parts were washed separately with tap water and shade dried at room temperature to attain constant weight. The air dried samples were powdered in an electric blender and stored in plastic container for further analysis. The plants were botanically authenticated as per APG IV classification<sup>3</sup>.

### 2.2. Preparation of plant extracts

The powdered drugs of all the selected plant parts were extracted successively with methanol, ethyl acetate and hexane by hot extraction method separately. The extracted solvents were evaporated under reduced pressure using a rotary vacuum evaporator to get semisolid mass for further preliminary phytochemical analyses.

### 2.3. Screening of phytochemicals

All the plant extracts were screened for the presence of various phytoconstituents such as alkaloids, coumarins, fats & oils, flavonoids, glycosides, gums & mucilages, phenols, saponins, steroids, sugars, tannins, terpenoids and quinones according to the standard phytochemical methods<sup>4-7</sup>.

## 3. RESULTS AND DISCUSSION

The preliminary phytochemical screening of entire plant extract of *Andrographis alata* was carried out using both polar as well as non-polar solvents to detect the presence of active components. The results of present study revealed that the methanol extract showed the presence of alkaloids, coumarins, flavonoids, gums & mucilages, phenolics, saponins, steroids, tannins, terpenoids and quinones, whereas, the ethyl acetate extract indicated the positive results for alkaloids, flavonoids, gums & mucilages, phenolics, saponins, steroids, tannins and terpenoids. The hexane extract revealed the presence of alkaloids, gums & mucilages, phenolics, saponins, steroids, sugars, tannins and terpenoids (Table 1).

**Table 1: Preliminary phytochemical screening of entire plant extracts of *Andrographis alata***

Sl. No.	Phytochemical constituents	Observations		
		Hexane	Ethyl acetate	Methanol
1	Alkaloids	+	+	+
2	Coumarins	-	-	+
3	Fats & Oils	-	-	-
4	Flavonoids	-	+	+
5	Glycosides	-	-	-
6	Gums & Mucilages	+	+	+
7	Phenolics	+	+	+
8	Saponins	+	+	+
9	Steroids	+	+	+
10	Sugars	+	-	-
11	Tannins	+	+	+
12	Terpenoids	+	+	+
13	Quinones	-	-	+

**Note:** ‘-’ = Absent; ‘+’ = Present

The results also highlighted that alkaloids, gums & mucilages, phenolics, saponins, glycosides, steroids, tannins and terpenoids were found in all the three solvents used, and fats & oils and glycosides were not found in the three solvents. Among the phytochemicals analyzed maximum number of compounds (10 nos.) were detected in methanol extract and minimum (10 nos.) in both hexane and ethyl acetate extracts (Table 1). As per earlier reports, the recovery of phytochemical from plant sample could be influenced by dielectric constant, chemical structure of solvents used, and as well as chemical properties of phytochemicals<sup>8</sup>.

#### 4. CONCLUSION

To isolate, identify and characterize the bioactive compounds present in whole plant extract of *Andrographis alata* further quantitative and chromatographic studies should be carried out, which ultimately ends in new drug invention. Pharmacological activities of these medicinally important parts should also be evaluated.

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