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Department of Biotechnology,
Government of India
(DBT, New Delhi)

Mcas Journal of Research

*Sponsored*

National Conference
on

# DISEASE DIAGNOSIS & DRUG DEVELOPMENT AGAINST HUMAN PATHOGENS

**15th - 17th NOV 2023**

**CONFERENCE PROCEEDINGS**


**EDITORS**
Dr. S. P. Vijeikumar
Dr. N. Sudhakar
Dr. M. Maghimaa


# mcas Journal of Research Special Issue


MUTHAYAMMAL
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NOV 2023

# MCAS JOURNAL OF RESEARCH

## Conference Proceedings

## Special Issue

DEPARTMENT OF BIOTECHNOLOGY
Ministry of Science & Technology
Government of India

**DBT-Sponsored National Conference on "Disease Diagnosis and Drug Development Against Human Pathogens" on 15th to 17th Nov 2023**

**Editors**


**Dr. S.P. VIJEIKUMAR,**

Principal, Muthayammal College of Arts and Science, Rasipuram, Namakkal, Tamil Nadu. India

**Dr. N.SUDHAKAR,**

Dean, Research & Development, Muthayammal College of Arts and Science, Rasipuram, Tamil Nadu. India

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DEPARTMENT OF BIOTECHNOLOGY
Ministry of Science & Technology
Government of India

**National Conference on**
**Disease Diagnosis & Drug Development Against Human Pathogens**

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# Message from the Chairman

Vanetra Muthayammal Institutions has long been a forward-thinking institution emphasizing innovation and research. Muthayammal College of Arts and Science is proud to house a dedicated Research and Development Cell, comprising faculties from diverse fields within the realm of Science and Technology.

It is a matter of immense pleasure and honor for me to extend a very warm welcome to all dignitaries and delegates for the three-day National Conference on **"Disease Diagnosis & Drug Development Against Human Pathogens"**, sponsored by the Department of Biotechnology (DBT), Government of India, which is being organized by the Research and Development Cell of Muthayammal College of Arts and Science, Rasipuram. This conference is a significant event for our institute, as it will bring together researchers, faculties, scholars, and students from academia and industry all over the nation to share their knowledge about disease diagnosis and drug development.

The conference will cover a wide range of topics, including clinical pharmacology, clinical biochemistry, medical microbiology, antimicrobial agents, herbal drug development, phytochemistry, diagnosis in health care, biotechnology, and nanotechnology. I am confident that this conference will be a great platform for all the participants to learn and discuss recent advances in the field and network with leading experts from academia and industry to address emerging aspects of disease diagnosis and drug development.

I extend my compliments to the Research and Development Cell for organizing such an event that addresses emerging aspects of disease diagnosis and drug development and convey my best wishes for the grand success of this conference.

**Mr. K. P. Ramasamy**
Chairman,
Vanetra Muthayammal Institutions

## Message from the Secretary

I am delighted to extend my warmest greetings to the Research and Development Cell of Muthayammal College of Arts and Science for organizing, Department of Biotechnology (DBT), Government of India sponsored three-day National Conference on **"Disease Diagnosis & Drug Development Against Human Pathogens"**. I am pleased to welcome distinguished delegates, invitees, and participants to this significant and prestigious event and am honored to host you at Muthayammal College of Arts and Sceince, Rasipuram during November $15^{th}$ – $17^{th}$ 2023.

This conference is an important step towards our goal of becoming an academic and research institute of national importance. The theme of the conference will address the challenges and recent developments in the field of disease diagnosis and drug development in India and across the globe. The horizons are broadening, and a coordinated approach is required to combat the bottlenecks and expand the knowledge in the field. I do strongly believe that this conference will provide an excellent platform for budding researchers, scientists, and students to interact and gain knowledge in the field.

I extend my best wishes for a grand success of this conference.

**Mr. R. Muthuvel**

Secretary
Vanetra Muthayammal Institutions

## Message from the Director

We are feeling proud and honored to welcome you to the Department of Biotechnology (DBT), Government of India, sponsored three-day National Conference on **"Disease Diagnosis & Drug Development Against Human Pathogens"** at Muthayammal College of Arts and Science, Rasipuram. I am extremely happy that this conference has been designed to offer comprehensive range of sessions that include clinical pharmacology, clinical biochemistry, medical microbiology, antimicrobial agents, herbal drug development, phytochemistry, diagnosis in health care, biotechnology, and nanotechnology.

I hope you have a good time and opportunity to connect with expertise from the scientific community through their lectures and presentations and will put forward many thought-provoking strategies and advanced technologies in the field of disease diagnosis and drug development.

I wish the conference a grand success.

**Dr. R. Selvakumaran**

Director Academics
Vanetra Muthayammal Institutions

# Message from the Principal

I take the privilege to welcome the eminent scientist, researchers, and the students for the National Conference on **"Disease Diagnosis & Drug Development Against Human Pathogens"** organized by the Research and Development Cell from November 15$^{th}$ – 17$^{th}$ 2023 at Muthayammal College of Arts and Science, Rasipuram.

I believe that this conference will provide ample opportunity for researchers across the country to transmit the knowledge generated through their research. I hope that the conference acts as a great platform for students and budding researchers to learn and foster collaborations among researchers in the field of disease diagnosis and drug development.

We are looking forward to meet you all to make this conference a grand success.

**Dr. S. P. Vijeikumar**

Principal
Muthayammal College of Arts and Science

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## AUTHOR GUIDELINES

### GENERAL

Submitted manuscripts for publication must be original. Only unpublished manuscripts, anywhere, in any form, should be sent for publication. High quality original figure(s) and photograph(s) must be submitted along with the manuscript. However, corresponding author has been encouraged to keep a copy of the manuscript for checking against the proofs. Authors should ensure that their English is polished before submission to avoid delay in publication and proof reading.

• Use active voice whenever feasible and write in first person.

• Use British spellings and grammar.

• Research articles/reports are in written in style not apt for publication in our journal. Chapters from these articles/reports may need to be condensed, reformatted and revised before submitting as manuscripts.

### MANUSCRIPT PREPARATION

The manuscript should be typed, double-spaced on standard-sized-paper (8.5" x 11") with 1" margins on all sides. Times New Roman font 12 pt should be used. The fonts used in the text as well as graphics should be restricted to Times New Roman, Symbol and Zapf Dingbats.

#### Title page

Provide full title of the article, including the subtitle if one has. Capitalize only the first word of the title, and the first word of any subtitle; also capitalize any proper names in the title. The title page should contain a clear, concise and informative title of the article followed by the names and affiliations of the authors. The affiliation should indicate the department, institution, city, and state (or nation) and should be typed as a footnote to the author's name. The Corresponding Author must mention his or her complete mailing address, contact phone number, fax number, and email address at the lower left of the Title Page.

## Article Structure

### Abstract

The abstract should not be more than 200 words. Abstract should not be structured. Abstract ought to be followed by four to six keywords.

### Introduction

Introduction should be brief and must indicate the aim of the study and the essential back ground information. Introduction should pinpoint the hypothesis or the purpose of statement, how and why the purpose or hypothesis was developed and why the author deems it important.

### Material and methods

Kindly provide concise but detailed information about the material and the analytical, statistical and experimental details. This part should be as clear as possible to enable other scientists to repeat the research presented. The use of subheadings to divide the text must be encouraged. Primary headings should be in bold capital letters. Secondary or subheadings should be in bold sentence case. In case of animal/human experiments or clinical trials, authors must give the details of ethical approval.

### Result and Discussion

Data acquired from the research with appropriate statistical analysis described in the methods section should be included in this section. In this part, the same data/ information given in a table must not be repeated in a figure, or vice versa. Moreover, Tables and Figures should be self explanatory and it is not good enough to repeat extensively the numerals from tables into text and provide lengthy and unnecessary explanations of the Tables and Figures. Discussion should be related to the results to current understanding of the scientific problems being investigated in the field.

### Conclusion

Being the last part, it must focus on the main ideas of the work highlighting its significance and relevance.

### REFERENCES

References should be in arranged alphabetically by author's name followed by initial(s), year, title, journal, volume, number of the volume if any and the pages of the paper.

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only the surname of the first author, followed by 'et al'. The 'et al.' should be italicized. List multiple citations in chronological order (e.g Harris, 1990; Patel 1999; Edwards *et al.,* 2000), using a semicolon to separate each reference.

**Research Papers:**

Agar, A.A. (1996). Title of the article. Title of the Journal, Volume number, first page-last page

Eg**.** Agar ,N. (2000). Embryonic potential and stem cells. Bioethics 21: 198-204.

Agar, A.A., & Haris.P.D.(1996).Title of the article. Title of the Journal, Volume number, first page-last page

Agar, A.A., Haris.P.D., Agar, A.A., & David.R.A.(1996).Title of the article. Title of the Journal, Volume number, first page-last page

**For Book Reference**: Harborne, J.B. (1973). Phytochemical Methods, Chapman and Hall, Ltd., London, 49-188.

**Proceedings of conferences**: Anonymous. (1997). Antibacterial activity of *Catharanthus roseus* lin. G. Don on *Staphyloccocus aureus*, 25th Chapter, first page-last page

**For Thesis Reference**: Sivakumar. S.K.(2010).Title of the thesis. Ph.D., Thesis.Periyar University,Salem,Tamilnadu,India.

**For Online Periodicals:**

Smila,K.H. (2012). Guidelines for writing the living Web. *A List Apart: For People Who Make Websites, 149*. Retrieved from http://www.alistapart.com/articles/writeliving

**For Online Periodicals assigned with Digital Object Identifier (DOI) Reference**: Author, A. A., & Author, B. B. (Date of publication). Title of article. *Title of Journal, volume number,* page range. doi:0000000/000000000000 or ttp://dx.doi.org/20.0000/0000

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**Organizes**

**National Conference on Disease Diagnosis and Drug Development against Human pathogens**

| **15.11.2023** | **Inauguration Programme Schedule** | **10.00 AM** |
|---|---|---|

## B – Block Conference Hall

| | | |
|---|---|---|
| **9.15 to 10.00 AM** | | **REGISTRATION** |
| **10.00 AM** | | **PRAYER SONG** |
| **10.05 AM** | **Welcome Address** | **: Dr. N. Sudhakar**<br>Organizing Secretary |
| **10.15 AM** | **Principal Address** | **: Dr. S.P. Vijeikumar**<br>Principal, MCAS |
| **10.15 AM** | **Felicitation Address** | **: Dr. R. Selvakumaran**<br>Director Academics,<br>Vanetra Muthayammal Institutions<br><br>**Mr. R. Muthuvel**<br>Secretary<br>Vanetra Muthayammal Institutions |
| **10.40 AM** | **Chief Guest Address** | **: Dr.R. Rajendran,**<br>Ex-Principal & Associate Professor<br>Department of Microbiology<br>PSG College of Arts and Science, Coimbatore |
| **10.50 AM** | **Souvenir Release** | |
| **10.55AM** | **Vote of Thanks** | **: Dr. S. Shahitha,**<br>Assistant Professor, Dept. Of Microbiology |

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**15.11.2023** **Programme Schedule, DAY-1** **10.00 AM**

**B – Block Conference Hall**

| | | |
|---|---|---|
| 10.00 AM | **Inauguration** | |
| 11.00 -11.30 AM | Inaugural Lecture | **:Prof. R. Rajendran,**<br>Ex-Principal & Associate Professor<br>Department of Microbiology<br>PSG College of Arts and Science, Coimbatore |
| 11.30 – 11.50 AM | **Tea Break** | |
| 12.00 – 12.45 PM | Invited Lecture -2 | : **Prof. K. Murugan**,<br>Head, Department of Biotechnology,<br>ManonmaniamSundaranar University, Tirunelveli. |
| 1.00 – 2.00 PM | **Lunch Break** | |
| 2.00 – 2.45 PM | Invited Lecture – 3 | : **Dr. S. Hemaiswarya**, Scientist<br>Theevanam Additives and Nutraceuts Pvt Ltd,<br>Chennai. |
| 2.45 – 3.30 PM | Invited Lecture – 4 | : **Dr. R.V. Prabhu**<br>Assistant Professor, Hindustan College of Arts and Science, Chennai. |
| 3.30-3.45 PM | **Tea Break** | |
| Oral Presentation & evaluation<br>Chair at 11.30 AM | | **: Dr. S. Jagannathan,**<br>Officer In-charge,<br>TCARV Laboratory & QCD stability Department,<br>Pasteur Institute of India, Coonoor-643 103<br>Ministry of Health Family Welfare, The Nilgiris,<br>Tamil Nadu.<br><br>**: Dr. S. Suresh, FRSC**<br>Associate Professor and Head for International Affairs<br>Nanotechnology & Catalysis Research Centre<br>University of Malaya, 50603. Kuala Lumpur, Malaysia |

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| **16.11.2023** | **Programme Schedule, DAY-2** | **9.30 AM** |
|---|---|---|

**B – Block Conference Hall**

| | | |
|---|---|---|
| 9.30-10.15 AM | Invited Lecture -5 | : **Prof. A. Murugan, Head,** Department of Microbiology, Periyar University, Salem. |
| 10.15 AM -11.00 AM | Invited Lecture -6 | : **Dr. Ashok Kumar, Associate Professor**, Life Sciences Division, CRESCENT University, Chennai. |
| 11.00 – 11.20 AM | **Tea Break** | |
| 11.20 – 3.30 PM | Oral & Poster Presentation Evaluation chair | :**Dr. Kanthesh, B.M. M.SC., Ph.D., FIAAM** Associate Professor and Coordinator, Division of Molecular Biology/ School of Life Science, JSS Academy of Higher Education& Research, (Deemed to be University), Mysuru-570015. **Dr. Karthikeyan Murugesan,** Associate Professor, Department of Microbiology, Faculty of Medicine and Health Sciences, Quest International University, Perak, Malaysia. |
| 01.00 – 02.00 PM | **Lunch Break** | |
| 02.00 – 03.00 PM | Invited Lecture -7 (GMEET) | : **Pattanathu K.S.M. Rahman** Head of Nutraceuticals and Functional Foods Centre for Natural Products and Discovery (CNPD) School of Pharmacy and Biomolecular Sciences Liverpool John Moores University United Kingdom. |
| 03.00 – 03.45 PM | Invited Lecture -8 | : **Dr. ArulSelvan** MD, Scigen Research Lab, Periyar Maniyammai TBI, Thanjavur |
| 03.45-04.00 PM | | **High Tea** |

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## National Conference on Disease Diagnosis and Drug Development against Human pathogens

**17.11.2023** **Programme Schedule, DAY-3** **9.30 AM**

**B – Block Conference Hall**

| | | |
|---|---|---|
| 09.30-10.15 AM | Invited Lecture -9 (GMEET) | : **Dr. Gaurav Kumar**<br>Lovely Professional University, Punjab. |
| 10.15 -11.00 AM | Invited Lecture -10 | **: Dr.P.K. Senthilkumar**<br>Associate Professor Department of Microbiology, Annamalai University, Chidambaram. |
| 11.00 – 11.20 AM | **Tea Break** | |
| 11.20 – 12.00 PM | Invited Lecture -11 | **: Dr.Chellapandi**<br>Department of Bioinformatics, Bharathidasan University, Trichy. |
| 11.00 – 3.30 PM | Oral Presentation<br>Evaluation chair | **:Dr.Chellapandi**<br>Department of Bioinformatics, Bharathidasan University, Trichy. |
| 01.00 – 02.00 PM | **Lunch Break** | |
| 02.00 – 03.00 PM | Invited Lecture -12 | **: Dr.Anupama Harshal**<br>Consultant-Science Communication and Public Engagement, GOI, Maharashtra. |
| 03.00 – 03.45 PM | | Valedictory Function |
| 03.45-04.00 PM | | H**igh Tea** |

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**National Conference on Disease Diagnosis and Drug Development against Human pathogens**

| **17.11.2023** | **Valedictory Programme Schedule** | **3:00 PM** |
|---|---|---|

**B – Block Conference Hall**

| | | |
|---|---|---|
| 3:00 PM | Welcome Address | **: Dr. S. Anbalagan**<br>Assistant Professor,<br>Dept. of Microbiology, MCAS |
| 3:05 PM | Conference Report | : **Dr. N. Sudhakar**<br>Organizing Secretary |
| 3.15 PM | Felicitation Address | : **Dr. R. Selvakumaran**<br>**Director Academics, VMI** |
| 3.25 PM | Chief Guest Address | **: Anupma Harshal**<br>Consultant-Science Communication and Public Engagement, GOI, Maharashtra. |
| 3.35 PM | Prize Distribution | |
| 3.50 PM | **Vote of Thanks** | : **Dr. M. Maghimaa,**<br>Assistant Professor,<br>Dept. Of Microbiology, MCAS |
| 4.00 PM | **National Anthem** | |

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# Artificial Intelligence in disease diagnosis drug development

**Dr. R. Rajendran**

Ex Principal & Associate Professor

Department of Microbiology

PSG College of Arts & Science, Coimbatore

Artificial intelligence (AI) is field of computer science that is associated with the concept of machines "thinking like humans" to perform tasks such as learning, problem solving,planning , reasoning, identifying patterns. Artificial intelligence comes up with two subfields: Machine learning and Deep learning.It involves the development of computer programs and algorithms that can perform tasks typically requiring human intelligence, such as understanding natural language, recognizing patterns, solving complex problems, and making decisions. AI systems can learn from data and adapt to new information, improving their performance over time. AI encompasses various subfields, including machine learning, natural language processing, computer vision, robotics, and more, and it has a wide range of applications in areas such as healthcare, finance, transportation, and entertainment.

AI can aid in diagnosing diseases by analysing patient data, including symptoms, medical history, and test results. Machine learning models can help doctors make more accurate and timely diagnoses, especially for conditions with complex or rare symptoms. AI-powered robots are used in surgery and patient care, assisting surgeons with precision procedures and supporting healthcare staff in tasks such as medication delivery and patient transportation. AI can analyze data to assess the health of specific populations, identify high-risk groups, and develop targeted interventions to improve public health. AI can predict disease outbreaks, patient outcomes, and healthcare resource utilization by analyzing large datasets. These insights help healthcare providers and public health officials make informed decisions and allocate resources effectively.

Artificial intelligence (AI) has made significant advancements in the field of drug discovery and pharmaceutical research. It has the potential to revolutionize the process of identifying and developing new drugs by accelerating the discovery process, reducing costs,

and improving the success rate. Various AI techniques have been used in many drug discovery applications, such as virtual screening and drug designing. AI plays a crucial role in drug discovery by analyzing biological data to identify potential drug candidates, predict their efficacy, and optimize their molecular structures. This can accelerate the drug development process. However, the successful application of AI is dependent on the availability of high-quality data, the addressing of ethical concerns, and the recognition of the limitations of AI-based approaches. Overall, this lecture highlights the potential of AI in drug discovery and provides insights into the challenges and opportunities for realizing its potential in this field.

Challenges and considerations in AI disease diagnosis include data privacy and security, regulatory approval, the need for large and diverse datasets, and the integration of AI tools into healthcare systems. Despite these challenges, AI holds great promise for improving the speed and accuracy of disease diagnosis, ultimately leading to better patient outcomes and more efficient healthcare systems.

**Dr. R. Rajendran**

# Screening and Assessment of antimicrobial natural compounds for biotherapeutic applications

**Pattanathu K.S.M. Rahman**

Head of Nutraceuticals and Functional Foods

Centre for Natural Products and Discovery (CNPD)

School of Pharmacy and Biomolecular Sciences

Liverpool John Moores University

Liverpool – L33AF, UK

**Abstract**

Biochemicals from herbs used in traditional medicine might have a role to play in helping fight Covid-19 variants. Despite significant advancements in the administration of vaccines across the globe, concerns have grown over the capacity of new variants to escape natural and/or vaccine-induced immunity. There is a need for various treatment options for Covid-19 to slow infection rates and ease symptoms, and medicinal plants might prove to be a way forward. We found five phytocompounds could bind to the spike protein of SARS-CoV-2 and prevent the virus from entering cells and causing infection, potentially offering new avenues to prevent and treat the disease. These findings generated a scope for future in vitro studies with the selected phytocompounds along with microbial biosurfactants to validate their antimicrobial therapeutic potential with the collaboration of Liverpool School of Tropical Medicine.β-amyrin, curcumin, cymaroside, friedelin, quercetin, rhamnolipid, 3-β-taraxerol, moxifloxacin were tested for their antimicrobial activity on clinically important pathogens such as *Pseudomonas aeruginosa*, Methicillin-resistant *Staphylococcus aureus* (MRSA) and *Candida auris*. The results revealed that no compound inhibited *P. aeruginosa* except for curcumin, which reduced cell viability by ~70%, quercetin reduced viability by ~40%.

# Improving Insulin Signaling Pathway Through Short-Chain Fatty Acids

**Dr. A. Murugan**

Professor and Head

Department of Microbiology

Periyar University, Salem – 636011.

amurugan@periyaruniversity.ac.in

## Abstract

Short chain fatty acids produced by the probiotics were used as a therapeutic / bioactive molecule against type 2 diabetes by enhancing the insulin sensitivity. The Pharmacokinetics of the various fatty acids (ligands) showed the drug likeness by improving the insulin signaling pathways. The fatty acid from probiotic bacteria showed good binding affinity with GPR40 (hydrolase enzyme) providing an opportunities to use for diabetes treatment. GPCRs are flexible and dynamic membrane proteins that may change conformation based on the ligand and the cellular environment. GPCRs are appears to be a targets for drug discovery and due to their structural and functional diversity. It is mostly expressed in the pancreas, gut, and brain and mediates the effects of short chain fatty acids on glucose homeostasis. However, many unanswered problems and challenges in the GPCRs interaction with one another and with other membrane proteins. In the present study, a comprehensive approach have been carried out on structural, biophysical, and computational techniques used to unravel the molecular processes of GPCR activation and signaling. The results are promising to use short chain fatty acid as regulator in the glucose homeostasis.

# Diagnosis and Drug de effects in the era of Emerging Infectious Diseases

**Dr. Anupma Harshal W.**

STEM Mentor & Trainer CONSULTANT-Science Communication and Public Engagement, GOI AMR Foldscope Ambassador.

**Abstract**

It's a moment of pride for the country as Muthayammal College of Arts and Science, Rasipuram, Tamil Nadu. hosts the DBT-sponsored National Conference on "Disease Diagnosis & Drug Development Against Human Pathogens" from 15th to 17th November 2023. Diagnosis and Drug de effects in the era of Emerging Infectious Diseases (EID) is the need of the hour. Diseases pose a global threat as their origins are significantly correlated with socio-economic, environmental and ecological factors. This in turn adds to the burden of global economies and public health. Many factors contribute to the global spread of infectious diseases, including the increasing speed and reach of human mobility, increasing volumes of trade and tourism, and changing geographic distributions of disease vectors. This in turn calls for investments to strengthen surveillance, build robust early-warning systems, improve predictive models, and coordinate public health responses may help to prevent, detect, and respond to new infectious disease epidemics. Previous efforts to understand patterns of disease emergence have highlighted viral pathogens (especially RNA viruses) as a major threat, owing to their often high rates of nucleotide substitution, poor mutation error-correction ability and therefore higher capacity to adapt to new hosts. The conference aims to develop a think tank for exchange of ideas on new Drug formulations and to initiate dialogue for early Diagnosis. There is an increased need in the light of timely Diagnosis and Drug development to spread awareness about Antimicrobial Resistance for the welfare of the human race.

# Discovery of Novel Drugs From Marine Actinomycetes

**Dr.P.K.Senthilkumar**[1*]

[1*]Assistant Professor, Department of Microbiology, Faculty of Science, Annamalai University, Annamalai nagar 608002

Corresponding author: drpks1980@gmail.com

## Abstract

Marine microorganisms are presently attracting a lot of attention as a novel and prospective source of biologically active compounds.Marine environments cover 70% of the earth and act as the largest ecosystem to explore the various pharmaceutical applications.Antibiotics are one of the most powerful medications developed to fight against dangerous infections. Around 80% of all antibiotics produced by actinomycetes, including streptomyces species.Streptomyces spp. are unique in that they create novel natural antimicrobial compounds for drug delivery. Lot of researchers work with actinomycetes and produce drugs for MDR pathogens, aqua pathogens, Plant pathogens and various cancer cell line. Samples were collected from unexplored area is an important key note of isolate novel marine actinomycetes. The secondary metabolites were extracted by using organic solvent extraction method. Synthesized secondary metabolites were purified through column chromatography, TLC, HPLC techniques. The purified compounds were characterized by UV, FTIR and NMR studies. The great drug discovery methods are metagenomics and molecular docking studies.

**Keywords:** Marine actinomycetes, Drug discovery, Secondary metabolites, Metagenomics and Pharmaceutical applications

# Biofilm Diseases and Their Management Using Natural Compound Nano-emulsion

**Kasi Murugan**
Professor and Head, Department of Biotechnology, Manonmaniam Sundaranar University, Tamil Nadu. India

**Abstract**

The increasing prevalence of multidrug resistance (MDR) in pathogenic bacteria has raised global concerns about healthcare. The situation is further compounded by the ability of these bacteria to form highly resistant biofilm matrices, leading to chronic infections and reduced treatment efficacy. This abstract explores a novel approach to address this issue by utilizing natural compound nano-emulsions for biofilm management. Natural compounds, including essential oils and plant extracts, are known for their antimicrobial properties but are often limited by poor solubility and stability. Nano-emulsions, which consist of submicron-sized droplets of natural compounds stabilized in an aqueous solution, offer a promising solution to enhance their bioavailability and efficacy. By encapsulating these natural compounds in nano-emulsions, we can improve their penetration into biofilms, extend their contact time, and enhance their antimicrobial activity. Moreover, the sustained release of active ingredients from nano-emulsions can disrupt biofilm formation and promote biofilm dispersion, making the embedded microbes more susceptible to treatment. The safety and biocompatibility of natural compounds make them an attractive choice for clinical applications.

Nano-emulsions are engineered to improve targeted and localized drug delivery while maintaining prolonged therapeutic efficacy without adverse effects or toxicity. Studies have demonstrated the effectiveness of natural compound nano-emulsions against biofilms formed by various pathogens, including bacteria and fungi. Additionally, these nano-emulsions have shown potential in reducing inflammation and promoting tissue healing, which is vital in the management of chronic wounds. In conclusion, natural compound nano-emulsions offer a promising avenue for addressing biofilm-related diseases. Their unique properties, such as enhanced bioavailability, sustained release, targeted drug delivery, and broad-spectrum antimicrobial activity, make them a valuable addition to the arsenal of biofilm treatments. Further research is needed to explore their clinical potential and optimize formulations for specific applications, but the growing body of evidence suggests that natural compound nano-emulsions could revolutionize biofilm disease management, leading to improved patient outcomes.

# Recent trends in systems and synthetic biology

**Chellapandi P**

Industrial Systems Biology Lab, Department of Bioinformatics, School of Life Sciences, Bharathidasan University, Tiruchirappalli-620024, Tamil Nadu, India

Email: pchellapandi@gmail.com

## Abstract

Systems biology and synthetic biology are interconnected fields that approach biological research from different perspectives. Systems biology is an interdisciplinary science that studies the complex interactions and collective behaviour of a cell or organism. It approaches living systems as interactive, multifaceted networks rather than as a collection of individual units. Efforts in systems biology focus on the collection, curation, and analysis of large datasets, including genomic and proteomic information. There has also been a significant effort to apply systems-level modelling to organize such datasets, bringing this field in close alignment with computational biology. On the other hand, synthetic biology is a technological subject that combines biological science and engineering, allowing the design and manipulation of a system for certain applications. It seeks to build parts, devices, and systems from the biological components. The goals of these efforts include using microorganisms to synthesize materials of medical or industrial value and even to repurpose bacteria to fight disease[1]. Increasingly, synthetic biological concepts are being applied in the realm of therapeutics, including “designer” immune cells for cancer treatment. While systems biology aims to better understand the complex networks that regulate cellular function, synthetic biology uses this understanding to engineer biological systems to achieve specific goals.Synthetic biology is a rapidly expanding field with diverse applications. They are used in molecular medicine, vaccine production, environmental chemistry, and biosensor creation. It also aids in probiotics, gene therapy, production of bioactive compounds, and various sectors, such as health, energy, and environment. It is instrumental in treating metabolic disorders, tissue engineering, and cancer treatments and serves as a biodesign platform.

**Keywords:** Systems biology; Synthetic Biology; Chassis; Genetic circuit; Systems medicine

# The portrayal of gut microbes in the regulation of colitis-associated cancer

**Dr. Ashok Kumar Pandurangan**

School of Life Sciences, B.S. Abdur Rahman Crescent Institute of Science and Technology, Vandalur, Chennai, India

Email: pandurashokkumar@gmail.com

**Abstract**

For instance, patients with inflammatory bowel disease (IBD) have a higher chance of getting colon cancer, however there has recently been disagreement over how much of a risk they face. Although there is still much to learn about the molecular pathophysiology of colitis-associated cancer (CAC), research on mouse models of CAC has produced important discoveries. Both genetic mutations, epigenetic modifications, and changes in immune response components are environmental and genetic factors in the pathophysiology of colorectal cancer (CRC) in people with IBD.A growing body of research suggests that the gut bacteria may either stimulate or prevent colonic inflammation and cancer development. Encouraging the growth of good bacteria in the gut is thought to be a viable way to treat colon illnesses like colitis and colorectal cancer. It's interesting to note that dietary polyphenols tend to reach rather high quantities in the large intestine and interact with the gut microbial population. These polyphenols have been found to suppress colorectal cancer and attenuate colitis in animal models and certain human studies.A growing body of research suggests that the gut bacteria may either stimulate or prevent colonic inflammation and cancer development. Encouraging the growth of good bacteria in the gut is thought to be a viable way to treat colon illnesses like colitis and colorectal cancer. It's interesting to note that natural products tend to reach rather high quantities in the large intestine and interact with the gut microbial population. These natural products have been found to suppress CAC and attenuate colitis in animal models and certain human studies.Future studies are required to confirm the causative involvement of the natural products-gut microbiota interaction in the anti-colitis and anti-CAC actions of polyphenols, as well as to clarify the underlying mechanisms of this interaction.

**Keywords**: Inflammatory Bowel Disease, Colitis associated cancer, Gut microbes

**Significance of preclinical animal models in drug discovery and developments**

**Dr. P. Arulselvan, Ph.D.,**

Managing Director and Research Scientist, Scigen Research and Innovation Pvt. Ltd, Periyar Technology Business Incubator, Periyar Maniammai Institute of Science & Technology, Periyar Nagar, Thanjavur, Tamil Nadu, 613403, India.

Preclinical research involve the initial stages of looking for new therapiesand potential treatments for both new and well-established diseases/disorders and it's an initial stage of the drug discovery/development process. In preclinical research, one of the most significantconsiderations is the use of animal models to investigatethe efficacy, mechanism of action and establish the pharmacokinetic/pharmacodynamic (PK/PD) relationship. Collectivelywith toxicology investigations, these efficacy-related researches are essential for any new drug candidate to advance to clinical development and eventually reach the pharmaceutical market. The drug discovery/development process is usuallydivided into three keysteps: discovery, preclinical development, and clinical trial. The transition from discovery to preclinical development is a continuum, and results of preliminary pharmacology and toxicology testing often contribute to lead drug molecules selection.The purpose of preclinical animal testing is to provide affordableevidence prior to early feasible testing in humans and human clinical trials to demonstrate that novel technologies and therapies are safe and effective against various diseases.

Animal models are considered as most important invivo models in terms of basic pharmacokinetic parameters like drug efficiency, safety, toxicological studies, as these pre-clinical data are required before translating into humans. Toxicological tests are performed on a large number of experimental animals like general toxicity, mutagenicity, carcinogenicity, and teratogenicity and to evaluate whether the drugs are irritant to eyes and skin. In most instances, both in vitro and in vivo models are corroborated before proceeding to clinical trials and the in vivo animal models are mostly conducted in mice, rats, and rabbits. The numerous animal models are essential for several biomedical research areassuch as cancer biology and therapeutics, neuroscience, pharmacology and toxicology, neurobiology of diseases, endocrinology, public health, palliative medicine, also, in studies in

human and animal biology and for the discovery and testing of new drugs, vaccines, and other biological (e.g., antibodies, hormones) whose validation requires preclinical studies in animals. Currently, these models address current research priorities, considered as those imposing major global threats to human and animal health. These include diseases that have afflicted humankind or increased exponentially in recent years such as SARSCoV-2, different types of cancer and their therapy, cardiovascular diseases, metabolic and neurodegenerative disorders etc. Therefore, preclinical research investigations using animals to study the potential of a therapeutic drug or strategy are essential steps before translation to clinical trials.

**Keywords:** Animal model, drug discovery, drug development, pre-clinical research, toxicology.

# A Perspective of Nanomaterial drug products: Production and Regulation

**Shanmugam Hemaiswarya**

Scientist, Theevanam Additives and Nutraceuts Pvt Ltd.

IITM Research Park, Taramani Campus, Chennai-600 113

E-Yuva Centre, Anna University, Taramani Campus, Chennai – 600 113

E Mail: iswaryahema@gmail.com

## Abstract

In recent years, nanomaterial-based drug products have emerged as a promising avenue for the targeted delivery of therapeutic agents, offering enhanced efficacy and reduced systemic toxicity. Translation of nanomaterial synthesis, functionalization, formulation, and efficacy from lab scale to a commercial scale requires meticulous optimization of manufacturing processes, rigorous quality assurance protocols, and the establishment of robust scalability parameters to ensure consistent product quality and reproducibility. The first phase includes fabrication of nanomaterials, emphasizing the significance of precise control over size, shape, and surface characteristics to optimize their biological interactions. It underscores the necessity of comprehensive toxicity studies, pharmacokinetic profiling, and immunological assessments to evaluate the potential risks and benefits associated with the use of nanomaterials in therapeutic applications. The subsequent segment delves into the regulatory frameworks governing the manufacturing, characterization, and clinical translation of nanomaterial-based therapeutics. It elucidates the key challenges associated with ensuring the safety and efficacy of these products, emphasizing the importance of standardized protocols for quality control, biocompatibility assessment, and risk management throughout the product life cycle.

**Keywords:** Nanomaterial drugs, functionalization, formulation, Regulatory aspects, clinical translation

**OP01**

# Assessing the Impact of Sinapic Acid on Ethanol-Induced Toxicity in invivo model

**Vijeikumar S.P[1*] and Palvannan, T[2].**

[1]Department of Biochemistry, Muthayammal College of Arts and Science, Rasipuram

[2]Department of Biochemistry, Periyar University, Salem

**Corresponding Author**: Vijeikumar S.P**:** vijeikumar@gmail.com

**Abstract**

Examining the hepatoprotective properties of sinapic acid in male Albino Wistar rats subjected to ethanol-induced hepatotoxicity was the purpose of this investigation. The effects of sinapic acid on liver health were evaluated using a number of criteria, such as mitochondrial activity, lipid metabolism, antioxidants, lipid peroxidation, and histological alterations. This study employed male Albino Wistar rats, and induced hepatotoxicity by giving them oral 20% ethanol for 45 days. Following the course of treatment, a number of biochemical markers were assessed, and the tissues of the kidney and liver were examined histologically. The findings showed that exposure to ethanol resulted in a decrease in body weight and an increase in bilirubin levels and liver marker enzymes such as AST, ALT, ALP, and GGT. Additionally, ethanol caused higher levels of lipid peroxidation products. On contrary, sinapic acid treatment greatly reduced these effects, suggesting that it has hepatoprotective potential. Rats administered ethanol showed lower liver antioxidant enzyme activity as well as lower concentrations of non-enzymatic antioxidants including vitamins C and E. The antioxidant defence system was effectively restored by sinapic acid treatment, demonstrating its function in scavenging free radicals. In addition, exposure to ethanol caused changes in the metabolism of lipids, resulting in elevated levels of phospholipids, triglycerides, cholesterol, and free fatty acids. Treatment with sinapic acid dramatically improved these lipid abnormalities, including elevated levels of high-density lipoprotein (HDL) cholesterol. Furthermore, rats fed with ethanol showed elevated serum levels of lactate dehydrogenase (LDH) isoenzymes, specifically LDH 4 and 5, which are suggestive of liver problems. Treatment with sinapic acid decreased these LDH isoenzyme expression levels. These results suggest that sinapic acid might be useful in treating liver diseases caused by alcohol.

**Keywords:** Sinapic acid, Hepatoprotective, Histopathological alterations.

**OP02**

## Unveiling novel cyclotidesequences in *Oldenlandiaumbellata* through fungal elicitation

**Saranya S[1*], Chellapandi P[1] and Velayutham P[2]**

[1]Industrial Systems Biology Lab, Department of Bioinformatics, School of Life Sciences, Bharathidasan University, Tiruchirappalli-620024, Tamil Nadu, India

Email: pchellapandi@gmail.com

[2]Department of Botany, Government Arts College, Karur-639005, Tamil Nadu, India

**Abstract**

Cyclotides, plant-derived proteins rich in disulfide, have gained attention in drug design because of their unique structural and functional properties. They exhibit various biological activities such as immunosuppressive, anti-HIV, and neurotensin antagonistic activities, and show remarkable resistance to thermal and proteolytic degradation. In this study, we investigated the presence of cyclotides in *in vitro* cultures of *Oldenlandiaumbellata*, both untreated and treated with an elicitor derived from *Aspergillusniger*. Proteins extracted from these cultures were analyzed by 2-D gel electrophoresis and matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) Mass Spectrometry. The analysis revealed an increase in protein spots in the fungal elicitor-treated cultures compared to those in the untreated cultures. Two intense peaks in the monoisotopic protonated mass were identified, and peptide sequencing yielded two sequences that matched known cyclotide sequences in the CyBase database. This study marks the first observation of these two cyclotide sequences in *O. umbellata*, potentially signifying the discovery of novel sequences or the identification of previously reported sequences with missing prefixes or suffix sequences. These findings highlight significant progress in drug design and protein engineering, emphasizing the pharmaceutical potential of plant-derived proteins.

**Keywords**: Cyclotides; Oldenlandiaumbellata; Aspergillusniger; Elicitor; Proteomics; Plant growth

**OP03**

# Eco-friendly and sustainable synthesis of *Acorus calamus*-zinc oxide nanoparticles for biomedical Applications

**Maghimaa M[1*], Suresh S[2] and G. S. Okram[3]**

[1]Department of Microbiology, Muthayammal College of Arts and Science, Rasipuram, Namakkal-637408. Tamil Nadu, India.

[2]Nanotechnology & Catalysis Research Centre, University of Malaya, Kuala Lumpur 50603, Malaysia

[3]UGC-DAE Consortium for Scientific Research, University Campus, Khandwa Road, Indore 452001, Madhya Pradesh, India.

**Corresponding Author**: Maghimaa M: maghimaam@gmail.com

**Abstract**

With the emergence of antibiotic-resistant strains, microbial infections pose a significant global health challenge. Preventing microbial growth on cotton fabric surfaces is crucial in managing skin-related infections. In this direction, we studied the antibacterial and cytotoxic properties using standard protocols of *Acorus calamus*-zinc oxide (AC-ZnO) nanoparticles (NPs) coated on cotton fabrics using a dipping technique. The results obtained from the UV spectrum, TEM, SEM, and EDX data confirmed the formation and presence of AC-ZnONPs on the surface of the fabric. FTIR analysis indicated the presence of various functional groups. Notably, AC-ZnONPs effectively inhibited the growth of pathogenic microorganisms, with the highest inhibitory effect observed at 60 µg/Lof AC-ZnONPs against *Escherichia coli* and *Staphylococcus aureus*. Furthermore, AC-ZnONP-coated fabrics prevented microbial growth of *Pseudomonas aeruginosa,*and *Acinetobacter baumannii*. In addition, AC-ZnONPs efficiently suppressed SK-MEL-3 cell viability. These results suggest that cotton fabrics coated with AC-ZnONPs exhibit excellent antimicrobial activities against pathogenic microorganisms and hold promise for future biomedical applications.

**Keywords*:*** Plant extract; ZnONPs; Antimicrobials**;** Skin cancer activity

**OP04**

## *Curcuma longa*-mediated Nanoparticles formulation for Antimicrobial properties

**Boojhana Elango[1], Ragothaman, E[2], Karthikeyan Murugesan[3], Jagannathan, S[4] and Maghimaa M[1*]**

[1]Department of Microbiology, Muthayammal College of Arts and Science, Rasipuram, Namakkal 637 408, Tamil Nadu, India.

[2]Bioprocess executive, AARPY Biosolution, Nasiyanur, Erode

[3]Department of Microbiology, Faculty of Medicine and Health Sciences, Quest International University, Perak, Malaysia.

[4]Officer Incharge, TCARV Laboratory & QCD stability Department, Pasteur Institute of India, Coonoor-643 103 Ministry of Health Family Welfare, The Nilgiris, Tamilnadu

**Corresponding author:** Maghimaa M: maghimaam@gmail.com

**Abstract**

Antibiotic resistance in pathogenic bacteria poses a significant challenge in human therapy. Pathogenic microorganism growth, linked to hygiene and health risks, is a common concern in highly breathable and absorbent hydrophilic cotton fabrics used in everyday wear, hospitals, and sports attire. To address these concerns, we have incorporated potentially beneficial nanoparticle-coated antimicrobial fabrics. In this study, we synthesized zinc oxide (ZnO) nanoparticles from the rhizome extract of *Curcuma longa* (CL) and evaluated their antimicrobial properties by applying them to cotton fabrics. Our analyses, including UV-spectrum, transmission electron microscopy (TEM), scanning electron microscopy (SEM), and energy-dispersive X-ray spectroscopy (EDX), confirmed the successful deposition of ZnO nanoparticles on the fabric surface. Fourier-transform infrared spectroscopy (FTIR) results revealed the presence of numerous functional groups. Notably, CL-ZnO nanoparticles effectively suppressed the growth of pathogenic microorganisms, with the highest inhibition observed against bacterial pathogens. ZnO nanoparticle-coated cotton fabrics also demonstrated strong antimicrobial properties, with the most significant zone of inhibition observed against *Klebsiella pneumoniae*. Our findings highlight the remarkable antimicrobial activity of ZnO nanoparticle-coated cotton fabrics against bacterial pathogens, suggesting their potential applications in the biomedical field.

**Keyword:** *Curcuma longa*, nanoparticles, antibacterial properties

**OP05**

# Exploring the antibacterial potential of Marine fungus against Multi-drug resistant Pathogens

**Nalina, V[1] and Maghimaa, M[1*]**

[1]Department of Microbiology, Muthayammal College of Arts and Science, Rasipuram, Namakkal. Tamil Nadu. India

**Corresponding Author**: Maghimaa M: maghimaam@gmail.com

**Abstract**

Multi-drug resistance is a developing global dispute that necessitates the development of new antibacterial agents. Marine ecosystems are rapidly being recognised as potential sources of unexplored bioactive compounds. Marine fungus has emerged as attractive prospects for novel antibacterial drugs due to their adaptability to extreme conditions and ability to produce different secondary metabolites. The antibacterial potential of marine fungus and their role in combating multidrug-resistant conditions are examined in this study. Secondary metabolites of marine fungi were tested for antibacterial efficacy against clinically significant multi-drug resistant bacterial strains. The obtained marine fungal isolates had significant antibacterial activity, frequently with selectivity against specific bacterial species. This paper emphasizes the value of marine fungi as sources of new antibacterial agents to combat antibiotic resistance. It highlights the significance of maintaining and examining marine environments for the development of novel drugs. Furthermore, it underscores the importance of additional research into the ecological roles and biotechnological applications of marine fungi in the pharmaceutical sector.

**Keywords:** Marine fungi, Bioactive compounds, Antibacterial agents, Drug discovery.

**OP06**

## Enhancing Gamma-aminobutyric acid production from monosodium glutamate through optimized biotransformation with *Enterococcus faecium*

**LourduLincy L*, Sasikumar R, Saranya S and Chellapandi P**

Industrial Systems Biology Lab, Department of Bioinformatics, School of Life Sciences, Bharathidasan University, Tiruchirappalli-620024, Tamil Nadu, India

Email: pchellapandi@gmail.com

**Abstract**

Gamma-aminobutyric acid (GABA), produced by microbial fermentation, has health benefits and industrial applications. Optimization of the conditions for converting monosodium glutamate (MSG) to GABA offers a viable fermentation process for efficient GABA production in the food industry. Therefore, we focused on optimizing the biotransformation process to enhance GABA production from MSG using *Enterococcus faecium*. We studied the effects of various culture conditions on glutamine and GABA production by *E. faecium* in an MRS medium containing 5 g/L MSG. The results of this study showed that the inoculum density, pH, carbon source, nitrogen source, phosphate, sulfate source, and surfactant type significantly influenced GABA production and growth of this organism. A negative correlation was also observed between the conversion of glutamine and GABA from MSG. *E. faecium* optimally converted MSG to GABA under alkaline conditions at 37°C in a medium containing 2% starch, 1% soybean meal, 1.5% ammonium chloride, 0.025% potassium sulfate, and 0.3% Tween-20. We achieved 1.4 g/L GABA and 0.68 g/L as a maximum from 4.3 g/L glutamate equivalent in an optimized medium inoculated with 0.5% inoculum density. Therefore, producing GABA using *E. faecium* could meet the need for GABA-rich foods with human health benefits or feed additives in the aquaculture sector.

**Keywords**: *Enterococcus faecium*; Glutamate; Glutamine; Monosodium glutamate; Gamma-aminobutyric acid; Fermentation

**OP07**

# Exploring the potential of cannabidiol and trifluoperazine in treating respiratory diseases: A network medicine approach

**Thamanna L*, Saranya S and Chellapandi P**

Industrial Systems Biology Lab, Department of Bioinformatics, School of Life Sciences, Bharathidasan University, Tiruchirappalli-620024, Tamil Nadu, India

Email: pchellapandi@gmail.com

## Abstract

Respiratory diseases, affecting large populations globally, are often overlooked despite their prevalence. These diseases, which impact the organs and tissues involved in gas exchange, range from mild conditions like the common cold, influenza, and pharyngitis, to life-threatening ones such as bacterial pneumonia, pulmonary embolism, tuberculosis, acute asthma, lung cancer, and severe acute respiratory syndromes like COVID-19. Our study aimed to understand the metabolic interactions and develop a framework to predict and validate repurposable drug combinations for respiratory infections. The host-pathogen interactome involved 5,374 host genes, with 72 viral proteins interacting with 1,782 host proteins, and 125 bacterial proteins interacting with 3,971 host proteins. Disease enrichment analysis revealed common comorbidities in people with respiratory infections, including autosomal inheritance, ulcer formation, lung disease, and cancer-related processes. Cannabidiol and trifluoperazine were proposed as combination drugs for treating respiratory diseases, with cannabidiol identified as a repurposable drug for respiratory infections.

**Keywords:** Respiratory pathogens; Virulence; Drug repurposing; Network modeling; Systems medicine

**OP08**

## Characterization and competency of probiotic strains isolated from shrimp biofloc farms

**Sasikumar R*, LourduLincy L, Saranya S, and Chellapandi P**

[1]Industrial Systems Biology Lab, Department of Bioinformatics, School of Life Sciences, Bharathidasan University, Tiruchirappalli-620024, Tamil Nadu, India

Email: pchellapandi@gmail.com

**Abstract**

Probiotics are an emerging field in the aquaculture industry and can be used to improve the production of aquatic animals. However, there are challenges associated with using probiotics in aquaculture, such as selecting suitable isolates and evaluating their efficiency in biofloc farms. The present study aimed to evaluate the probiotic properties and compatibility of potential probiotic isolates *Lactobacillus* sp., *Bacillus* sp., *Pseudomonas* sp., and *Saccharomyces* sp. These isolates were isolated from shrimp biofloc farms and were subsequently subjected to various tests to assess their tolerance to different conditions, binding characteristics, antibiotic susceptibility, and antibacterial activity against pathogenic shrimp bacteria. This study revealed that *Lactobacillus* sp. had a high tolerance to pH and NaCl, whereas *Saccharomyces* sp. was tolerant to acid, and *Pseudomonas* sp. showed a high tolerance to bile salts. *Lactobacillus* sp. also exhibited the highest tolerance to phenol, whereas *Bacillus* sp. was the least tolerant. Cell adhesion characteristics differed among these isolates, with *Lactobacillus* sp. being highly hydrophobic and *Pseudomonas* sp. demonstrating strong coaggregation abilities. These isolates showed a range of antibiotic susceptibility profiles and varying degrees of inhibition against pathogenic bacteria, indicating their potential to alter the gut microbiota and prevent infections in aquaculture. Therefore, this study emphasizes the need to select suitable probiotic isolates for specific use in shrimp aquaculture.

**Keywords:***Lactobacillus*; *Bacillus*; *Pseudomonas;* Yeast; Probiotics; Biofloc; Shrimp; Aquaculture

**OP09**

## A nanoparticles combination with active metabolites in biopreservation

**Atchayaa Ravichandran[1] and Femil Selta Daniel Raja[1]**

[1]Department of Biochemistry, Faculty of Arts, Science, Commerce and Management, Karpagam Academy of Higher Education, Coimbatore 641021

**Email Id:** femilseltad.danielraja@kahedu.edu.in, atchujarp@gmail.com

**Abstract**

Sufficient nourishment is crucial for human growth, disease prevention, quality of life enhancement, lower healthcare costs, longevity, and many other vital aspects of existence. Nutrient losses, increased energy expenditures, neurological abnormalities, stunted growth, impaired development, a greater incidence of viral and non-infectious diseases, and other outcomes are linked to nutritional deficiencies. The growing needs of a growing human population are driving up demand for premium food supplies. Food preservation techniques may potentially have a detrimental effect on the nutritional value and organoleptic quality of food. Contrarily, bio-preservation uses natural resources, such as plant, microbial, and/or their metabolites, to increase the shelf life of fresh fruits and vegetables, providing consumers with a more sustainable and healthful choice. These bacteria can produce a number of low molecular mass molecules known as active metabolites, which are efficient against dangerous germs. Examples of these substances are hydrogen peroxide, reuterin, and bacteriocins. Because of their unique physicochemical characteristics and high surface area to volume ratio, nanoparticles have become a novel antimicrobial agent in the modern world. Drugresistant pathogens may present an opportunity for nanoparticles to fight infectious diseases. Research in the area of nanotechnology has been emphasized as a very valuable strategy for the prevention and treatment of various human health disorders. Therefore, combining active metabolites with nanoparticles can strengthen their antibacterial effects.

**Keywords:** Nanoparticle, antimicrobial compounds, biopreservation

**OP10**

## Impact of Cancer-Derived Circular RNAs on the Tumor Immune Microenvironment

**Kajal, and Dr. Shruti Mishra***

School of Biological & Life Sciences, Galgotias University, Gautam Budhh Nagar, Uttar Pradesh, India

**Abstract**

CircRNAs (Circular RNAs) are non-coding RNAs that are covalently closed. It is created by reversing a messenger RNA precursor and are widely distributed in eucaryotic cells. It can be taken up by other cells or released into the environment, and it help to regulate many signalling pathways by creating connections between different cell types. CircRNAs control immune cell activity, inflammation, tumour vasculature, epithelial-strain transformation, and modify the TME (tumour microenvironment), which is a key part of cancer growth and development. Immune cells are the most common TME component, and it is very dangerous to cancer cells. Here highlights recent developments in the field of cancer research have enabled the utilization of circulating ribonuclei (circRNAs) as biomarkers in the diagnosis and treatment of cancer. Additionally, these developments offer novel perspectives for the investigation of circRNAs, how circRNAs affect tumour growth, treatments, and prognosis, and how they regulate immune cells like T cells, NK cells, macrophages, and others, and suggest new targets for cancer immunotherapy.

**Keywords:** CircRNAs, Tumour microenvironment, Cancer Immunmotherapy.

**OP11**

# Assessing the COVID-19 Infectivity Rate among Vaccinated Individuals at a Tertiary Care Center in South India

**Nalina, V[1], Prakash, B[2], and Maghimaa, M[1*]**

[1]Department of Microbiology, Muthayammal College of Arts and Science, Rasipuram, Namakkal. Tamil Nadu. India

[2]Department of Biotechnology, School of Life Sciences, Vels Institute of Science, Technology and Advanced Studies (VISTAS) Pallavaram, Chennai - 600 117

**Corresponding Author**: Maghimaa M: maghimaam@gmail.com

**Abstract**

In this study, we examine a number of COVID-19 breakthrough cases in fully immunized patients visiting a South Indian tertiary care facility. Even though being immunized greatly reduces the risk of contracting COVID-19, getting sick, and dying from it, some people who receive all recommended vaccinations may still get the virus, and some may even show no symptoms at all. The research approach involves the meticulous gathering of patient data from an Excel form, with a particular emphasis on subjects who underwent Real-Time PCR testing. Furthermore, information about people who have received the COVID-19 vaccination comes from the ICMR portal. Our study aims to determine the total number of case report forms collected, the number of individuals who tested negative for COVID-19 after vaccination, and the number of individuals who tested positive for COVID-19 after finishing their course of vaccinations. Our goal is to present an accurate depiction of the COVID-19 infectivity rate in the immunized population through this thorough analysis. Our research offers important new information about the frequency of SARS-CoV-2 infections in individuals who have received the entire dosage of the vaccine. This information can help us improve public health initiatives and better address the ongoing pandemic. The ultimate objective is to improve our understanding of breakthrough cases, which will support our joint efforts to stop the virus's spread and safeguarding public health.

**Keywords:** COVID-19, immunized patients, South Indian, Infectivity rate, Public health.

**PP01**

## Potential Health Benefits of Resistant Starch In Human

**Harshawardhini Kathiresan[1], Kaviya Balasubramani[1], Monisha Murugesan[1] and Swathy Saravanan2***

[1]Department of Nutrition & Dietetics, K.S.R College of Arts and Science for women, Tiruchengode- 637215

2Assistant Professor, Department of Nutrition & Dietetics, K.S.R college of Arts and Science for women, Tiruchengode-637215 swathysaravanan17@gmail.com.

**Abstract**

The need from consumers for high-quality goods with useful health-promoting qualities led to additional research into novel nutrients. Beyond their primary nutritional roles, functional foods offer extra physiological advantages that are crucial in the prevention of chronic disease. The most important polysaccharide for storing food in plants is starch, which is found in fruits, seeds, roots as grains in leaves, tubers, stem cores, and rhizomes. It is the main source of carbohydrates in the human diet, along with rice, potatoes, wheat, maize, and cassava. Food starch can be categorized as resistant starch, quickly digested starch (RDS), or slowly digestible starch (SDS). A portion of starch known as resistant starch (RS) passes through the small intestine undigested and reaches the colon, where it is fermented by the colon's bacteria to produce short-chain fatty acids (SCFAs). Simultaneously, the benefits of RS were studied for its prebiotic qualities, good effects on gut health, effects on glucose and lipid metabolism, and advantages on satiety and body weight. Total dietary fiber consists of several different fractions, including soluble fiber, insoluble fiber, and resistant starch. The World Health Organization (WHO) recommends eating at least 400 g or five portions of vegetables and fruits per day to reduce the risk of non-communicable diseases and ensure an adequate daily supply of dietary fiber. Therefore, the importance of resistant starch as an important source of dietary fiber is also increasing. Soluble fiber, insoluble fiber, and resistant starch are some of the fractions that make up total dietary fiber. The World Health Organization (WHO) suggests consuming five servings, or 400 g, of fruits and vegetables daily to lower the risk of non-communicable illnesses and guarantee a sufficient daily intake of dietary fiber. Consequently, resistant starch is becoming more and more significant as a source of dietary fiber.

**Keywords**: Resistant Starch, nutritional benefits, dietary fiber, probiotic quality, glucose.

**OP12**

# Exploring the Antibacterial Potential of Basil Extracts against Wound Pathogens

**Priya, S[1], Kanthesh B.M.[2] Gopi, T[3]. and Maghimaa M[1*]**

[1]Department of Microbiology, Muthayammal College of Arts and Science, Rasipuram, Namakkal 637408, Tamil Nadu, India.

[2]Division of Molecular Biology, School of Life Sciences, JSS AHER, SS Nagar, Mysuru-570015.

[3]Department of Chemisrty, Muthayammal College of Arts and Science, Rasipuram, Namakkal 637408, Tamil Nadu, India.

**Corresponding Author**: Maghimaa M: maghimaam@gmail.com

**Abstract**

Basil, a well-known culinary herb appreciated for its diverse phytochemical composition, including essential oils and bioactive compounds with strong antibacterial properties, is investigated in this research for its potential antibacterial effects on wound infections, particularly *Staphylococcus aureus* and *Escherichia coli*. The study involves the extraction of bioactive components from basil leaves and their evaluation for antibacterial activity against the gram-positive and gram-negative pathogens using the agar well diffusion method at different concentrations. The findings demonstrated significant antibacterial efficacy of basil extracts against both *S. aureus* and *E. coli*, suggesting their promise as natural antimicrobial agents for wound management. Further research, focusing on the isolation, identification, and analysis of the specific molecules responsible for these therapeutic properties, could facilitate the development of innovative and potent antibacterial treatments derived from basil for wound healing.

**Keywords:** *Ocimum basilicum*, plant extract, Antibacterial activity.

**OP13**

# Antibacterial Properties of *Punica granatum* Leaf Extracts Against Enteric Pathogens

**Hariprasanth, S[1] and Maghimaa M[1*]**

[1]Department of Microbiology, Muthayammal College of Arts and Science, Rasipuram, Namakkal-637408. Tamil Nadu, India.

**Corresponding Author**: Maghimaa M: maghimaam@gmail.com

## Abstract

*Punica granatum,* a *Lythraceae* family fruit-bearing shrub, provides numerous benefits to humans, with both its fibres and seeds being beneficial. *P. granatum* (pomegranate) leaves have been studied in India for their antibacterial efficacy against enteric infections. This study investigates the potentiality of pomegranate leave's antibacterial characteristics that can effectively combat these enteric pathogens. This study has the potential to contribute to the development of novel antimicrobial drugs by identifying a natural and alternative strategy to addressing antibacterial issues. Pomegranate is a popular traditional treatment for enteric bacterial infections. Researchers tested the aqueous extract of *P. granatum* leaves against enteric pathogens to determine its antibacterial activities. At doses of 20, 40, and 60 g, the aqueous leaf extract demonstrated substantial antibacterial activity against *E. coli* and *S. aureus*, with effective zones of inhibition ranging from 15 mm to 22 mm. Finally, the study found that *P. granatum* leaf extracts have exceptional antibacterial capabilities and include therapeutic bioactive components.

**Keywords:** Plant extract, Antibacterial, Enteric pathogens, Bioactive compounds

**OP14**

## Minimum Inhibitory Concentrations (MICs) of antifungal agents against *Fusarium* spp. from Keratitis

**Jayavarthan M, Sangeetha A B and C. S. Shobana**

Department of Microbiology, PSG College of Arts and Science, Coimbatore – 641 014

**Abstract**

Mycotic keratitis is a sight threatening disease caused by infection in the cornea by filamentous fungi or yeast. Fungal infections of the eye are usually treated with antifungal agents. Polyenes, 5- fluorocytosines, azoles, echinocandins, miscellaneous tropical and oral antifungal agents are the various types of antifungal drugs. It is highly imperative to determine the minimum inhibitory concentration (MIC), the lowest concentration of an antifungal drug that inhibit the growth of the fungal organism. Thus, studying the susceptibility profiles of *Fusarium* species against a panel of routine antifungal agents could be helpful in choosing the best antifungal therapy for the treatment of the infection. Minimum inhibitory concentration (MIC) of antifungal drugs were determined against *Fusarium* isolates from mycotic keratitis patients based on broth micro dilution method as recommended by the Clinical and Laboratory Standards Institutes (CLSI), M38-A2 (2008) and their susceptibilities were determined. Amphotericin B; AMB (HiMedia), ), natamycin; NTM (Sigma-Aldrich), clotrimazole; CLZ (Aurolab), econazole; ECZ (Aurolab), fluconazole; FLZ (HiMedia), itraconazole; ITZ (Sigma-Aldrich), ketoconazole; KTZ (HiMedia), miconazole; MCZ (HiMedia), nystatin; NYT (HiMedia) and voriconazole; VRZ (Aurolab). Based on the determined MIC values in the present study, AMB, CLZ and VRZ at ≤ 4 µg/mL & NTM and FLZ at ≤ 16 µg/mL could be used as the first line treatment against *Fusarium* keratitis.

**Keywords:** Keratitis, Keratomycosis, MIC, CLSI, Antifungal drugs.

**OP15**

# Characterization of B-Lactoglobulin Amyloid Fibers Using Atomic Force Microscopy, Tht Fluorescence Spectroscopy And Fourier Transform Infrared Spectroscopy

**Md Harun Rashid[1] and Dr. Priyankar Sen[2]**

[1]Centre for Bio Separation Technology (CBST), School of Bio Sciences & Technology (SBST), Vellore Institute of Technology (VIT), Vellore Campus, Tiruvalam Rd, Katpadi, Vellore, Tamil Nadu 632014 **E-mail ID**: mdharun.rashid@vit.ac.in .

[2]Centre for Bio Separation Technology (CBST), School of Bio Sciences & Technology (SBST), Vellore Institute of Technology (VIT), Vellore Campus, Tiruvalam Rd, Katpadi, Vellore, Tamil Nadu 632014 **E-mail ID**: priyankar.sen@vit.ac.in

**Abstract**

β-Lactoglobulin (β-LG), a major whey protein, is a valuable source of nutrients and amino acids in infant formula due to its edible nature, water dispersibility, and potential delivery of bioactive compound. Common proteins from whey are crucial for nutritional and technological purposes. Recent interest in amyloid aggregates made from whey protein beta-lactoglobulin (BLG) has grown, with applications in food, biosensors, hybrids, nanocomposites, and water purification. This research aims to discover and clarify the underlying processes of amyloid fibril production, which are influenced by heating and other variables like a cooling phase. Multiple techniques were employed to identify minimal fibrillation, including Fourier transform infrared spectroscopy (FTIR), Thioflavin-T (ThT)-assay, and atomic force microscopy (AFM) to analyze structural properties and visualize aggregates. The study provides insights into the magnitude, timing, and rationale behind certain combinations of factors modulating the threshold for amyloid aggregation.

**Keywords:** β-Lactoglobulin, self-assembly, fibrils, AFM, FTIR, FE-SEM, ThT

**OP16**

# Antibacterial Activity and GC MS Analysis of *Tribulus terrestris* Linn Against selected pathogen

**K. Gajendiran[1]* and S. Sathishkumar[2]**

1 Assistant Professor, Department of Microbiology, PG and Research Department of Microbiology, M.G.R. College, Hosur *__Corresponding author:__ mailtogk87@gmail.com

2 PG and Research Department of Microbiology, M.G.R. College, Hosur

**Abstract**

Medicinal plants produce several antibacterial compounds like aldehydes, alkaloids, flavonoids, glycosides, terpenoids, and phenol compounds.These plants are well known for their medicinal value and are widely used in community for the treatment of against UTI Causing Pathogens. **Aim:** The *Tribulusterrestris*extracts with two solvents Petroleum ether and Carbinol,antibacterial test against selected pathogenic bacteria *viz*., *Staphylococcusaureus*, *KlebsiellaPneumonia*, *Pseudomonasaeruginosa*, *Salmonellatyphi*, *Escherichiacoli*usingdisc diffusion method and identify the bioactive compounds in GC –MS analysis of from the plant extract.**Methods:**The plant extracting in Petroleum ether and Carbinol solvent in cooled saturation method. Theextra solvent from the filtrate was evaporated by using water bath at 58°C.The disc diffusion method in different concentration 10mg/mL, 20mg/mL and 30mg/mL and positive control Chloramphenicol (10µg/disc)is used and Identification of antimicrobial compounds in Clarus 680 GC was used in the analysis employed a fused silica column, packed with Elite-5MS.**Results:**The zone of inhibition in petroleum ether ranged from 11 to 28mm respectively. The highest zone of inhibition observed *Escherichia coli* (18 to 24mm) and lowest zone observed *Klebsiella Pneumonia*. (5 to 11mm) and carbinol extract highest zone of inhibition observed *Salmonellatyphi* (14 to 19mm) and lowest zone observed *Pseudomonasaeruginosa* (0 to 10mm). The two different extracts,Carbinol extract of *Tribulusterrestris*, which showed maximum antibacterial activities and carbinol extract seven compounds were identified. **Conclusion:**From the above results we can conclude that extracts of plants origin have remarkable antimicrobial activity as compare to antibiotic activity. We know that organisms are gaining resistance day by day towards the antibiotics. The present study has been undertaken to identify effective herbal medicines to control by bacterial organisms and used as a compounds for a drug in the treatment of disease.

**Keywords:** Medicinal Plant, Antimicrobial, Carbinol, Phytochemicals, GC MS

**OP17**

# Network pharmacology in combination with docking studies and *in-vitro* verification reveals the therapeutic potential of *Butea monosperma* in the treatment of Diabetic retinopathy (DR)

**Priyanka Kumari[1], Swathi Bandi[1], Naveena Sharon[1], Vidhya VG[1*]**

[1]Department of Biotechnology, Faculty of science and Humanities, SRM Institute of Science and Technology, Kattankulathur– 603203

*Corresponding author: vidhyavg@gmail.com

**Abstract**

Diabetic retinopathy (DR) is a microvascular complication of diabetes mellitus effecting the retina. In developing countries like India diabetic retinopathy is a leading cause of vision loss in adults of working age group. The small amount of reported data and multiple spectra of pathophysiological mechanisms make it a challenging task and serious economic burden in health care management. *B.monosperma* is a deciduous, and woodyplant used in various regions of Asia to treat a variety of ailmentsincluding diabetes mellitus. Various in vitro studies revealed the therapeutic significance of *B.monosperma* against diabetes. However, the exact molecular mechanism remains unclarified. In the present study, a network pharmacologywas employed to uncover the active ingredients, their potential targets, and signaling pathways in*B.monosperma*for the treatment of DR. In the framework of this study, we explored the active ingredient–target–pathway networkresponsible and identified the compounds that influenced the development of DRi.e., the PPARG, MMP9, MMP2, VEGFA, AKR1B1,AKR1A1, PGF and KDR genes. Molecular docking was employed to validate the successful activity of the active compounds against potential targets. Integrated network pharmacology and docking analysis revealed that *B.monosperma* exerted a promising preventive effect on DR by acting on diabetes associated signaling pathways. Lastly, we concluded that seven highly active constituents, namely,Apigenin, Luteolin,Hesperetin, Sakuranetin, Rhamnetin, naringenin chalcone and Chrysin help in improving the body's sensitivity to insulin and regulate the expression of PPARG, MMP9, MMP2, VEGFA, AKR1B1, ACE, KDR, AKR1A1, PGF which may act as potential therapeutic targets of DR. Providing a basis to comprehend the mechanism of the anti-diabetic potential of *B. monosperma.*

**Keywords:** Diabetic retinopathy, *B.monosperma*, network pharmacology, gene expression.

**OP18**

# Deep learning based Technique for Classification of Carotid Artery Atherosclerosis in Ultrasound Images

**Dr.D.Sasikala[1], R.Mohanapriya[2], R.Preethiravi[2], and P.Aruna[2]**

[1]Professor, Department of Biomedical Engineering, Muthayammal Engineering College, Rasipuram

[2]Department of Biomedical Engineering, Muthayammal Engineering College, Rasipuram

**Corresponding author mail:** mohanapriyaraju2020@gmail.com

**Abstract**

Cardiovascular disease (CVD) primarily caused by atherosclerosis is a major cause of death and disability in developed countries. Imaging technique using Ultrasound is used to monitor the disease progress with minimum cost. The non-invasive and non-ionizing imaging technique, is an ideal tool for long-term CVD risk assessment for the asymptomatic patients, helping refine the risk score stratification and guiding intervention to the patients. Image denoising is challenging for carotid artery images due to the noise level that needs methods to remove the noise. The features are also difficult to extract due to the image quality. In this paper, denoising and feature extraction method for Quantification of the carotid artery ultrasound images is done using Principle component analysis and homomorphic wavelet transform. For feature extraction the pretrained INCEPTION model is proposed. Development of carotid artery Atherosclerosis for therapeutic intervention and a modified YOLO V2 CNN deep learning method for classification of atherosclerosis is presented. The affected area is analyzed using a second stage for extracting and segmenting the localized deep features. The implementation was carried out in MATLAB.

**Keywords:** Carotid artery, ultrasound images, segmentation, deep learning, feature reduction, optimization, classification.

**OP19**

# Green synthesized copper nanoparticles using *Curcuma amada* demonstrates anti colon cancer activity in Caco2 cells and strong antioxidant and antimicrobial activities

**Shinomol George K*[1], Anu Jacob[1], Anagha K.K[1], Anagha. R. Nair[1]**

[1]Department of Life sciences, KristuJayanti College (Autonomous), Bengalureu, Karnataka, India, 560077.

*Corresponding Author: Email-shinomol@kristujayanti.com; shinojesu@gmail.com

**Abstract**

Bionanoparticles are those nanoparticles that is made out of natural and synthetic polymers and can be used to make liposomal and polymer nanoparticles. *Curcuma amada*(Mango Ginger) has been used in Ayurveda and Unani medicine for ages as a diuretic, laxative, expectorant, aphrodisiac,stimulantand is used topically and orally to treat colds, coughs, and bronchitis in some circumstances.The main use of mango ginger rhizome is in the manufacture of pickles and culinary preparations. The biological activities of mango ginger include antioxidant, antibacterial, antifungal, anti-inflammatory, platelet aggregation inhibitory activity, cytotoxicity, anti-allergic, hypotriglyceridemic, enterokinase inhibitory activity, central nervous system depressant, and analgesic activity. Nanoparticlesare known to elicit intrinsic and extrinsic apoptotic pathway for death of cancerous cells, and copper has been found promising against cancer. Copper and copper oxide nanoparticles were observed to exhibit anticancerous activity against HeLa cells, MD A-MB-231, Caco-2, and HepG2 cells and Mcf-7 breast cancer cells. In this context we prepared copper bionanoparticles using *Curcuma amada* extract and studied its antioxidant, antimicrobial and anticancer properties.We characterized the nanoparticles using UV-visible spectroscopy,X-ray diffractometry (XRD). Fourier transform infrared spectroscopy (FTIR) and Scanningelectron microscopy (SEM). Further DPPH, NO scavenging assay and FRAP assay were utilized to study antioxidant properties and MTT assay,ROS assay, Protein Carbonyls levels, GSH levels and Catalase levels were studied in Caco 2 cell lines to evaluate the anticancer potential. We got very good antioxidant potential, and reduced oxidative stress parameters and good anticancer activity against copper bionanoparticles compared to the extract. The same was found in the case of antimicrobial activity against known pathogens.These results depicts the antioxidative,antimicrobial and anticancer potential of *Curcuma amada*and its copper bionanoparticleswhich can be further utilized for therapeutic interventions if required further studies are carried out.

**OP20**

## Metal oxide nanostructures for sustainable technologies and environmental applications

**Suresh Sagadevan[1,2*] and Tetsuo Soga[2]**

[1]Nanotechnology & Catalysis Research Centre, University of Malaya, Kuala Lumpur 50603, Malaysia

[2]Department of Electrical and Mechanical Engineering, Nagoya Institute of Technology, Gokiso-cho, Showa-ku, Nagoya 466-8555, Japan

Correspondence email author:drsureshsagadevan@um.edu.my

**Abstract**

In recent years, nano metal oxides are widely known for their potential applications in science and technology. This has led to progress in several processes for the preparation of nanoparticles, including anticipated physiognomies, corresponding dimensions, forms, morphology, imperfections in the crystal construction, and monodispersion, for potential use in medicament applications. The nanostructured materials received much attention due to their distinctive properties such as higher damping, mechanical stability, high strength, and good thermal conductivity. The nanostructured metal oxides, in general, maintains the high surface area and that developed much interest in the research due to its wide range of applications including optical electronics, sensing devices, and nanoelectronics. Photocatalysis technology offers excellent potentials for the complete removal of organic and other biochemical pollutants in an environmentally friendly and sustainable means where the outcome is without the involvement of greenhouse gas emissions. It has been found that under UV-Visible light irradiation, the nanostructured semiconductor metal oxide photocatalysts can easily degrade many different organic and biochemical pollutants. Since the photocatalysis is a process which involves the breaks down or decomposition of various dyes, organic dirt, and biological species like harmful fungi and viruses by making use of the UV or visible light in a sustainable manner. Hence, taking into consideration the unique properties of metal oxide nanoparticles (NPs) applicable to many different sectors, the present study deals with the nano metal oxidesformed by the wet chemical approach. Following the synthesis, the formed metal oxide NPs were thoroughly characterized for the crystal structure, crystallinity, surface morphology, functionality, optical propertiesby making use of the instrumental methods like powder X-ray diffraction (PXRD), Scanning electron microscopy (SEM), Fourier-transform infrared spectroscopy (FTIR), UV-Vis diffuse reflection spectroscopy (UV-Vis)analysis. Further testing of the photocatalytic activity through the degradation of various dye confirmed for an effective and potential catalytic nature of the synthesized samples.

**Keywords**: Metal oxides, nanoparticles, Optical properties, and photocatalytic activity

**OP21**

# Molecular level investigation for identifying potential inhibitors against thymidylate kinase of monkey pox through insilico approaches

**Suman Koirala*, Sunanda Samanta, Subhasmita Mahapatra, KapilUrsal, Sayan Poddar, Parimal Kar**

Department of Biosciences and Biomedical Engineering, Indian Institute of Technology Indore, Simrol, Khandwa Road, MP 453552, India.

*Corresponding author: Suman Koirala, E-mail: phd2101171007@iiti.ac.in

**Abstract**

The need for more advanced and effective monkeypox(Mpox) treatments has become evident with numerous Mpox virus(MPXV) outbreaks. Over the years, interest has increased in developing targeted medicines that are efficient, safe, and precise while avoiding adverse effects.Here, we screened 32409 compounds against thymidylate kinase (TMPK), an emerging target for Mpox treatment.We studied their pharmacological characteristics andanalyzed those throughall-atom molecular dynamics simulations followed by molecular mechanics Poisson Boltzmann surface area (MM-PBSA) basedfree energy calculations. According to our findings, the leadsCID40777874 andCID28960001 had the highest binding affinities towards TMPKwith $\Delta G_{bind}$of -8.04 and-5.58 kcal/mol, respectively,which outperformed our control drug cidofovir ($\Delta G_{bind}$= -2.92 kcal/mol) in terms of binding favourability.Additionally, we observed crucial TMPK dynamics brought on by ligand-binding and identified key residues such as Phe68 and Tyr101 as the critical points ofthe protein-ligand interaction.The DCCM analysis revealed the role of ligand binding in stabilizing TMPK's binding region, as indicated by residual correlation motions. Moreover, the PSN analysis revealed that the interaction with ligand induces changes in residual network properties, enhancing the stability of complexes.We successfully identified novel compounds that may serve as potential building blocks for constructing contemporary antivirals against Mpox disease and highlighted the molecular mechanisms underlying their binding with TMPK.Overall, our findings will play a significant role in advancing the development of new therapies against Mpox and facilitating a comprehensive understanding of their interaction patterns.

**PP02**

## Phytochemistry Of Easily Available Green Leafy Vegetables

**Pragati S, Jaya Sree S K and *Swathy Saravanan**

UG students, Department of Nutrition & Dietetics, K.S.R college of arts and science for women, Tiruchengode- 637215.

*Assistant professor, Department of Nutrition &Dietetics, K.S.R college of arts and science for women,Tiruchengode-637215, swathysaravanan17@gmail.com

**Abstract**

Phytochemistry is known as the study of Phytochemicals. Phytochemicals are chemical compounds produced by plants, generally to help them resist fungi, bacteria and plant virus infections, and also consumption by insects and other animals. The name comes from Greek φυτόν 'plant'. Some phytochemicals have been used as poisons and others as traditional medicine. Tridax procumbens, commonly known as coat buttons or tridax daisy, is a resilient and widespread plant species that belongs to the Asteraceae family. This herbaceous plant is characterized by its small, yellow, daisy-like flowers and serrated leaves. Tridax procumbens has garnered significant attention due to its diverse pharmacological properties, including anti-inflammatory, antimicrobial, and antioxidant effects. It is traditionally used in various herbal remedies and has shown promise in modern pharmaceutical research. This abstract provides a concise overview of the botanical and medicinal attributes of Tridax procumbens, highlighting its potential in contributing to natural medicine and the treatment of various ailments. Acalypha indica is an herbal plant that grows in wet, temperate and tropical region, primarily along the earth's equator line. This plant is considered by most people as a weed and can easily be found in these regions. Although this plant is a weed, Acalypha indica has been acknowledged by local people as a useful source of medicine for several therapeutic treatments. They consume parts of the plant for many therapeutics purposes such as anthelmintic, anti-ulcer, bronchitis, asthma, wound healing, anti-bacterial and other applications. Green Cardiospermum halicacabum, known as balloon vine, is a climbing plant with balloon-like seed pods, part of the Sapindaceae family. It features trifoliate leaves and small, pale flowers. Traditionally used for its anti-inflammatory and analgesic properties, it's applied to treat various skin and rheumatic conditions. In the traditional Indian medicine systems, this plant is used for the treatment of rheumatism, abdominal pain, orchitis, dropsy, lumbago, skin diseases, cough, nervous disorders, and hyperthermia.

**Keywords**: Phytochemistry, green leafy vegetables,tridax procumbens, pharmacological properties,acalypha indica, therapeutic, green cardiospermum halicacabum, anti-inflammatory and analgesic properties.

**OP22**

# Promising MCL-1 inhibiting phytocomponents for Imatinib resistant CML therapy- An in-silico analysis

Anusha, P[1*], Rashi Srivastava[2], Rama Chandra Prasad[1*]

[1] Department of Life Sciences, Garden City University, Bangalore, India, 560049

[2]Department of Chemical and Biochemical Engineering, Indian Institute of Technology, Patna, India, 801106

*Corresponding authors: 22pabt101@gcu.ac.in; ramachandra.prasad@gardencity.univeristy

**Abstract**

Cancer holds immense significance in today's medical landscape. Chronic Myeloid Leukemia (CML), a type of blood cancer, impacts the bone marrow and blood cells explicitly. Developing tyrosine kinase inhibitors (TKIs) has dramatically improved patient outcomes. TKIs, such as Imatinib, precisely target and inhibit the activity of the BCR-ABL tyrosine kinase.By inhibiting the BCR-ABL tyrosine kinase, TKIs effectively suppress the abnormal proliferation of leukemic cells, induce their apoptosis, and restore normal hematopoiesis. However, despite the remarkable efficacy of TKIs, the development of Imatinib resistance remains a challenge in CML treatment. To combat this resistance issue, second and third-generation TKIs also developed; however, most people develop side effects, including nausea, vomiting, diarrhea, cardiac complications, and lung infection. Thus, the necessity of herbal drug compounds increased to combat this issue. Recent research has shown that Imatinib-resistant CML patients show over-expression of MCL-1. Myeloid cell leukemia-1 (MCL-1) has been validated as an effective target for cancer therapy. Therefore, the objective of this study is to specifically target MCL-1 in order to aid in the treatment of individuals with Imatinib-resistant CML. By unlocking the hidden potential of known compounds, *in-silico* drug repurposing opens doors to more efficient and targeted therapies, ultimately benefiting patients worldwide. In this study, we have opted *in-silico* methods for identifying herbal drug compounds against MCL-1. Molecular docking was performed using PDB ID: 4wmr for MCL-1 with 500 phytocomponents, and we found three potent phytochemicals showing binding energy less than -8.8 kcal/mol. The best one, Corynan-17-oic acid, was further subjected to molecular dynamics simulation analysis. Simulation results confirm that Corynan-17-oic acid can inhibit the activity of MCL-1. Hence, this study is a substantial research effort to find a promising herbal drug against MCL-1 targeting CML is warranted for the future.

**Keywords:** CML, MCL-1, Molecular Docking, Phytocomponents, Corynan-17-oic acid.

**OP23**

# Antimicrobial peptide compound from *Cissus quadrangularis* as potent option for therapeutic development

**Jeevitha R, Dr. Suresh K**
Department of Biotechnology, M.G.R. College, Hosur 635130, Tamil Nadu, India
**Corresponding author:** sureshbioteck@yahoo.com

**Abstract**

AMPs exhibit a variety of antimicrobial properties that may offer a way to stop bacteria from becoming resistant. PAMPs have a diverse range of effects on microorganisms, making them a promising option for the development of novel antibiotics. The present study was designed to isolate characterize and purify antimicrobial peptides from the selected *Cissus quadrangularis*. The ability of antimicrobial peptides (AMPs) to induce membrane collapse by interaction with lipid molecules on the bacterial surface and subsequent interaction with other targets in the cytoplasm is the major theory about the mechanism of action of AMPs. Membrane disruption results from the peptides binding to the bacterial membrane's acidic surface. The positioning of the peptide within the phospholipid membrane of bacteria determines the antibacterial specificity of the peptide. It was also proposed that the phospholipids found in bacterial membranes affect the antibacterial activity of peptides in addition to their physical and chemical characteristics. Another way that AMPs work is by aggregating on the membrane, which creates "bends" in the membrane that result in the development of pores. Our new peptides primary characteristic is its tiny size, which may enable it to have strong membrane penetration properties, making it a more potent option for therapeutic development.

**Keywords:** antimicrobial peptides, membrane disruption, phospholipid.

**OP24**

## Alzheimer's Disease: Breakthroughs in Research and Promising Therapies (A Review)

**Amitesh Chaman**[1]

[1]School of Biosciences and Bioengineering, Lovely Professional University, Phagwara Punjab 144402, India

**Abstract**

Alzheimer's disease (AD) is a complex neurodegenerative disease with progressive cognitive decline, memory loss and behavioural impairments. With the agingpopulation, AD is becoming significantchallenge, highlighting the need for therapeutic approaches.This abstractprovides recent breakthroughs in research and promising therapeutic strategies. The investigation of AD's pathogenic processes has centred around Aβ plaques and tau protein tangles, considered major hallmarks. The AD's pathogenic processes has centred around Aβ plaques and tau protein tangles considered major hallmarks of the disease. Promising therapeutics aiming to prevent Aβ aggregation or enhance its clearance have shown potential in preclinical studies. However, clinical trials face difficulties in achieving significant cognitive improvements. Tau protein has also been targeted as a therapeutic approach, with techniques minimizing tauhyperphosphorylation and aggregation showing promise in animal models. Aside targeting amyloid and tau, research explorevarious neuroprotective agents to preserve neuronal health, such as antioxidants, anti-inflammatory drugs, and neurotrophic factors. While encouraging results have been seen in animal models, translating these to clinical success remains a challenge. Genetic advancements go beyond conventional methods to reveal the genetic risk factors linked to AD.Several genes have been identified by genome-wide association studiesproviding vital, targeting specific genetic variants and modifying their expression may represent a future personalized AD therapies. Emerging technologies, like gene therapy and RNA-based therapeutics, offer innovative approaches to address AD. Immunotherapy specifically antibodies targeting Aβ has shown promise in reducing amyloid burden. Nevertheless, challenges related to blood-brain barrier penetration and potential side effects must be overcome to ensure safety of these treatments. AD research has witnessed significant progress in understanding the disease's mechanisms and identifying potential therapeutic targets. However, successful translation from preclinical to clinical settings remains a challenge.

**OP25**

## Antioxidant and Anticandidal potential of *Inonotus rickii*

**Elangovan Arumugam[1], Kezhocuyi kezo[1] and Malarvizhi Kaliyaperumal[*]**
Centre for Advanced Studies in Botany, Guindy Campus, University of Madras,
Chennai - 600 025, Tamil Nadu, India.
E-mail: elangovanaru11@gmail.com, z.kezh.kezo@gmail.com
malar.kaliyaperumal@gmail.com[*]

**Abstract**

Hymenochaetaceae is as species-rich family with 487 species with three major genera *Phellinus* sensu lato, *Hymenochaete* and *Inonotus* sensu lato. Members of Hymenochaetaceae possess effective antifungal, anti-inflammatory, antitumor, antioxidant, antiviral, antibacterial, hepatoprotective, antidiabetic, hypolipedemic, antithrombotic, anti-candial and hypotensive properties. Various bioactive compounds like phenolics, alkaloid and organic acid contents have the ability to inhibit lipoxidase enzymes, scavenge free radicals and capture metals and thus contribute to the antioxidant property of mushrooms. Basidiomes of *Phellinus* and *Inonotus*are known to possess antimicrobial, antioxidant and cytotoxic property, hence could be used as alternatives to synthetic chemicals as it has highly diverse compounds. In this present study, metabolites of *Inonotusrickii* was investigated for its mycochemical, antioxidant and anticandidal activity. Five different extracts (Hexane, Ethyl acetate, Acetone, Ethanol and water) of *I. rickii* were screened for mycochemical and antioxidant potential. The amount of terpenoid content was found high in Hexane extract, the amount of Flavonoid content found high in Ethyl acetate extract and the amount of phenol content found high in Methanol extract. Methanol extract of *I. rickii* having good antioxidant potential in DPPH and Metal chelating assay.Of the five different extracts tested against 14 strains of *Candida* spp., crude hexane extract showed the highest anticandidal activity, followed by ethyl acetate. The hexane extract was fixed was partially purified using preparative TLC. Well diffusion assay of the partially purified compound revealed the highest activity (32 mm) against *Candida albicans* followed by *C. tropicalis* (30 mm). The partially purified compound of Ethyl acetate showed highest anticandial activity against *Candida tropicalis* followed by *Candida albicans*. Further, the detail results will be discussed during presentation.

**OP26**

# Synthesis and Characterization of Palladium Nanoparticles Using the Marine Gastropod *Strombus canarium* (Linnaeus, 1758)

**Dr. P.Subavathy[*1] and Dr. G. Amala Jothi Grace[2]**

[*1]Assistant Professor, PG and Research Department of Zoology, St.Mary's College (Autonomous), Thoothukudi – 628001, Tamil Nadu, India

[2]Assistant Professor, Department of Chemistry, St. Mary's College (Autonomous), Thoothukudi – 628001, Tamil Nadu, India

[*1]**Corresponding Author**: subavathy23@gmail.com

**Abstract**

Marine mollusc shells enclose a wealth of information on coastal organisms and their environment. Recently, the biogenic synthesis of nanoparticles has attracted attention from the scientific community as it could in principle provide simple, rapid, cost-effective, and potentially more environmentally friendly alternative processes for the synthesis of nanoparticles. In addition to having a wide range of antimicrobial and anticancer properties, palladium nanoparticles have also shown promising results in several biomedical therapy approaches. The field of biological synthesis of Palladium nanoparticles encompasses the use of plant extracts, microorganisms, marine organisms, etc as green-reductants. Amongst all different methods, the tapping of bio-resources, particularly the biological extracts for the synthesis of the NPs seems promising owing to their ready availability, rapid process, better cost-effectiveness, and the ability to use in large-scale biosynthesis. The biocompatibility and environmentally benign properties attributes to these biological techniques to supersede the conventional physical and wet-chemical methods. The palladium nanoparticles were synthesized using the tissue extract of *Strombus canarium*. In the present study synthesized palladium nanoparticles were confirmed using the UV-visible spectroscopic and FTIR analysis showed different stretches of bonds shown at different peaks in the marine gastropod *Strombus canarium*.

**Keywords:** *Strombus canarium*, Palladium nanoparticles, Eco-friendly method, UV-Vis spectroscopy, FT-IR analysis

**PP03**

# Exosomal Long Non-coding RNA UCA1: A Candidate of Liquid Biopsy in Monitoring of Wilms Tumor

**Diwakar Sharma[1,2*], Surender K. Sharawat[2] , Mohammad Husain[1]**

[1]Virology and Oncology Lab, Department of Biotechnology, Jamia Millia Islamia, New Delhi, India. [2]Department of Medical Oncology, All India Institute of Medical Sciences, New Delhi, India.

## Abstract

**Background:** Wilms' tumor (WT), also known as nephroblastoma, represents a rare form of pediatric kidney cancer originating from embryonal cells. Exosomes, extracellular vesicles released by cells, facilitate intercellular communication by transporting diverse biomolecules. Long non-coding RNAs (lncRNAs) have demonstrated promise as molecular markers for cancer diagnosis, prognosis, and disease surveillance. This study postulates that the perturbation of urothelial carcinoma associated-1 (UCA1) lncRNA in WT may contribute to cellular transformation and influence the microenvironment.

**Methods:** We assessed UCA1 expression in thirty WT specimens and adjacent normal tissues through quantitative PCR (qPCR). Exosomes were extracted from primary tumor cells, urine, and plasma samples using a precipitation and affinity-binding-based protocol. Subsequently, the isolated exosomes were characterized employing transmission electron microscopy (TEM), nanoparticle tracking analysis (NTA), and dynamic light scattering (DLS). UCA1 expression in these exosomes was quantified using qPCR.

**Results:** The mean exosome count was determined to be 8.99×10^7/mL in primary cultures, 1.44×10^7/mL in urine, and 4.62×10^7/mL in plasma. The average RNA yield from the exosomes was 1.08 µg (from primary-cultured supernatant: 1mL), 1.07 µg (urine: 1mL), and 1.7 µg (plasma: 1mL). UCA1 lncRNA expression was significantly diminished ($p=0.012$) in WT samples compared to adjacent normal tissue. Notably, exosomes from primary culture supernatant and urine samples exhibited comparable UCA1 expression ($p=0.9542$), whereas exosomes from blood plasma samples exhibited the highest UCA1 expression, surpassing primary culture ($p=0.0092$) and urine ($p=0.0021$).

**Conclusion:** This investigation presents the inaugural evidence of UCA1 lncRNA presence in various invasive and non-invasive samples from WT patients. The downregulation of UCA1 in WT samples implies its potential involvement in disease pathogenesis and progression. The identification of exosomal UCA1 further underscores the promise of exosomes and lncRNAs as diagnostic and prognostic markers for WT. Additional research is warranted to elucidate the functional significance of UCA1 in WT and its potential as a therapeutic target.

**PP04**

# A Rare Case of Isolated Methyl Malonyl Acidemia

**Dr. PATAN RASHIYA KHANUM[1] and Dr. BHANUJA RANI[2]**

[1]Final Year MD Biochemistry Post Graduate, Osmania Medical College Hyderabad

[2]Associate Professor, Department Of Biochemistry,Osmania Medical College

## INTRODUCTION

Isolated methylmalonyl acidemia is an autosomal recessive disorder of metabolism characterised by complete or partial deficiency of enzyme methylmalonyl coA mutase due to mutation in MMUTgene leading to elavated methylmalonic acid concentration in blood and urine without hyperhomocystenemia, hypomethioninemia or other metabolities. In this condition the conversion of propionyl coA into succinyl coA is hindered causing the intermediate compound methylmalonylcoA to rise.The disease has 2 forms-combined or isolated.The disease can manifest in first days of life(early onset) or after 4 yrs(late onset) with complications.The estimated disease incidence ranges from 1:50000 to 1:100000.

## Case History

A 1yr old male born to third degree consanguinous couple presented with vomitings and diarrhea, confirmed metabolic acidosis by arterial blood gas analysis.

H/o fever, cold, severe cough at 6months of age, developmental delay and language delay present. Further investigations advised in suspision of inborn errors of metabolism. On USG abdomen, both kidneys show subtle increase in parenchymal echotexture. On genetic analysis, the case confirmed as homozygous MMUT mutation

Management mainly consists of supportive and symptomatic treatment including prtoein restriction, L.carntine, biotin, hydroxycobalamin, folate supplementation.

## Summary

Patient was diagnosed with isolated methylmalonic acidemia after presenting with severe metabolic acidosis,for which supportive and symptomatic treatment was given.The overall prognosis of this disorder is unpromising if it is not promptly treated,with a mortality rate of about 26-40%.While certain therapies can address symptoms ,there is presently no cure for Methylmalonic acidemia. Studies are being done on gene therapy like hLB-001 targeting MMUT gene but promising results are not seen yet.

**OP27**

# Effects of Centella *asiatica* As A Bio Aversion Agent For Alcohol Aversion Therapy

**Sheik Abdulla.R[1], Vignesh.R[1], and Manicka Vinayagam.N[1]**

[1]Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

**Corresponding Author:** sheikabdulla986@gmail.com

**Abstract**

*Centella asiatica* (Mandookparni) is one of the most beneficial plant species offers numerous health benefits to human beings and it faces severe depletion and enlisted in list of threatened species as mentioned by IUCN , to prevent the species from extinction , more valuable life touching products should extract from the species and commercialize. Alcohol aversion therapy includes usage of chemicals like disulfiram, naxtrepone, etc., which induces dislike and disgust effects and sometimes leads to negative and aggressive effects. At present Salvinorin A, a diterpenoid from Salvia divinorum is used for aversion but it is banned in many countries being a psychoactive plant , Pentacyclic triterpenoids from Centenella *asiatica* has the potential to be alcohol aversion agent

**Keywords:** Centella asiatica , salvinorin , aversion , naxtrepone , triterpenoids

**OP28**

## Identification of Biodiversity of Endophytic Fungi in *Sansevieria* Plant

**V.Manikandan, and Dr. D. Arvind Prasanth**

[1]Research scholar, Department of Microbiology, Periyar University, Salem, Tamilnadu.

[2]Associate professor, Department of Microbiology, Periyar university, Salem, Tamilnadu.

**Abstract**

The herbal medicines and alternative medicines are having important role in treating of various diseases, infections and cancers. The alternative medicinal components were separated from various microorganisms which are isolated from medicinal plants. The endophytic fungi plays major role in the medicines and medicinal component productions. This study aimed to isolate endophytic fungi from Sansevieria plant. As well as, the plant also collected for the extraction process. The collected extractions were forwarded to GC-MS analysis for the compound confirmation. It supports to identify the medically important component in the collected plant extract. The isolated fungi also used to mass cultivation process, after that, the microbial extract separated and forwarded to GC-MS analysis for compound identification. The plant samples were collected from 6 different locations and around 10 to 18 endophytic fungi were isolated from the each sample.

**Keywords**: herbal plants, Sansevieria sp., endophytic fungi, plant extract, GC-MS.

**OP29**

## Efficacy of Antibiotic Coated ChitosanNanoparticles on Human Pathogens

**Dr M. Shenbagam**

Assistant Professor, Department of Biochemistry and Biotechnology, Annamalai University, Tamil Nadu, India

**Abstract**

The biodegradable nanoparticles of chitosan have received a significance attention as potential drug delivery vehicles in the recent decades. Pure chitosan nanoparticles (CNP) and tetracycline coated nanoparticles (TCNP) were prepared by the ionotropic gelation process and were characterised by UV visible spectrophotometer, SEM, XRD, FTIR, NMR, Nano size - Zeta potential analysis. Antibacterial activity was assessed using CNP and TCNP against 7 different strains of human pathogenic bacteria such as *Staphylococcus aureus, Escherichia coli, Vibrio parahaemolyticus, Salmonellatyphi, S. paratyphi, Pseudomonas aeruginosa*and *Bacillus subtilis.* In the present study, the CNP and TCNP had exhibited a growth inhibition activity on bacteria at lower concentration and proved as a remarkable drug carrier.

**Keywords:** Chitosan, nanoparticles, crustaceans, antagonistic assay, drug carrier.

**OP30**

## Strepto-Penicillin conjugated *Artemisia vulgaris* leaf extract capped ZnO NPs as a biomaterial to treat drug resistant bacteria and oxidative stress

**B. Malaikozhundan and C. Manjupriya**

Department of Biology, The Gandhigram Rural Institute- Deemed to be University, Gandhigram-624 302, Dindigul District, Tamil Nadu, India.

**Abstract**

The search for an eco-friendly antimicrobial drug that exhibit greater effect against drug resistant pathogens is imperative. Strepto-penicillin is a combination of streptomycin and penicillin. It is a widely used antibiotic to treat various diseases. In this case, ZnO NPs were formed utilizing the leaf extract of *A. vulgaris* that possess immense therapeutic values. Then, Av-ZnO NPs were conjugated with the drug strepto-penicillin to compare its therapeutic efficacy. The successful formation of NPs was confirmed by bio-physical techniques. Similarly, the successful conjugation of strepto-penicillin with ZnO NPs was studied by UV spectroscopy, FTIR and EDX analysis. Av-ZnO NPs alone (non-drug loaded) have shown an inhibition of 22.8, 22.4, 20.5 and 19.6 mm at 100 mg/ml against*E. faecalis*, *S. flexneri*, *S. pyogenes* and *K. pneumoniae*respectively. The antibacterial efficacy was significantly enhanced after loading with strepto-penicillin such that the inhibition was 28.6, 25.4, 22.2 and 20.8 mm for *E. faecalis*, *S. flexneri*, *S. pyogenes* and *K. pneumoniae*respectively at 100 mg/ml. The drug release significantly lowered at increased ZnO NPs size. The drug released from 10 nm ZnO NPs enhanced to 96% after loaded with 10% drug concentration compared to 12 nm and 15 nm ZnO NPs. Furthermore, the Av-ZnO NPs alone (non-drug loaded) have shown notable DPPH and $H_2O_2$ radical scavenging action. Because of the enhanced antibacterial action, the drug loaded ZnO NPs offers a promising antimicrobial material to treat drug resistant pathogens.

**OP31**

## Evaluation of Herbal Gel From *Achyranthus aspera* and Its Antibacterial Potential

**S.Saji Pray[1], V. Archana[2], K. Logagayathiri[2], and S.Vanitha[2]**

[1]Assistant Professor, Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

[2]Department of Biotechnology, Muthayammal Engineering College, Rasipuram

**Corresponding author mail id**:archikavi2004@gmail.com

**Abstract**

Our project deals with the use of a herbal plant chaff-flower, scientific name is Achyranthus aspera from kingdom of plantea. This plant from Amaranthaceae family, genus of Achyranthus and species of aspera.Achyranthus aspera from native of southern Asia, Australia, and some Pacific Islands. Widespread in the tropics.Herbal medicine are compatibility with lowside effects. The aim of present study was formulate and evaluate herbal gel containing Achyranthus aspera extract for prevention of wound healing. The plant Achyranthus aspera roots stems, leaves, seeds are used seperately for different disease antimicrobial, anticancerous, anti ulcer agents. This medicinal plant contains many antioxidants like alkaloids, terpenoids, saponins, etc. The parts of AA useful in the treatment of asthma, snake bite, scorpion bite, cough,pneumonia and very much useful in pregnancy period. The prepare gel was characterized for other physicochemical parameters, preliminary phytochemical analysis, quantitative analysis, pH, invitro diffusion study and study and stability study.

**Keywords:** Achyranthus aspera, Chemical Constituents, pharmacological properties.

**OP32**

## An Improved Design of Early Detection And Diagnosis For COPD

**S.Bharathidasan[1], S.Dhina[2], M.Gurunathan[2], K.Iyyandurai[2]**

[1]Assistant Professor, Department of Biomedical Engineering, Muthayammal Engineering College, Rasipuram

[2]Department of Biomedical Engineering, Muthayammal Engineering College, Rasipuram

**Corresponding author mail:** pdhina123@gmail.com

**Abstract**

Accurate and consistent assessments of cough are essential to advance the understanding of the mechanisms of cough and individualised the management of patients. The ongoing development of cough detection technology is designed using smartphone apps and Microcontroller will hopefully simplify the severity of cough. Based upon the reference value the frequency and amplitude of cough is processed by integration the microphone with Microcontroller, IOT module and GSM modem

**Keywords:** Microcontroller, IOT module and GSM modem

OP33

# Formulation of Liquid Biofertilizers Using BananaSap And Its Potential Application

**Mangayarkarasi G[1], Balaji.M[2], Harivel.M[2], and Prakash.M[2]**

[1]Assistant Professor, Department of Biotechnology, Muthayammal Engineering College, Rasipuram

[2]Department of Biotechnology, Muthayammal Engineering College, Rasipuram

**Corresponding author mail id:** balaji.bio22@gmail.com

**Abstract**

The present study was carried out to evaluate the plant growth in enriched sap production and nutrients by considering physico chemical, biochemical parameters for sustainable development of plant growth promoting factor. The liquid Biofertilizers(LBF) are suspensions contain live and emcient formulates of bacteria, fungai or blue green algae which can able to fixing atmospheric nitrogen, solubilizer phosphorous and decomposes organic matter or oxidizing sulphur. In this work the liquid Biofertilizer was produced from bananasap. Two different bacteria such as phosphate solubilizing bacteria and potassium solubilizing bacteria growth was studied in nutrient agar and nutrient medium,which was prepared from bananasap. The result shows favourable growth of bacteria in media prepared from bananasap. Bacterial isolates were screened for their hydrolytic enzyme production like amylase,liphase,cellulase and catalase.

**Keywords:** Potassium solubilizing bacteria, phosphate bacteria, liquid Biofertilizer, bananasap.

**OP34**

# CHIA SEEDS [SALVIA HISPANICA]: A MYSTICAL ETHNO – MEDICINE FOR INFERTILITY

**Dr. Pritam Dey[1], Dhanusree.K[2],Asmin Sanofer.S[2], and Thasmin Nilofer.M[2]**

[1]Assistant Professor, Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

[2]Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

**Corresponding Author Mail id**: sreedhanu2004@gmail.com

**Abstract**

In The present day life style and food habits have been changed so much. So , drastically that the younger generation are landing up in many major health issues including life style disorders. In the present day generation, infertility is the major cause of concern in reproductive age groups.In present scenario, major reason for infertility can include Ovulatory disorders, endometriosis, low sperm count or low testosterone. Present researches doesn't offer fruitful results. Infertility varies across the regions of the world and it has been estimated to affect 8 to 12% couples worldwide. Salvia Hispanica commonly called as *Chia seeds*, it is a edible seeds of flowering plant from the mint family. It improves the chances of conception in women suffering from infertility. An effort has been made in this paper to scientifically review and explain the role of Salvia Hispanica in infertility of either sex hypothetically.

**Keywords:** Ayurveda, Infertility, *Chia seeds.*

**OP35**

# A Review On Phytochemical Screening, Antioxidant And Antibacterial Activities Of Millingtonia hortensis

**B.Prasanna[1], S.Logeshwaran[2], Hemasree[2], and N.Santhoshwaran[2]**

[1]Assistant Professor, Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

[2]Department of Biotechnology,Muthayammal Engineering College, Rasipuram- 637408, Namakkal.

**Corresponding author mail id**: logeshwaranbtech21@gmail.com

## Abstract

Millingtonia hortensis the tree jasmine or Indian cork tree ,is the soul species in the genus Millingtonia a tree native to south asia and south east asia. The tree grows to height between 18 to 25meters and as a spread of 7 to 11 meters it reaches maturity 6 and 8 years of age and lives upto 40 years.this contain parts like flower,leaves, the review of studies antioxidant activity and antibacterial activity. Using of Methods to find antioxidant activity of different solvent extracts were measured by chemical analyses involving the assay of 1,1-diphenyl-2-picryhydrazyl (DPPH) radical scavenging activity and super oxide radical scavenging activity. It can gives the Phytochemicals (secondary metabolites) screening of methanol, chloroform, ethanol, petroleum ether, aqueous leaf extracts revealed the presence of carbohydrates, tannins, saponins, flavonoids, alkaloids, betacyanins, phenols and coumarins. The presence of these phytochemicals and antioxidant capacity support the use of this plant as an antibacterial agent against the group of micro organisms tested.

**Keywords:** Phyto compounds, Antioxidant activity, Anti bacterial activity

**OP36**

## A Review on Phytoremediation on soil for sustainable environment

**R.Vijayan[1], R.T. Divya Bharathi[1], K. Naveena[2], and Priyadharshini.J[2]**

[1]Assistant Professor, Muthayammal Engineering College, Rasipuram.

[2]Departmennt of Biotechnology, Muthayammal Engineering College, Rasipuram.

Corresponding Author Mail ID: rtdivyabharathi@gmail.com

**Abstract**

Our review paper deals with phytoremediation, need of phytoremediation, and the advantages as well as future scope in phytoremediation. Phytoremediation is a promising technology that uses plants and their associated microbes to clean up contaminants from the environment.The advantages are economically feasible, it can reduce exposure of the pollutants to the environment and ecosystem, it prevents erosion and metal leaching through stabilizing heavy metals, reducing the risk of spreading of contaminants, it can also soil fertility by releasing various organic matters to the soil. Phytoremediation technology is still at an early development stage, and field testing of transgenic plants for phytoremediation is very limited. Biosafety concerns need to be properly addressed-prevent gene flow into wild species. Phytoremediation technologies are currently available for only a small subset of pollutants, and many sites are contaminated with several chemicals-need to be engineered with multiple stacked genes.

**Keywords:** Sustainable environment, Metal, Biosafety

**OP37**

## Media Selection and Microprobacation of Eucalyptus on Different Rooting Media

**R.Manjula[1], Logeswar.B[2], Deepakraj. R[2], and Nitheesh kumar.G[2]**

[1]Assistant Professor, Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

[2]Department of Biotechnology, Muthayammal Engineering College, Rasipuram

**Corresponding author mail id:** logeswar.bio@gmail.com

**Abstract**

Plant tissue culture refers to growing and multiplication of cells, tissue and organs of plants. The commercial technology is primarily based on micropropagation, in which rapid proliferation is achieved. In this study, two different media (modified MS media and Woody plant media) are compared and selected for the micropropagation of eucalyptus 651 clonal species. Technique for micropropagation on modified woody plant media for initiation, shoot elongation, shoot multiplication and rooting are described and eucalyptus 651 clones have been propagated in vitro are listed. This is mainly for the application on forestry, horticulture, pulp and paper industry.

**Keywords:** Eucalyptus, plant tissue culture, micropropagation, initiation, shoot multiplication, rooting

**OP38**

# A Study on *Euphorbia hirta* Root Extract and Their Medicinal Applications in Treatment of Kidney Stones.

**R.Sowmiya[1], Madhumitha.T[2], Kaviya.S[2], and S.Anand[2]**

[1]Assistant Professor, Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

[2] Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

**Corresponding author mail id**: madhuammu600@gmail.com

**Abstract**

Our paper deals with the treatment of kidney stone formation in human. Usually increase in calcium content is the major reason for the formation of kidney stones in human. India is well known across the globe for its Ayurvedic medicine. We have proposed to use Euphorbia hirta plant extract for treatment of Kidney stones. This plant has demonstrated encouraging results against a number of infectious diseases and human ailments. Rich in phytochemical components, Euphorbia hirta shows extraordinary effectiveness against gastrointestinal, respiratory and genital illness. Euphorbia hirta has long been valued for its therapeutic qualities, which include the possibility that it can cure the development of Kidney stone. Antiuriolithiatic studies have been carried out using the extract of Hirta root extract. Results have been encouraging. The purpose of this study is to give a broad overview of the current understanding of the possible benefits of Euphorbia hirta root extract for curing Kidney stone.

**Keywords:** Euphorbiahirta, Urolithiasis, Phytochemical, Kidney stone

**OP39**

## Novel Treatment Methods For Cancer - An Review

**N.Naseeba[1], V.Subha[1], S.Rasigapriya[1] and Dr.Ajay Philips[2]**

[1]Department of Biotechnology, Muthayammal Engineering College, Rasipuram, Tamilnadu.

[2]Assistant Professor, Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

**Corresponding Author E-mail id**: nnaseeba835@gmail.com

**Abstract**

Cancer is a deadly disease contributing millions of death every year. Cancer causes due to various factors, the normal cells change into abnormal cells and proliferate indefinitely and forms tumour masses and spread to different parts of the body. Our immune system exhibits various preventing mechanisms against cancer. Various TNF (Tumour Necrosis Factors), inhibiting cytokines, Tumour Suppressor Genes, p53 were produced against the tumour formation. The failure of such mechanism leads to occurance of cancer. Several Treatment methods were followed. In this, the different treatments and methodologies were discussed. The conventional methods include Chemotherapy, Surgery, External beam radiation therapy(EBRT), Brachytherapy are outdated and there is a need for novel , unconventional methods for cancertreatment. Targeted therapy possessed breakthrough potential inhibiting the growth and spread of specific cancer cells, causing less damage to healthy cells. Ablation therapy has emerged as a minimally invasive procedure that burns or freezes cancers without the need for open surgery. Natural antioxidants demonstrated potential tracking down free radicals and neutralizing their harmful effects thereby treating or preventing cancer.The treatment strategies and its advancements were discussed in this review paper. This review presented an update on recent advances and breakthroughs in cancer therapies.

**Keywords**: Cancer, TNF, Brachytherapy, EBRT.

**PP05**

## ANTI - CANCEROUS ACTIVITIES OF PHYTOCHEMICALS

**Abinaya Anbarasu, Marhumitha Rajendran, Dharani Prabhu and *Swathy Saravanan**

UG student**,** Department of Nutrition & Dietetics, K.S.R College of Arts and Science for women, Tiruchengode- 637215

*Assistant professor, Department of Nutrition & Dietetics, K.S.R college of Arts and Science for women, Tiruchengode-637215. swathysaravanan17@gmail.com.

**Abstract**

Phytochemicals or phytonutrients, are the potentially beneficial substances present in plant-based diets. They might aid in the prevention of cancer and other chronic illnesses. Vegetables, fruits, grains, beans, nuts, and seeds all contain these. However, the kind and concentration of phytochemicals in various plants differ. Phytochemicals have the potential to strengthen the immune system, reduce inflammation, prevent DNA damage and aid in DNA repair, slow the growth of cancer cells, regulate hormones, and stop damaged cells from proliferating. Cancer is a disease that causes cells to grow abnormally and has the potential to spread to other parts of the body. The use of natural, synthetic, or biological agents to stop, inhibit, or reverse the onset of carcinogenesis or to stop premalignant cells from having the ability to invade is known as chemoprevention. With our growing understanding of the biology of cancer, our ability to identify molecular targets, and our success in preventing breast, prostate, and colon cancer, interest in the field of chemoprevention has largely increased. The three main stages of carcinogenesis are initiation, promotion, and progression are all impacted by several pathways that are altered in cancer chemoprevention at the molecular level. Ten novel medications have recently received FDA approval to treat precancerous lesions and lower the risk of cancer. Certain dietary ingredients, which have shown inhibitory effects on cancer cells, may be used as chemopreventive agents. These include piperlongumine,, phenethyl isothiocyanate, isoflavones, catechins, lycopenes, and capsaicin. Primary, secondary, and tertiary chemoprevention have been classified clinically. Primary chemoprevention is appropriate for both populations at high lifetime cancer risk and the general population free of cancer. In patients with pre-malignant lesions that have the potential to develop into invasive cancer, secondary chemoprevention is recommended. Conversely, the goal of tertiary chemoprevention is to stop cancer from returning.

**Keywords**: Chemoprevention, carcinogenesis, isothiocyanate, piperlongumine, benzyl isothiocyanate, lycopenes.

**OP40**

# Antibiofilm and Antimicrobial Activity Of Keratinase Enzyme Isolated From Halophilic Bacteria Against Pathogens

**Rajee T and Selvamaleeswaran P**

Department of Biotechnology, Muthayammal College of Arts and Science,
Rasipuram- 637 408.

**Corresponding Author**: rprajeebiotech@gmail.com

**Abstract**

Keratinase enzymes from halophilic bacteria represent a specialized class of proteases with the ability to hydrolyze insoluble keratinolytic substrates. Halophilic enzymes exhibit a polyextremophilic nature; they are not only salt-stable but also capable of withstanding and functioning under extreme conditions where conventional enzymes cease to function, denature, and precipitate. Keratinase can also play a role in antimicrobial and antibiofilm applications by disrupting bacterial biofilms and enhancing the effectiveness of antimicrobial agents. Biofilm is a complex microbial structure comprising diverse bacterial colonies adhering to a growth surface. In this study, pathogenic bacteria were isolated from contaminated poultry feather waste and clinical sources, and biofilm formation was analyzed using the Congo Red Agar method. The bacteria isolates that produced biofilms in both sources include *E. coli, K. pneumoniae, S. aureus, P. aeruginosa,E. faecalis, Salmonella sp., and Shigella sp.* These isolates were tested for antibiofilm and antimicrobial activity using halophilic keratinase enzymes. The study revealed the inhibitory activity of keratinase against these pathogens. The formation of biofilms in pathogenic organisms leads to drug resistance and the spread of diseases in poultry and humans. Therefore, halophilic microbial keratinases exhibit potent antibiofilm and antimicrobial activity, making them valuable in the pharmaceutical industry.

**Keywords:** Keratinase, Halophilic, Antibiofilm and Antimicrobial

**OP41**

## A Study on Biopesticides Using Nerium Oleander And Vitex Negundo

**S.Rishikesh[1], S.Mohammed Riyas[1], M. Mithun[1], and Dr.Hiasinth Ashmi[2]**

[1]Department of Biotechnology, Muthayammal Engineering College, Rasipuram

[2]Assistant Professor, Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

**Corresponding Author Mail id:** srishisridhar79@gmail.com

**Abstract**

Application of chemical pesticides posses severe health hazards when exposure to humans and also severely deterioriates the land fertility. Chemical pesticides were classified as most dangerous chemicals as they even be fatal on exposure pesticide applications can affect not alone the targeted pests but also affects beneficial microorganisms and other useful insects it will disturb natural soil ecosystem. Usage of chemical pesticides have to be controlled and development of ecofriendly biopesticides is in need of the hour. Available biopesticides are not economically affordable. In this work, low cost biopesticides are to be produced from locally available biomaterials. Many plants contains some components which can control insects and pests alkaloids present in Nerium oleander and vitex negundo has high potential activities for insecticidal activities. The leaf extract was obtained from Nerium oleander and vitex negundo and their biochemical characterization to be studied. Formulation to be prepared and field application studies were to be conducted.

**Keywords:** Biopesticide, Nerium oleander, vitex negundo

**OP42**

## Encapsulation of Topical Drugs For Treating Fungal Infections

**Saravanan.R [1], Dhanush.S[1], Selvakannan. S[1] and Navaneethakrishnan[4]**

[1]Department of Biotechnology,Muthayammal Engineering College, Rasipuram.

[2]Assistant Professor, Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

**Corresponding author mail id**– sarovin56@gmail.com

**Abstract**

Fungal skin infections are the most common problem in skin health. It is often treated by topical, oral and anti-fungal therapy.The topical and transdermal delivery of active anti-fungal ingredients requires effective, controlled and safe means of reaching the target site within the skin.Encapsulation offers an ideal and unique carrier system for anti-fungal active ingredients, as it has the potential to respond to all these requirements.In this work , the encapsulation of anti fungal drugs is carried out by several steps.Topical anti-fungal treatments were available for various fungal infections which includes liposomes, niosomes, microemulsion etc, in active anti-fungal drugs like itraconazole, terbinafine, sertaconazole, etc, to treat candida, trichophyton, microsporum, dermatophytes. In this work , microencapsulation to be performed on anti fungal drugsterbinafine, and sertaconazole and their performance and efficiency of anti fungal activity is going to be studied.

**Keywords:** Sertaconazole,Nanocarriers, Terbinafine, Microencapsulation

**OP43**

# Synthesis, Characterization, Antioxidant, Anti-Bacterial and Anti-Cancer Activity On Copper Nanoparticles Of *Andragraphis Paniculata* Aqueous Leaf Extract

E. **Vimala[1], S. Rajagowri[1], R.Priyanka[1], and Siva.M[2]**

[1]Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

[2]Assistant Professor, Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

**Corresponding Author Mail ID**: vimalaelangovan28@gmail.com

**Abstract**

*Andragraphis paniculata*, commonly knpown as creat or green chiretta, is an annual herbaceous plant in the family Acanthaceae. In our project we have collected Andragraphispaniculata and conducted antioxidant, antibacterial and cytotoxicity test.We have conducted the phytochemical analysis on aqueous extract of Andragaphispaniculata to observe the phytochemical components present in extract of Andragraphispaniculata.Then we synthesized the copper nanoparticle from aqueous extract of Andragraphispaniculata by chemical method. Characterization of copper nanoparticles was done by UV visible spectroscopy to determine optical properties and absorption band related to in the nanoparticles.Antioxidant activity of copper nanoparticles was determined using DPPH assay method. Antibacterial activity against Bacillus subtilis, *E.coli*, *Klebsella pneumonia*, *Staphylococcus aureus* was determined using copper nanoparticles.Anticancer activity against HepG-2 cell line was determined using MTT assay method. Results revealed that copper nanoparticles synthesized from aqueous extract of Andragraphispaniculata was successful in Antibacterial and Cytotoxicity test.

**OP44**

# Scientific validation of Parmoterma perlatum's traditional purification method and variations in its antioxidant, metabolic profile, and capacity for wound healing with proposed pathway

**A.M.RajhaViknesh[*1] and Dr.N.Sudhkar[2].**

[*1]Research scholar, Department of Microbiology, Muthayammal College of Arts and Science, Rasipuram.

[2]Assistant professor, Department of Microbiology, Muthayammal College of Arts and Science, Rasipuram.

**Abstract**

In Indian culinary tradition, *Parmotremaperlatum*,a lichen is traditionally used as a spice and to treat a variety of diseases, including arthritis, pulmonary, respiratory, and eczema. This study addresses the effects of "Shodhana," a traditional purifying method, using various medium treatments, such as fermented and boiled rice water, as well as various extraction techniques, such as cold maceration and the Soxhlet method. As a result, differences in P. perlatum efficacy due to Shodhana's influence are assessed using Sprague-Dawley rat wound healing experiments showing significant antioxidant potential variations.

Using ferric ion reducing antioxidant power, 2,2-diphenyl-1-picrylhydrazyl, 2,2'-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid), and nitric oxide scavenging activity assays, the antioxidant potential of *P. perlatum* was investigated. The results show that all extracts, with the exception of Raw powder, demonstrated the ability to scavenge radicals.The results of GC MS show that extracts have been detoxified, that beneficial bioactive chemicals have been enriched, and that a single ingredient has been enhanced three times with *Shodhana* treatment. To highlight the *Shodhana* of herbs in the drug-making process, the system biology approach has clarified the interaction of the essential bioactive components from the various extracts on the wound-healing mechanism.

**Keywords:** Shodhana, Anti oxidant, Parmotramaperlatum, System biology approach, Wound healing mechanism..

**OP45**

# Anti-Bacterial and Anti-Oxidant Activity of Different Extract Of *Moringa oleifera* Flower

**Vinitha.D[1], Harini.P[1], Muthulakshmi.M[1], and Sivayoganath.A[2]**

[1]Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

[2]Assistant Professor, Muthayammal Engineering College, Rasipuram

**Corresponding Author mail Id:** vinithavini418@gmail.com

**Abstract**

*Moringa oleifera* is a common plant grows in the tropical and subtropical regions of the world. Every part of this plant contain valuable medical features. This plant is also known as Horseradish tree. The *Moringa oleifera* flower contain anti- inflammatory, anti-oxidant, anti-bacterial properties. The flowers are Zygomorphic. It contains a great amount of ascorbic acid, polyphenols, tannins and flavonoids. The work was conducted to investigate the anti-bacterial and anti-oxidant activity of aqueous and ethanolic extract of flower *Moringaoleifera*. It was performed by disc diffusion method in Mueller-Hinton agar medium. The anti-oxidants activity of different concentration of aqueous extract of the flower were determined by DPPH radical scavenging assay. Nitric oxide scavenging assay has showed effective anti-oxidant activity in assay techniques. The aqueous extract showed maximum zone of inhibition against Staphylococcus aureus. The extract of *Moringa oleifera* has a great potential to prevent and improve damage of Balloon pulmonary angioplasty (BPA).

**Keywords:** *Moringa oleifera* flower, Anti-bacterial activity, Anti-oxidant activity , Disc diffusion method, DPPH scavenging Assay.

**OP46**

## Screening and Evaluation of Bioactive nature of Tannins isolated from *Anethum graveolens*

**S.K.Rishi Ganesh and Dr.S.Selvarani**
Associate Professor of Zoology, Thiagarajar College Madurai.

**Abstract**

The phytochemical screening of aqueous seed extract of *Anethum graveolens* showed the presence of tannins and phenols, Cardiac glycosides, Reducing sugar, flavonoids. Thin layer chromatographic analysis (TLC) of the aqueous seed extract was performed. The spot containing aqueous seed extract remained at the origin when the TLC plates were developed in toluene: seed: formic acid (60/60/10) as mobile phase and fumigated with iodine vapour. The reference compound tannic acid migrated from the origin and it can, be visualised as discrete bands TLC fractions obtained from Seed extracts of *Anethum graveolens* were subjected to GC-MS analysis to detect the presence of compound of interest. In Protein precipitation assay Opaque precipitate was observed in the form of a ring around the wells treated with aqueous extract. From the standard curve of tannic acid, the amount of tannin in the extract was found to be 72.84 ±1.3 mg tannic acid equivalents/g dry extract. Anti-inflammatory activity of TLC fractions obtained from *Anethum graveolens* Seed extracts was evaluated against denaturation of egg albumin method. The highest inhibition rate was observed at the concentration of 500 µg/ml . The value of $IC_{50}$ of TLC fractions obtained from *Anethum graveolens* Seed extracts was evaluated against denaturation of egg albumin method was 117.9 µg/ml. TLC fractions obtained from Seed extracts of *Anethum graveolens* showed effective inhibitory activity against the fungus *Cryptococcus neoformans, Aspergillus niger, Aspergillus flavus* and *Aspergillus fumigates* and the percentage concentration falls on 15.5%, 17.5%, 19.25%,19.5% respectively. TLC fractions obtained from Seed extracts of *Anethum graveolens* showed effective inhibitory activity against Lactobacillus and the inhibitory percentage concentration is about13.5%. TLC-AG-SE decreased the A-431 cell viability and has the anti-proliferative potential in a concentration-dependent way.

**Keywords:** *Anethum graveolens,* Tannins, anti-inflammatory activity, anti-microbial activity and anti-proliferative activity A-431.

**OP47**

# Green synthesis of Silver Nanoparticles in *Cassia auriculata* and *Eclipta alba* and their Antibacterial activity against Diabetic Patients Foot Infection

**Priya G and Subana S**

Department of Microbiology, Muthayammal college of Arts and Science (Autonomous), Rasipuram - 637 408

**Abstract**

Diabetic Foot Infection (DFI) is a challenging complication of diabetes mellitus throughout the world with a high burden. Even though modern medicines contribute a variety of effective treatment options, they can have several unfavorable effects. The intention of this research is to organize and discuss the herbal plants in diabetes wound healing. Biosynthesis of nanomaterials is a better alternative to physical and chemical methods because of eco-friendly, cost effective and less time requirement. The aim of present study was to evaluate the antimicrobial activity of *Cassia auriculata* flowers and *Eclipta alba* leaves exhibited broad spectrum antimicrobial activity against pathogenic bacteria *S.aureus*, *E. coli*, *P.aeruginosa* and *Klebseilla*sps. Since plants are used as therapeutic agents, to evaluate the phytochemical profile and antibacterial activities of flower extract of *C.auriculata* and leaf extract of *E.alba*. In this work, we aimed to synthesize silver nanoparticles (AgNPs) using an aqueous extract of *C.auriculata* flowers and E. alba leaves at room temperature without the provision of additional surfactants or capping agents. The crude extracts of *C.auriculata* and *E.alba* , as well as formulated AgNPs combined and shows the effective antibacterial activity .Therefore, we conclude that a good potential to synthesize AgNPs and the synthesized are promising for biomedical applications in the field of nanomedicine. It is concluded that the antimicrobial activity showed by the plant was due to the presence of certain phytochemicals and further studies are highly needed for future drug development.

**Keywords:** Anti-oxidant, Anti-diabetic, TEM, SEM, Phytochemical activity, Antibacterial activity**.**

**OP48**

## Evaluation of Anticancer Activity of *Prosopis Cineraria*

**Sengottaiyan Sudhakar[1*], Selvam Dhanalakshmi[2] and Kannan Kalaiselvan[2]**

[1]Department of Biotechnology, Muthayammal College of Arts and Science (Autonomous), Rasipuram.

[2]Department of Microbiology, Muthayammal College of Arts and Science (Autonomous), Rasipuram.

[*]**Corresponding Author** sudhakar.bt@gmail.com

**Abstract**

Cancer remains a global healthchallenge,necessitating continuous exploration of novel therapeutic agents from natural sources. *Prosopis cineraria*, a widely distributed plant with known medicinal properties, has gained attention for its potential anti-cancer properties. The goal of the present study is to investigate the potential anti-cancer effect of *P. cineraria* leaf extracts and to identify their chemical composition. For this purpose, MCF-7 (breast) and HepG2 (liver) cancer cell lines were cultivated and incubated with various concentrations of *Prosopis cinerarialeave* extracts, and its impact on cell viability andproliferationwas investigated. *Prosopis cineraria* leave extracts induced concentration-dependent cytotoxicity against all tested cancer cell lines. The calculated $IC_{50}$ was 16.2, and 32.9 µg/ml for MCF-7 and HePG2 respectively. In Conclusion, Prosopis*cinerarialeaf* extracts demonstrated promisinganti cancer activities as evidenced by their inhibitory effects on cancer cell viability and selective cytotoxicity.

**Keywords:** Anti-cancerproperties, *Prosopis cineraria*, Tumor Activity, Cytotaxicity.

**OP49**

# Phenotypic detection of Multidrug resistance in *Klebsiella pneumoniae* - A Retrospective analysis

**M. Archana[1], V. Pavithra[1] and S. Sasikala[1*]**

*PG & Research Department of Microbiology and Biotechnology, Presidency College, Chennai – 600005.

***Corresponding author: ssasiikala@yahoo.co.in**

## Abstract

**Introduction:** Over the pastfew decades, the emergence of multidrug-resistant pathogens hasbecome a significant threat toglobal health.*Klebsiella pneumoniae* an opportunistic pathogen, is more difficult to treat due to high resistance traits. Notably,multidrug-resistant *Klebsiellapneumoniae* (MDR-KP)serves as the most common cause of increased morbidity and mortality rates,worldwide. **Materials and Methods:**This study aimed to evaluate antimicrobial resistance patterns andto detect different types of *β-lactamase* resistanceisolated from various clinical samples.A total of 373 samples were collected and the specimens were subjected to species-level identification by conventional microbiological procedures. Antibiotic sensitivity was detected by the Kirby-Bauer disc diffusion method. ESBL, MBL,and carbapenemase were phenotypically detected by doubledisk synergy test, combined disk assay and modified Hodge test.**Results:** Out of 373 samples tested, a total of 96(25.7%) isolates were identified as *Klebsiella pneumoniae.*Among 96 isolates,55.7% of Klebsiella pneumoniae weremulti-drug resistant.In this study, 23% of isolates were found to be ESBL producers,26.9% were MBL producers and 61.4% were carbapenemase producers.**Conclusion:** Thus, the current study shows the prevalence rate of multi-drug resistance in *Klebsiella pneumoniae* and its resistancepatternmay helpcliniciansto opt forappropriate antibiotic stewardship. Suggestinga proper surveillance system should be implemented in order to prevent the healthcare management disaster.

**OP50**

## Current and Future Development of Biosensor for Medical Diagnosis and Treatment

Gayathri R[1], Rithika M[1] and G. Krishnamoorthy[1*]

[1]Department of Biochemistry, Muthayammal College of Arts and Science, Rasipuram - 637 408, Namakkal-Dt, Tamil Nadu, India
Email Id: gayathriravi1912@gmail.com

**Abstract**

Biosensors are analytical devices, containing a biological sensing element that are utilized in numerousdiverse fields, including medical Diagnosis and Treatment, food, and the environment.In this, we survey recent developments in biosensors for healthcare. These involve three distinct types of biosensors: biosensors for in vitro diagnosis with blood, saliva, or urine samples. These biosensors are attractive, increasingly important, and practical tools in pathogen and genetic diseases detection, molecular diagnostics,as well as in homeland defense.Biosensors for in vitro and in vivo diagnosis have seen a substantialdevelopment. We conclude with a discussion of recent strategiesand the futuredevelopment of biosensors.

**Keywords:** Biosensor, Diagnosis, Treatment, Detection, Medicine.

**OP51**

## QR Code Based Patient Medical Records

**Dr.D.Sasikala[1], R.Gowtham[2], S.Rajesh[2], and K.Prakash[2]**

[1]Professor, Department of Biomedical Engineering, Muthayammal Engineering College, Rasipuram

[2]Department of Biomedical Engineering, Muthayammal Engineering College, Rasipuram

**Corresponding author mail:** gowthamrameshkumar0@gmail.com

**Abstract**

This project provides more secure medical records using QR based algorithm. This applications is implemented to maintain the patient details, patient medical health report. Doctors can keep record of every patient's health report, Patient checks the daily health activity for life time. An immediate alarm will be sent to the patient mobile if the patient does not take the medicine on time. During the process of patient transfer the patient's medical information is vulnerable and susceptible to various degrees of integrity compromise. Sometimes the medical record may get lost hence losing all the important medical informations of the patient. It is also susceptible to information tempering either by the patient or other third parties. In India majority of hospitals follow the manual paperwork method for keeping records. This may cause the medical record be scribbled on, soiled, illegally altered or torn. As Smartphone's are growing too mainstream these days, the proposed system which is based on Smartphone application can be worthwhile.

**Keywords**: QR code, Medical health reports, Mobile APP, Patient.

**OP52**

## Yeast based Antimicrobial Peptides: Potential as therapeutics

**T.Chethankumar, Dr.G.Neethirajan and Dr.K.Suresh**

PG and Research Centre in Biotechnology, M.G.R. College Hosur, Tamil Nadu

chethanbt66@gmail.com

**Abstract**

Antimicrobial peptides (AMPs) have aroused great interest as potential next-generation antibiotics, since they are bioactive small proteins, naturally produced by all living organisms, and representing the first line of defense and wide range of inhibitory effects against fungi, viruses and bacteria. They find application in different fields such as agriculture, food industry and medicine Moreover, we argued about the pharmacokinetic and pharmacodynamic approaches to develop new antibiotics, the drug development strategies and the formulation approaches which need to be taken into account in developing clinically suitable AMP applications. The severe infection is becoming a significant health problem which threatens the lives of individuals. Alarming data about increasing resistance to conventional antibiotics and the development of new antibiotics is stagnating. Both are serious challenges which led to the need for new alternative molecules less prone to bacterial resistance. Therefore, new treatment options are urgently needed. In the way of finding new strategy, antimicrobial peptides (AMPs) - an important part of host defense family, emerged with tremendous potential.

**Keywords**: AMPs,pharmacokinetic, pharmacodynamic,peptidetherapeutics

**PP06**

## Herbal Drug Development

**Nature itself is the best physician**; **Ocimum Sanctum**: A Holy Plant with High Medicinal and Therapeutic Value.

**Usha Rani H**

Department of Biotechnology and Microbiology. St.Philomena's College (Autonomous) Bannimantap , Mysore-570015, India.

**Corresponding Author:** ushahemanthkumar800@gmail.com

**Abstract**

**Background :** The predominant cause of global morbidity and mortality is lifestyle-related chronic diseases, many of which can be addressed through Ayurveda with its focus on healthy lifestyle practices and all the herbs used .Tulsi (Ocimum Sanctum Linn) is pre-eminent and scientific research is now confirming it's beneficial effect's.Holy basil is the English name , and Tulsi is the Sanskrit name. Tulsi is the member of the ocimum genus. Plant in the genus ocimum are members of the Lamiaceae family and can be found in tropical, subtropical and warm temperature area all over the world. Tulsi is known as the "Queen of Herbs" because of it's ability ,which have medicinal properties including used to cure variety of human diseases.Tulsi is an antioxidant that helps to keep Blood sugar levels in check ,reduction of total cholesterol .It has anti-inflammatory properties, anti-insects effects, anti-bacterial,anti-fertility, analgesic, antiviral, antitubercular, antifungal and anti malarial properties. **Conclusion:** Modern day scientific research into tulsi demonstrates the many psychological and physiological benefits from consuming tulsi as drug. There is a mounting evidence that tulsi can address physical, chemical, metabolic and psychological stress through a unique combination of pharmacological actions.The above Abstract is focusing more on improving the quality of life of the patient along with treating disease in natural way. This is the central theme of traditional medicinal systems as globally we are trying to move to 'back to basic' approach. Very few reports evaluate this we therefore believe and try that these traditional plants should use in a medicinal system.

**Keywords:** Adaptogen, Holy basil, Ayurveda, Ocimum Sanctum, Queen of Herbs.

**OP53**

# Enhancing Broiler Performance with Cultivated Bacillus Probiotics: Isolation, Cultivation, and Dietary Impact

**Balamurugan T*and Anbalagan S**
Department of Microbiology, Muthayammal College of Arts and Science (Autonomous), Rasipuram. Namakkal, 637408, Tamilnadu
**Corresponding Author**: balaprob@gmail.com

**Abstract**

This study involves the isolation and cultivation of probiotics from the gastrointestinal tracts of commercial broilers. Gut samples were collected from broiler shops, and the collected fluid samples underwent serial dilution, followed by enumeration on both MRS (Man Rogosa Sharpe) and TSA (Tryptic Soy Agar) plates. Colonies from the TSA plates, resembling *Bacillus subtilis* and *Bacillus licheniformis*, were identified using the Gram staining method. Subsequently, these isolated species were cultivated under controlled laboratory conditions, and the biomass was carefully dried in a low-temperature oven, ground, and incorporated into the broiler diet to assess its efficiency.Preliminary findings indicate that the inclusion of cultivated probiotics, derived from these controlled laboratory conditions, into the broiler diet results in promising outcomes. The probiotic-treated broilers displayed marked improvements in growth rates and feed conversion efficiencies, underscoring the potential of *Bacillus subtilis* and *Bacillus licheniformis* strains to enhance the overall economic viability of broiler production. However, further research is warranted to consolidate these encouraging results. Confirmation of the genomic identity of these isolates is essential to ensure the purity and authenticity of the strains. In addition, comprehensive investigations are needed to elucidate the underlying mechanisms that underpin the observed improvements. Further studies will also focus on refining the optimal probiotic inclusion levels to maximize the benefits for broiler health and performance.This research marks a significant advancement toward more sustainable and efficient broiler farming practices by harnessing probiotics derived from the same commercial broiler population. As the potential advantages become increasingly evident, these findings lay the foundation for future innovations in broiler production, emphasizing the pivotal role of microbiome-based interventions in the poultry industry.

**Keywords**: Probiotics, *Bacillus subtilis*, Probiotic-treated broilers, Poultry industry.

**OP54**

## Antimicrobial activity of Indian spices against pathogenic bacteria.

**Durgadevi P Nandhini S and Sankareswaran M**

Department of Microbiology, Muthayammal College of Arts and Science (Autonomous), Rasipuram.Namakkal, Tamilnadu 637408

**Corresponding Author**: sankarsankar87@gmail.com

**Abstract**

The treatment of infectious diseases is becoming a serious concern due to increasing resistance against antibioticsamongst the pathogens at an alarming rate. The antibiotics may also have adverse effects on thehuman body like effect on the normal flora and allergy . This has led researchers to search for alternatives todrugs. The search is focused on medicinal plants which can prove to be the best alternative to antibiotics without anyside-effects. The present study investigated the antimicrobial potential of four Indian spices viz., black pepper, clove, cinnamon, and turmeric against human pathogenic bacteria. The ethanolic extract of all spices exhibited maximumantimicrobial potential. The ethanolic extract of all spices exhibited maximum antimicrobial potential. The ethanolicextract of clove showed highest potential against *E. coli*(25.0±0.81mm) while that of black pepper exhibitedmaximum activity *E. coli*(22.3±0.56mm). The ethanolic extract of cinnamon exhibited maximumantibacterial properties against *E. coli*(21.3±0.7mm) while that of turmeric showed highest potential against *E. coli*(29.3±0.47mm). The spices exhibited effective antimicrobial potential.

**Key words**: Antimicrobial potential, Human pathogens, Clove, Cinnamon, Black pepper, Turmeric.

**OP55**

# Antibacterial application of Green Synthesized Silver Nanoparticles using *Hybanthus enneaspermus* Plant Extract against MDR Pathogen

**Kanmani K*and Sankareswaran M**

Department of Microbiology, Muthayammal College of Arts and Science (Autonomous), Rasipuram. Namakkal, 637408, Tamilnadu

**Corresponding Author**:kanmanikannan88@gmail.com

**Abstract**

Multidrug resistance (MDR) is a growing global health concern affecting infectious diseases, particularly bacteria. It occurs when microorganisms develop resistance to multiple drugs, leading to longer illnesses, increased healthcare costs, and fatalities. Antibiotic resistance is a key issue, affecting all countries regardless of economic development. Healthcare-associated infections like MRSA are exacerbated by heavy antibiotic use in hospitals. Agricultural use and slow antibiotic development contribute to MDR. Global health organizations are working to monitor and control MDR.The emergence of MDROs is often linked to the overuse and misuse of antibiotics, inadequate infection control practices in healthcare settings, and the exchange of resistance genes among bacteria. Preventing the spread of MDROs is a top priority in healthcare, and it involves measures such as prudent antibiotic use, rigorous infection control practices, and the development of new antimicrobial agents. Green synthesis is an eco-friendly approach to producing compounds and materials with minimal environmental impact, extending to alternative forms of treatment beyond allopathy (conventional Western medicine) and extends to traditional and complementary medicine. In this study, silver nanoparticles (AgNPs) that exhibit strong antibacterial properties were synthesized by *Hybanthus enneaspermus* by green method. The synthesized silver nanoparticles had a significant SPR absorption peak at around 400 to 412 nm. With an average size of 80 nm and a zeta potential of -28.2, the particle size distribution displayed strong intensity of the highest peak range from 20 nm to 80 nm.The nanoparticle structure was analyzed by XRD spectrum. *Hybanthus enneaspermus* nanoparticles in the 20–80 nm size range were identified by HR–TEM investigation. The antimicrobial activity of the green synthesized AgNPs was treated against multidrug-resistant *Pseudomonas auerоginosa.* The present study implies that these AgNPs may have therapeutic properties. This suggests an exploration of their potential efficacy in treating various health conditions and could serve as alternatives or supplements to conventional pharmaceuticals.

**Keywords**: MDR, Green synthesis, *Hybanthus enneaspermus,* Ag NP, antibacterial activity.

**OP56**

# Isolation of Phosphate Solubilizing Microbes from the soil of agriculture land -An Overview

**Priyadharshini M, Kaviya M, Kiruthiga C, Sankareswaran M**

Department of Microbiology, Muthayammal College of Arts and Science (Autonomous), Rasipuram.Namakkal, Tamilnadu 637408

**Corresponding Author**: sankarsankar87@gmail.com

**Abstract**

Phosphorus is a crucial mineral nutrient for plants, but its availability is limited due to its insoluble nature. It plays a crucial role in plant development, root ramification, and seed production. Lack of phosphorus can inhibit plant growth and size. Chemical P fertilizer is often used to meet crop nutritional needs, but it has long-term environmental consequences like eutrophication and soil fertility depletion. A sustainable method for supplying P to crops is needed due to environmental concerns.In terms of quantitative plant requirements, phosphorus is the second most significant critical element after nitrogen as a mineral nutrient. Although it is common in soils in both organic and inorganic forms, its availability is limited because it is usually found in insoluble forms. The average soil contains roughly 0.05% (w/w) P, but only 0.1% of the total P is available to plants due to poor solubility and fixation in soil. A sufficient supply of phosphorus throughout the early stages of plant growth is critical for establishing the primordia of plant reproductive components. It has an important role in boosting root ramification and strength, giving the plant vigor and disease resistance. It also aids in the production of seeds and the early maturation of crops.

**Keywords**: Phosphate-solubilizing microbes, Soil isolation, Agriculture land, Phosphate solubilization.

**OP57**

# Antimalarial activity of *Carica papaya* leaf extract against *Plasmodium falciparum*

**Monish V, Sankareswaran M**

Department of Microbiology, Muthayammal College of Arts and Science (Autonomous), Rasipuram.Namakkal, Tamilnadu 637408

**Corresponding Author**: sankarsankar87@gmail.com

**Abstract**

The purpose of this study is to determine antiplasmodium activities from leaf extract of Carica papaya and also to compare each ratio combination to find the most effective bioactivity. This work investigated the phytochemical, antioxidant, and antimalarial effects of hydromethanolic extracts of *Carica papaya.* A four-day chemosuppressive test was conducted to assess the ability of the extracts to prevent the establishment of infection. Malaria is one of the most prevalent, devastating parasitic infectious diseases in the world. Each year, 300-500 million clinical cases and 1.5-2.7 million deaths associated with malaria are reported globally. Four species of Plasmodium, namely *P. malariae, P. ovale, P. vivax* and*P. falciparum* may infest man of which *P. falciparum* is responsible for the often fatal cerebral malaria. *C. papaya* leaves were extracted and screened against Plasmodium falciparum 3D7 and Dd2 strains. Bioassay-guided fractionation was carried out. The dichloromethane extract of C. papaya leaves showed significant anti-plasmodial activity against P. falciparum 3D7 and Dd2. Successful bioassay-guided fractionation afforded a fraction three to seven times more active than the dichloromethane extract.

**Keywords:** *Plasmodium falciparum, Carica papaya*, antioxidant, antimalarial effects.

**OP58**

# Green synthesis of Silver Nanoparticles in Indian medicinal plants and their Antibacterial activity against Diabetic Patient's Foot Infection

**Perumal R and Subana S**

Department of Microbiology, Muthayammal College of Arts and Science (Autonomous), Rasipuram.Namakkal, Tamilnadu 637408

**Corresponding Author**: pm0001143@gmail.com

**Abstract**

Diabetes mellitus is an important human disorder afflicting many from various walks of life in different countries. Diabetic Foot Infection (DFI) is a challenging complication of diabetes mellitus throughout the world with a high burden. Even though modern medicines contribute a variety of effective treatment options, they can have several unfavorable effects. The intention of this research is to organize and discuss the herbal plants in diabetes wound healing. Metal nanoparticles like silver the trending and have playeda major role in recent years and have effective antimicrobial properties. The nanoparticles have diverse benefits in the biomedical field like drug carriers and antimicrobials.The traditional plant*C.longa*has been shown to have significant wound healing properties and *T.ammi*is an important medicinal, aromatic, and spice plant. The isolated organisms from diabetic patients' wound samples such as *S.aureus, P.aeruginosa, K.pneumonia,* and *E.coli*. The plant crude extract, as well as formulated AgNPs, combined and showed effective antibacterial activity. The current investigation aimed to synthesize the metallic silver nanoparticles (AgNPs) from the aqueous extract of *Curcuma longa* leaf and *T. ammi*evaluating their antibacterial activity. The most needed outcome of this work will be the development of value-added products from *C.longa*and *T.ammi*for biomedical and nanotechnology-based industries.

**Keywords:** AgNPs, Diabetes mellitus , *C.longa* , *T.ammi*

**OP59**

# Phytochemicals Present In Dragon Fruit Peel And Their Potential Health Benefits

**Ranganayagi. R[1*] and Indra. N[2]***

[1]UG Student, Department of Nutrition & Dietetics, K.S.R. College of Arts & Science for Women, Thiruchengode-637215,Tamilnadu, India; Ranganayagi004@gmail.com

[2]Assitant Professor, Department of Nutrition & Dietetics, K.S.R. College of Arts & Science for Women, Thiruchengode-637215,Tamilnadu, India; Indrapoovendran1992@gmail.com

## Abstract

Dragon fruit (Hylocereusundatus) is a popular fruit that is grown in tropical and subtropical regions around the world. Dragon fruit peel is often discarded as waste, but it is actually a rich source of phytochemicals, which are plant-based compounds with a wide range of biological activities. Some of the main phytochemicals present in dragon fruit peel include: **Anthocyanins, Flavonoids, Betacyanins, Terpenoids, Fatty acids.** These phytochemicals have been shown to have a number of potential health benefits, including antioxidant, anti-inflammatory, anticancer, and antidiabetic activity. Dragon fruit peel phytochemicals exert their beneficial effects through a variety of mechanisms. For example, betacyanins have been shown to scavenge free radicals and protect cells from oxidative damage. Polyphenols have anti-inflammatory and anti-cancer properties. Flavonoids can also protect cells from oxidative damage and have anti-inflammatory effects. There is growing clinical evidence to support the use of dragon fruit peel phytochemicals in the treatment of specific diseases. For example, one study found that dragon fruit peel extract was effective in reducing blood sugar levels in patients with type 2 diabetes. Another study found that dragon fruit peel extract was effective in inhibiting the growth of cancer cells.

This research paper will review the phytochemicals present in dragon fruit peel and their potential health benefits. The paper will also discuss the potential applications of dragon fruit peel phytochemicals in food products and other industries.

**Keywords:** Dragon fruit peel, phytochemicals, antioxidant activity, anti-inflammatory activity, anticancer activity, antidiabetic activity, food products.

**OP60**

# Antibacterial Efficacy of Environmentally-Friendly Silver Nanoparticles Synthesized Using Green Methods for Treating Urinary Tract Infections

**Sathyabama N* and Sankareswaran M**

Department of Microbiology, Muthayammal College of Arts and Science (Autonomous), Rasipuram. Namakkal, Tamilnadu 637408

**Corresponding Author**: nsathyabama1986@gmail.com

**Abstract**

Urinary tract infections (UTIs) stand as the fifth most prevalent healthcare-associated infection, comprising over 9.5% of infections in acute care hospitals. Common causes include complications arising from urinary tract instrumentation, such as prostatitis, epididymitis, orchitis, cystitis, pyelonephritis, endocarditis, and meningitis. These complications lead to patient discomfort, prolonged hospital stays, and escalated healthcare expenses. The persistent challenge of antibiotic-resistant bacteria has hindered the development of new oral antibiotics for UTIs over the past two decades. As an alternative approach, researchers have turned to phytochemicals.*Enicostemma axillare*, a perennial herb native to India, has long been employed in traditional medicine for various conditions like diabetes, rheumatism, abdominal ulcers, and insect poisoning. Its medicinal properties are attributed to its antioxidant activity, driven by components like swertiamarin, alkaloids, steroids, and flavonoids. In this study, the primary focus was on utilizing *Enicostemma axillare*aqueous leaf extract to environmentally synthesize silver nanoparticles (AgNPs).The Ag nanoparticles were characterized using techniques such as XRD, TEM, SEM-EDS to understand their structure, shape, and stability in colloidal solutions. The zeta potential and mean particle diameter were also determined. These green-synthesized silver nanoparticles were then assessed for their antibacterial properties against common UTI pathogens, including *S.aureus, E.coli, Pseudomonas aeruginosa, P.vulgaris, and K.pneumoniae.* The study demonstrated the effective, environmentally friendly, and cost-efficient synthesis of silver nanoparticles for UTI treatment.

**Key words**: UTI pathogens, *E.axillare*, Green synthesis, AgNPs, Antibacterial activity.

**OP61**

# Antimicrobial activity of Indian spices against pathogenic bacteria

**Sowmiya A and Vahithabanu S**

Department of Microbiology, Muthayammal College of Arts and Science (Autonomous), Rasipuram.Namakkal, Tamilnadu 637408

**Corresponding Author**: mbsvu@muthayammal.in

**Abstract**

Many pathogens including *Salmonella sps*, *Listeria monocytogenes*. *Staphylococcusaureus* and *Escherichia coli* are commonly implicated in foodborne illness outbreaks in the United States. Increasing antibiotic resistance of bacterial foodborne pathogens has raised concerns in the scientific community. Many herbs such as lemongrass and turmeric have been considered medicinal plants that can be potentially used for controlling foodborne pathogens in place of chemicals or antibiotics. Objective of this study was to systematically evaluate the antimicrobial properties of lemongrass and turmeric by drying methods and different extraction solvents.Antimicrobial assay was done using an agar disc diffusion method against *Staphylococcus aureus*, *Escherichia coli* and *Salmonella*. Minimum inhibitory concentration was measured using the multiple tube dilution method. Minimum bactericidal concentration was measured using the colony-forming assay. Inhibitory zone from lemongrass stem extracts ranged from 6.5 to 21 mm. Minimum inhibitory concentration and Minimum bactericidal concentration range for lemongrass stem was 0.8-17.4 mg/ml. Inhibitory zone of turmeric extracts ranged from 6.5-11 mm. Minimum inhibitory concentration and Minimum bactericidal concentration range for dried and fresh turmeric were 12.5-40.0 mg/ml. Results of the study demonstrated that hexane and acetone extracts from lemongrass stem exhibit antimicrobial activity against *Staphylococcus aureus* and hexane, acetone and ethanol extracts of dried powder and fresh turmeric rhizomes, exhibited antimicrobial activity against *Staphylococcus aureus*. Both lemongrass stem and turmeric extracts could be potentially used for controlling *Staphylococcus aureus*.

**Keywords:** Medicinal plant (Lemongrass, turmeric), *Staphylococcus aureus*, antimicrobial assay.

**OP62**

# Unlocking the Therapeutic Potential: Pharmacological Activity of Plant-Mediated Nanoparticles

**Sriram K, Sathayabama N and Sankareswaran M**

Department of Microbiology, Muthayammal College of Arts and Science (Autonomous), Rasipuram.Namakkal, Tamilnadu 637408

**Corresponding Author**: sriram4418@gmail.com

**Abstract**

Nanotechnology has emerged as a promising field with diverse applications in the realm of pharmacology and microbiology. One intriguing avenue of research is the utilization of plant-mediated nanoparticles for their pharmacological potential, particularly in the context of microbiological aspects. This abstract provides an overview of the pharmacological activity exhibited by these nanoparticles in the microbiological domain.The synthesis of nanoparticles through green, eco-friendly methods involving plant extracts has gained momentum due to its sustainability and reduced environmental impact. Various plant species, such as *Aloe vera, Curcumalonga*, and *Ocimum sanctum*, have been utilized for this purpose. These plant extracts contain bioactive compounds that serve as reducing and stabilizing agents during nanoparticle synthesis. The resulting plant-mediated nanoparticles exhibit unique properties that make them suitable for pharmacological applications. Plant-mediated nanoparticles have demonstrated remarkable antibacterial, antifungal, and antiviral activities. They can effectively combat a wide range of microbial pathogens, including drug-resistant strains. The nanoparticles interact with microbial cell membranes and disrupt their integrity, leading to cell death. Additionally, their inherent immunomodulatory properties boost the host's immune response, further enhancing their efficacy against infections.Furthermore, the nanoparticles show promise in drug delivery systems, enabling targeted delivery of antimicrobial agents to specific microbial sites. This precision reduces potential side effects and optimizes the therapeutic effect. Plant-mediated nanoparticles have also exhibited the ability to mitigate biofilm formation, a crucial aspect of microbial pathogenesis.The bioavailability and biocompatibility of these nanoparticles are favorable for their clinical translation. Their low toxicity profile and sustainability align with the principles of green pharmacology. However, further research is essential to comprehensively understand the mechanisms underlying the pharmacological activity of these nanoparticles and their potential clinical applications. Plant-mediated nanoparticles represent an exciting frontier in the field of microbiology with their potent pharmacological activities against various microbial pathogens. As research continues, their application may lead to innovative approaches in the prevention and treatment of infectious diseases, offering a sustainable and environmentally friendly solution for global health challenges.

**Keywords**: Green nanotechnology, Medicinal plants, Therapeutic potential, Biological effects

**OP63**

## Emerging Viral Diseases: Nipah Virus

**Sriram K, Sathayabama N and Sankareswaran M**

Department of Microbiology, Muthayammal College of Arts and Science (Autonomous), Rasipuram.Namakkal, Tamilnadu 637408

**Corresponding Author**: sriram4418@gmail.com

**Abstract**

Nipah virus, a zoonotic pathogen, poses a significant public health threat due to its severe and often fatal infections in humans and animals. Initially identified in 1999, it has since spread sporadically in Southeast Asia and South Asia, including Bangladesh and India. The virus, found in fruit bats, can be transmitted through direct contact or contaminated food or drink.The Nipah virus, once transmitted to humans, can cause a range of clinical presentations, from asymptomatic infection to severe respiratory and neurological diseases. Its high case fatality rate can reach 75%, and outbreaks can cause human-to-human transmission. These outbreaks have significant economic impacts, including healthcare costs, loss of productivity, and trade disruptions. Research and public health efforts focus on understanding and developing effective prevention and control strategies.The Nipah virus, poses significant public health and economic burdens in South and Southeast Asia. It is primarily transmitted from fruit bats to humans, with intermediate hosts like pigs also playing a role. To prevent Nipah virus infections, a multifaceted approach is needed, including surveillance, risk communication, infection control, contact tracing, research into vaccines and therapeutics, and community engagement. The One Health approach, which integrates human, animal, and environmental health, is essential for understanding and controlling the virus. Despite the challenges, progress is being made in research into diagnostic tools, therapeutics, and vaccines, and international collaboration is helping build capacity in affected regions. Effective control measures are hoped to reduce the impact of Nipah virus on both human and animal populations.

**Keywords**: Zoonotic pathogen, Human-to-human transmission, Prevention, and control strategies.

**OP64**

# Antimicrobial activity of *Jasminum sambac*flower extract against clinical pathogens

**Vignesh P and Shahitha S**

Department of Microbiology, Muthayammal College of Arts and Science (Autonomous), Rasipuram. Namakkal, Tamilnadu 637408

**Corresponding Author**: p.vignesh4444@gmail.com

**Abstract**

Plants are commonly used even today. Some chemical compounds from these plants have been purified and commercialized by the pharmaceutical industries. Jasminum is a genus of shrubs and vines belonging to the olive family (Oleaceae). It contains around 200 species. Jasmine (Jasmine officinale) being an ornamental flower is cultivated predominantly due to its fragrant flowers. It is widely cultivated throughout the world however; China is almost 60% of its producer. Jasminum possesses countless medicinal applications such as an antibiotic, anti-inflammatory, vasodilator, antiseptic, analgesic, anti-inflammatory, antidepressant, and sedative. The Jasminum sambac and flower ethanol extracts were prepared in ratios of 1:1, 1:2, and 2:1, with concentrations of 25 and 50 mg/mL, respectively. Antimicrobial activity was tested against *Staphylococcus aureus, Escherichia coli, and Candida albicans*. Qualitative phytochemical and Gas Chromatography-Mass Spectrometry (GC-MS) analyses were conducted to determine the phytoconstituents of the flower extracts. The maximum inhibition zone of *J. sambac* (1:2) ratio against *S. aureus (*8.68±0.15 mm) and *E. coli* (8.59±0.09 mm) was obtained at 50 and 25 mg/mL for 6 h, respectively.Extracted from the flowers of *J. sambac* has been shown to haveantioxidant activity. However, very little information regarding antimicrobial activity especially oral microorganisms exists.

**Keywords:** *Jasminum Sambac*, Antimicrobial, Clinical pathogens.

**OP65**

# Plant Extracts mediated Green Synthesis of Silver Nanoparticles for Antibacterial Potential

**Keerthiga. G[1], and Sengottuvel. R[2]**

[1]Department of Botany, Arignar Anna Government Arts College, Namakkal. Tamil Nadu. India.

[2]Associate Professor, Department of Botany, Thiruvalluvar Government Arts College, Rasipuram, Namakkal, Tamil Nadu. India

## Abstract

The present study delves into a sustainable method for synthesizing silver nanoparticles (AgNPs) utilizing the aqueous extract of *Gymnema sylvestre* as a reducing agent. These biogenic AgNPs demonstrate notable antibacterial efficacy, with a maximum zone of inhibition of 18 mm against the bacterial pathogen *Escherichia coli* at a concentration of 60 µg/mL. Comprehensive characterization techniques, including UV-Visible spectrum, FTIR spectroscopy, HR-TEM analysis, SEM imaging, and EDX, provide valuable insights into the synthesized AgNPs. The nanoparticles exhibit a surface plasmon resonance peak at 350 nm, showcase a spherical morphology with sizes ranging from 15 nm to 40 nm, and possess a high silver content, as verified by EDX. This environmentally friendly green synthesis approach offers a cost-effective alternative for combating bacterial infections, particularly in wound management. The integration of nanotechnology and herbal therapeutics holds promise for advancing wound care practices.

**Keywords:** Plant extracts, Silver nanoparticles, Antibacterial activity

**OP66**

## A Medglass For Visually Impaired Person To Take Medication

**S.Bharathidasan[1], P.Dharani[2], P.Anitha[2], and Shaishnutha[2]**

[1]Assistant Professor, Department of Biomedical Engineering, Muthayammal Engineering College, Rasipuram
[2]Department of Biomedical Engineering, Muthayammal Engineering College, Rasipuram
**Corresponding author mail:** dharanijoo2@gmail.com

**Abstract**

These "Smart Glasses" are designed to help the blind people to read and translate thetyped text which is written in the English language. These kinds of inventions consider asolution to motivate blind students to complete their education despite all their difficulties. Itsmain objective is to develop a new way of reading texts for blind people and facilitate theircommunication. The first task of the glasses is to scan any text image and convert it intoaudio text, so the person will listen to the audio through a headphone that's connected to theglasses. The second task is to translate the whole text or some words of it by pressing abutton that is connected to the glasses as well. The glasses used many technologies toperform its tasks which are OCR, (gTTS) and Google translation. Detecting the text in theimage was done using the OpenCV and Optical Character Recognition technology (OCR)with Tesseract and Efficient and Accurate Scene Text Detector (EAST). In order to convertthe text into speech, it used Text to Speech technology (gTTS). For translating the text, theglasses used Google translation API. The glasses are provided by Ultrasonic sensor which isused to measure the required distance between the user and the object that has an image to beable to take a clear picture. The picture will be taken when the user presses the button.Moreover, the motion sensor was used to introduce the user to the university's halls, classesand labslocations using Radio-frequency identification (RFID) reader. All the computingand processing operations were done using the Raspberry Pi 3 B+ and Raspberry pi 3 B. Forthe result, the combination of using OCR with EAST detector provide really high accuracywhich showed the ability of the glasses to recognize almost 99% of the text. However, theglasses have some drawbacks such as: supporting only the English language and themaximum distance of capturing the images is between 40-150 cm. As a future plan, it ispossible to support many languages and enhance the design to make it smaller and morecomfortable to wear.

OP67

# Isolation and Identification of bacteria from pus sample and their sensitivity pattern using selected medicinal plant

**Kalaikumar K*, Sathyabama S, and Anbalagan S**

Department of Microbiology, Muthayammal College of Arts and Science,

Rasipuram - 637 408. Namakkal(Dt), Tamilnadu

## Abstract

Treatment with herbal medicinal plants also hold a strong ground because these plants are considered to be safe and have no side effects. Medicinal plants have a holistic approach and aid in proper absorption and digestion.Medicinal plant not disease specific but act as a preventive medicine that positively effects the overall health and well-being by boosting the immune system. Medicinal plant at par with allopathic medicines and are at times known to be effective in treating diseases like cancer and autoimmune diseases. Medicinal plants are self-contained and nutritive in nature, therefore,are non-toxic and harmless. It deals with overall well-being and aims to bring harmony between mind, body and soul. Several metabolic and chronic conditions can be treated without any side effects using Ayurvedic medicines and treatments. Pus samples were undergoes into preliminary identification using Gram's staining catalase test, oxidase test and followed the biochemical test, identified as, *Psudomonas aeriginosa* and Staphylococcus *aureu*s. Various medicinal plants plants *Eclipta prostrata L, Acalypha indica, Alternanthera sessils, Calotropis gigantean, Tridax procumbens L, Phyllanthus nirur*,for finding the antibacterial activity to the above isolated bacterial pathogens with use of standard antibiotics and standard antiseptic liquid. Based on the zone of inhibition, to suggest the above mentioned medicinal plants are applied to kill pathogens from this study, found out the medicinal plants having bactericidal activity at higher concentration

**Keywords:** Medicinal plants, Antibacterial activity, *Psudomonas aeriginosa* and *Staphylococcus aureus.*

**OP68**

# Antimicrobial activity and GC-MS Analysis of *Caesalpinia Bonducella* and *Sesbania grandiflora* Plants against uro pathogens

**Renganath Tummalagunta*, Priyanka S, Anbalagan S**

Department of Microbiology**,** Muthayammal College of Arts and Science,

Rasipuram - 637 408**.** Namakkal(Dt), Tamilnadu

## Abstract

There are ten sample were collected from both female and male patients for the isolation of uropathogens from the urine sample. The samples were analyzed by physical and microbiological parameters. Color, odour and pH of collected sample was consider as physical parameters. The collected samples are used to microbiological analysis by direct microscopic analysis and cultivation in media.In microbiological analysis, 5 gram positive bacteria and 7 gram negative bacteria were identified from the 12 isolates. Nutrient agar, EMB agar, Mannitol salt agar, MacConkey agar and Blood agar were used to identification of isolates by culture characteristics of bacteria. Beta(B)haemolytic and non haemolytic colonies are developed in the Blood agar medium and *E.coli* and *Klebsiella sp*., only produce pink colour colonies in MA media plates. In MSA media, *Staphylococcus aureus* produce golden yellow colour pigment and *Staphylococcus saprophyticu*s produce yellow colour pigment. *E.coli* produced green metallic sheen colonies in EMB agar plates. *Klebsiella* sp., produce mucoid colonies and the media plate colour changed into greenish brown in *Pseudomonas sp.,* inoculated NA and MA plates. Both *Caesalpinia bonducella* and *Sesbania grandiflora* plant extract were used to antimicrobial analysis and that shows sensitivity against of isolated bacterial pathogens. *Caesalpinia bonducella* shows good antimicrobial activity excluding *E.coli and E. faecalis*. Tertbutoxyeicohydro-di-1H-indeno, osopropylidene, allofuranurono, lactone, trans-5- methoxy-3-hexen, androstenedione-perfluorotolyl-enol ether, Benzoyloxytrimethoxyp. henyl)propyl]-7-bromo-3-methoxybicyclo, isopropylidenedioxy, Methyl acryloyl-podocarpa, n- Hexanal N-methyl-N-formylhydrazone, hexanal n-methyl-n-formyl hydrazone, these components are identified in GCMS analysis of *Caesalpinia bonducella* plant extract. In GCMS analysis of *Sesbania grandiflora* plant extract, Anthracene, allofuranurono, lactone. methylimidazolidine, dimethylamino, methyl ether, dimethyl ether, methoxy methyl butane, isopropylidenedioxy, propanedioic acid and etc were identified.

**Keywords:** Antimicrobial activity, GC-MS Analysis, Medicinal plants, *Caesalpinia Bonducella* and *Sesbania grandiflora*

**OP69**

# Isolation and identification of microorganisms from wound sample and their antimicrobial activity of selected Medicinal plants

**Rahamat Khan*, S.Anbalagan, D. Aarthi**

Department of Microbiology, Muthayammal college of Arts and Science, Rasipuram - 637 408. Namakkal(Dt), Tamilnadu.

**Abstract**

Samples of wound swab were collected from wound infected patients at various government hospitals Namagiripet and Rasipuram, Namakkal Dt during the month of January 2023. The sample was processed. Isolate and identify the pathogens present in the samples by gram's staining and biochemical tests.The samples were revealing that most of the cases are gram positive and gram negative species. The *Abutilon indicum, Catharanthus roseus* and *Musa paradisiaca* leaf extract screened for this antibacterial activity against wound pathogenic bacteria.The present study revealed the importance of natural products to control antibiotic resistance bacteria which are being a threat to human health. The scientific study conserves as an important for the development of expensive medicines.Crude extraction of the plants were carried out in various solvents such as Distilled water and Methanol. Antibacterial activity at various concentrations at 50µl, 75µl, 100µl. Duplicates were maintained, control kept and results were observed.Among these medicinal plants the most effective was C*atharanthus roseus, Abutilon indicum* and *Musa paradisiaca* against *Pseudomonas spp.*

**Keywords:** Wound swab, Medicinal plants, Antimicrobial activity

**OP70**

# Exploring Molecular Mechanisms Underlying Virulence Determinants in Methicillin Resistant Staphylococcus aureus

**Sadhasivam M[1] and Shahitha S[2]**

[1]Research Scholar, Department of Microbiology [2]Associate Professor. Department of Microbiology, Muthayammal College of Arts and Science (Autonomous)

Rasipuram- 637 408, Tamil Nadu, India.

## Abstract

Methicillin-resistant Staphylococcus aureus (MRSA) infection is a global concern due to its high prevalence and the diverse range of diseases it causes, such as skin and soft tissue infections, endocarditis, bone and joint infections, and the particularly concerning MRSA bacteremia (MRSAB) with its associated high mortality rate. MRSA is known to produce various virulence factors, including staphylococcal enterotoxins (SEs), toxic shock syndrome toxin-1 (TSST-1), leukocidins, hemolysins, exfoliative toxins, and immune-modulatory factors. This study aimed to investigate the molecular characteristics of MRSA genotypes and their virulence factors in isolates obtained from healthcare workers. We began by screening 124 MRSA isolates, subjecting them to phenotypic assessments of virulence factors such as hemolytic activity, lipase and protease production, DNase activity, biofilm formation, and antibiotic sensitivity. Those isolates displaying positive results in these assays were further examined at the molecular level using specific primers designed for virulence factors of Staphylococcus aureus. Among the isolates, 12 out of 35 were found to be positive for all the assessed virulence factors. This research underscores the high virulence potential of MRSA isolates from healthcare workers, as evidenced by the presence of multiple virulence factors. Understanding the genetic makeup and virulence profiles of MRSA strains is crucial for improving infection control measures and treatment strategies, especially in healthcare settings where the risk of MRSA transmission is significant. These findings shed light on the potential threats posed by MRSA in healthcare environments and emphasize the importance of monitoring and managing MRSA infections effectively.

**Keywords:** Health care workers, Methicillin resistant Staphylococcus aureus, antimicrobial resistance, virulence factors.

**OP71**

## Antimicrobial and Phytochemical Investigation of Eucalyptus Species Leaves Extracts Against Multidrug-Resistant *Staphylococcus aureus*

**Tamilmani P[1], Kalaivani A[2], Prakash B[3]**

[1]Department of Biochemistry, Muthayammal College of Arts and Science (Autonomous), Rasipuram
[2]Department of Biochemistry, Vivekanandha College of Arts and Sciences for Women (Autonomous), Trichengode, Namakkal
[3]Department of Biotechnology, Vel's University, Chennai

**Abstract**

In this study, six strains of Staphylococcus aureus were isolated from wound samples and identified based on morphological and biochemical characteristics. Five selected strains, denoted as Sa 1, Sa 2, Sa 3, Sa 4, and Sa 5, exhibited distinct drug resistance patterns. Notably, Sa 3 and Sa 5 displayed the highest multiple antibiotic resistance (MAR) indices at 60%.Antibiotic susceptibility testing revealed that Cefpodoxime and Ceftazidine exhibited high resistance among the tested antibiotics against Staphylococcus aureus.The leaves of Eucalyptus globulus and Moringa oleifera were subjected to ethanol, methanol, cold water, and hot water extractions. Antibacterial assays demonstrated that methanol, ethanol, and hot water extracts of Eucalyptus species leaves exhibited significant inhibition zones against multidrug-resistant Staphylococcus aureus, with the highest inhibition zones of 23mm, 19mm, and 19mm, respectively. Cold water extracts showed no significant antibacterial activity.Minimum inhibitory concentration (MIC) analysis highlighted the potent bactericidal effect of methanol extracts, with an MIC of 3.9 mg/ml against MDR Staphylococcus aureus. Additionally, hot water extracts exhibited an MIC of 250 mg/ml against Sa 5.Qualitative phytochemical analysis revealed the presence of various phytoconstituents in the hot water and methanolic extracts of Eucalyptus species leaves.Quantitative estimation of alkaloids, flavonoids, carbohydrates, and proteins in Eucalyptus species leaves powder provided insights into the chemical composition of the plant material.The antioxidant potential of methanolic and hot water extracts was evaluated through a reducing power assay, demonstrating concentration-dependent reductive abilities.Column chromatography and thin-layer chromatography (TLC) were conducted to investigate potential compounds present in the methanolic and ethanolic extracts of Eucalyptus leaves, paving the way for further compound characterization.This comprehensive study sheds light on the antibacterial and phytochemical properties of Eucalyptus species leaves extracts, providing valuable insights into their potential applications in combating multidrug-resistant Staphylococcus aureus infections and uncovering novel bioactive compounds.

**Keywords**: Staphylococcus aureus, multidrug resistance, Eucalyptus species, antibacterial activity, phytochemical analysis, antioxidant, column chromatography, thin-layer chromatography.

**OP72**

# Phytochemical Analysis and In Vitro Anticancer Activity of Aqueous Extract of Michelia Champaca Leaves Using Ovarian Cancer Cell Line

**Devi M**

Assistant Professor, Department of Biochemistry, Muthayammal College of Arts and Science, Rasipuram-637408, Namakkal Dist, Tamil Nadu, India.

## Abstract

Ovarian cancer is one of the most common gynecologic cancers that rank third after cervical and uterine cancer. The objective of this study is to evaluate the phytochemical analysis and *in vitr*o anticancer potential of aqueous extract of *Michelia champaca* leaves using ovarian cancer cell line (PA-1). The preliminary phytochemical screening of aqueous extract of *Michelia champaca* leaves was carried out using Harbone method. In this study, PA-1 cells were treated with various concentrations (50-300 µg/ml) of aqueous extract of *Michelia champaca* leaves. The viability was analyzed using a MTT assay and IC50 values were determined. The cytotoxicity activity of aqueous extract of *Michelia champaca* leaves against the PA-1 cell lines was accomplished at IC50 values of 195 µg/ml. Microscopic examination were also confirm the anticancer potential of the aqueous extract of *Michelia champaca* leaves against PA-1 cells. This study provided the evidence for aqueous extract of *Michelia champaca* leaves to have great anticancer potential and finding builds the enough scientific backgrounds in future to isolate and purify the bioactive compounds for further applications.

**Keywords:** *Michelia champaca*, phytochemical analysis, anticancer activity, ovarian cancer.

**OP73**

# Studies on *Aegle marmelos* extracts for drug development against antibiotic resistant bacteria

**K Srikala Ganapathy[1] and S Karpagam[2]**

[1]Founding Editor, Science Shore e magazine, Chennai

[2]Associate Professor and Head, Department of Botany, Queen Mary's College, Chennai

**Abstract**

In the recent years, in the health care sector there is an increase in resistance to antibiotics in pathogenic bacteria. Medicinal plants act as a rich source of phytochemical compounds possessing therapeutic value which can be explored fordevelopment of new drugs. According to WHO, 80% of the population of developing countries depend on traditional medicines, mostly natural plant products, for their primary health care needs. Invitro antibacterial assays of plant extracts were carried out to analyse their antibacterial potential. Phytocompounds were separated and identified by Chromatography procedures. Insilico molecular docking studies were performed for active plant components with the receptor enzymes using bioinformatics tools to determine their interactions. Bioinformatics studies help to predict and understand the binding affinity of the phytomolecules with the target proteins of bacteria giving insights about their potential as lead molecules for further improvement or structural modification and designing of novel drugs against the bacteria.

**Keywords:** Phytochemical compounds, docking studies, drug design

**OP74**

## Innovative Trends and Aspect of Green Nano-Technology Development Opportunities In 3d Manufactured Personalized Medicines

**R.Kaviarasan**

Assistant Professor, R&D, Coordinator, Institution's Innovation Cell –, Muthayammal College of Arts and Science (Autonomous), Rasipuram,Namakkal Dist, TN, India

**Abstract**

This paper represents the innovative trends and aspect of green nanotechnology development challenges and opportunities in the field of alternative technology to assist in future developments in the field of personalized medicines. There are various innovative applications of green Nanotechnology in different fields like Energy, Medicine and Drugs, Nano bio-technology, Nano devices, Optical Engineering, Defence & Security, Bio Engineering,Cosmetics,Nano Fabrics etc. Nanotechnology , Green Engineering, 3D manufacture improve the process of production and also improve the quality of products and utilize the more advanced concept, idea and research for the development of different fields and production.

Key considerations for application of innovative delivery system using 3d objects are created from a pre-defined digital file which can be varied, hence numerous different dosage forms can be produced. A key advantage of 3DP is that personalized medicines can be tailored to the individual needs potentially at the point of care, A pharmaceutical 3D printer has recently been launched, M3DIMAKER™ for the manufacture of personalized medicine as alternative technology.

**OP75**

# Three medicinally important alkaloids from *Rauvolfia verticillata* (Lour.) Baill. (Apocynaceae)

**Nisha, A[1*]. Wesely, E.G[1]. and Raju Ramasubbu[2]**

[1]Department of Botany, Arignar Anna Govt. Arts College, Namakkal

[2]Department of Biology, The Gandhigram Rural Institute (Deemed to be University) Gandhigram, Dindigul, Tamil Nadu, India

**Corresponding Author**: racprabha@yahoo.com

## Abstract

*Rauvolfiaverticillata* commonly known as devil pepper belongs to the Apocynaceae and has been used in Chinese traditional medicine for the treatment of snakebite, insect sting, malaria, typhus and hypertension. It has been reported as native to China and distributed to tropical Asia from India to the Philippines and recorded from the world's tropical and subtropical climatic regions. The medicinal importance of the plant was recognised by indigenous practitioners for a long time. Tribal population use *R. verticillata*for diabetes, coughs, cold, peptic ulcers, stomachache and mouth infections, rheumatism, etc. For the present study, the stem powder was extracted using methanol and the extract was subjected to phytochemical analysis including qualitative and quantitative estimations. The methanolic stem extract has undergone column chromatography by using low to high polar solvents by liquid-liquid fractions. The fractions were collected by adjusting the polarity of solvents and then subjected to thin-layer chromatography (TLC). Three known alkaloids, ajmaline, reserpine and yohimbine were isolated from specific solvent fractions of the methanolic stem extract. The isolated compounds were characterized and confirmed by UV, FT-IR, LC-MS, H-NMR and C-NMR. For further studies, the extract will be examined for invivo and in vitro animal studies which help to develop lifesaving drugs.

**Keywords:** Fraction, polarity, extract, ajmaline, reserpine, yohimbine.

**OP76**

# Synthesis of Silver Nanoparticles and Antimicrobial Activity, Phytochemical Analysis and Micropropagation of *Caralluma Fimbriata*

**Gowtham, S and Kavitha, D**

Department of Biotechnology, Muthayammal College Of Arts and Science (Autonomous)
Rasipuram, Namakkal, Tamil Nadu, India

**Abstract**

Medicinal plants have been used for the treatment of several diseases from the ancient period to modern world. The utilization of medicinal plants in researches increase every day in the treatment of curing disease due to the presence of phytochemical constituent and lesser side effects. Pathogenic microorganisms are life threatening microorganisms. To overcome these problems, medicinal plants have been used. *Caralluma fimbriata* is an edible cactus used to suppress appetite, thirst quencher, and for weight loss. Nanoparticles are ranges from 1 to 100 nm in size. It was used as drug carrier, gene carrier, and therapeutic agents. The drug in the nm size can easily enter into the disease causing cell and destroy the target microbes without any side effects. Silver nanoparticles are synthesized from the *C.fimbriata* aqueous extract. It was used against disease causing Gram positive and Gram negative bacteria and it shows the effective effect. The pellet collected from the silver nanoparticles is used for the antimicrobial activity. It shows the strongest inhibitory activity followed by methanol extract. Different concentration of extract (25 µl to 100 µl) were used in the well-diffusion method against G+ and G- bacteria like *E.coli*, *Pseudomonas sp.*, *Klebsiella sp.*, *S.aureus*, *Bacillus sp.* It shows the strongest inhibitory effect. The mixed concentration of hormones showed positive response of shoot compared to individual hormone in the medium. The best shoot sprouted plants were successfully acclimatized in the green house and transfer to open field condition.

**Keywords**: *Caralluma fimbriata*, Silver nanoparticles, Aqueous extract, Methanol extract antimicrobial, well diffusion method, Phytochemical Analysis and Micropropagation.

**OP77**

# Synthesis of Copper Nanoparticles And Antimicrobial Activity, Phytochemical Analysis and Micropropagation of *Caralluma Fimbriata*

Gunasankar S, Vanisri A and Kavitha D

Department of Biotechnology, Muthayammal College Of Arts and Science (Autonomous)

Rasipuram, Namakkal, Tamil Nadu, India

**Abstract**

*C.fimbriata* is used as an herbal medicine in India. The preliminary phytochemical screening showed that the whole plant was rich in alkaloid, flavonoids, saponins, tannis, carbohydrates, glycosides, sterols, protein and amino acid. Micropropagation of *C.fimbriata* traditionally important medicinal plants, endangered plants are important. Proliferation of shoots was achieved on medium supplemented with various concentrations of different hormones. The effective concentration of BA, KN, and IBA produced higher number of shoot sprouting frequency in-vitro condition. The protocol for micropropagation can be successfully used for large-scale multiplication and conservation of germplasm of these threatened plants. The pellet collected from the copper nanoparticles is used for the antimicrobial activity. It shows the strongest inhibitory activity followed by methanol extract. Different concentration of extract (50 µl to 75 µl) were used in the well-diffusion method against G+ and G- bacteria like *E.coli, Pseudomonas sp., Klebsiella sp., S.aureus, Bacillus sp.* It shows the strongest inhibitory effect. The present study showed the synergistic activity of the *C.fimbriata* for above all activities are safe without any side effects, reasonable and valuable antimicrobial remedies.

**Keywords:** *Caralluma fimbriata*, Copper nanoparticles, Aqueous extract, Methanol extract antimicrobial, well diffusion method, Phytochemical Analysis and Micropropagation.

**OP78**

## Synthesis, Characterization of silver nanoparticles using red seaweed *Halymenia venusta* extract and it's impact on anticancer activities

**Padmapriya MM. and Rajasekaran D**

Department of Biotechnology Muthayammal College of Arts and Science

Rasipuram, Namakkal-DT-637 408

**Abstract**

Cervical cancer is the fourth most common cancer in the world. Natural sources such as algae were found effective in exhibiting anti – cancer activities. *Halymenia venusta* a red algae have various secondary metabolites that tend to posses anti – tumor activities. This study uses ethanol extract of Halymenia venusta to characterize silver nanoparticles. Cell line study analysis with HeLa cell line and GC-MS analysis were done. Characterization studies of using by UV-VIS, FT-IR, analysis and SEM with EDAX, and XRD. The silver nanoparticle was characterized by using UV-Visible Spectrophotometer the peak obtained 400 to 800nm. FTIR the bonds observed at 3850.30 cm- 1. SEM analysis shows the nanoparticle size up to 5µm. The EDAX shows a peak value at 2.5Kev and also indicates weak signals of Ag, O, Ca, C and Na. XRD was determined by AgNps the peak value at 30kv. The XRD pattern showed three intense peaks in the whole 2θ value ranging from 10 to 80 the sample contains cubic and hexagonal shape. Growth of MTT cells is inhibited by tumor necrosis factor alpha (TNF alpha). From this study it was concluded that the fruit extract exhibited high cytotoxic activity against HeLa cell line.

**Key Words**: HeLa cell, GC -MS, TNF, Silver Nanoparticles.

**OP79**

# Synthesis and characterization of silver nanoparticles using *Enicostemma littorale* leaf extract against A549 lung cancer cell line

**Rajeshwari S. and Rajasekaran D***

Department of Biotechnology Muthayammal College of Arts and Science (Autonomous), Rasipuram, Namakkal-(DT) - 637 408

**Abstract**

The current study was aimed to study the synthesis and characterization of silver nanoparticles using *Enicontemma littorale* leaf extract against lung cancer cell line (A549), and to compare their anti cancer potential with silver nanoparticles. The morphological and function of the silver nanoparticles (AgNPs) were evaluated using scanning electron microscope (SEM), energy dispersion analysis X-ray (E-DAX), UV- visible spectroscopy (FTIR). The size of the synthesized nanoparticles was between 80 - 100 nm. In this study the cell cytotoxicity of A549 cell lines by treating with different concentration of AgNPs (25ug, 50ug, 75ug, 100ug, 150ug) and observing the viability of cells. The high concentration 150ug dose reduced the viability of cells by 63% after 24h of concentration. Our finding shows that AgNPs possess significant anticancer activity against A549 cell line

**Keywords**: A549 cell line, AgNPs, FT-IR Spectroscopy, SEM analysis, E-DAX

**OP80**

## Antibacterial Activity, Phytochemical Analysis of *Hibiscuss abdariffa* against Diabetic Wound Pathogens

**S. VISHVASABARI, and Dr. M. SANKARESWAREN**

Department of Microbiology, Muthayammal College of Arts and Science (Autonomous) Rasipuram-637408

**Abstract**

In the present study diabetic wound samples which are suspected for bacterial infection were analysed. From these samples, 31isolates were isolated and identified *E.coli*, *S.aureus, Pseudomonas spp.* And *Klebsiella spp*. The isolated organism was tested against standard antibiotics. The antibacterial activity of *Hibiscus sabdariffa* was tested against the isolated bacteria which reveal that Petroleum ether was recorded maximum inhibition zone against organism tested. Secondary metabolites such as alkaloids, flavonoids, terpenoids, tannins, steroids, glycosides, phenols and carbohydrates are present in the Petroleum ether solvent of *Hibiscus Sabdariffa* plant extract. *Hibiscus sabdariffa* extract exhibited good antibacterial activity against all bacteria. Antibacterial activity of mixed extract was evaluated and exhibited that mixed extract was more effective against all bacteria than any of the cases alone which indicates the synergistic effect between these three extracts.

**Keywords:** Medicinal plants stem, Antimicrobial activity, *Klebsilla pnemoniae, Staphylococcus aureus, E.coli and Pseudomonas aeuroginosa*

OP81

# Marine Algae and Its Impotance for Research

**Suthan P and Dr. P. Selvamaleeswaran***

Department of Biotechnology, Muthayammal College of Arts and Science, Rasipuram

**Corresponding Author**: suthan1214@gmail.com

## Abstract

Marine algae represent a fascinating and often underutilized realm of biological diversity, holding immense promise for ecological and biotechnological applications. This abstract provides an overview of recent research trends in the field of marine algae, highlighting the diverse dimensions of investigation and their potential implications. Marine algae have garnered increasing attention as researchers delve into their ecological roles. Investigations into algal community dynamics, their interactions with marine ecosystems, and their responses to environmental changes are contributing to a deeper understanding of the ecological significance of these organisms. This research explores the critical functions of marine algae, including carbon sequestration, nutrient cycling, and habitat provision, emphasizing their importance in the context of global ocean health.

Beyond ecological studies, marine algae research is also uncovering their vast biotechnological potential. Recent advances in the isolation and characterization of bioactive compounds from various algal species have opened doors to applications in fields such as pharmaceuticals, bioremediation, food production, and biofuels. Innovative cultivation techniques, genetic engineering, and bioprospecting strategies are helping to unlock the economic and sustainable utilization of marine algae resources. The conservation of marine algae, often threatened by overexploitation and environmental stressors, remains a critical concern. The establishment of marine protected areas and sustainable management practices are gaining traction as strategies to ensure the preservation of these valuable resources and the ecosystems they support. In conclusion, the ever-expanding research into marine algae is uncovering their vital ecological roles and their rich biotechnological potential. This research not only deepens our understanding of these organisms but also offers solutions to some of today's most pressing environmental and industrial challenges. By harnessing the potential of marine algae while responsibly managing their resources, we can simultaneously enhance our ecological stewardship and drive innovation in diverse sectors of science and industry.

**OP82**

# Comprehensive Study on the Medicinal and Pest Control Potential of *Nelumbo* Plant Extracts

**Krishnamurthy[1], Kannan Revathi[2], Rajamanickam Chandrasekaran[1]**

[1]Department of Biotechnology, Selvamm Arts and Science College (Autonomous), Namakkal, Tamil-Nadu, India

[2]Department of Biotechnology, Muthayammal College of Arts and Science (Autonomous), Rasipuram, Tamil-Nadu, India

**Abstract**

This paper introduces the genus Nelumbo, which includes two species, *Nelumbo lutea Pear*. and *Nelumbo nucifera Gaertn*. (lotus), found in different geographical regions. Lotus has been traditionally used for its leaves, rhizomes, seeds, flowers, roots, and buds in traditional medicine across Asia. The paper highlights lotus' significance as an economic crop in China and its use as food for over 7,000 years. It also discusses the challenges of pest control in agriculture, particularly the pest *Spodoptera litura* (Fab.), which causes significant yield losses in India. The study focuses on the collection and preparation of lotus leaf extracts, and it describes the methods used for FT-IR and GC-MS analysis to identify chemical constituents. The bioassays demonstrate the larvicidal and ovicidal activities of the extracts against *Aedes aegypti* and *Culex quinquefasciatus*, with varying degrees of effectiveness. The paper also discusses enzyme analysis, including carboxylesterase, glutathione S-transferase, and cytochrome P450 mono-oxygenase assays, as well as protein content quantification. Overall, the study explores the potential of lotus leaf extracts for pest control and provides insights into their chemical composition and activity against specific insect pests.

**Keywords:** Pest Control, *Nelumbo nucifera Gaertn* and *Spodoptera litura.*

**OP83**

# Computational Analysis of Carotenoid Protein Interactions: Insights from Halobacterium species in Solar salt pans, Tamilnadu.

**S.Shahitha[1] and K. Murugan[2]**

[1]Associate Professor, Department of Microbiology, Muthayammal college of Arts & Science (Autonomous),Rasipuram

[2] Professor and Head, Department of Biotechnology Manonmaniam Sundaranar University, Tirunelveli.

**Abstract**

In this study, brine samples were collected from various stations, including the intake pond, storage pond, and evaporation pond in Tamil Nadu's solar salt pans. Microbial and biochemical procedures were conducted, leading to the identification of specific strains, including Haloferax mediterranei, Haloferax volcanni, and Halobacterium salinarium. Subsequently, two bacterial strains were chosen for molecular characterization. This process involved the isolation of genomic DNA, followed by quantitative and qualitative analysis. Genespecific PCR was performed using 16S archael primers, leading to the identification of the strains as Halobacterium species and Haloferax species. Fingerprints were generated through RAPD and protein profiling to assess the similarity of the isolated bacterial strains, with a dendrogram constructed using SPSS. To enhance carotenoid production by these isolated strains, the study investigated optimal conditions for carotenoid production. Carotenoids were then extracted from the Halobacteria, and their antioxidant properties were evaluated using the DPPH assay. Additionally, the hepatoprotective activity of these carotenoids was examined via MTT assays on HepG2 cell lines. The results indicated that the carotenoids exhibited both antioxidant and anticancer properties, highlighting their potential and versatile applications. Beta-carotene was further purified from the carotenoids, and its antioxidant properties were assessed. Moreover, molecular docking studies were conducted, targeting VEGF and Bcl2 receptors to understand the mechanisms involved in angiogenesis and apoptosis in cancer cells. The results indicated effective binding of beta-carotene with these receptors, demonstrating a greater pro-apoptotic activity compared to anti-angiogenic effects. This research sheds light on the potential health benefits and therapeutic possibilities of the carotenoids obtained from Halobacterium species in solar salt pans, Tamilnadu.

**Keywords:** Halophiles, Beta carotene, DPPH assay.

**OP84**

## Exploring the Possibilities To Improve The Therapeutic Potential of *Nigella sativa*

***K.G.Vanitha[1]and N. Sudhakar[2]**

[1]Research scholar, Department of Microbiology, Muthayammal College of Arts and Science, Rasipuram, TamilNadu, India.

[2]Department of Microbiology,Muthayammal College of Arts and Science, Rasipuram**.**

**Abstract**

Medicinal plants are the best source for a variety of drugs. Inhibition of Antimicrobial resistance (AMR) bacteria, natural products are *Nigella sativa* has been widely used for its anti-diabetic, anti-hypertensive, liver tonics, diuretics, digestive, antidiarrheal, appetite stimulant, immunomodulator, anticancer, antimicrobial, anti-inflammatory, bronchodilator, hepatoprotective, renal protective, gastroprotective and antioxidant properties. Moreover, *N. sativa* has a place among the top-ranked evidence-based herbal medicines. Ancient literaturereveals a traditional system called *Śodhana* (purification/detoxification) can influence the phytochemical, pharmacological, and toxicological profile of plant drugs and is thereby useful in increasing the safety profile and efficacy of the drugs. Nonetheless it is not widely practiced by the Pharma Industries, it is worthwhile to analyze and adopt Śodhanaprocess for the development of more active Drugs and employ for the modern drug development. Antibacterial study on *Nigella sativa* powder extracted with different solvents like hexane, 90% ethanol, aquous and the essential oil extracted from*N.sativa* were subjected to Agar well diffusion assay against multidrug resistant bacterial strains *Escherchia coli* , *Staphylococcus aureus*, *Pseudomonas aeroginosa*,*Escherichia coli* and also tested for their antifungal activity against pathogenic filamentous aflatoxin-producing fungi*Aspergillus niger*,*Penicillium crysoginum* and *Malassezia furfur* (Ketoconazole resistant). Ofwhich Ethanol extract is effective than other solvents. So, we proceed further with ethanol as the extraction solvent for all of our further study. We evaluated the efficacy of detoxification process like roasting, Lime treatment, Calcium chloride treatment with reference to the unprocessed *Nigella Sativa*.Our experimental results reveal that Lime treated ethanol extract shows *strong* inhibitory activity against all the tested microbes than the unprocessed *Nigella Sativa* extract and antibiotics except *E.coli.*

**Keyword**: Nigella Sativa, hexane, ethanol, aqueous extract and oil

**PP07**

# Herbal Drug Development by Using Illicium Vercum

**Iswarya M, Jayasri J, Hema C**

Department of Biotechnology, Muthayammalcollege of arts and science. (Autonomous)

(A unit of Vanetra group), Rasipuram, Namakkal, Tamilnadu,India

**Abstract**

Herbal drug is a type of drug which is produced from the parts of plants such as leaves, roots, flowers it is used in application of food security and also a source of medicine the plant here is IlliciumVercum(star anise) the word “anise” is fromlatin name “anisum or anithum “ meaning dill it is a herb known world-wide it is a fruit in the form of star it is used as traditional folk herb which is used as spice as well as medicine in ancient china it is used in tea to increase immunity level it has so many activities against the cells which are antimicrobial antifungal anxiolytic, anticancer anti-inflammatory , antispasmodic sedative and so on the main compounds of this plant is Linaloon, Quercetin, Anethole, Gallic acid, limonene and Shikimic acid The most widely used component is shikimic acid, which is a principal component in the manufacturing of a drug called oseltamavir, and other components of this plant can also be developed into a new drug. Bioactive compound present in that used to treat several bacterial, fungal, and viral infections. It has a good effect on anti-acne and moisturizing effects. It is used for upset stomach and diuretic problems and also relieving bloating, gas, and constipation. It is a super food that is rich in iron and helps to increase the healthy blood cells in our body. It also has the property to promote metabolism and fat burning. It is used to treat cardiovascular problems because of its high potassium content.

**Keywords**: star anise, activities against the cells, oseltamavir, infections, moisturizing effects, cardiovascular problems.

**PP08**

# Green Synthesis of Silver Nanoparticles Using *Azima Tetracantha* Plant Extract Against Clinical Pathogens.

**Renuga. P, Swetha. B, Anupriya. R**

Department of Biotechnology, Muthayammal College of arts and science (Autonomous)(A unit of vanetra group), Rasipuram, Namakkal, Tamil Nadu, India.

**Corresponding Author: swethabalachandar10@gmail.com**

## Abstract

Nanotechnology has become an emerging success in the field of medicine. The nanoparticles have enhanced pharmacological behavior compared to the larger sized particles. These nanodrugs can be obtained from various sources like plants, seaweed, fungi, etc.., The green synthesis of nanoparticles is environmental friendly. The plant kingdom is a treasure trove of potential drugs. The plant*Azimatetracantha*has a great medicinal value. The green synthesis of silver nanoparticles by *Azimatetracantha*leaf extract has potential antibacterial effects. It greatly inhibits clinical pathogens such as *Salmonella, Staphylococcus aureus, Klebsiella pneumonia and Pseudomonas aeruginosa.* Nanoparticle characterization studies like UV spectroscopy, FTIR, SEM and GCMS were also performed and provided effective results. It also has anti-cancer activities,anti-inflammatory activities and anti-fungal activities

**Keywords:** *Azimatetracantha* , silver nanoparticles, FTIR, GAME, SEM.

OP85

# Nanotechnology-Application

**Vasika. S. and Sangavi. S**

Department of Biotechnology, Muthayammal college of Arts and Science. (Autonomous) (A unit of vanetra group), Rasipuram, Namakkal, Tamil Nadu,India.

## Abstract

In modern world, nanotechnology a branch of science and engineering play an inevitable role in almost all fields. Nanoparticles (1-100 nm) with increase surface area allow the atom to increasing day-to-day. Here we discuss the application of nanotechnology in present and future. Due to its durability, stronger, Electrical Conductivity, Small Size Used in Various fields like Medicinal, Therapeutic drug delivery, tissue engineering, Dianosis, agriculture and in Electronics, etc... . Nanotechnology also has an application in Bioremediation. The advanced development of Nanotechnology is Nanosensors has wide application in biomedical, food, plant, Agriculture, chemical and Eletronic industries Nanomaterials also facilitate the Energy Harvesting. The booming of nanotechnology in the 21st assist Mankind to foster the genetic improvement, increase yield, cost effective economic development throughout the world.

**Keywords**: Nanotechnology, Medical, drug delivery, tissue engineering, nano Senors, disease diagnosis, agriculture, bioremediation.

**OP86**

## Antimicrobial Activity of Cassine *glauca* Rott B. A tree Species

**K. Dhanasekaran, V. Balakrishnan and P. Subramaniam**

PG and Research Department of Botany, Arignar Anna Government Arts College, Sanniyasi karadu, Namakkal - 637002, Tamilnadu, India

**Abstract**

To find out the phytochemical and antimicrobial activity of plant extracts obtained from *Cassineglauca*. Qualitative and quantitative analysis used to determine the phytochemicals found in leaves and bark. Phytochemicals such as fatty acids, alkaloids, flavonoids, steroids, terpenoids, phenolic, saponnin, tannins, xanthoprotein, carbohydrate, cardiac glycosides, amino acids, volatile oils and redraicy sugars.All the extracts obtained from plants and showed that antimicrobial activity against tested microbes such as *Staphylococcusaureus, E.coli, Klebsiella pneumonia,* and *proteus vulgaris.* The antimicrobial activity showed that to justify the use of their plant in traditional medicine and the practice of supplementary decoction conclusion with conventional antibiotics.

**OP87**

# An Emerging Substitute Biosurfactant From Oil Degrading Consortia, And Its Applications In Detergents

**P. Rithika[1] and Shiyamala.G [1]***

[1]Department of Microbiology, Vivekanandha College of Arts and Sciences for women, Elayampalayam, Tiruchengode - 637205. Namakkal (DT), Tamil Nadu, India.

**Corresponding email:** shiyam24@gmail.com

## Abstract

Biosurfactants are amphiphilic compounds that can lower the surface and interfacial tension of immiscible fluids. They have various applications in different industries, including household detergents. Detergent products are formulated mixtures of ingredients with washing or cleaning power. The most active compounds involved in the cleaning process are the so-called surfactants. Developing eco-friendly, nonirritant, low-toxic, and high-efficient surface active ingredients for detergents is an ongoing challenge in the detergent field. An effort is taken to investigate, environmentally friendly and biodegradable biosurfactant,using oil-absorbing bacteria.Oil-absorbing bacteria have gained significant attention due to their potential applications in the oil and petroleum industry. This study aimed to investigate the production and characteristics of biosurfactants derived from oil-absorbing bacteria.Hence, biosurfactants can replace synthetic surfactants in detergent formulations, which are harmful to the environment and living organisms.

Oil-absorbing bacteria were isolated from oil-contaminated soil samples and identified using molecular techniques. These bacteria were cultivated in a suitable medium, and their biosurfactants production was optimized by varying growth conditions. The biosurfactants were extracted and characterized using techniques such as surface tension measurement.The results demonstrated that the isolated oil-absorbing bacteria were capable of producing biosurfactants, which effectively lowered the surface tension of water and exhibited emulsification properties. Furthermore, the biosurfactants showed promising stability and emulsification capabilities when tested with various hydrophobic substances, including crude oil.In conclusion, this research highlights the potential of biosurfactants produced by oil-absorbing bacteria as eco-friendly alternatives in the field of oil spill cleanup and enhanced oil recovery. The findings contribute to the understanding of biosurfactant production and their application in addressing oil pollution issues, promoting sustainable and eco-friendly solutions in the oil and petroleum industry.

**OP88**

# Probiotic Microorganisms from Curd: A Study on Isolation, Characterization, Optimization, and Evaluation

**P. Priyanka[1], S. Rubasri[1] and Shiyamala. G[1]***

[1]Department of Microbiology, Vivekanandha College of Arts and Sciences for women, Elayampalayam, Tiruchengode - 637205. Namakkal (DT), Tamil Nadu, India.

**Corresponding Author**: shiyam24@gmail.com

Probiotics are defined as microorganisms that have a beneficial effect on the host intestinal microbial balance. Lactic acid bacteria (LAB) and Bifidobacteria are the most common types of microbes used as probiotics; but certain yeasts and bacilli may also be used. Curd, also known as yogurt, is a dairy product that has been consumed by humans for thousands of years. It is a versatile ingredient that can be used in a variety of dishes, including dips, sauces, and desserts. In the food industry, curd is an important ingredient in the production of many products such as cheese, butter, and ice cream.

It is a natural and healing food which prevents from numerous enteric diseases. It contains lactic acid bacteria and a perfect balance of proteins, carbohydrates, fats, vitamins, minerals and water. Curd boosts the immune system and enhances stamina. It strengthens natural immunity by stimulation of mucosal and systemic host immunity. Further it activates macrophages, enhances the level of immunoglobulins, natural killer cell activities and cytokines in the host body. Some studies have proved that curd is effective in the treatment of AIDS, cancer, diabetes, insomnia and hepatic diseases. Although clinical research has progressed, more clinical evidences are needed to establish the efficacy and limitations of curd in the treatment of various diseases. While clinical research has made progress, additional clinical evidences can add to establish the efficacy and limitations of curd in treating various diseases.

An experiment was conducted to study the effect of various factors on the curdling process. The goal was to prepare a nutritious probiotic drink with high quality. Various types of factors influence curd quality which may be nutritional (quality of raw milk), environmental (temperature, pH, time of incubation) and inoculum size. After 10-15 days, the quality of curd culture gets down because of unwanted growth of bacteria. Hence, experiments were planned to optimize the curdling process with respect to inoculum (5-20%), incubation time and temperaturecell growth. The pH of curd was examined during the optimization process. The study also investigates the isolation and characterization of microbes from routine household curd When 15 ml of curd is inoculated in 100 ml of milk at 37°C, the pH becomes optimum at the 5th hour. When we consume the curd at the 5-7 hour, we get enough probiotics needed by our body. The results of the experiment will help in improving the quality of the drink and making it more beneficial for the human body.

**OP89**

## Phytomedicine Analysis of Cissus Species (Pirandai) and Cissus Salt (PU-Pirandai Uppu)

**SHIYAMALA.G [1]***

[1]Department of Microbiology, Vivekanandha College of Arts and Sciences for women, Elayampalayam, Tiruchengode - 637205. Namakkal (DT), Tamil Nadu, India.

**Corresponding Author:** shiyam24@gmail.com

**Abstract**

Plants have been used as a source of medicine since the dawn of civilization. Plant-based drugs are derived from natural sources such as plants, animals, and microorganisms. They have been used for centuries in traditional medicine, however, the process of developing commercial plant-based drugs is complex and time-consuming. It involves identifying the active compounds in the plant, optimizing the extraction process, and conducting preclinical and clinical trials to ensure safety and efficacy. The entire process can take several years and requires significant investment in research and development.

Since this has led to the exploration of alternative medicinal systemsthat have been used for centuries in traditional medicine. Siddha system of medicine is an ancient Indian medical system that has been practiced for centuries. It has a wide range of alternative drugs available in various forms. Siddha medicine has 25 varieties of inorganic and water-soluble compounds like alkalis and salts that are called 'UPPU.' It has 64 varieties of drugs prepared from plant-basedminerals.The drugs used by theSiddhars are classified into three groups: thavaram (herbal product), thathu (inorganicsubstances) and jangamam (animal products). India has a rich resource of indigenous plants and minerals that are an excellent source of therapeutic claims. Cissus quadrangularis is a common climber plant found throughout the hotter parts of India. It has been widely used in traditional medicinal systems of India and has been reported to possess bone fracture, bone fracture healing, antibacterial, antifungal, and antioxidant activities.The study focuses on the use of thathu drug uppu from *Cissus quadrangularis* (water-insoluble inorganic substances or drugs that give out vapor when put into fire) and its potential as a traditional medicine. The Witoto Indians of the Amazon used the same procedures to prepare vegetable salts, which were rich in potassium and used as traditional medicine. The study also analyzes the physical and chemical parameters, antioxidant activities, and structural analysis using SEM-EDAX studies. Further investigations are ongoing to compare the effect of crude *Cissus quadrangularis* extracts and nanoparticles synthesized from the same.

**OP90**

# Recent Discovery Of Biotechnology

**Dhanushsree A* and Gayathri N**

Department of Biotechnology Muthayammal College of Arts and Science Rasipuram, Namakkal-DT-637 408

## Abstract

In Index of International research on all aspects of biochemical, medical and microbial technology as applied to bioengineering, medicine, agriculture and environmental Science. Over the last few years we have seen very encouraging growth in the biotechnology sector, established by research and education to translation and product development the 2021-2025 Biotechnology contribution is "knowledge and Innovation driven Bioeconomy" . To harmness the potential of biotechnology as premier tool for international development and will being of society position of India as a strong bio manufacturing for innovative, affordable and accessible products for global markets. India is ranked amount the top 12 biotechnology destination in the world and 3rd Ranks in Asia.

**Keywords:** Bioeconomy, Monoclonal Antibody, Growth factors, Biosensor.

**PP09**

# Phytochemistry of Easily Available Green Leafy Vegetables

**Jaya Sree S[1], Pragati S[1] and *Swathy Saravanan[2]***

[1]UG students, Department of nutrition & dietetics, K.S.R college of arts and Science for women, Tiruchengode- 637215, Tamil Nadu, India

[2]Assistant professor, Department of Nutrition &Dietetics, K.S.R college of arts and science for women, Tiruchengode-637215,Tamilnadu,India; swathysaravanan17@gmail.com.

## Abstract

Phytochemistry is known as the study of Phytochemicals. Phytochemicals are chemical compounds produced by plants, generally to help them resist fungi, bacteria and plant virus infections, and also consumption by insects and other animals. The name comes from Greek φυτόν 'plant'. Some phytochemicals have been used as poisons and others as traditional medicine. Tridax procumbens, commonly known as coat buttons or tridax daisy, is a resilient and widespread plant species that belongs to the Asteraceae family. This herbaceous plant is characterized by its small, yellow, daisy-like flowers and serrated leaves. Tridax procumbens has garnered significant attention due to its diverse pharmacological properties, including anti- inflammatory, antimicrobial, and antioxidant effects. It is traditionally used in various herbal remedies and has shown promise in modern pharmaceutical research. This abstract provides a concise overview of the botanical and medicinal attributes of Tridax procumbens, highlighting its potential in contributing to natural medicine and the treatment of various ailments. Acalypha indica is an herbal plant that grows in wet, temperate and tropical region, primarily along the earth's equator line. This plant is considered by most people as a weed and can easily be found in these regions. Although this plant is a weed, Acalypha indica has been acknowledged by local people as a useful source of medicine for several therapeutic treatments. They consume parts of the plant for many therapeutics purposes such as anthelmintic, anti-ulcer, bronchitis, asthma, wound healing, anti-bacterial and other applications. Green Cardiospermum halicacabum, known as balloon vine, is a climbing plant with balloon-like seed pods, part of the Sapindaceae family. It features trifoliate leaves and small, pale flowers. Traditionally used for its anti-inflammatory and analgesic properties, it's applied to treat various skin and rheumatic conditions. In the traditional Indian medicine systems, this plant is used for the treatment of rheumatism, abdominal pain, orchitis, dropsy, lumbago, skin diseases, cough, nervous disorders, and hyperthermia.

**Keywords:** phytochemistry, green leafy vegetables,tridax procumbens, pharmacological properties,acalypha indica, therapeutic, green cardiospermum halicacabum, anti-inflammatory and analgesic properties.

**OP91**

## Formulation and Evaluation of Herbal Shampoo

**Mahalakshmi, Gowsalya and Sammethra**

Department of Microbiology, Muthayammal college of Arts and Science (Autonomous), Rasipuram - 637 408

**Abstract**

The objective of this study is to formulate and evaluate poly-herbal shampoo for cosmetic purpose from herbal ingredients. Hibiscus powder, Neem powder, Henna powder, Amla powder, Shikakai powder, Ritha powder, Alo-vera gel was procured from local market in powdered form also gel form Banyan root powder and Soya milk is prepared by homemade method, then prepared decoction of these ingredients and mixing with each other and evaluated for it'sorganoleptic and physico-chemical characteristics. Herbal shampoo is used to cleansing of the hair also conditioning, smoothing, of the hair surface, good health of hair, hair free of dandruff, dirt grease and lice above all, its safety benefits are expected. The advantage of herbal cosmetics is their non-toxic nature, reduce the allergic reactions and time-tested usefulness of many ingredients. Thus, in present work, we found good properties for the herbal shampoo and further optimization study benefits of herbal shampoo on human use as cosmetic product.

**OP92**

# Enumeration and characterization of probiotic organisms from Intestine Of Fresh Water fishes.

**Divya. N, Thilagavathi. S, Priyadharshini. E And S. Subana**

Department of Microbiology, Muthayammal college of Arts and Science (Autonomous), Rasipuram - 637 408

## Abstract

The study aimed to isolate and identify naturally occurring probiotics from the intestines of four fish species: *Coryphaenahippurus, Caranxlugubris, Oreochromisniloticus, and Scomberomorus cavalla*. Samples were collected from the Namakkal district, processed, and inoculated in nutrient agar and selective media. Identification involved staining methods, cultural methods, and biochemical tests. Three probiotic organisms (*Lactobacillus spp, Bacillus spp, and Micrococcus spp*) were identified from the fish intestines. Antibiotic sensitivity tests showed resistance to Streptomycin and Vancomycin, intermediate sensitivity to Kanamycin, and sensitivity to Methicillin, Penicillin, Chloramphenicol, Gentamycin, Erythromycin, and Amphicilin. The presence of probiotics in fish intestines suggests their potential health benefits. The study demonstrates that fish-derived probiotics are resistant to certain antibiotics, implying that these probiotics could be administered simultaneously with antibiotic treatments. The findings highlight the health advantages of consuming fish as a natural source of probiotics, which contribute to overall well-being. The study suggests that incorporating fish into the diet provides a natural and healthier alternative to antibiotics, as fish intestines contain valuable probiotics beneficial for human health.

**Keywords:** Probiotics, Fish Intestines, Antibiotic Sensitivity, Health Benefits.

**PP10**

# Synergistic and Recovery Action of Glutathione and Ascorbic Acid on the Growth of Gram-Negative Bacteria in the Presence of an Antibiotic

**Manivasagan, KarparatchakaRajangam and Balavinayagamani Ganapathy***

*Department of Chemistry and Biosciences, Srinivasa Ramanujan Centre, SASTRA Deemed to be University, Kumbakonam 612001*

***Corresponding author:** balavinayagamani10@gmail.com

**Abstract**

**Introduction:** Several studies have suggested that, irrespective of the different modes of action of several antibiotics, the induction of oxidative stress also contributes to their bactericidal actions. The aim of this study, therefore, was to investigate the bactericidal effect of the antibiotic, norfloxacin, which was hypothetically expected to be reduced in the presence of an antioxidant, i.e., glutathione and a vitamin, i.e., ascorbic acid.

**Methods:** The recovery effect of glutathione and vitamin C was investigated on *Pseudomonas aeruginosa* (ATCC 27853), gram negative bacteria. The effect of glutathione and ascorbic acid supplementation in Mueller-Hinton agar was studied using the Kirby-Bauer Single-Disc diffusion antibiotic susceptibility testing.

**Results:** The results from the Kirby-Bauer disc diffusion antibiotic susceptibility testing showed a dose-dependent bacterial growth inhibition. This study also showed that the MICs and MBCs for the control experiment for *P. aeruginosa*(MIC: 400 ng/2 mL; MBC: 800 ng/2 mL) were much lower compared to those of experimental conditions containing supplements. A synergistic effect was observed when the supplements were applied together, even at lower concentrations than those used individually.

**Conclusion:** The reduced bactericidal action of norfloxacin in the presence of glutathione and ascorbic acid can be attributed to their ROS-scavenging ability. Hence, antioxidant together with ascorbic acid, by scavenging the produced free radicals, reduces the bactericidal action of norfloxacin and recovers the bacterial colonies from antibiotic-mediated death.

***Keywords:*** norfloxacin, *P.aeruginosa*,free radicals, bactericidal action, disk diffusion antibiotic susceptibility testing.

**PP11**

# Analysis of Biogenic Amines (BA) Present in Onion Pickle and Tomato Sauce over Time at Different Storage Temperatures

**Lakshana Guruchandran, Rajalakshmi Ramprakash, and Balavinayagamani Ganapathy***

*Department of Chemistry and Biosciences, Srinivasa Ramanujan Centre, SASTRA Deemed to be University, Kumbakonam 612001*

*Corresponding author: balavinayagamani10@gmail.com

**Abstract**

**Introduction:** Most food materials, including agricultural, livestock, and fisheries products, contain various types and different levels of biogenic amines (BA). Usual intake of dietary BAs causes no adverse reactions because human intestinal amine oxidases quickly metabolise and detoxify these compounds. But if the level exceeds the limit, it causes illness and affects health.

**Methods:** We aimed to analyse the BA in the pickled onion and tomato sauce through ELISA (for histamine only) as well as the other BAs using liquid chromatography-mass spectrometry (LC-MS). There are two major factors: storage temperatures (0°C, 10°C, 20°C, 30°C, 40°C, and 50°C) and storage period (7, 14, 21, and 28 days), which have implications for our safety on the consumption of food to check their influence over the histamine/BA's content since they are one of the quality indexes for the preserved food products.

**Results:** The chilling and the lower temperatures, i.e., 0°C, 10°C, and 20°C, maintain the safer level of BA's production (< 40 mg/kg) until the 28 days after the bottles are opened, whereas the increment in the temperature with the storage days increases the production more than that. The LC-MS analysis revealed the presence of other BA with their mass and retention time.

**Conclusion:** A better knowledge of these factors controlling amine formation is necessary in order to improve the quality and safety of pickled food items, otherwise may leads to histamine intoxication.

**Keywords***:* histamine, storage temperatures, biogenic amines, LC-MS, pickled food items.

**OP93**

# Development of antibody-based reagents for detection of carbapenem resistance in drug-resistant *Acinetobacter baumannii*

**Vaishali Verma[1]***

[1]Department of Biotechnology, Bennett University (The Times Group), Greater Noida, Uttar Pradesh, India

**Corresponding Author:** vaishali.verma@bennett.edu.in

**Abstract**

Multi-drug resistant (MDR) strains of *Acinetobacter baumannii (A. baumannii)* are known for causing nosocomial infections globally resulting in significant mortality rates. Carbapenems are considered the last-resort treatment of choice for MDR *A. baumannii*. However, due to the emergence of carbapenem-resistant *A. baumannii* (CRAB), WHO has listed it as the 'priority 1' pathogen for research and development to develop new antibiotics. Strategies to counter the emergence of CRAB should not only involve the development of newer antibiotics but should also include the development of reliable, rapid, and easy-to-use diagnostic reagents for timely treatment of the patients for improved clinical outcomes and to ensure controlled use of carbapenem drugs and effective management of infection spread. At present, the detection of CRAB is performed using antibiotic susceptibility testing, which is time-consuming. Biochemical tests such as a CarbAcineto NP or β-CARBA are also available. However, these proprietary tests require proper storage of reagents that have short shelf life, and consequently may not be cost-effective for low-income countries. MALDI-TOF MS-based detection platforms or nucleic acid-based methods can also be used but these methods require expensive equipment and trained manpower and may not be useful in resource-limited settings. Unfortunately, no single platform allows rapid, efficient, sensitive, specific,and cost-effective detection of CRAB. In this work, using a major carbapenemase as a target, specific antibodies have been developed using phage display technology to enable rapid detection of carbapenem resistance in drug-resistant *Acinetobacter baumannii.*

**Funding**: The work is funded by the Department of Science and Technology –SERB (Start-up Research Grantto Vaishali Verma).

**OP94**

# Phytochemical Analysis and *In Vitro* Antioxidant Activity of Ethanol Extract of *Michelia Champaca* Leaves

**Manoj K, Kavin P, Kavin V and Renuka T**

**Department of Biochemistry, Muthayammal College of Arts and Science, Rasipuram-637408, Namakkal Dist, Tamil Nadu, India.**

## Abstract

Medicinal plants have always played a pivotal role as sources for drug lead compounds. The present study was aimed for investigating the phytochemical contents and antioxidant activity of ethanol extract of *Michelia champaca* leaves. Phytochemical screening was carried out using standard methods. The leaf extract of *Michelia champaca* was assayed to evaluate its *in vitro* antioxidant properties using 1,1-Diphenyl picryl hydrazyl (DPPH) radical assay. The ethanol extract of *Michelia champaca* leaves showed the presence of flavonoids, amino acids, carbohydrates, Phenol, tannins, reducing sugar, alkaloids, and triterpene. The ethanol extract of leaves exhibited strong scavenging effect on 2, 2-diphenyl-2-picryl hydrazyl (DPPH) free radical radical scavenging activity. The results of the present study revealed strong antioxidant potentials of ethanol extract of *Michelia champaca* leaves in dose dependent manner.

**Key words:** *Michelia champaca*, ethanol, phytochemical analysis, antioxidant.

**OP95**

# Green Synthysizng of Silver Nano Particles From *Caryota Urens* Against Larvicidal Activity and Antimicrobial Activity

**Sriram M[1], Dineshkumar S[1], Dr.S.Shahitha[2]**

[1]Department of Biochemistry, Muthayammal College of Arts and Science, Rasipuram

[2]Assistant Professor, Department of Microbiology, Muthayammal College of Arts and Science, Rasipuram

**Abstract**

In the recent past application of synthetic pesticides used to control mosquito-borne diseases like dengue, filariasis etc., A plant producing compounds often show higher mortality against disease-carrying vectors. The present study was aimed for investigating the Green synthesizing of silver nanoparticles from *Caryota urens* against larvicidal activity and antimicrobial activity. Synthezied silver nanoparticles were characterized by UV visible spectroscopy, X-ray Diffraction Assay, FT-IR and SEM. The result described that *Caryota urens* synthesizing silver nanoparticles shows the highest mortality against dengue causing vector *Aedesa egypti*. Further, the synthesized silver nanoparticles show a potent antimicrobial activity against all tested pathogens. Biosynthesized silver nanoparticles using ethanol extracts of *Caryota urens* are harmless to non-toxic organisms and humans in formulating the larvicidal activity against *A. aegypti*. It is one of the costs efficacious methods may very applicable against mosquito control, the agricultural field, and biomedical applications.

**Key words:** *Caryota urens*, ethanol,Nanoparticles, larvicidal, antimicrobial.

**OP96**

# Proximate Analysis And Whole Nutritive Value Of *Alangium Salvifolium* (L.F.) Wangerin

**S.Karunya*, and V. Balakrishnan**

PG & Research Department of Botany, Arignar Anna Government Arts College, Namakkal-637 002, Tamil Nadu, India

**Corresponding Author**: karunyasaravanan192@gmail.com

## Abstract

*Alangiumsalvifolium* is a perennial tree used in ethno veterinary and ethno botanical community to combat animal and human diseases such as Skin diseases, Snake bite, buffalo oral disease and for wound treatment. This study evaluated the three samples such as, leaf , fruit pulp, and seed of *A.salvifolium*. The proximate was determined using the Association of Official Analytical Chemists (AOAC) standard methods(moisture, Crude protein, Crude fibre, Either extract(fat), Total ash, Calcium, Phosphorus) . The total gross energy (GE) of the three samples was determined from the total chemical energy measured from the complete combustion of the samples in a bomb calorimeter. Only the value of omega 3 fatty acids in the seed sample was tested. These experimental methods were followed by hydrolytic extraction, methylation and capillary GC-FIT analysis of the resulting fatty acid methyl esters (FAMEs). Results shows this *A.salvifolium* contains numerous type of nutritive value to cure the several diseases.

**Keywords**:*Nutritive value, Proximate analysis, Omega 3 fatty acids, Alangiumsalvifolium*

**OP97**

# Novel green nanoformulation: A potent alternative to control ESBL producers

**Ranjani S, and S. Hemalatha***

School of Life Sciences, B. S Abdur Rahman Crescent Institute of Science and Technology, Vandalur, 600048

*Corresponding author: hemalatha.sls@crescent.education

## Abstract

The bioactive compounds present in herbs and spices, including polyphenols, alkaloids, terpenes, terpenoids, phenols, flavonoids, and carotenoids, play a crucial role in safeguarding living beings as sources of medicine, food, and healing. This study explores the integration of aromatic herbs with nanotechnology to create an innovative nanosuspension targeting antimicrobial-resistant ESBL-producing pathogens. Characterization using UV-Vis spectroscopy, DLS, Zeta potential, FE-SEM, and EDAX analysis was conducted on the synthesized nanosuspension. The novel formulation exhibited significant bacteriostatic concentration, growth rate, bactericidal, and antibiofilm properties against ESBL-producing *E. coli* strains isolated from human samples. Notably, bactericidal and bacteriostatic concentrations were observed at a maximum of 6.25 µg/ml and 12.5 µg/ml, respectively. The polyherbal nanosuspension demonstrated potent antibiofilm activity against the tested pathogens. This suggests the potential use of polyherbal nanoformulation as a formulation strategy to control ESBL-producing pathogen growth, serving as an alternative to mitigate the emergence of multidrug-resistant pathogens. Various topical formulations such as nanospray, nanogel, and nanocreams could be developed for effective application in preventing MDR pathogen outbreaks.

**Keywords**: Polyherbal, nanoformulation, ESBL, Bactericidal, Bacteriostatic, Antibiofilm

**OP98**

## Antibacterial Activity, Phytochemical Analysis of Hibiscus sabdariffa against Diabetic Wound Pathogens

**S. Vishvasabari, and Dr. M. Sankareswaren**

Department of Microbiology, Muthayammal College of Arts and Science (Autonomous) Rasipuram-637408

**Abstract**

In the present study diabetic wound samples which are suspected for bacterial infection were analyzed. From these samples, 31 isolates were isolated and identified *E. coli*, *S. aureus*, *Pseudomonas spp* and *Klebsiella spp*. The isolated organism was tested against standard antibiotics. The antibacterial activity of *Hibiscus Sabdariffa* was tested against the isolated bacteria which reveal that Petroleum there was recorded maximum inhibition zone against organism tested. Secondary metabolites such as alkaloids, flavonoids, terpenoids, tannins, steroids, glycosides, phenols and carbohydrates are present in the Petroleum ether solvent of *Hibiscus Sabdariffa* plant extract. *Hibiscus Sabdariffa* extract exhibited good antibacterial activity against all bacteria. Antibacterial activity of mixed extract was evaluated and and exhibited that mixed extract was more effective against all bacteria than any of the cases alone which indicates the synergistic effect between these three extracts.

**Keywords:** Medicinal plants stem, Anti-microbial activity, *Klebsilla pneumoniae, Staphylococcus aureus, E. coli and Pseudomonas aeuroginosa*

**OP99**

# Antimicrobial susceptibility of *Escherichia coli* and *Staphylococcus aureus* from Diabetic pus sample

**Jeevitha. A, Rohini Priya.S, and Sowmiya. M. V**

Department of Microbiology Muthayammal college of Arts and Science (Autonomous), Rasipuram - 637 408

## Abstract

This study addresses the critical challenge of antibiotic resistance in diabetic wound infections, focusing on Escherichia coli and Staphylococcus aureus isolated from diabetic pus samples. The research aims to decipher intricate patterns of antimicrobial susceptibility in these prevalent pathogens, essential for refining therapeutic approaches amid escalating antibiotic resistance. Through a detailed analysis of antimicrobial profiles, the study sheds light on challenges encountered in treating infections associated with diabetic wounds. Valuable insights into the dynamic landscape of antibiotic resistance are provided, laying the foundation for more effective treatment strategies. The focus on isolates from diabetic pus samples enhances understanding of these pathogens' behaviour in the diabetic milieu. The study outcomes have significant implications for clinical practice and public health. Findings contribute to global efforts against antimicrobial resistance, offering a nuanced perspective on bacterial susceptibility in diabetic wound infections.

**Keywords:** Antibiotic resistance, Diabetic wound infections, Escherichia coli, Staphylococcus aureus, Antimicrobial susceptibility, Therapeutic strategies, Public health.

**PP12**

# Evaluation of Antibacterial Activity in Medicinal Soap Incorporated with Plant Extracts

**Elavarasan, P[1]. Tamilmani, P[1], Shabana Begum, M[1] and Maghimaa, M[2]**

[1]Department of Biochemistry, Muthayammal College of Arts and Science, Rasipuram, Namakkal-637408. Tamil Nadu, India.

[2]Department of Microbiology, Muthayammal College of Arts and Science, Rasipuram, Namakkal-637408. Tamil Nadu, India.

**Abstract**

The purpose of this study is to evaluate the antibacterial activity of medicinal soap made from coconut oil, sodium hydroxide, and carefully selected plant extracts, specifically A*calypha indica* (Kuppaimeni), *Ocimum tenuiflorum* (Tulsi), and *Azadirachta indica* (Neem). The primary focus is on assessing the potential therapeutic effects of the soap due to its antibacterial qualities. Here the soap base is coconut oil, which is known for its moisturising and antibacterial properties, with sodium hydroxide acting as a saponification catalyst. Some parameters were checked in comparison with commercially available khadi soap like color, odor, texture, total fatty matter test, pH test, solubility test, anti microbial test, moisture content test to determine the quality of the herbal soap prepared. The selected plant extracts contribute to the antibacterial performance of the soap with zone of inhibition ranging from 10 to 15mm. This study highlights the significance of using plant extracts in soap manufacturing to develop antibacterial skincare products. This study not only helps in the creation of antibacterial soaps, but it also expands the options accessible to people looking for natural and effective ways to keep their skin healthy and protected.

**Keywords:** Medicinal soap, Coconut oil, Sodium hydroxide, Plant extracts, Antibacterial activity.

**PP13**

## Rickets presenting as hypocalcemic seizures in the setting of a febrile illness

**Dr. Sana Abbas[1] and Dr. N. Jaya[2].**

[1]2nd yr post graduate, Osmania medical, Hyderabad, Telangana.

[2] Professor and HOD, Osmania medical, Hyderabad, Telangana.

**Abstract**

Background: Rickets is a childhood disease in which bony mineralization dysfunction occurs secondary to hyperparathyroidism due to a deficiency of vitamin D. The world wide prevalance of vit d deficiency rickets is 2.7% to 45%.. The initial presentation of rickets as hypocalcemic seizures in the setting of a febrileillness is quite rare and therefore can present a diagnostic challenge.

Case report : 12 months old dark skinned boy presents to outpatient department with fever. On the evening prior to presentation, His fevers (temperature >38 °C) was treated at home with oral acetaminophen.That night he had had a sudden-onset generalized tonic-clonic seizure(lasting 1 minute with a postictal state of 2 minutes) before falling back asleep.He was diagnosed with otitis media and a simple febrile

seizure. He was prescribed amoxicillin and supportive management, but on the way home, the patient had another generalized tonic-clonic seizure (lasting a few seconds, with return to baseline by 30 minutes). He was rushed to ED.He was admitted in PICU.

Physical examination: frontal bossing (head circumference, 47.0 cm [67th percentile]), craniotabes, Enlargement of the bilateral wrists at the MCP Joints, and mild anterior bowing of the tibias bilaterally.

Height of 70.5 cm (2.6 percentile) and weighed 9.2 kg (12.5 percentile). His right tympanic membrane was erythematous with bulging, and bonylandmarks could not be visualized due to opacification.

He is on breastfeeding with additional puréed baby food as tolerated. He had not begun to eat solid foods, nor taking any vitamin supplements

X ray: abnormal bone mineralization, fraying, splaying, and cupping of numerous sites bilaterally(raduis,ulna, femur, tibia).

Methods And Materials

| | |
|---|---|
| Total calcuim | 5.2 mg/d |
| Ionized calcuim | 2.44mg/dl |
| Alkaline phosphatase | >2300 U/L |
| Parathyroid hormone | 456.1 pg/ml |
| Vit D3 | 4.4mg/dl |
| Urea nitrogen level | 5mg/dl |
| Serum creatinine | 0.3mg/dl |
| Cbp, serum electrolytes | Within normal limits |
| TFT | Within normal limits |
| Urinalysis | Within normal limits |
| ECG | Prolonged QT interval |

Treatment :IV calcium gluconate, 1 g over an hour for 3 doses; oral cholecalciferol, 2500 IU BD, and oral calcium carbonate, 60 mg/kg QID. He was continued on oral amoxicillin for otitis media. After 3 days of calcium and vitamin D repletion, there was no recurrence of seizure activity, and the ionized calcium level and the ECG changes normalized

Result

Symptomatic hypocalcemia secondary to vitamin D deficiency (rickets).

Conclusion: A common subtype of rickets in india is nutritional Rickets resulting from inadequate levels of vitamin D secondary to inadequate nutritional intake. American academy of Paedriatic recommending prevention of vitamin D deficiency through supplementation: healthy infants :400 IU/d of vitamin D, while older children : 600 IU/d of vitamin D and such rare presentations warrant basic laboratory evaluation, even if an infectious source is thought to be the initiating factor.

**PP14**

## A Case Report Of Nephropathic Cystinosis

**Dr. Y. Pallavi, and Dr. N. Jaya**

[1]Final year post graduate, Department of Biochemistry, Osmania Medical College , pallaviy1987@gamil.com, 7382030310

[2]Professor and HOD, Department of Biochemistry, Osmania Medical College, Hyderabad.

**Abstract**

Cystinosis is an autosomal recessive lysosomal storage disease caused by defective transport of cystine from lysosomes leading to cystine accumulation that causes widespread cellular damage especially in kidney and eye.Cystinosis is the most common hereditary cause of renal fanconi syndrome in children.

Cystinosis is caused by mutations in the CTNS gene which is located on chromosome 17p13.3 that codes for cystinosin ,the lysosomal membrane specific transporter for cystiine.

There are three distinct types of cystinosis -nephropathic cystinosis (infantile or early onset),intermediate (juvenile or late onset) cystinosis,and non nephropathic or ocular cystinosis (adult onset ).The incidence of cystinosis is 1 in 1,00,000 -2,00,000 newborns worldwide.

**Case History:** A 7 month old male child born of 3° consanguineous marriage presented with H/O loose stools , polyurea,cry during micturition ,2 episodes of fever in the last month.

Birth history : Full term/LSCS/birth wt:3.25 kg breast fed for 5 months .His milestones both motor and speech were normal.

O/E :The child is calm ,conscious,afebrile ,no specific facial dysmorphism,eye contact present,responding to sound and bilateral upper limb and lower limb tone is normal.No significant abnormality detected on systemic examination.

Laboratory investigations showed hypokalemia (serum potassium: 3.4 meq/lit), glycosuria (urine glucose: 500 mg/dl ) with metabolic acidosis.

Bilateral fundus examination was normal.USG abdomen was normal except prominent renal pelvis. The provisional diagnosis was made as fanconi syndrome (proximal renal tubular

acidosis) and the patient was started on supportive treatment with syp potrate,zinc ,sodamint and potassium rich diet and has been evaluated for pathogenic variants.

Clinical exome sequencing is s/o 2 compound heterozygous variants in CTNS gene detected and confirmed as nephropathic cystinosis.

**Summary:** A 7 month old boy presented with proximal renal tubular acidosis,confirmed as nephropathic cystinosis on genetic analysis. Parents were advised to start the treatment with oral cysteamine therapy (60 mg/kg/day in 4 divided doses) to prevent further damage that may be caused by accumulation of cystine in organs.

Regular nephrology ,annual ophthlmological checkups were advised. Early diagnosis and effective therapy are essential for improving the overall prognosis and quality of lifeof patients with nephropathic cystinosis .

**OP100**

# Antimicrobial susceptibility of *Escherichia coli* and *Staphylococcus aureus* from Diabetic pus sample

**Jeevitha. A, Rohini Priya.S, and And Sowmiya. M. V**

Department of Microbiology, Muthayammal college of Arts and Science (Autonomous), Rasipuram - 637 408

**Abstract**

This study addresses the critical challenge of antibiotic resistance in diabetic wound infections, focusing on Escherichia coli and Staphylococcus aureus isolated from diabetic pus samples. The research aims to decipher intricate patterns of antimicrobial susceptibility in these prevalent pathogens, essential for refining therapeutic approaches amid escalating antibiotic resistance. Through a detailed analysis of antimicrobial profiles, the study sheds light on challenges encountered in treating infections associated with diabetic wounds. Valuable insights into the dynamic landscape of antibiotic resistance are provided, laying the foundation for more effective treatment strategies. The focus on isolates from diabetic pus samples enhances understanding of these pathogens' behaviour in the diabetic milieu. The study outcomes have significant implications for clinical practice and public health. Findings contribute to global efforts against antimicrobial resistance, offering a nuanced perspective on bacterial susceptibility in diabetic wound infections.

**Keywords:** Antibiotic resistance, Diabetic wound infections, Escherichia coli, Staphylococcus aureus, Antimicrobial susceptibility, Therapeutic strategies, Public health.

**OP101**

## Filter method for approach of key genes associated with Osteosarcoma

**S Roobanayaki**

Research Scholar, Department of zoology Avinashilingam Institute for Home science and Higher Education for Women, Coimbatore

**Abstract**

Osteosarcoma, a rare primary bone cancer, accounts for approximately 28% of primary bone tumors in adults, while constituting up to 56% of bone cancers in individuals aged 20 and below. Its incidence is estimated as 4 cases per million annually,even though with the limited sample size, this study undergoes for the requirement of innovative therapeutic strategies and personalized treatment approaches, being an aggressive nature and significant potential for metastasis associated with osteosarcoma. The latest progress in diagnosing and treating osteosarcoma, there is still considerable uncertainty surrounding the molecular mechanisms underlying this condition. Therefore, the identification of new genes to be targeted by drugs is crucial through the investigation into the potential molecular mechanisms and target genes implicated in the advancement and evolution of osteosarcoma. To perform the differential gene expression analysis, we gathered gene datasets from the Geo Omni Bus(GEO) pertaining to samples of Osteosarcoma, comparing them with normal bone tissue.This process aimed to identify gene expression variations that may underlie the pathological characteristics of osteosarcoma.Additionally, investigating the protein-protein interaction networks associated with these hub genes will provide crucial insights into the complex biological pathways and interconnections contributing to the development and advancement of Osteosarcoma. Furthermore, annotation enrichment analysis shed light on the molecular pathways that undergo deregulation in osteosarcoma, highlighting a notable number of dysregulated genes implicated in essential biological processes. This study places significant emphasis on the critical role of identifying key genes through the integration of differential gene expression analysis and advanced machine learning techniques, thereby unraveling the intricate signaling pathways underlying the pathogenesis of Osteosarcoma. By understanding these molecular mechanisms, novel therapeutic interventions can be developed to improve patient outcomes and overall survival rates.

**OP102**

# Plant-mediated copper nanoparticle synthesis using *Holoptelia integrifolia* extract for anti-cancer efficacy against osteosarcoma

**Shilpa Kumari[1], Neha Verma[1], and KanuPriya[1*]**

[1]Department of Life Science, School of Basic Science and Research, Sharda University Greater Noida-201310

**Abstract**

The synthesis of copper oxide nanoparticles has attracted increasing interest due to their importance in biomedical and technological applications to circumvent off-target cytotoxicity and other side effects from conventional chemotherapy.In this study, *Holopteliaintegrifoli a*aqueous extract was used as a green stabilizer to synthesize copper oxide nanoparticles followed by a series of characterization experiments and *in vitro* anticancer evaluation. The synthesized nanoparticles were characterized using XRD, SEM, FTIR, and UV spectroscopy. The UV–Vis absorption spectrum of copper oxide nanoparticles displays a peak at 269 nm. The copper oxide nanoparticles that were produced had a cubical shape, and the XRD results indicated that their average size was 26.50 nm. By using the MTT assay, the substance's anticancer potential was examined against MG-63 (Osteosarcoma) cells. The cytotoxic reaction that was seen was concentration-dependent. Overall, this study demonstrates the properties of copper oxide nanoparticles produced by green synthesis and their prospective application as anticancer therapeutics against osteosarcoma cell lines.

**Keywords:** *Holopteliaintegrifolia*; Copper nanoparticles; Osteosarcoma;Anticance

**OP103**

**Studies on antibacterial activity of Flexirubin pigment from *Flavobacterium lutescens***

**Ms. U. Deepalakshmi**

Assistant professor, Department of Microbiology, Ayya Nadar Janaki Ammal College, Sivakasi.

**Abstract**

Natural colors are being added to the products for induces the natural compounds. Colors play a major role in part of the human life. Instead of synthetic pigments using a microbial pigment shows a better biodegradability, does not causing any toxic to our environment and involved in the various application process like food industry, agricultural and cosmetics product. This study involves the isolation of pigment producing bacteria are isolated from the various soil sample. Bacterial isolates were identified as a capable to pigment producing bacterial strains are characterized by using gram staining, biochemically characterized and optimized by various parameters like PH, temperature, carbon source and salt concentration. Then isolated bacterial strains are mass cultivated in using an appropriate medium.Synthesized pigments are extracted by using a solvent like methanol and characterized by the UV-Visible spectrophotometer, FTIR and HPLC were found to identified the pigment is carotenoid and further test is confirmed by the KOH method. Finally, isolated pigment producing bacterial strains are involved in the antimicrobial activity and gain a greatest inhibitory effects of various food spoilage pathogens.

**OP104**

# Inclusion Complexation of Free– and Iron Oxide Nanoparticles Loaded Schiff's Base With B–Cyclodextrin

**Sathya M**

Assistant professor, Department of Chemistry, Muthayammal College of Arts and Science, Rasipuram, Namakkal – 637408

**Abstract**

The drug 3-[(phenylimino)methyl]-4H-chromen-4-one (PIMC) and 3-[(4methylphenyl(imino)methyl]-4H-chromon 4-one(MPIMC) belongs to the Schiff's base compound is prepared and loaded with dextran coated iron oxide nanoparticle.Binding of free and iron oxide nanoparticles loaded Schiff's base with β-cyclodextrin was carried out. We observed an enhancement of absorption and fluorescence occurs due to the binding of Schiff's base and its nanoparticle with β–cyclodextrin. The formation of the Schiff's base compound is confirmed by using IR, and $H^1$ NMR spectral studies. The morphology of the nanoparticle and the drug loaded iron oxide nanoparticles were studied using SEM and EDX.

**OP105**

# Phytocompounds Assessment against Shrimp AHPND Syndrome-Inducing Vibrio parahaemolyticusPirA/B Toxins: An In-silico and In-vitro Investigation

**Jahangir Ahmed, and Karthikeyan Ramalingam[a*]**
School of Life Sciences, B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai, Tamil Nadu- India
**Corresponding Author:** Dr. Karthikeyan Ramalingam,

**Abstract**
In Southeast Asia, penaeid shrimp aquaculture faces a *Vibrio*bacteria emerged disease known as Acute Hepatopancreatic Necrosis Disease (AHPND), which poses a significant threat to the highly profitable Pacific white leg shrimp, *Litopenaeusvannamei*. In various research *Vibrio parahaemolyticus*as a critical pathogen responsible for substantial losses in a juvenile shrimp stage. The disease's mechanism involves a virulence plasmid encoding binary protein toxins (PirA/B) that induce hepatopancreases infections and even cell death. This study, conducted "*in-silico*" analysis using Glide-2021 to identify four bioactive compounds, Myricetin (Myr), (+)-Taxifolin (TF), (-)-Epigallocatechin-gallate (EGCG), and strychnine (STN) with docking score, -8.81, -8.35, -8.41, and -6.87kcal/mol. The effective docked compounds selected against the toxins based on their docking scores and affinities. Further examined the interaction of these compounds with the protein toxins and identified the key amino acids involved in the docking process using Discovery Studio (version 2016). Molecular dynamics studies revealed lower Root Mean Square Deviations, and fluctuation stabilization of (+)-Taxifolin (TF) and (-)-Epigallocatechin-3-gallate (EGCG) complexes, when binding to both protein toxins. Additionally, the*in-vitro* experiments to assess the antimicrobial activity of EGCG and TF against *V. parahaemolyticus*diseased strains from shrimp using Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) assays. Our results indicated that the most effective MIC concentrations were ≥.4% for EGCG and ≥.5% for TF. Additionally, observed complete elimination of viable bacterial cells in the *in-vitro* bactericidal activity assays after 24 hours of incubation.

**Keywords**: Shrimp; *Litopenaeusvannamei*; *Vibrio Parahaemolyticus*; PirA/B toxins: phytocompounds; molecular docking; molecular dynamics.

**OP106**

# Exploration of Chitin Isolation From Meal Worm (*Tenebrio Molitor*) Larvae Exoskeleton: A Novel Approach For Silver Nanoparticle Synthesis With Potential Anticancer Activity On Hepg-2 Cell Line

**Ashok, K[1*], Babu, M[1], Jeyanthi, R[2] and Abirami, T[2]**

[1]Department of Microbiology and Biotechnology, Faculty of Arts and Science, Bharath Institute of Higher Education and Research (BIHER), Chennai – 600 073,

[2.] Department of Zoology, Presidency College, Chennai – 600 005,

**Abstract**

This research presents a groundbreaking method of utilizing chitin, a natural biopolymer abundantly found in the exoskeleton of mealworm larvae (*Tenebrio molitor*), to produce silver nanoparticles (AgNPs) with potential anticancer properties against the HepG-2 cell line. Chitin, recognized as a linear polysaccharide, has garnered attention due to its biocompatibility and ability to degrade naturally, making it a promising candidate for various biomedical uses.While the extraction of chitin from mealworms, remains a novel pursuit in the realm of nanotechnology and oncology, this study delves into its potential with a fresh perspective. The initial stage involves the isolation of chitin from the exoskeleton of *Tenebrio molitor* larvae through an eco-friendly and economical technique. The obtained chitin is thoroughly analysed for its purity and structural characteristics, providing crucial insights into its suitability as a precursor for AgNPssynthesis.In the subsequent phase, AgNPs are synthesized in an environmentally friendly manner using the isolated chitin as a template and a reducing agent. The resultant AgNPs undergo comprehensive characterization to determine their dimensions, morphology, stability, and composition. This sustainable synthesis process offers advantages over conventional chemical approaches, minimizing environmental repercussions and improving biocompatibility.In the conclusive phase, the anticancer potential of the chitin-mediated AgNPs is evaluated utilizing the HepG-2 cell line as a representative model. Initial findings suggest a substantial inhibitory effect on HepG-2 cell proliferation, indicating the promising prospects of these AgNPs as a novel anticancer intervention. This multidisciplinary research not only delves into the unexplored potential of chitin derived from mealworm larvae but also presents a sustainable and compatible approach to AgNP synthesis for potential biomedical applications.The noteworthy anti-cancer efficacy of chitin-mediated AgNPs against HepG-2 cells emphasizes the importance of this innovative strategy in cancer treatment. This study lays the groundwork for future inquiries into the varied applications of chitin-based nanomaterials in healthcare and environmental conservation.

**Keywords:** Chitin, Silver nanoparticles (AgNPs), Mealworm larvae, Anticancer activity, HepG-2 cell line.

**OP107**

# A Cross Sectional Study On Attitudes Toward Ecodirected Sustainable Prescribing (Edsp) Among Practicing Physician And Medical Postgraduate Students In A Tertiary Care Teaching Hospital

**Dr. Meher Kounen Fatima**

2nd Year postgraduate Osmania Medical College, Hyderabad, Telangana.

**Abstract**

**Introduction**. Active pharmaceutical ingredients (APIs) from the purchase and use of medications are recognized as ubiquitous contaminants of the environment. Eco-directed sustainable prescribing (EDSP) may hold the potential for achieving the largest reductions in API entry to the environment largely by guiding prescribers' decisions regarding drug selection. EDSP could reduce API entry to the environment by minimizing the need for disposal and reducing the excretion of unmetabolized APIs .EDSP is one of the key steps in the programme of ecopharmacovigilance (EPV).

**Objective** To assess the attitudes of physicians and postgraduates prescribing medicines regarding EDSP from the perspective of EPV.

**Methods**: Thestudy was conducted on post graduate medical students and practicing physician of a tertiary care hospital. It was cross sectional, descriptive study based on a structured questionnaire to assess the knowledge, attitude and practice about the participant characteristics, perceptions toward API pollution, EPV and EDSP from an EPV perspective.statistical analysis of the results was done.

**Results**:Most physicians agreed the existence of APIs in environment, worried about the potential environmental and ecological risks of API residues, supported the effectiveness and necessity of EDSP under an EPV perspective in decreasing environmental exposure of excreted APIs, and showed their willingness to participate in the EDSP practices. Nevertheless, no respondent identified the environmental impacts as the aspects regarding medicines affecting his(her) prescription decision, none was satisfied with knowledge on EDSP.The study identified as poor awareness of EDSP and EPV among the participants. The biggest concerns in low-dose prescribing and prescribing of drugs possessing environment-friendly excretion profiles, two EDSP approaches, were the possible negative impact on therapeutic outcomes and too complicated and professional drug evaluation process, respectively.

**Conclusions**:physicians and postgraduates had positive attitudes towards EDSP from the perspective of EPV. However, their environmental consciousness during prescribing and the related education were insufficient.

**Keywords**: Active pharmaceutical ingredients (APIs), ecopharmacovigilance (EPV), Eco-directed sustainable prescribing (EDSP)

**OP108**

## Case Control Study Of Liver Transaminases In Diabetic Patients

**Dr Purvant Shubhashri Rajendra[1] and Dr Sujatha rani MBBS, MD[2]**

[1]2nd Year PG, Biochemistry Department, Osmania Medical College, Hyderabad

[2]Professor, Biochemistry Department, Osmania Medical College, Hyderabad.

**Abstract**

**Background**: The liver plays a major role in the regulation of carbohydrate metabolism, as functions like glycolysis to provide fuel; stores glucose in the form of glycogen; synthesize glucose by gluconeogenesis from non-carbohydrate sources. This key function of liver makes it vulnerable to diseases in subjects with metabolic disorders, particularly diabetes. Increased activities of liver enzymes such as aspartate aminotransferase (AST), alanine aminotransferase (ALT) are indicators of hepatocellular injury. Increased activity of these markers is seen to be associated with insulin resistance, metabolic syndrome, and type 2 diabetes. Nearly 70 to 80% of the diabetic subjects have been reported to have hepatic fat accumulation, referred to as nonalcoholic fatty liver (NAFL). NAFL leads to nonalcoholic steatohepatitis (NASH), a progressive fibrotic disease, which can result in cirrhosis or liver related death. There is increase in prevalence of diabetes worldwide and the risk of morbidity due to this disease is increasing, especially in the urban areas. The present study was aimed to evaluate the liver function in patients with diabetes type 2 compared to non diabetic control group.

**Objectives:** 1. To measure AST and ALT levels in cases and controls.
2. To compare AST and ALT levels between cases and controls.

**Methodology:** This prospective case control study included 30 cases with diabetes mellitus type 2 and 30 controls with age and gender matched healthy individuals between age group 20 – 60 years. Patients with history of liver diseases, or severe or debilitating diseases were excluded from study.

**Results:** AST and ALT levels were significantly higher in cases than controls.

**Conclusion:** Diabetes leads to liver function derangement. Presently diet, exercise, and strict control of hyperglycemia are only options for nonalcoholic fatty liver. Because of high liver enzymes level in serum of patients with type 2 diabetes mellitus, performance of liver function tests is highly recommended for diabetic patients. Further studies on the liver function on diabetic patients need to be performed.

**PP15**

## A Case Of MC. Cune Albright Syndrome

**Dr. Ruqiya Begum[1] and Dr.Sujatha Rani[2]**

[1]2nd yr. MD Biochemsitry, Osmania Medical College. Hyderabad
[2]professor of Biochemistry, Osmania Medical College, Hyderabad

**Abstract**

**Introduction:** Mc.Cune Albright syndrome is a rare and complex genetic disorder characterized by triad of fibrous dysplasia, cafe-au-lait spots, hyperfunctioning endocrinopathies(precocious puberty). It is caused due to somatic mutation of GNAS gene specifically in CAMP regulatory protein G alpha. Prevalence estimates of Mc. Cune Albright syndrome ranges from 1 in 1,000,00 to 1 in 10,000,00.

Case Description: A 3 yr. 2-month-old boy presented with difficulty in walking, due to multiple fractures since the age of 1 and half yr.'s, big naevus on abdomen, back and thigh since birth with the provisional diagnosis of cutaneous skeletal hypophosphatemic rickets.
Various biochemical investigations were done which showed normal results except for,

| INVESTIGATION | RESULT |
|---|---|
| ALP | 3222 U/L |
| PHOSPHOROUS | 1.3 mg/dl |
| T3 | 2.03 ng/ml |
| T4 | 20.6 mcg/dl |
| TSH | <0.01 MIU/ml |
| Calcium | 8.3 mg/dl |
| Vitamin D | 12.26ng/dl |
| Urinary Tmp GFR | 2.166 mg/dl |
| Haemoglobin | 7.6 g/dl |

Bone X ray and densitometry showing osteopenia present and suggestive of fibrous dysplasia
Tc99 Scan Thyroid showed overall mild hyperfunction status
All these examinations and biochemical investigations were conclusive of café-au-lait spots, hyperthyroidism, phosphate wasting and correlating with radiological investigations fibrous dysplasia was confirmed pointing to the diagnosis of Mc. Cune Albright syndrome.
Patient was treated with Anti thyroid drugs, calcium, vitamin D,Oral phosphorous which reduced his incidence of bone fractures.
Summary: The case of Mc. Cune Albright syndrome presented underscores the challenges of diagnosing Mc. Cune Albright syndrome in a very young child due to rarity of syndrome and limited clinical experience. The correlation between clinical presentation, hormonal imbalances, biochemical markers, and radiological findings reveals the complexity of Mc. Cune Albright syndrome, emphasizing the importance of early diagnosis, management and reduction of complications as it can significantly impact the patient's quality of life and long-term outcomes.

**OP109**

# Effect of biofungicide *Solanum indicum* treated with *Trichoderma viride* and *Trichoderma harzianum* fungus for control of *Fusarium oxysporum* wilt in Tomato

**K.Revathi**

Assistant Professor, Department of Biotechnology, Muthayammal College of Arts and Science, Rasipuram, Namakkal(dt),Tamilnadu.

**Corresponding Author**: revathi.k06@gmail.com

**Abstract**

This study will revealed the effect of solanum indicum treated as biofungicide with Trichoderma viride and Trichoderma harzianum for controlling the fusarium oxysporum wilt disease in tomato. This study will analyse how biofungicide act against growing of Fusarium wilt disease. Fusarium oxysporum affect food plant production in largest level. This study will help to identify the fungicide against fusarium oxysporum wilt in tomato.

Objectives : Collection of fusarium oxysporum wilt sample,Tomato plant, solanum indicum, Trichoderma viride, Trichoderma harzianum.solanum indicum treated with Trichoderma harzianum and Trichoderma viride as bio fungicide. Expected outcome: This research will help to increasing and identify more biocontrol way for fusarium oxysporum wilt disease. This study will revealed that how bio fungicide solanum indicum treated with Trichoderma virideamd Trichoderma harzianum will enhance the biocontrol potential can be the source of information for agricultural sector.

Plan after graduation and how this research will help : After graduation I planed to do Ph.D in this research field and I would like to contribute my research skills for diagnosis diseases and to increase biocontrol way to control. This research study will be my basic milestone in my career. This will help to increase my laboratory skills under professional guidance.

**OP110**

# Biofabrication of Nanoparticles using different Plants against Wound causing Pathogens

**Dr.N.Saravanan[1], K.Sujitha[2], S.Hemashree[2], and C.Avanthikaa[2]**

[1]Professor, Department of Biotechnology, Muthayammal Engineering College, Rasipuram

[2]Department of Biotechnology, Muthayammal Engineering College, Rasipuram.

Corresponding Author: kanjamalaisujitha@gmail.com

**Abstract**

In our work, wound causing bacteria are collected from the hospital. Staphylococcus, Bacillus subtilis, Klebsiella pneumonia, Escherichia coli, Pseudomonas are the bacteria species collected for our study.The isolates are subjected to biochemical characterization for antibiotic susceptibility test and selective media.Catharanthus Roseus, Senna Auriculata, Zingiber Officinale, Raphanus Sativus plant species are collected, methanolic, ethyl acetate, cold water aqueous , hot water aqueous extracts are prepared and their phytochemical parameters are analysed. Antimicrobial properties of the plant extract were found out by measuring the zone of inhibition values. Copper nanoparticles and Silver nanoparticles from the above mentioned extracts weresynthesized and characterization was done byUV-Vis spectroscopy. Antimicrobial property of the synthesized nanoparticles against these pathogens are determined to check the efficiency of the synthesized nano particles.

**Keywords:** *Staphylococcus, Bacillus subtilis, Klebsiella pneumonia, Escherichia coli, Pseudomonas*, Copper nanoparticle, Silver nanoparticle.

**OP111**

# Heliotropium marifolium J. Koenig ex Retz. (Boranginaceae) - A PROMISING HERB AGAINST HEAD LICE AND DANDRUFF

**Nithya S., Subramaniam P & Wesely E G**

Departnment of Botany, Arignar Anna Government Arts College, Namakkal – 637 002

**Corresponding Author:** nithyaprasannaveerappan@gmail.com

**Abstract**

It is necessary to screen a drug, especially of herbal origin, to treat both head lice and dandruff without affecting the eyes. The main objective of the present study is to prepare and evaluate an herbal powder and determine its phytochemical functions, emphasizing the safety, efficacy, and quality of the product. Herbal powder is a natural hair care product used to remove head lice and dandruff. Various drugs are used in the preparation of cosmetic shampoos, but they often show side effects such as hair loss, nausea, and headaches. Therefore, an attempt is made to formulate herbal powder that is free from side effects. The herbal powder extract of Heliotropium is added to water and mixed by shaking continuously at intervals of 20 minutes. Additionally, 1 mL of lemon juice is added with constant stirring to improve the aroma in the formulation. The results show that the herbal powder is found to be safe and minimizes the nuisance of head lice and dandruff.

**Keywords:** Heliotropiummarifolium, Herbal powder, lemon juice.

**OP112**

# Cultivation of *Pleurotus Ostreatus* From Fodder Grass Waste

**Vasantharajan V M and Selvamaleesaran P**

Department of Biotechnology**,** Muthayammal College of Arts and Science (Autonomous), Rasipuram-637 408.

**Abstract**

Mushroom cultivation plays a vital role in the bioconversion of agricultural and agro-industrial wastes into protein-rich food in the world. The cultivation of edible mushrooms appeared to be a promising approach to enhancing the nutritional profile of lignocellulosic wastes. The edible fungus *Pleurotus ostreatus* was grown in this research using fodder grass wasteas a lignocellulolytic waste substrate and paddy straw as a control. Various studies were carried out to quantify the macro and micronutrients in the substrates. The nutritional value of the substrates was analyzed as well. The nutritive evaluation of the fruiting body was performed after the culture of *P. ostreatus*, and the maximal calcium content was found in the mature phase of the fruiting body. The moisture content, total carbohydrate, crude protein, crude lipids, and other parameters were all determined via biochemical analysis. In addition, morphological analyses such as spawn running, pinhead development, fruiting body maturity, and yield studies were conducted to pick the optimum substrate for the growth of *P. ostreatus*, with paddy straw serving as the control. This study concluded that when compared to paddy straw and fodder grass waste, the results were effective for the mushrooms grown on fodder grass waste. The fodder grass wasteis a suitable substrate for mushroom cultivation, according to the findings of this study.

**Keywords:** *Pleurotusostreatus*, Mushroom and fodder grass waste

**OP113**

## Hydrophionics System

**Tamilarasi.A[1], Saranya .S [2], and Saranya . S [3]**

Department of Microbiology, Muthayammal College of Arts and Science (A), Rasipuram

**Abstract**

Hydroponics is the practice of growing plants in a nutrient solution with or without a soilless substrate to provide physical support. Hydroponic systems, such as the deep flow technique nutrient film technique or aeroponic systems, are essential tools in plant factories. For adequate management of water and nutrients in the hydroponic system, the electrical conductivity (EC), pH, dissolved oxygen, and temperature should be measured. Because ion concentrations in the nutrient solutions change with time, resulting in a nutrient imbalance in closed hydroponic systems, real-time measurements of all nutrients are required, but such measurements are not available due to technical problems. Instead, EC-based hydroponic systems are used in commercial farms. Periodical analysis of nutrient solutions and adjustment of nutrient ratios can improve the nutrient balance. As an advanced method, ion-selective electrodes and artificial neural networks can be efficient tools for estimating the concentration of each ion. For stable crop production, disinfection systems using filters, heat, ozone, and ultraviolet radiation are required in hydroponic systems.

**Keywords:** Hydophonics, Hydrophonic System, Soilless plant production.

**OP114**

## AI-Powered Microbiome Analysis for Prediction of Diseases

**Vijaya Chitra A[1] and Selvajeyanthi S[2]**

[1]Department of Microbiology, Sri Ramakrishna College of Arts and Science for Women, Coimbatore
[2]Department of Microbiology, Shri Nehru Maha Vidyalaya College of Arts and Science, Coimbatore.
**Corresponding author**: vijayamicro@srcw.ac.in

**Abstract**

Diagnosis of disease is a critical aspect of healthcare that involves identifying and determining the nature and cause of an individual's health condition. Accurate diagnosis is essential for effective treatment and patient care.Diagnosis of microbial diseases at the onset and limited time is very crucial for the treatment of any type of disease.Though many type of diagnosis procedures are available, techniques with minimal time and prompt results are of interest always.This involves the transformative potential of integrating artificial intelligence (AI) with microbiome research for disease identification. Artificial Intelligence encompasses a wide array of computer systems designed to simulate human intelligence, enabling machines to learn, reason and make decisions. The AI with subsets Machine Learning (ML) and Deep Learning (DL) allows machines to learn and improve from data and mirrors the human brains neural network processing (NNP) involved in data processing. The fusion of AI and microbiome data offers a paradigm shift, enabling precise disease diagnosis, prediction and personalized treatment. AI-powered tools excel in pattern recognition and correlations within the microbiome that serve as early indicators of specific diseases. Through machine learning, diagnostic biomarkers are discovered, leading to the creation of accurate disease diagnosis tests. These AI algorithms classify microbiome profile, predicting disease categories and assessing individual risks. Furthermore, it provides insights into the impact of microbiome composition on disease progression and treatment response, thus facilitating tailored therapeutic strategies. AI identifies therapeutic targets within the microbiome for drug discovery. By the integration of microbiome data with clinical and omics information, a comprehensive understanding of disease etiology is achieved. The real-time monitoring capabilities of AI ensure timely interventions for chronic conditions. At a broader scale, analyzing vast microbiome datasets with AI yields population health insights, informing public health strategies. Integrating AI into microbiome research revolutionizes disease detection and health understanding, promising a powerful tool for precision healthcare and advancing disease diagnostics.

**Keywords:** Artificial Intelligence (AI), Microbiome, Data processing, Disease Identification

**OP115**

## Epidemiology of Vulvo-Vaginal Candidiasis among the women of South Andaman Island – a cross sectional study

**Alwin Vins[1], Rehnuma Parvez[1], Nithu Thankachan[1], Rishi Kumar[1], Nagarajan Muruganandam[1].**

[1]ICMR- Regional Medical Research Centre, Port Blair, Andaman and Nicobar Islands.

**Abstract**

**Background:** Vulvo-vaginal Candidiasis (VVC) is typically caused by the yeast *Candida albicans*, however it can also be caused by other Candida species or yeasts. Itching, vaginal discomfort, dyspareunia, external dysuria, and atypical vaginal discharge are common signs of VVC. None of these symptoms are unique to VVC. An estimated 75% of women will experience a minimum of a single attack of VVC, with 40%-45% experiencing two or more occurrences. There was no study have been conducted among the women of Andaman prior to this study. Therefore, we aimed to investigate the epidemiology of vulvovaginal candidiasis among the women in South Andaman Island.

**Methods:** This is a hospital based cross sectional study conducted among married women aged 18 to 45 years attending the hospital settings in South Andaman Islands. Epidemiological data was collected by using a study questionnaire and sample was collected after obtaining the written informed consent. Vaginal sample was collected by a gynecologist or a trained Auxillary mid-wife. Further, Sample was processed and DNA was extracted for the Polymerase chain reaction (PCR) assay. HWP gene specific for the C. albicans was the target to identify the pathogen by using PCR.

**Results:** In this study, 675 women aged 18 to 45 were enrolled from August 2021 to February 2023. All the swab samples were allowed for PCR testing and related data were analysed. Among this sample, 4.5% (N=30) were positive for *C. albicans*. Median age of the Candida infected cases was 35 (IQR: Q1-30 to Q2-39.5) whereas women aged 26 to 45 were predominantly reported. Middle school education was high (43.3%) among the yeast infected cases followed by High school (36.7%). However, 86.6 % of women were unemployed whereas all women infected with Candida were Heterosexual. Of these total cases, 46.7% had their first intercourse at the age of 16 to 25 years of age. Ninety percent of candida infected cases had single sex partner. Moreover, 46.7% of women had the symptom of abnormal vaginal discharge. Most of the women had thin watery or white curdy discharge during the period of infection. Apart from this, candida infected women had the symptoms of lower abdominal pain (13.3%), chronic pelvic pain (10%), inter-menstrual bleeding (6.7%), and menorrhagia (6.7%). Furthermore, 53.3% are asymptomatic to candidiasis.

**Conclusion:**Vulvo-vaginal candidiasis are recurrent infection among women of reproductive age. This study enlighten the epidemiology of candidiasis and the morbidity in urban and rural women of the remote Island in Andaman and Nicobar Islands. Further, the genotypic characterization of the pathogen will identify the circulating genotypes among the women in South Andaman.

**OP116**

## A Cross-Sectional Study To Correlate Post Operative Serum Procalcitonin Level And Surgical Wound Swab Culture In Patients After Emergency Major Abdominal Surgery

**Dr. Alex Shibu and Dr. A. Sujatha Rani**

[1]Second Year MD Biochemistry Post Graduate, Osmania Medical College, Hyderabad
[2]Professor, Department Of Biochemistry, Osmania Medical College, Hyderabad

**Abstract**

Background The incidence of surgical site infection(SSI) following emergency major abdominal surgeries is high and is associated with significant morbidity and mortality and also cause significant financial burden due to prolonged stay in hospital. Early diagnosis of SSI is important to avoid delay in antibiotic treatment and to prevent further complications. In this context it is imperative to find a biochemical marker for diagnosis of SSI as an alternative to wound swab culture. The study aims to determine the usefulness of post-operative serum procalcitonin level in early diagnosis of SSI in comparison to wound swab culture report.

Objectives 1) To measure serum procalcitonin level on post-operative day 2 in patients who underwent emergency major abdominal surgery. 2)To determine correlation between post operative serum procalcitonin level and microbiological culture result of swab taken from surgical wound site. METHODOLOGY A cross sectional study was conducted in patients who underwent emergency major abdominal surgery in department of General Surgery over a period of one month. Blood sample was collected on post-operative day 2 and serum procalcitonin level was measured byby chemiluminescence immunoassay(CLIA) method following quality control procedure. Swab collected from surgical wound site during follow up was submitted for microbiological culture.

Results 52 patients underwent emergency major abdominal surgery during study period in which 18 patients developed SSI with diagnosis confirmed by positive wound swab culture. The mean serum procalcitonin level in patients who developed SSI was 3.18ng/ml and in patients who did not develop SSI was 0.21 ng/ml. The difference in procalcitonin level between both groups is statistically significant (p value).

OP117

# Cultivation of *Pleurotus Ostreatus* From Fodder Grass Waste

**Vasantharajan K M and Selvamaleesaran P**

Department of Biotechnology**,** Muthayammal College of Arts and Science (Autonomous), Rasipuram-637 408.

**Abstract**

Mushroom cultivation plays a vital role in the bioconversion of agricultural and agro-industrial wastes into protein-rich food in the world. The cultivation of edible mushrooms appeared to be a promising approach to enhancing the nutritional profile of lignocellulosic wastes. The edible fungus *Pleurotus ostreatus* was grown in this research using fodder grass waste as a lignocellulolytic waste substrate and paddy straw as a control. Various studies were carried out to quantify the macro and micronutrients in the substrates. The nutritional value of the substrates was analyzed as well. The nutritive evaluation of the fruiting body was performed after the culture of *P. ostreatus*, and the maximal calcium content was found in the mature phase of the fruiting body. The moisture content, total carbohydrate, crude protein, crude lipids, and other parameters were all determined via biochemical analysis. In addition, morphological analyses such as spawn running, pinhead development, fruiting body maturity, and yield studies were conducted to pick the optimum substrate for the growth of *P. ostreatus*, with paddy straw serving as the control. This study concluded that when compared to paddy straw and fodder grass waste, the results were effective for the mushrooms grown on fodder grass waste. The fodder grass waste is a suitable substrate for mushroom cultivation, according to the findings of this study.

**Keywords:** *Pleurotus ostreatus*, Mushroom and fodder grass waste

**OP118**

# A Cross-Sectional Study To Evaluate The Correlation Of Glycosylated Haemoglobin With Non-HDL Cholesterol, Total Cholesterol: HDL Ratio, LDL: HDL Ratio And Triglyceride: HDL Ratio In Diabetic Dyslipidemia

**Dr K Anjali Joy[1], Dr A Sujatha Rani[2]**

[1]Second Year Postgraduate, Osmania Medical College, Hyderabad

[2]Professor, Osmania Medical College, Hyderabad.

**Abstract**

**Background:** Dyslipidemia is a modifiable risk factor for cardiovascular disease and is common in diabetics. HDL, LDL, Non-HDL-C, total cholesterol (TC)/HDL, LDL/HDL, andtriglyceride (TG)/HDL ratios have been used to predict cardiovascular risk. This study aims to estimate HbA1C and correlate it with HDL, LDL, Non-HDL-C, TC/HDL, LDL/HDL, and TG/HDL.

Objectives:

1. To estimate fasting lipid profile, urea, creatinine, and HbA1C in the study subjects.
2. To calculate non-HDL-C, TC/HDL,LDL/HDL, and TG/HDL.
3. To correlate HbA1C with HDL, LDL, non-HDL-C, TC/HDL, LDL/HDL, and TG/HDL ratios and to find the one with the strongest correlation.

Methodology: Blood samples were collected from 130 study subjects. Fasting lipid profile, urea, creatinine,and HbA1C levels were measured. The study subjects were divided based on their HbA1C levels into 3 groups. Group A -30 non-diabetics(HbA1C ≤5.6), group B - 50 well-controlled diabetics(HbA1C 5.7-7), and group C-50 poorly controlled diabetics(HbA1C>7).

Non-HD-C, TC/HDL,LDL/HDL,and TG/HDL were calculated and correlated with HbA1C.

Results: One-way ANOVA test showed a significant difference in TC, TG, LDL, HDL, non-HDL-C, TC/HDL,and LDL/HDLin the 3 study groups. Kruskal Wallis test showed a significant difference in TG/HDL among the 3 groups.

Statistical analysis was done using Spearman's rank correlation. HbA1C showed a non-significant negative correlation with HDL($r_s$= -0.13,p= 0.12)and a highly significantpositive correlation with LDL($r_s$=0.43), non-HDL-C($r_s$= 0.56), TC/HDL ($r_s$= 0.56),LDL/HDL($r_s$=0.49) and TG/HDL($r_s$= 0.50)with a p-value <0.0001.

Conclusion: Type 2 Diabetes patients are at an increased risk for cardiovascular morbidity and mortality.Therefore, the need arises for easily available and economical modalities to identify cardiovascular risk.Non-HDL-C, TC/HDL, LDL/HDL, and TG/HDLare considered to be easy, cost-effective calculated tools to predict cardiovascular events in diabetics thereby helping in early detection and prompt treatment resulting in a better outcome. Non-HDL-C and TC/HDL are considered residual risk factors for cardiovascular risk.

**OP119**

# Nanotechnology Based Metal Nanoparticles Against Human Pathogens

**R.Ramesh*, V.Vani, S.Sineha and P.Shobanadevi**

[1]Department of Biochemistry, J.J.College of Arts and Science (Autonomous)

Sivapuram, Pudukkottai- 622 422 Tamilnadu, India

***Correspondence Author:** nanoramesh2016@gmail.com

## Abstract

Nanotechnology is emerging as a rapidly growing multidisciplinary Scientific field, presents a great opportunity to develop fast, accurate and cost effective diagnostics for the detection of human pathogens. Nanoparticles are sized between about 1 and 100 nm, showing many properties (Unique Biological Properties) that are not seen in their bulk counterparts. Frequently, nanometer-size particles show unique and considerably changed physical, chemical and biological properties compared to their macro scaled counterparts, due to their high surface-to-volume ratio. The high surface area to volume ratio of nanoparticles results in highly reactive and physio chemically dynamic materials in Biological media. The widespread use of metal nanoparticles in consumer biological products, medical products and biological applications provides strong motivation for researchers. In recent years, the increasing uses of metal nanoparticles in the form of drug against human pathogens. Hence, the present work focuses on current status of metal nanoparticles and their antimicrobial potentials against human pathogens. This Study will suggests that, Metal nanoparticles are used as novel drug against various human pathogens.

**Keywords:** Nanoparticles, Pathogens, Products, Medical, Antimicrobial

**OP120**

# A Cross-Sectional Study To Evaluate The Relationship Between Hba1c And Neutrophil-To-Lymphocyte Ratio In Type 2 Diabetes Mellitus Patients

**Dr Rishana. P[1] and Dr P. Kiranmai [2]**

[1]Second Year Postgraduate, Osmania Medical College, Hyderabad

[2]Professor, Osmania Medical College, Hyderabad.

## Abstract

**Background:** Diabetes Mellitus is a chronic disease characterized by chronic hyperglycemia resulting from defective insulin secretion, defective insulin action or both. Type 2 diabetes mellitus(T2DM) is one component of metabolic syndrome which includes impaired glucose tolerance, hypertension, obesity and dyslipidemia. Leukocytosis is thought to be directly associated with the pathogenesis of metabolic syndrome. Neutrophil-to-Lymphocyte Ratio (NLR) is an inflammatory marker, which is a simple ratio between neutrophil and lymphocyte count measured in peripheral blood. This study aims to evaluate the relationship between HBA1C and NLR in T2DM patients.

Objectives

1. To estimate fasting blood sugar(FBS), post prandial blood sugar (PPBS), Glycosylated hemoglobin(HBA1C).
2. To estimate AbsoluteNeutrophil and Lymphocyte count and to calculateNLR
3. To compare NLR in both groups.
4. To assess the correlation between HBA1C and NLR.

Methodology: A Cross-Sectional observational study was conductedfor100 patients of T2DM.Blood samples were estimated forFBS, PPBS, HBA1C, Absolute Neutrophil and Lymphocytecount. NLR was calculated. Patients were divided in to two groups. Group A with good glycemic control (HBA1C ≤7) and group B with poor glycemic control (HBA1C >7). NLR was compared between both the groups. Results : Mean levels (Mean±SD) of HBA1C, FBS, PPBS in group A and group B subjects were 6.16±0.53,112.56±34.82,168.27±50.47 and 9.61±2.59,155±30.94,228±57.79 respectively

Mann Whitney U test showed statistically significant difference in NLR in both groups with p value of 0.0002.NLR (mean ±SD) levels in group A is 1.75±0.3and group B is 2.08±0.42.

Simple linear regression analysis showed that NLR correlated positively with HBA1C with a p value of <0.001 and r value of 0.489.

Summary: NLR is an indicator of poor glycemic control in T2DM patients. NLR is an easily available, costeffective and simple test compared to HBA1C, which can guide the physician in resource limited setting like primary health center for follow up of T2DM patients.

**OP121**

## Unraveling Genetic Signatures in Endometrial Carcinoma: A Molecular Investigation for Personalized Therapies and Diagnostic Targets

**Revathi Unni. K**

Research Scholar, Department of Zoology, Avinashilingam Institute For Home Science And Higher Education For Women, Coimbatore

**Corresponding Author:** 22phzof004@avinuty.ac.in

**Abstract**

Endometrial carcinoma stands as the predominant gynaecologic malignancy, invariably encountered by the vast majority of gynaecologists. This cancer affects an estimated 15-20 out of every 100,000 women annually. Although the curability of Endometrial carcinoma is notably high, tumors exhibiting distinctive morphological variants, unfavourable histopathological features, or advanced stages often display aggressive behaviour and a grim prognosis. The precise molecular underpinnings of Endometrial carcinoma continue to elude our comprehension. Recent reports suggest that histological disparities may correspond to distinct molecular genetic alterations, unravelling an intricate web of pathogenic mechanisms.To elucidate this enigma, in this study datasets such as GSE17025 and GSE57545containing both Endometrial and normal sampleshave been used.Differential expression analysis have been carried out to identify genes that were upregulated and downregulated in Endometrial cancer. To bolster the robustness of the findings, I subjected the data to feature selection methods likeinfoGain and mRMRe in order to ensure the concordance of both sets of results.Subsequently, an in-depth exploration of protein-protein interactions was carried out, elucidating the network of proteins implicated in this disease.The investigation was undertaken till the identification of the most pivotal genes associated with Endometrial carcinoma, coupled with an exploration of the pathways they govern.The primary objective of this study was to discern the genetic signatures linked to Endometrial carcinoma, with the ultimate goal of identifying individuals at risk of succumbing to this ailment.This study emphasizes the vital significance of understanding the genetic variations inherent in Endometrial carcinoma, which in turn leads to new avenues for enhancing patient care and personalized therapeutic approaches, as it lays the foundation for uncovering innovative diagnostic and treatment targets tailored to the specific requirements of individual patients.

OP122

# Wireless Electrodes for ECG Monitoring System

**Dr.B.Gopi[1] . Dilipkumar.B[2] Elakkiya.M[2] Karthikeyan.B[2] and Sivadharshini.K[2]**

[1]Dean/PAC, Department of ECE,Muthayammal Engineering College,Rasipuram

[2]Department of Biomedical Engineering, Muthayammal Engineering College, Rasipuram

**Corresponding author mail:** dilipkumarpnr@gmail.com

**Abstract**

Due to dynamic life style problems related to Heart are increasing every day and it's vital that diseases related to heart should be diagnosed by simple medical techniques. The heart diseases can be diagnosed by (ECG) Electrocardiogram signals. ECG measures electrical potentials from the body surface with contact electrodes, thus it is treated as one of the important signals. As the people are becoming more conscious about their health problems, the need for well-equipped hospitals and diagnostic centres is increasing day by day. A wireless ECG monitoring system with excellent accuracy and short lead times will be designed and built. The work aims to present a wireless electrode for ECG to transmit the patient's ECG signal.This system consists of Bluetooth module, Analog to digital converter, Digital to analog converter.We create Bluetooth modules and analogue to digital converters. To reduce noise, the electrode's received signals are sent to an analog to digital converter.Next, the Bluetooth module receives these signals.And these analog signal send to ECG device for display the output and then print it on a ECG paper.

**Keywords:** ECG, ADC, DAC (Digital to Analog converter), Bluetooth Module.

**OP123**

## Extraction of Natural Colourants from Anthocyanin Rich Fruit Peels

**Janani V. M**

Department of Biotechnology, Muthayammal College of Arts and Science, Rasipuram

**Abstract**

Natural pigments (and especially those of anthocyanins) are a valuable source of bioactive compounds and may be used in the production of new functional food ingredients. Furthermore, their applications in the treatment and prevention of chronic disorders are becoming more and more widespread. In the last few years consumers have focused their attention on the natural biologically active compounds as functional food ingredients, and therefore, it may be assumed that natural colorants are an alternative source of synthetic additives. The aim of the study was to extract the pigments and evaluate the biochemical property of anthocyanin pigments in extracts obtained from fruit peels of various plants. The anthocyanin pigments were extracted by temperature controlled Aqueous extraction process. The determination of mass of total color in solution (TCS) was analysed according to the method described by Sinha et al. (2012).Antioxidant Activity, Antimicrobial Activity, Cytotoxic Activity were been studied for the extracted pigment which showed high activity against the precursor. Color and bioactivity analyses were made in triplicate and SPSS Statistics was used for data analysis. Therefore, this review focuses on extraction and study of anthocyanins as natural food colorants and their nutraceutical properties for health.

**OP124**

## Effect of Caryotaurens against spodopteralitura (polyphagous insect)

**V Narmadha**

Department of Biotechnology, Muthayammal College of Arts and Science, Rasipuram

**Abstract**

Caryotaurens (C. urens) is a palm tree, which belongs to PALMAE family.it's native to Sri Lanka, India and Nepal.Spodopteralitura (Lepidoptera: Noctuidae) is a notorious insect pest it most of crops, damage arises from extensive feeding by larvae, leading to complete stripping of the plants. Affected Plant Stages: Flowering stage, fruiting stage and vegetative growing stage. Affected Plant Parts: Leaves.The plant extracted with methanol using Soxhlet apparatus and qualitative phytochemical analysis for the presence of various classes of active chemical constituents. The FTIR analysis of the extract was done to confirm the functional group of present in the compound. Plant extract were subjected to GC/MS analyses for identification of various constituents.

**OP125**

# The Marine Sea Grass Halophila Stipulacea As A Source of Bioactive Metabolites Against Obesity and Biofouling

**Rasika R**

Department of Biotechnology, Muthayammal College of Arts and Science, Rasipuram

**Abstract**

Marine organisms, including seagrasses, are important sources of biologically active molecules for the treatment of human diseases. In this study, organic extracts of the marine seagrass Halophila stipulacea obtained by different polarities from leaves (L) and stems (S) (hexane [HL,HS], ethyl acetate [EL, ES], and methanol [ML, MS]) were tested for different bioactivities. Theantifouling activity against marine bacteria (microfouling) and mussel larval settlement(macrofouling). Hexane, Ethyl acetate, methanol extracts showed statistically significantcytotoxicity against cancer cell lines. The extracts did not have any significant effect on glucoseuptake and on the reduction of lipids in liver cells. The Ethyl acetate and methanol extracts reduced neutral lipid contents on the larvae of zebrafish. For the antifouling activity, the hexane and Methanol extracts showed a significant inhibitory effect against the settlement of Mytilus galloprovincialis plantigrade larvae. The metabolite profiling using HR-LC-MS/MS and GNPS (The Global Natural Product Social Molecular Networking) analyses identified a variety of known primary and secondary metabolites in the extracts, along with some unreported molecules. Various compounds were detected with known activities on cancer (polyphenols: Luteolin, apeginin, matairesinol). In summary, this study revealed that Halophila stipulacea is a rich source of metabolites with promising activities against obesity and biofouling and suggests that this seagrass could be useful for drug discovery in the future.

**PP16**

## Potential miRNA Use as a Biomarker: From Breast Cancer Diagnosis to Metastasis

**Sneha M and R. Nalini**

Department of Biotechnology, Muthayammal College of Arts and Science, Rasipuram

**Abstract**

Breast cancer is the most common cancer in women. Despite advances in diagnosis and prognosis, distal metastases occur in these patients in up to 15% of cases within 3 years of diagnosis. The main organs in which BC metastasises are the bones, lungs, liver, and brain. Unfortunately, 90% of metastatic patients will die, making this an incurable disease. Researchers are therefore seeking biomarkers for diagnosis and metastasis in different organs. Optimally, such biomarkers should be easy to detect using, preferably, non-invasive methods, such as using miRNA molecules, which are small molecules of about 22 nt that have as their main function the posttranscriptional regulation of genes. Furthermore, due to their uncomplicated detection and reproducibility in the laboratory, they are a tool of complementary interest for diagnosis, prognosis, and treatment. In this study using miRNA independently as a potential biomarker for the diagnosis and prediction of brain, lung, liver, and bone metastases, as well as using miRNAs molecules in clinical practice for the benefit of BC patients.

**OP126**

## Cancer Research and Therapy

**Swetha A and P.Selvamaleeswaran**

Department of Biotechnology, Muthayammal College of Arts and Science, Rasipuram

**Abstract**

Till date scientists are struggling to understand the complete mechanism of carcinogenesis. In future, the real time detectionofcancer may help scientists to identify some of the complicated biological mechanisms. Certain special features of cancer cells enableresearchers to deliver the drug or to develop the right drug therapy. These cell properties include over expression or over activityinuptake of certain nutrients e.g. folic acid and increased permeability. Listed properties might vary depending upon the type of cancerand can be fully exploited by using nanoparticles either to detect the site of cancer or to direct the drug at the affected site. Product approach like drug conjugates, complexes serves as a good platform to solve issues like solubility, toxicity, poor penetrationandstability related to cancer drugs. Beside this, several drug delivery platforms are under development by researchers in academiaaswell as in industry to deliver therapeutic molecules and new chemical entities to the targeted site in body. Amongst them, nanotechnology both at molecular and supramolecular level is a leading platform and can help to image, detect and treat cancer. Surface modification of nanoparticles by coating or anchoring their surface with special markers, mate-rials, peptide, proteins, antibodies or antigens add extra feature and thereby can enhance the effectiveness. These treatments can be used individuallyor incombined form. In this review, advances on nanotechnological platform are discussed together with some assisting techniques likemagnetic field, photo or light field, sonic rays are touched upon. New biological therapies that are advancing in this directionincludethe antisense therapy, cell therapy, gene therapy, radiation therapy and SiRNA interfaces which are discussed in brief in this article. This article gives short overview on use of complementary and alternative medicine for treatment of cancer such as traditional Chinesemedicine (TCM), Ayurveda to avoid toxic effects of synthetic drugs.

**OP127**

## Advances in Breast Cancer Research and Treatment

**V. Devi**
Department of Biotechnology, Muthayammal College of Arts and Science, Rasipuram

**Abstract**

Breast cancer is a significant public health concern Worldwide, affecting millions of individuals each year. This presentation aims to provide a comprehensive overview of breast cancer, covering the latest advances in research, diagnosis, treatment and prevention. The presentation will begin by highlighting the epidemiology and risk factors associated with breast cancer, emphasizing the importance of early detection through screening programs. We will develop into the molecule and genetic basis of breast cancer, including the role of genetic mutation such as BRCA1 and BRCA2. The diagnostic method and technologies available for breast cancer, from mammography to cutting edge imaging techniques, will be discussed, with an emphasis on precision and personalized medicine. Moreover, we will explore the diverse treatment modalities, including surgery, chemotherapy, radiation therapy, targeted therapy and immunotherapy, with a focus on the latest breakthrough in each area. Finally, the presentation will conclude with an emphasis on cancer prevention strategies, lifestyle modification, and the importance of raising awareness about disease.

**OP128**

# Exploring the Therapeutic Potential of *Solanum nigrum* Linn.: A Comprehensive Review of Its Botanical, Medicinal Uses, Phytochemical Profile, and Pharmacological Properties

**Abirami C,**

Department of Biotechnology, Muthayammal College of Arts and Science, Rasipuram

**Abstract**

*Solanum nigrum* Linn., is a common edible medicinal herb of the Solanaceae family which is native to Southeast Asia and is now widely distributed in temperate to tropical regions of Europe, Asia, and America. Traditionally, it has been used to treat various cancers, acute nephritis, urethritis, leucorrhea, sore throat, toothache, dermatitis, eczema, carbuncles, and furuncles. Up to now, 188 chemical constituents have been identified from *S. nigrum.* Among them, steroidal saponins, alkaloids, phenols, and polysaccharides are the major bioactive constituents. Investigations of pharmacological activities of S. nigrum revealed that this edible medicinal herb exhibits a wide range of therapeutic potential, including antitumor, anti-inflammatory, antioxidant, antibacterial, and neuroprotective activities both in vivo and in vitro. This article presents a comprehensive and systematic overview of the botanical, traditional uses, phytochemical compositions, pharmacological properties, clinical trials, and toxicity of S. nigrum to provide the latest information for further exploitation and applications of S. nigrum in functional foods and medicines.

**PP17**

# Genetically Modified Peanut (Arachis Hypogaea L.) For Salinity and Abiotic Stress Tolerance

**Keerthana K and K. Revathi**

Department of Biotechnology, Muthayammal College of Arts and Science, Rasipuram

**Abstract**

Peanut (Arachis hypogaea L.) is a legume crop grown mainy for its edible seeds. It is classified as both a grain legume and, due to its high oil content, an oil crop. It is widely grown in the subtropics, importantly to both small and large commercial producers. It is rich in proteins, fats and plays a vital role in oilseed economy of India and also worldwide. Peanut frequently encounters soil salinity and water deficit problems that affects their growth and productivity. Traditional breeding methods were not useful in generating lines tolerance to abiotic stresses.Another way of introducing genes by genetic engineering technique conferred tolerance against both biotic and abiotic stresses. So far in all the transgenics that were developed that has stable inheritance was confirmed. Production of transgenic crops displays good quality yield and higher resistance to the peanut facing the abiotic and biotic stresses. This method has higher potential of improving crop yield with desired traits. Genetically modified peanut plants conferred tolerance against drought, moisture stress, salinity with improved crop yield under limited water conditions. It also provide a beneficial way for the refurbishment of farmlands lost due to severe drought or salinity conditions and highlights the potential technology for developing climate resilient crop.

**OP129**

## Anticancer Activity of Phyllanthus Niruri Linn Extract in Colorectal Cancer Patients

**Sowmiya, S**

Department of Biotechnology, Muthayammal College of Arts and Science, Rasipuram

**Abstract**

Phyllanthus niruri Linn (PNL) is a folk medicine that believed to exhibit anticancer effect. Granzyme, one of serine proteases produced by cytotoxicT-lymphocytes (CTL) and natural killer cells (NK cells), is suggested as aprognostic marker of cancer. This study aimed to assess the effect of PNL extract on colorectal cancer cells growth by measuring granzyme expression. An experimental study utilized pre- and post-treatment design was conducted in Dr. Kariadi General Hospital, Semarang, Indonesia from, May to July 2016. Hospitalized colorectal cancer patients were administrated with daily oral PNL extract for 14 days. Granzyme expressions before and post-treatment were measured using immunohistochemical staining technique. The difference of granzyme expression was analyzed using paired t-test. Fifteen patients with colorectal cancer were enrolled in this study. The mean granzyme expression of pre- and post-treatment was 25.46%±4.82% and 65.71%±7.91%, respectively. There was a significant increase of granzyme expression in post-treatment compared to pretreatment group, $p<0.001$. In conclusion, PNL extract increased granzyme expression on colorectal cancer patients, suggesting its role as anticancer agent.

**PP18**

# Assessment of Solvent Extract of Sahadevi, An ayurvedic anticancer drug Against MCF-7- Human Breast Cancer Cells

**Shitole S.B.**

Department Of Biotechnology, Dr.Babasaheb Ambedkar Marathwada University, Sub Campus Osmanabad

**Abstract**

Sahadevi is an in-house developed formulationused an anti-cancer drug by Arya Vaidya Sala in Kottakal, Kerala. It has shown promising potential in the treatment of various types of cancers. A study was carried out as an attempt to understand the mechanism of this drug. It involved the extraction of the drug using four different solvents: ethyl alcohol, ethyl acetate, hexane, and distilled water. These extracts were subsequently evaluated for their effectiveness against MCF-7 cells. The results of this investigation revealed that the hexane extract exhibited remarkably potent anticancer activity against MCF-7 cells. The half-maximal inhibitory concentration (IC50) value for the hexane extract was determined to be 5.84 µg/ml. This discovery holds great promise for the development of novel cancer treatments. This study warrants further explorationof Sahadevi's constituent plants for anticancer potential warrants.

**Key words**: Sahadevi,anti-cancer drug MCF-7 cells, solvent extraction,IC50

OP130

# Desease Diagnosis Against Human Pathogen Diagnosis In Health Care

**Kavyashree K.**

Biotechnology Department, St. Philomena's college (autonomous)mysure

Bannimantop mysure-570015., India

**Abstract**

The advance of technology, medical and healthcare data continues: to rise which is easier to collect. How to discover useful information from the targeted medical data in order to further optimize various medical services has become one of the important research topics. The electronic medical records(EMR)system provides an environment for storing all of the health information of the patients in an electronic format. The data includes the descriptions on medication, laboratory test results, and symptoms of patients recorded by the doctors. Accordingly, the analysis on this type of records will be a direct way to understand the progress of a disease, which can assist healthcare professionals to make accurate and officient medical treatment for patients.

**Keywords**: Extraction, structuralization of medical report medical dictionary construction

**Result and Conclusion**

The result of the experiments showed that the methods proposed in this paper can effectively construct a structural form of examination reports. Furthermore, the keywords of the population examination items con be extracted automatic processing and ve techniques will help text reports.

**PP19**

# A Rare Case of Bilateral Pleural Effusion of Different Etiology; A Contarini's Syndrome

**Dr. Mounika Utkoor[1] and Dr. N.Jaya[2]**

[1]2nd Year Post Graduate, Department Of Bio Chemistry, Osmania Medical College and Hospital

[2]Professor & Hod, Department Of Bio Chemistry, Osmania Medical College and Hospital

**Abstract**

Bilateral pleural effusions usually have same characteristics and same etiology. Contarini's syndrome refers to the occurrence of bilateral pleural fluid accumulation which can be explained by a different cause for each side. Literature search shows very few case reports with one exudative and other transudative cause like malignancy and heart failure; parapneumonic effusion with liver cirrhosis.

Case Report:

Here we present A Case of 38 year old male, a chronic alcoholic presented with low grade fever, cough and breathlessness since 10 days.On further biochemical evaluation bilateral exudative pleural effusion, left tuberculous and right pancreatic effusion was present.

Conclusion:Bilateral aspiration should be performed in case of clinical suspicion of alternate diagnosis based on Biochemical and radiological features.

**PP20**

# Synergistic Effect of Phosphate Solubilizing Bacteria and Arbuscular Mycorrhizal Fungi on The Growth And Phosphorous Uptake In Sorgum

**Dr. K. Sivakumar[1], Dr. B. Suriya Sabarinath[2], and Dr. S. Santhana Bharathi[3]**

[1]Assistant Professor, Department of Agricultural Microbiology, Faculty of Agriculture, Annamalai University, Annamalai Nagar, Chidambaram.

[2]Assistant professor, School of Agricultural Sciences, Takshashila University, Ongur, Tindivanam.

[3]Assistant Profrssor, Department of Agricultural Microbiology, SRS Institute of Agriculture and Technology, Senankottai, Vdasandur.

***Corresponding Author**: ksivamicro@gmail.com

**Abstract**

By using sterilized sandy loam garden soils and with the inoculation of (AM fungi) and *Bacillus megaterium* (Phosphate Solubilising Bacterium), the green house earthen pot experiments were undertaken. Plants inoculated with AM fungi and PSB in sterilized soil produced significantly higher growth, dry matter, increased percent root colonization, chlorophyll content in leaves and Phosphorus uptake in shoot and root. Plants that were inoculated either PSB or AM fungus alone shows moderate or lower growth response. On the other way uninoculated plants in sterilized garden soil did not showed the improvement of plant growth and P uptake. A synergistic effect was recorded with increased plant dry matter, percent root colonization and P uptake in *Sorghum bicolor.*

**Keywords:** *Sorghum bicolor*, *Bacillus megaterium*, *Gulomus fasciculatum*, Root colonization.

OP131

# Co-Inoculation Effect of Am Fungi and *Rhizobium Sp* In Growth And Yield Of Mung Bean (*Vigna Radiata* .L)

**Dr. B. Suriya Sabarinath[1], Dr. K. Sivakumar[2] and Dr. S. Santhana Bharathi[3]**

[1]Assistant professor, School of Agricultural Sciences, Takshashila University, Ongur, Tindivanam.

[2]Assistant Profrssor, Department of Agricultural Microbiology, Faculty of Agriculture, Annamalai University, Annamalai Nagar, Chidambaram

[3]Assistant Profrssor, Department of Agricultural Microbiology, SRS Institute of Agriculture and Technology, Senankottai, Vdasandur

***Corresponding Author**: suriyasabarinath21@gmail.com

**Abstract**

Leguminous plants are considered as good nutrition source, which can be consumed by humans, animals, and used as fertilizer. More than 80% of plants live in symbiotic association with a diazotrophic organism called *Rhizobium*. With this symbiotic relationship, they form a lifetime bond of mutual benefit. Mycorrhizae is a symbiotic association between roots of higher plants and fungi. The tripartite interaction between rhizobia, mycorrhizal fungi and legume crops are considered to be a beneficial effect on nutrient uptake of legume crops, disease resistance and plant growth development. This process makes a secondary root system that improves nutrient status of the host plants, water absorption, growth and disease resistance and influencing mineral nutrients. Emerging advancements in improving precision Agriculture plays an important role in betterment of crops and their components. Dual inoculation of *Rhizobium* and AM fungi leads to high yield of the crop and increase their nutrient concentration. This bacterial and fungal colonization alter the quality and abundance of the soil microflora and can modify the overall rhizosphere microbial activity. In this study, the combination of rhizobium and mycorrhizal fungi shows more benefits than their use alone in the legume plants. On co-inoculation, they influence root system architecture and yield of plants. Treatments were made according to the co-inoculation and plant growth was analyzed in terms of their pod length, number of seeds per pod, number of pods per plants and yield. It has been concluded that application of Nitrogen and Phosphorus along with mycorrhiza and *Rhizobium* was found to be most effective in comparison with other treatments.

**Keywords:** Arbuscular Mycorrhizal Fungi, *Rhizobium*, *Vigna radiata*, Dual Inoculation, crop growth.

**PP21**

# Isolation, Characterization and Efficacy of Novel Plant Growth promoting endophytic bacteria found in the *Rhizophora mangle* in Pichavaram mangrove forest

**Dr. S. Santhana Bharathi[1], Dr. B. Suriya Sabarinath[2] and Dr. K. Sivakumar[3]**

[1]Assistant Profrssor, Department of Agricultural Microbiology, SRS Institute of Agriculture and Technology, Senankottai, Vedasandur

[2]Assistant professor, School of Agricultural Sciences, Takshashila University, Ongur, Tindivanam.

[3]Assistant Profrssor, Department of Agricultural Microbiology, Faculty of Agriculture, Annamalai University, Annamalai Nagar, Chidambaram

*Corresponding Author: **santhanamagri1@gmail.com**

## Abstract

Mangrove forests is one of the most productive and biologically (microbes) diverse ecosystems on the earth. The wide range of microbial diversity was reported on mangrove ecosystem. In our study focusing on isolation and identification of effective plant growth promoting endophytic bacteria found in *Rhizophora mangle* leaf and roots. Based on the morphological and biochemical characterization tentatively identified the five different genera's *Pseudomonas* sp., *Bacillus* sp., *Klebsiella* sp., and *Staphylococcus* sp. were present in the leaf and root samples. The plant growth promoting efficiency like Indole acetic acid, Gibberellic acid, siderophore, ACC, EPS production, phosphate solubilization, anti-bacterial and anti-fungal activity of the different isolates were determined. Among the various endophytic isolates REI 2 shows the maximum PGP and antimicrobial activity. The endophytic isolate REI 2 *Staphylococcus warneri* was characterized to16S rRNA sequencing for molecular level characterization and the nucleotide sequences obtained in this study have been submitted to the NCBI Gene Bank database and assigned accession number is OK036917. It is a novel report to that an endophytic *Staphylococcus warneri* as an PGP endophyte of *Rhizophora mangle*.

**Keywords:** Plant Growth Promoting (PGP) endophyte, *Staphylococcus warneri*, Mangrove forests.

**OP132**

# Evaluation of Diverse Plant Extracts for the Management of Infections in Burn Wounds

**Jalada Patel and Rajendran R**

PG and Research Department of Microbiology, PSG College of Arts and Science

Coimbatore, Tamil Nadu, India

**Corresponding author**: Jalada Vadodaria (jaladakpatel@gmail.com)

## Abstract

Microbial infections in burn wounds are a significant factor contributing to delayed healing. This study investigates the susceptibility of microorganisms commonly associated with burn wounds to natural antimicrobial agents. Specifically, the antimicrobial efficacy of ethanolic extracts derived from four distinct botanical sources, *Lavandula angustifolia, Rosmarinus officinalis, Salvia sclarea,* and *Trigonella foenum-graecum*, was assessed. The analysis encompassed a diverse spectrum of microbial populations, including Gram-positive and Gram-negative bacterial strains {S*taphylococcus aureus, MRSA*(Methicillin-Resistant *Staphylococcus aureus), Escherichia coli, Pseudomonas aeruginosa, Proteus mirabilis, Klebsiella pneumoniae, Acinetobacter, Serrratia marcescens*}, as well as fungal strains (*Candida albicans* and *Aspergillus niger*), sourced from a local hospital. Antimicrobial activity was evaluated using the well diffusion method, revealing remarkable efficacy against *Staphylococcus aureus* and *Pseudomonas aeruginosa*, while effectiveness varied among other bacterial strains. Similarly, all plant extracts exhibited efficacy against *Candida albicans*, though their impact on *Aspergillus niger* was less pronounced. Further analysis determined Minimum Inhibitory Concentration (MIC) and Minimum Fungicidal Concentration (MFC) values using turbidimetry, with MIC values ranging from 19.53 µg/ml to 5000 µg/ml, and MFC values ranging from 0.5 µg/ml to 256 µg/ml. A comprehensive phytochemical analysis identified various bioactive compounds, including alkaloids, flavonoids, saponins, carbohydrates, phenols, steroids, glycosides, and tannins. Additionally, Fourier Transform Infrared (FTIR) spectroscopy and Gas Chromatography (GC) were employed to elucidate the chemical constituents of the extracts.

**Keywords**: Antibacterial, antifungal, Minimum Inhibitory Concentration (MIC), Minimum Fungicidal Concentration (MFC), Fourier Transform Infrared (FTIR) spectroscopy, Gas Chromatography (GC)

**OP133**

# Molecular basis of chronic myeloid leukemia and its clinical implications

**Sumitha.E[1], Chaithra N[2], Ashin Krishna C[2] Madhusudhanan Ganasekaran[3]**

[1]Department of Biotechnology and Bioinformatics JSS Academy of Higher Education and Research, Mysore, Karnataka, India

[2]Division of Medical Statistics, JSS Academy of Higher Education and Research, Mysore, Karnataka, India

[3]Department of Molecular Genetics, Meenakshi Mission Hospital and Research Centre, Madurai

## Abstract

Leukemiais a malignancy of the blood and bone marrow, including chronic myeloid leukemia (CML). A form of white blood cell called myeloid cell grows out of control in the bone marrow, which is one of its defining characteristics. The Philadelphia chromosome is the primary genetic anomaly connected to CML. This study investigates the presence of BCR-ABL translocation in Indian patients were CML diagnosed at Meenakshi Mission Hospital and research center Madurai. Specific variants transcripts (e.g., e13a2, e14a2), were screened to monitor and vital for treatment decisions.A total of 79 patients with median age of presentation 38 years (range 34 to 43 years). The diagnosis of CML was based on complete blood cell count, peripheral blood smear, Conventional cytogenetics, FISH for t(9;22)(q34;q11.2, flow cytometry. RNA was reverse transcribed and amplified by PCR, to identify the variants of bcr-abl transcripts including p190 and p210 and other rare transcripts Further statistical analysis was carried out using Descriptive statistics, and the student t-test was to identify the significant difference between the parameters including the hematological parameters, using SPSS 22.Statistical comparison between positive and negative CML mutation groups revealed significance between WBC and platelet count.

**OP134**

# Machine Learning-Based Model for Diabetes Prediction

**S.Anitha[1] and S Sudha[2]**

[1]Assistant Professor, SRM Institute of Science and Technology, Tiruchirappalli Campus, Tamilnadu, India Email: anithaperiyasamy@gmail.com

[2]Lead Consultant, Wipro Technologies, Bangalore, India

Email: Sudha.subarayan@wipro.com

**Abstract**

The global surge in diabetes prevalence has underscored the need for early detection and risk prediction to facilitate more effective disease management and prevention strategies. This research introduces an innovative machine learning-based predictive model designed to enhance the accuracy and efficiency of diabetes risk assessment. The research centers on the development of a predictive tool that harnesses a diverse dataset, encompassing a wide range of variables such as demographic information, medical history, lifestyle factors, and clinical data. To achieve robust predictive capabilities, this model employs various machine learning techniques, including supervised learning, feature engineering, and model optimization. An exhaustive evaluation of the model's performance is conducted, measuring its predictive accuracy, sensitivity, specificity, and overall effectiveness. Moreover, this study delves into the model's interpretability, aiming to provide valuable insights into the key factors contributing to diabetes prediction. Ethical considerations, including data privacy and potential biases, are thoughtfully addressed in both the development and deployment of this predictive tool. The outcomes of this research underscore the potential of machine learning to revolutionize early diabetes prediction. Healthcare professionals stand to gain a valuable asset for identifying high-risk individuals and tailoring interventions to mitigate diabetes risk. Ultimately, the machine learning-based predictive model for diabetes signifies a significant stride toward better public health outcomes by meeting the challenge of diabetes with datadriven and precise risk assessment. After preprocessing the data, three classifier algorithms namely J48, RandomForest, and RandomTree are employed to predict the disease. The first classifier J48 built the model in 0.4 seconds. In J48, 24599 instances are classified correctly and 767 instances are classified incorrectly. In RandomForest, 24544 instances are correctly classified whereas 822 instances are classified wrongly. Among the three classifiers, RandomTree provides the minimum TP rate of 0.950 whereas the J48 classifier generates the maximum TP rate of 0.97. The FP rate of J48 is the maximum value of 0.303 and the RandomTree classifier provides a lesser FP rate value of 0.263. The proposed work also analyses the various performance metrics of these classifiers namely precision, recall, and F-measure.

**Keywords:** Diabetic prediction Assessment, Predictive Model, Machine Learning.

**OP135**

## Room Temperature Compatible RT-PCR for Detection and Quantification of Human Cytomegalovirus

**Asmita Malekar[1], Amrita Khaire[1], Kamini Patil, and Minal Dakhave[2*]**

[1]R&D Department, Mylab Discovery Solutions Pvt. Ltd., Pune, Maharashtra, India

[2]R&D Department, Mylab Discovery Solutions Pvt. Ltd., Global Innovation Center, Amar Paradigm, Baner, Pune, Maharashtra, India 411045

***Corresponding author**: minal@mylabglobal.com

**Abstract**

Background: Human cytomegalovirus (CMV), a herpesvirus, is the most frequent cause of congenital infection worldwide and often associated with a morbidity and mortality in immune suppressed hosts. The presents study describes the development of in vitro nucleic acid amplification test for the detection and quantification of CMV DNA in human blood using real time polymerase chain reaction (PCR).

**Methods**: The test was formulated using PCR components in freeze dried format (Taq polymerase enzyme, buffers, oligos and fluorescent probes) and include calibrators for quantitation of the DNA. The test was integrated and validated on Compact series automated platform (Make-Mylab) for analytical performance (sensitivity, specificity, accuracy). The Compact system enables automation of sample to result using prefilled reagent cartridges. External clinical evaluation was carried out at NABL approved lab (Dhruv lab, Nagpur, India) using 8 positive and 18 known negative blood specimens and concordance was **compared with available commercial kit.**

**Results**: The linear range of the CMV Quantitative PCR assay was 1x107 copies/ml to 10 copies/ml. The detection limit was found to be 50 copies/ml (95% CI). No cross-reactivity with relevant pathogens as well as with microbial interference was observed. In precision study, inter and intra assay data showed % CV within permissible limits (<20%). The clinical performance indicated up to 100% agreement with a IVD comparator test method. The real time stability was found to be 24 months at room temperature.

**Conclusion:** The developed test includes all the components required from sample processing to result analysis, with long shelf-life stability and room temperature storage. This assay using an integrated automated system offers rapid (1.5 hour), sensitive, specific, low to high throughput analysis (1-32 samples in one go). This test named “PathoDetectTM CMV Quantitative PCR kit” has been approved by CDSCO (Indian National Regulatory Authority), and would have significant implications for quantitating the CMV DNA levels at the time of infection and during the course of antiviral therapy.

**PP22**

## Griscelli Syndrome Type 2 - a rare genetic disorder : Case Report

**Dr. Dungi Saikiran[1] and Dr.P.Kiranmai[2*],**

[1]Post Graduate**,** Department Of Biochemistry, Gandhi Medical College, Secunderabad.

[2]Professor & HOD, Department Of Biochemistry, Gandhi Medical College, Secunderabad.

**Abstract**

Griscelli syndrome is a very rare autosomal recessive inherited disorder of melanosome transport and pigmentary dilution which is characterized by hypopigmented skin , light silvery gray hair starting in infancy, and immunodeficiency. .It is classified into three types Type1(MYO5A Gene mutation) characterized by neurological impairment, Type 2(RAB27A Gene mutation) with immune system abnormalities, hepatosplenomegaly, hypopigmentation and hypogammaglobulinemia(rapidly fatal), Type 3(MLPH Gene mutation) only with light skin and hair coloring.Prognosis for long term survival is poor for all the cases is poor and mortality is seen within first decade of life.

A 3 month old female child,third born out of second degree consanguineous marriage was brought to PICU with fever, refusal of feeds, vomitings, The prenatal period was uneventful and delivered by LSCS.There is history of neonatal jaundice and thrombocytopenia with repeated hospitalisations . Both the female siblings died at the age of one and two months with neonatal jaundice and hepatic failure.

Physical examination revealed hypopigmented hair and eyebrows , milestones attained. On systemic examination hepatosplenomegaly, petechiae, dilated veins over abdomen.Her routine investigations revealed elevated Hepatic enzymes, total bilirubin levels with Pancytopenia, elevated acute phase markers like CRP, LDH & Ferritin. Her peripheral blood examination revealed pancytopenia with tear drop cells , macroovalocytes, anisopoikilocytosis.Ultrasound of abdomen showed Hepatitis with ascites. Provisional diagnosis was made of Tyrosinase Deficiency or Griscelli syndrome and sample was sent for NGS Based Exome Sequencing to CCMB which reported that the child is is homozygous for C.340 A>G variant in exon 5 of RAB27A gene variant and clinical features are matching those described as associated with Griscelli syndrome Type 2. Therefore the patient is likely affected with RAB27A associated Griscelli syndrome type 2.

**Keywords:** Hypopigmentation, Autosomal recessive ,Griscelli Syndrome, Exome Sequencing.

**OP136**

# High throughput RT-PCR Test for Quantification for Epstein-Barr Virus in Whole Blood

**Minal Dakhave[1]*, Amruta Joglekar[1], and Sandeep Jaiswal[1]**

[1]R&D Department, Mylab Discovery Solutions Pvt. Ltd., Pune, Maharashtra, India

*** Corresponding author:**

Dr. Minal Dakhave R&D Department,

Mylab Discovery Solutions Pvt. Ltd., Global Innovation Center, Amar Paradigm, Baner, Pune, Maharashtra, India 411045 minal@mylabglobal.com

**Abstract**

**Background**: Epstein-Barr virus (EBV), also known as human herpes virus 4 (HHV4), is known to infect over 90% of humans worldwide. EBV is responsible for infectious mononucleosis and EBV-related malignancies. We developed an *in vitro* nucleic acid amplification test for the quantitation of EBV DNA in human plasma and EDTA blood.

**Methods**: Nucleic acid was extracted by using the Maverick Nucleic acid extraction Kit (Make-Mylab).The EBVassay contains necessary reagents for performing EBV quantitation by Real-time PCR. The assayincludes a heterologous amplificationsystem (Internal Control) toidentify possible PCR inhibition and to confirm the specimen and reagent integrity. International standards and controls as well as clinical samples were used for assay validation. The assay has been integrated and validated on Mylab developed Compact system for high throughput analysis. External evaluation was carried out at Metropolis Healthcare Ltd. Using 30 positive and 20 negative samples.

**Results**: The linear range of the EBV Quantitative PCR kit has been determined to cover concentrations from 4.5 IU/mL to 4.5 x $10^6$ IU/mL. The analytical detection limit of EBV Quantitative PCR kit is 100 IU/mL.No cross reactivity was observed.In precision studies,Day to day, lot to lot and operator to operator reproducibility were studied and result showed coefficient of variation <20%.

**Conclusion**: EBV Quantitative PCR Kit enables simultaneous detection and quantitation of EBV DNA, from blood and plasma samples. EBV assay is designed to function on a Compact series automated system enabling rapid, high-throughput sample to result analysis, which helps reducing variance and technician workload.The test has been approved by CDSCO and is in use in clinical settings.

**OP137**

# Recent Advances In Transdermal Drug Deleivery System: An Overview

**Rajakarthikeyan.U[1], Emmanuel.A[1], Nirmala.E*[1], and Thamizhselan.S[1]**
[1]Shri Venkateshwara College of Pharmacy, Ariyur, Puducherry

## Abstract

Transdermal drug delivery creates one of the key pathways for a novel delivery method. Recently, non-invasive administrations have become more popular as a substitute for conventional needle injections. The most appealing of them is the transdermal drug delivery system (TDDS), which has a low rate of rejection, exceptional ease of administration, and exceptional patient convenience and persistence. TDDS may find use not only in the pharmaceutical sector but also in the skin care and cosmetics industries. Although it is not as effective as injectable or oral delivery, transdermal drug delivery has a number of advantages over both approaches. Traditionally, transdermal distribution has involved applying a patch with a medication to the skin. This method is easy and painless, and it promotes therapeutic first-pass metabolism. It is capable of delivering the medications at a predefined rate through the skin portal to the systemic circulation and sustaining therapeutically beneficial concentrations for an extended duration. The medicine can effectively be absorbed through the skin and reach the bloodstream through it. Due to the patches' significant benefits over alternative controlled drug delivery methods, their efficacy has been demonstrated. Of the medications that are taken orally, over 74% are found to not be as effective as intended. The active components are absorbed via the skin into the circulatory system using a variety of transdermal patches. Recent developments in transdermal drug delivery system (TDDS) technology are thought to be beneficial for rate-controlled distribution of medications.

**Keywords:** Transdermal drug delivery, therapeutic first-pass metabolism, painless, non-invasive, rate controlled distributions.

OP138

# Synthesis of Silver nanoparticles and development of *Nerium* based hydrogel for wound care application

**Prathiksha A*, Rajendran R, and Vinitha D**

PG & Research Department of Microbiology, PSG College of Arts & Science, Coimbatore, Tamilnadu, India 641014.

**Corresponding Author**: aprathiksha24@gmail.com

**Abstract**

This study represented the synthesis of silver nanoparticles using*Nerium oleander* leaves extract and test the properties of herb loaded hydrogel for application in wound dressing. Solvents such as ethanol, chloroform, benzene, petroleum ether and acetone were used to extract the bioactive compound present in*Nerium oleander* which showed the presence of secondary metabolites such as alkaloids, flavonoids, saponins, carbohydrates, protein, phenols, steroids, glucosides and tannins. Of the various solvents, the chloroform extract of *Nerium oleander* showed maximum antibacterial activity against *Bacillus cereus*(14mm), *Staphylococcus aureus* (16mm), *E.coli* (17mm), *Streptococcus pyogenes* (10mm) and antifungal activity was observed against *Candida albicans* (15mm), *Cryptococcus neoformans* (17mm).DPPH scavenging activity ofthe chloroform extractshowed 77% of inhibition and hydrogen peroxide scavenging assay was found to be 67% of inhibition which indicates the property of antioxidant activity.GC-MS chromatogram revealed the presence ofhexacosane and 11-octadecenoic acid, methyl ester which exhibit antimicrobial and anti-inflammatory activity. Stigmasterol and Phytol are known to possess theantioxidant and antimicrobial activity.The silver nanoparticles were synthesized using chloroform extract of *Neriumoleander* and 0.1mM silver nitrate ($AgNO_3$). Hydrogel was synthesized using chitosan and gelatin,incorporating herb loaded nanoparticle.The nanoparticle loaded hydrogel showed antibacterial activity against *E.coli*(17mm) and *Pseudomonas aeruginosa* (20mm) and antifungal activity against *Candida albicans*(18mm).Characterization studies such as swelling ratio and moisture vapor transmission rate were performed for control and herb loaded nanoparticle hydrogel. FTIR analysis showed frequency at 2970 $cm^{-1}$, 2827 $cm^{-1}$, 1695 $cm^{-1}$, 1506$cm^{-1}$, 1049$cm^{-1}$, 823$cm^{-1}$ which corresponded to alkanes, aldehydes, α, β-unsaturated aldehydes ketone, nitro compounds, amines, aromatic respectively. The hemocompatibility synthesized hydrogel was found to be 0.846% of hemolysis. HET-CAM assay was performed for control and synthesized hydrogel which showed non-irritant property. Thus,synthesized hydrogel is skin friendly and can be incorporated in wound dressing.

**Keywords:** hydrogel, silver nanoparticle, hemocompatibility, GC-MS, DPPH, HET-CAM.

OP139

# Dual Functional Finishes Of Antimicrobial and Dyeing Properties of Commonlyavailable Flowers For Health And Hygiene Applications

**Priyadharshini G[1], Rajendran R[2], and Vinitha D[2]**

PG & Research Department of Microbiology, PSG College of Arts & Science, Coimbatore, Tamilnadu, India.

## Abstract

The study focuses on the indigenously extracted pigment for dyeing and antimicrobial finish on cotton fabrics in textile industry. Commonly available plants such as*Rosa indica,Nerium oleander, Chrysanthemum morifolium, Polianthes tuberose* were used for extraction of pigments using Soxhlet apparatus. Various solvents such as ethanol, methanol, hexane, chloroform were used. Among these, hexane extract of *Rosa indica* showed significant antibacterial activity against*Pseudomonas aeruginosa,E.coli, Proteus mirabilis, Staphylococcus aureus, Klebsiella sp., and Streptococcus pyogenes* at 15 mmm, 11mm ,11mm and11mm respectively and antifungal against *Candida albicans, Aspergillus niger at 14mm respectively*. Minimum Inhibitory Concentration of 60µg/ml was recorded against bacterial test organisms. Phytochemical screening of hexane extract confirmed the presence of phenol and saponin which possess anti-inflammatory, antimicrobial, anti-oxidant properties. FT-IR analysis of the extract showed the presence of alcohol, ether, and aromatic amines at 3433 $cm^{-1}$, 1735$cm^{-1}$, 1265 $cm^{-1}$ respectively. GC-MS chromatogram indicated the presence of 4,4-Diazido -3,3' –dimethoxy biphenylwhich constitutes antimicrobial property. The extract was coated on to cotton fabric using pad dry cure method for its application in antimicrobial textiles. The treated fabric was subjected to qualitative and quantitative microbial test such as AATCC 147, AATCC 100and AATCC 30. In parallel streak method,zone of inhibition of 3.2 mm and 2.7 mm was recorded against *S. aureus* and *E.coli*respectively. Untreated fabric showed no zone of inhibition. AATCC 100 showed 91% reduction against *E. coli* and 16% reduction against *S. aureus*. AATCC 30 showed zone of inhibition of 30 mm against *Candida albicans*. The physical characterization study of fabric showed 89% of abrasion resistance,40 $cm^3/s/cm^2$break through testand 7kg bursting strength. The results conclude that treated fabric exhibit better antimicrobial activity and dyeing property with added value particularly for medical clothing and there is an increasing demand on global scale.

**Keywords:** *Rosa indica*, AATCC 100, AATCC 147, GC-MS, Pad dry cure method, Dual functional finishes

**OP140**

# Leukemia Disease Detection and Classification Using Deep Learning Approches

**Dr.G.Sudha[1], S.Madhumitha[2], J.Shobi[2], and R.Vigneshawri[2]**

[1]Professor, Department of Biomedical Engineering, Muthayammal Engineering College, Rasipuram

[2]Department of Biomedical Engineering, Muthayammal Engineering College, Rasipuram

**Corresponding author mail:** jothishobi03@gmail.com

**Abstract**

Leukemia means blood cancer which is featured by the uncontrolled and abnormal production of white blood cells (leukocytes) by the bone marrow in the blood. Analyzing microscopic blood cell images, diseases can be identified and diagnosed early. Hematologist are using technique of image processing to analyze, detect and identify leukemia types in patients recently. Detection through images is fast and cheap method as there is no special need of equipment for lab testing. We have focused on the changes in the geometry of cells and statistical parameters like mean and standard deviation which separates white blood cells from other blood components using processing tools like Jupiter Notebook. Images processing steps like image enhancement, image segmentation and feature extraction. A CNN on the enhanced and preprocessed dataset. The CNN ought to be made to accurately distinguish between normal and leukemic blood cells. A separate dataset of images of blood cells should be used to evaluate the CNN after it has been trained. The model's accuracy should be measured in the evaluation. The CNN can be used to detect leukemia cells from dataset after it has been trained and evaluated.

**Keywords:** CNN Algoritham, leukemia, Blood Components, Accuracy

OP141

# Computational Evalution of Clitoriaternatea Floral Phytochemicals as Potent Antiviral Agents Against Nipah Virus

**Hitendranath N M[1] and Gopinath M[1]**

**Department of Biotechnology, Vel Tech High Tech Dr.Rangarajan Dr.Sakunthala Engineering College, Avadi, Chennai, Tamil Nadu, India.**

**Corresponding author : hitendranath.nm@gmail.com**

**Abstract**

The emergence of Nipah virus as a significant threat to human health underscores the urgent need for novel antiviral agents. In this research, the potential of phytochemicals presents in Clitoriaternatea floral extracts as promising candidates for combating Nipah virus infections. Employing computational methodologies, an in-depth analysis of the chemical composition of Clitoriaternatea, focusing on its phytoconstituents has been conducted. The study involves molecular docking simulations using autodock vina to assess the binding affinity of identified phytochemicals against key viral targets associated with Nipah virus replication and propagation. Our results reveal compelling interactions between specific Clitoriaternatea compounds and viral proteins crucial for the virus life cycle. Furthermore, molecular dynamics simulations to examine the stability of these interactions over time, providing insights into the dynamic nature of the proposed antiviral compounds has been employed. The phytochemicals under investigation exhibit potential inhibitory effects against essential viral proteins, suggesting their ability to interfere with key stages of Nipah virus infection. Additionally, a comprehensive analysis of the pharmacokinetic properties of these phytochemicals has been evaluated to assess their suitability for further experimental validation. This research contributes valuable insights into the computational assessment of Clitoriaternatea floral extracts as potential sources of antiviral agents against Nipah virus. The findings serve as a foundation for future experimental studies, providing a rational basis for the development of novel therapeutics to combat Nipah virus infections.

**Keywords:** Clitoriaternatea, Molecular Docking, Binding energy, Therapeutic Application

**PP23**

## Griscelli Syndrome Type 2 - a rare genetic disorder: Case Report

**Dr. Dungi Saikiran**

Biochemistry, Gandhi medical College, Padmaraonagar, Musheerabad, Secunderabad, 500003

**Abstract**

Griscelli syndrome(GS) is a rare autosomal recessive disorder charaterised by oculo cutaneous manifestaions and hypopigmented hair.According to present scientific literature there are three mutations leading to different phenotyopes which are MYO5A , RAB27 and MLPH resulting in Type-1 GS, Type-2 GS and Type-3 GS respectively.Major differential diagnosis are Tyrosinase deficiency ,Chediak-Higashi Syndrome,Eljalde Syndrome,Vitamin B Nutritional Disorders,Hyper-IgA syndrome, Wiskott-aldrich syndrome.Clinical features include lght skin and hair , immunodeficinecy and repeated infections.GS long-term prognosis is poor and in most cases, death happens in the first decade of life. There are a few reports of survival longer than a decade (1). In hematological life threatening complications, bone marrow, or stem cell transplant is recommended although the success rate is poor. A 3 month old female child was brought to PICU with chief complaint of Vomitings and Fever on & off since 15days,Fever with insidious onset, on & off, subsiding with medication which is of high grade not associated with chills & rigors, Loose stools - watery consistency, history similar bowel complaints since birth,No History of febrile seizures, shortness of breath, excessive crying,refusal to feeds (since 5 days), not active , child is dull and most of the time was sleeping. Past history: History of neonatal jaundice , was admitted in NICU and receive 3 days of Phototherapy.History of transfusion of Leucocyte depleted PRBC at age of 8 days in view of thrombocytopenia.History of Dengue shock syndrome and received ventilatory care. Birth history :Full term , LSCS, 2.7 kg birth weight, APGAR 10, H/o Neonatal Jaundice at 3rd day of birth. Developmetal history: attained normal developmental milestones as per age. Clinical examination revealed Hypo pigmented hair,Distended abdomen,Hepatosplenomegaly,Gross pallor,Child is dull,Icterus,Per abdomen-Dilated veins,Fair complexion,Petechiae. Pedigree analysis : 2nd degree consanguinity,History of

2nd sibling death.History of delayed umblical cord healing in father's history as well as his brothers. Her routine investigations revealed elevated Hepatic enzymes, total bilirubin levels with Pancytopenia, raised acute phase markers like CRP, LDH & Ferritin.Peripheral blood examination revealed pancytopenia with tear drop cells, macroovalocytes, anisopoikilocytosis. Ultrasound of abdomen showed Hepatitis with ascites. Provisional diagnosis was made of Tyrosinase Deficiency or Griscelli syndrome and sample was sent for NGS Based Exome Sequencing to CCMB which reported that the child is is homozygous for C.340 A>G variant in exon 5 of RAB27A gene variant and clinical features are matching those described as associated with Griscelli syndrome Type 2. Therefore the patient is likely affected with RAB27A associated Griscelli syndrome type 2.Child succumbed to repeated Pulmonary infections and sepsis at age of 7months. Conclusion:Congenital defects and Genetic disorders are common in indian society due to high rates of Consanguinity among different communities resulting unexplained cases of pregnancy loss , abortions , still births, neonatal mortality and under five mortality. in the case reported here, there was history of consanguinity in both parents and a history of second child death. This signifies the need for Premariatal or Prenatal Genetic Counselling and Testing with a detailed pedigree analysis would reveal carrier status or a homozygous phenotype carried through generations.Cost of molecular techiniques and gene testing has been significantly brought down in recent times and developing infrastructure and expertise in genetic diagnostics will prevent genetic disorders

**PP24**

# Lifestyle Disorders: An Emerging Trend and Modernistic Approach in the Contemporary Era

**Dr. Arti Thakur**

Assistant Professor, Parul Institute of Paramedical and Health Science, Parul university Vadodara, Gujarat.

arti.thakur30774@paruluniversity.ac.in

**Abstract**

The modern era is witnessing a substantial rise in lifestyle disorders, a concerning health trend driven by the complexities of contemporary living. Lifestyle disorders, including cardiovascular diseases, diabetes, and obesity, pose significant challenges to public health, demanding innovative strategies for prevention and management. This abstract explores the emergence of lifestyle disorders as a prevalent health issue and examines the modernistic approach adopted to address this multifaceted problem.

The modernistic approach to lifestyle disorders involves a proactive and personalized strategy that integrates technological advancements, individualized healthcare interventions, and a holistic perspective on wellness. Embracing the power of technology, wearable devices, health applications, and digital platforms play a pivotal role in empowering individuals to monitor and manage their health in real-time. This fosters a heightened awareness of lifestyle choices, encouraging individuals to adopt healthier behaviors.

Personalized medicine, informed by advances in genomics and healthcare analytics, is a central tenet of the modernistic approach. By tailoring interventions to an individual's unique genetic makeup and lifestyle factors, healthcare practitioners can optimize preventive measures and therapeutic strategies. This departure from a one-size-fits-all model reflects a more precise and effective healthcare paradigm.

Holistic wellness is a key pillar of the modernistic strategy, recognizing the interconnectedness of physical and mental well-being. Mindfulness practices, yoga, and stress management techniques are integrated into health and wellness initiatives, acknowledging the pivotal role of mental health in overall well-being. Corporate wellness programs are integral to the modernistic approach, extending health promotion beyond individual efforts. Employers are implementing initiatives that encourage healthy lifestyles, physical activity, and stress reduction among employees, recognizing the reciprocal benefits of a healthier workforce. Governmental interventions align with the modernistic ethos, employing public health campaigns, enacting food labeling regulations, and fostering community-based initiatives to create healthier living environments. These measures aim to establish a supportive ecosystem that facilitates healthier lifestyle choices on a societal level.

Nutritional awareness has surged in the modern era, propelled by increased access to

information. Individuals are more informed about the impact of dietary choices on health, leading to a shift towards healthier food options and a reevaluation of dietary patterns. The advent of telemedicine exemplifies the modernistic approach, providing accessible and convenient healthcare services. Telehealth platforms facilitate preventive consultations, monitoring, and support, contributing to a more proactive and patient-centric healthcare model.

In conclusion, lifestyle disorders present a growing challenge in the contemporary era, met with a modernistic approach that combines technology, personalized medicine, holistic wellness, corporate engagement, governmental initiatives, nutritional awareness, and digital health solutions. Addressing lifestyle disorders in this era requires a dynamic and collaborative effort involving individuals, healthcare providers, employers, policymakers, and the broader community.

**OP142**

# Dengue-An Overview

**Angelin D*[1], Koushikee R[1] and Gowsalya K[2]**

[1]Research and Development Wing, Sree Balaji Medical College& Hospital, Chennai-600 044

[2] Department of Zoology, Government Arts College for Men, Nandanam, Chennai-600 035

**Corresponding Author:** *angelselvam1@gmail.com

Dengue, a mosquito-borne viral infection, presents a significant global health challenge. This abstract provides an overview of key aspects related to dengue, encompassing its epidemiology, clinical manifestations, transmission dynamics, and preventive measures. Dengue viruses, primarily transmitted by Aedes mosquitoes, exist in four distinct serotypes, contributing to the complexity of the disease. Clinical symptoms range from mild febrile illness to severe manifestations, including Dengue Hemorrhagic Fever and Dengue Shock Syndrome. The increasing incidence and geographic spread of dengue underscore the urgent need for effective vector control strategies and vaccine development. This overview aims to enhance understanding of dengue, fostering informed approaches for its prevention, diagnosis, and management on a global scale.Dengue is a Mosquito-borne viral disease of Flaviviridae family. Dengue is an endemic disease in India with seasonal rise of cases during monsoon season. This is in close association with breeding of larvae of Aedes mosquito during rainy season. Therefore, it is crucial to manage afflicted patients clinically as well as to control the vector in order to control the disease.At Present Clinically NS-1 Antigen (viral Antigen) detection is done to confirm the case of dengue, though several methods are available for diagnosis. Anti-Pyretic (Paracetamol) for fever, meticulous monitoring of Vitals (BP, Temp, RR, Pulse), fluid management -Input/output monitoring, crystalloid infusion, watch for warning signs, RBC Transfusion or Whole blood Transfusion or Platelet transfusion in case of low platelet count or high hematocrithelps in timely diagnosis and early management.

**Keywords**: Dengue, Flaviviridae, NS-1 Antigen, Mosquito-borne diseases.

**OP143**

# Dual-Action Potential of Thymoquinone: Antimicrobial and Anti-Cancerous Activities

**Deepalakkshmi B[1*], Sathiyamoorthy P[2] and Elumalai K[2]**

1 Dept. of Research and Development, Sree Balaji Medical College & Hospital, Chennai

2 Dept. of Zoology, Government Arts College for men, Nandanam, Chennai

**Corresponding Author:** *deepalakshmi@sbmch.ac.in

Thymoquinone, a prominent bioactive compound found in *Nigella sativa*, has emerged as a compelling candidate for its dual therapeutic roles as an antimicrobial agent and a potential cancer treatment. Extensive research indicates thymoquinone's efficacy against a diverse range of microorganisms, showcasing its antimicrobial prowess. Moreover, its anti-cancer properties have been demonstrated through various mechanisms, including apoptosis induction, cell cycle arrest, and interference with signalling pathways crucial for cancer progression. This abstract highlights thymoquinone's multifaceted therapeutic potential, emphasizing its significance in the development of novel strategies for combating microbial infections and addressing cancer-related challenges. Further exploration of thymoquinone's mechanisms and clinical applications holds promise for advancing natural-based therapies in both infectious diseases and cancer treatment.The *in-vitro* and *in-silico* assessments of thymoquinone's antimicrobial and anti-cancerous activities reveal its potential as a dual-purpose drug. Thymoquinone demonstrates efficacy in combating infectious microbes, while simultaneously exhibiting promise in the treatment of cancer. This dual functionality positions thymoquinone as a versatile agent with the capacity to address both microbial infections and cancer, suggesting its potential for innovative therapeutic applications in medicine.

**Keywords:** Thymoquinone, *Nigella sativa*, anti-microbial, anti-cancerous, in-silico

**PP25**

## Fortified Soup Mix

**M. Annish Shabiya, Ranjani S and Hemalatha S***
School of Life Sciences, B. S. Abdur Rahman Crescent Institute of science and technology, Vandalur, Chennai, 600048, Tamilnadu, India.
*Corresponding author: hemalatha.sls@crescent.education

**Abstract**

An extraordinary fusion of culinary delight and well-being, the "Fortified Soup Mix - AHR-Gug Lyf" artfully combines the nutritional wonders of *Moringa oleifera*, *Solanum trilobatum* powder, and *Maranta arundinacea*. This innovative blend presents a unique amalgamation of antioxidant, antibacterial, and anti-inflammatory properties, purposefully tailored to cater to the specific dietary needs of the elderly. *Moringa oleifera*, often hailed as the "miracle tree," graces this creation with a bountiful offering of vitamins, minerals, and antioxidants, empowering cellular health and reinforcing the body's natural defense mechanisms, adeptly tackling age-related oxidative stress. *Solanum trilobatum* powder, boasting antimicrobial and anti-inflammatory prowess, serves as a robust guardian against infections, while also extending its supportive hand in addressing respiratory issues, further elevating this concoction into a holistic health solution transcending mere nutrition. *Maranta arundinacea* powder, functioning as both a thickening agent and a bestower of antidiabetic, antibacterial, and anti-inflammatory benefits, refines the texture and consistency of the soup, providing not just a meal but a soothing elixir for those contending with inflammatory conditions. This innovative soup mix, a medley of flavors and wellness, represents the idea that food can be simultaneously delectable and therapeutic, revitalizing our perception of nourishment. As contemporary health challenges continue to emerge, "AHR-Gug Lyf" emerges as a symbol of preventative nutrition, uniting the inherent gifts of nature into a savory, practical solution. It adapts with ease, offering versatile and efficient dietary support for various health needs, from combating pathogens to alleviating constipation. In essence, it is a culinary revolution that harmonizes taste and health, underpinned by unwavering commitments to sustainability and versatility, heralding a new era in the culinary realm. It encapsulates a world of flavor and well-being, reimagining the role of food as an agent of vitality and nurturing the body from within.

**Keywords**: *Maranta arundinacea*, antidiabetic, antibacterial, anti-inflammatory, culinary

**OP144**

# GC-MS, Phytochemicals Analysis of Aqueous Extract of Asteraceae plant Species against Wound pathogens

**K. S. Shanmugam and Dr.L.Ramkumar**

Department of Microbiology, K.S.Rangasamy College of Arts and Science (Autonomous),Tiruchengode.

## Abstract

Herbal medicines as the major remedy in the traditional system of medicine. It is widely used for medicines like wound infection. The main objective of this examination was to research the physico-chemical parameter, identify the different phytochemical compounds present in the aqueous extract of Asteraceae plant speciesthrough preliminary phytochemical screening and Gas Chromatography-Mass Spectrometry (GC–MS). Preliminary secondary metabolites analysis of the different extracts of Asteraceae plant speciesshowed the positive result for carbohydrates,tannis,Cardiacglycosidealkaloids,saponins and phlotannins, The GC–MS examination showed 45 compounds with 35 known biological activities. This work tends to be presumed that the plant contains viable phytochemical compounds, which might be utilized for therapeutic purposes. This investigation offers a platform for utilizing Asteraceae plant speciesas a natural option for the treatment of wound infection.

**Keywords:** Asteraceae plant species, GC–MS, Phytochemical, Aqueous extract.

**OP145**

## Mushroom Lectins and their role in Cancer Cells

**Sekar Kumaran**

**Department of Botany, Govt. Art & Science College, Harur-635304**

**Abstract:** Mushrooms are famous for their nutritional and medicinal values and also for the diversity of bioactive compounds including lectins. *Lectins are known for its anti-proliferative activities in recent times. Agaricus bisporus* lectin shows its antiproliferation activity against human colon cancer cell lines HT29 and breast cancer cell lines (MCF-7). *Volvariella volvacea* lectin possesses antitumor activity to sarcoma S-180 cells. *Tricholoma mongolicum* lectin inhibits mouse mastocytoma P815 cells *in vitro* and sarcoma S-180 cells *in vivo. Grifola frondasa* lectin is also cytotoxic to HeLa cells. The lectins from *Volvariella volvacea, Boletus satanas* Lenz, *Flammulina velutipes*, *Ganderma lucidum*, *Lentinus edodes*, and *Agrocybe cylindracea* exhibit potent mitogenic activities. In addition, some lectins express other potential activities such as immunoenhancing, vasorelaxing, hypotensive, and antimicrobial activities. These clearly indicate that mushroom lectins might be employed as drugs or therapeutic reagents for pharmaceutics; mushrooms have now become a valuable source of lectins for drug discovery.

**Keywords:** lectins; edible mushroom; medicinal value; biological properties

**OP146**

# Unlocking Potential: Repurposing approved macrolide antibiotics through siderophore conjugation - A comprehensive in silicodocking analysis

**Kalaiarasu Lakshminarayan[1,2], and Loganathan Rangasamy[1,2]***

[1] School of Advanced Sciences (SAS), Vellore Institute of Technology (VIT), Vellore - 632014, India

[2] Drug Discovery Unit (DDU), Centre for Biomaterials, Cellular, and Molecular Theranostics (CBCMT), Vellore Institute of Technology (VIT), Vellore -632014, India

***Correspondence:** Loganathan Rangasamy, **Email:** loganathan.r@vit.ac.in

## Abstract

Antimicrobial resistance (AMR) is a developing concern for global health as numerous pathogens have evolved mechanisms to resist antibiotics. Gram-negative bacteria are especially resistant to most antibiotics because they have a double membrane that currently available antibiotics cannot penetrate. Therefore, it is necessary to accelerate research on therapeutic strategies that afford potent and selective delivery of antibiotics to these Gram-negative resistant bacteria. These bacteria have specific outer membrane transporters which translocate ferric ions via siderophores into the bacterial cell. Antibiotics can be covalently linked to siderophores to deliver them across the bacterial membrane selectively. Macrolides are antibiotics that target bacterial ribosomes and certain enzymes and are highly susceptible to efflux. However, they do not cross the polar Gram-negative outer membrane. Still, enhancing the potency of macrolide antibiotics against these bacteria has been unexplored. In this project, screening of siderophore-conjugated macrolide antibiotics was performed using in-silico analysis. The binding pocket and binding affinity of siderophore-conjugated antibiotics exhibited an excellent binding score with FhuA, the receptor for ferrichrome-iron (PDB:1FCP) and periplasmic protein FhuD (PDB:1ESZ). The conjugate binds explicitly to macrolide phosphotransferases (PDB: 3FRQ, 7W15), macrolide glycosyltransferases (PDB:2IYF), and peptidyl transferase (PDB: 1JZY) enzymes. These are some essential bacterial enzymes required for bacterial metabolism; inhibiting these enzymes would be detrimental to the bacteria. Thus, these results provide insight into the rational design of novel siderophore-drug conjugates against problematic AMR pathogens and could potentially be used in treating AMR.

**Keywords:** Antimicrobial resistance, Gram-negative resistant bacteria, Siderophore-conjugated antibiotics, *in-silico* analysis

**OP147**

# *Vachellia nilotica(Lam) Wild.* leaves extract: HPLC fractionation and LCMS analysis to quest compounds having biological activity against Osteosarcoma cell lines

**Neha Verma, Shilpa Kumari, Kanu Priya**

Department of Life Science, School of Basic Science and Research, Sharda University Greater Noida

Throughout the world, traditional herbal medicine is largely derived from medicinal plants. Secondary bioactive chemicals are responsible for most of the plant's medicinal qualities. In the current investigation, MG 63 osteosarcoma cell lines were used as a test subject for the High-Pressure Liquid Chromatography (HPLC) fractions of *Vachellianilotica* (leaves) extracts (ethyl acetate). LC-MS analysis was used to identify the bioactive chemicals in all the fractions exhibiting cytotoxic activity. One HPLC fraction of *V. nilotica* (leaves) among the total HPLC fractions (n = 3) demonstrated possible efficacy against Osteosarcoma cell lines. When tested against MG 63 cell lines, fraction 1 (Pk-1) from the ethyl acetate extract exhibited the highest level of activity. To find the bioactive chemicals, LC-MS analysis was performed on all three fractions. In HPLC fractions, bioactive substances were identified as neophytadiene (ethyl acetate Pk-1), methyl stearate (ethyl acetate Pk-11), and hexadecanoic acid, methyl ester/methyl palmitate (ethyl acetate Pk-111). HPLC fractions derived from the leaves of *Vachelianilotica* showed a possible inhibitory effect against MG 63 Osteosarcoma cell lines. Bioinformatics analysis was performed to validate the MTT results of all three fractions against specific targeted proteins. The fraction containing neophytadiene was subjected to additional investigation, including FACS cell cycle arrest, and an Alizarin red S dye mineralization assay. The results of the study indicate that the neophytadiene-containing fraction arrested the cell cycle at the G1 phase in a dose-dependent manner and showed lesser mineralization efficiency. Hence, proven as a potent cytotoxic agent. Further purification of these phytocomponents is necessary, as is the in vivo confirmation of the ability of *V. nilotica* leaves to prevent cancer and other metabolic problems.

**Keywords:** Vachellianilotica, Biological activity, MG 63 cell lines, anticancer, FACS analysis

**OP148**

# Differential Expression of Hippo Signaling Pathway Components In Human Focal Epilepsy Resected Samples

**Pradeep Madhamanchi[1, 2], Kishore Madhamanchi[1], Sita jayalakshmi[3], Manas Panigrahi[3], Sujatha Peela[4] *Prakash Babu Panithi[1]**

[1]Department of Biotechnology and Bioinformatics, School of Life Sciences, University of Hyderabad, Hyderabad, India

[2]Centre for Applied Sciences, Government Degree College (Men)-Srikakulam, Srikakulam, India

[3]Department of Neurosurgery, Krishna Institute of Medical Sciences, Hyderabad, India

[4]Department of Biotechnology, Dr. B. R. Ambedkar University, Srikakulam, India

Mail ID: mpsep15@gmail.com

**Background:** High-resolution brain imaging of epileptic patients revealed that hippocampal sclerosis and structural abnormalities in cortex of the brain are associated with pharmacoresistant focal epilepsies. In these cases epilepsy surgery is used to control seizures. But follow up studies revealed wide range of complications along with seizure recurrence in post surgical patients. So, focus on molecular mechanisms involved in seizures promotion is prerequisite to combat this. The hippo signaling pathway has emerged as a key regulator of organ size, tissue patterning and cell death. Recent studies revealed that Fat cadherins and CD44 adhesion molecules affect cell homeostasis through hippo pathway. In this study we investigated the expression levels of Fat cadherins, CD44 mediated hippo signaling pathway components in human epilepsy resected samples

**Materials and methods:** Total 60 human epilepsy resected samples were collected from KIMS (Hyderabad, India). All these epileptic samples, based on histopathology categorized in to: 27 (FCD) and 33 (H.S). 2 normal brain cortical and temporal lobe resected samples used as control. Parts of these samples used for Western blot (W.B), Immunohistochemical (IHC) and Immuno fluorescence (IF) analysis and remaining parts used for semi-quantitative PCR (SQ.PCR) analysis

**Results:** From SQ.PCR and W.B, we observed that differential expression of Fat cadherins, CD44 and hippo signaling core kinases like MST1, MST2, LATS1, LATS2 and YAP65 in

epilepsy resected samples compared to control. Further IHC and IF studies showed increased nuclear localization of YAP65 in H.S samples than FCD.

**Conclusions:** From the above results, we hypothesis that Fat and CD44 regulated hippo signaling promotes seizures in pharmacoresistant epileptic patients, CD44 over expression and increased nuclear localization of yap65 in H.S patients might be one of the reason for cell death observed in patients with FCD associated H.S. So targeting of hippo signaling is one way to combat pharmacoresistant epilepsy.

**OP149**

## Clinical Spectrum of Electrolytes In Stroke

**Dr.Prerna Chawla, Dr.P.Kiranmai and Dr.N. Jaya**

[1]MD Biochemistry, Osmania Medical College, Hyderabad, Telangana

[2]Professor, Biochemistry, Osmania Medical College, Hyderabad, Telangana

[3]Head of the Department, Biochemistry, Osmania Medical College, Hyderabad, Telangana.

**Abstract**

Introduction: Globally, cerebrovascular accidents (stroke) are the 2nd leading cause of death and 3rd leading cause of disability. In India, the incidence of stroke ranged from 105 to 152 per lakh persons per year during the past 20 years. Electrolyte abnormalities are common in stroke patients and can lead to mortality if not corrected in time. Case fatality rate is 42% within a week. The aim of our study is to evaluate the spectrum of electrolytes imbalance in patients presenting with acute stroke in comparison to control group in the tertiary care centre. METHOD : This is a observational study done in the department of biochemistry in co-ordination with the department of General Medicine at OSMANIA GENERAL HOSPITAL.The study was carried out over a period of 6 months from January 2023 to June 2023. A total of 168 adult subjects were considered, of which 84 are cases and 84 are controls. Analysis of serum Sodium, Potassium and Chloride was done with ION SELECTIVE ELECTRODE method. Results: It was observed that there was significantly low sodium in 55.9 % of stroke patients, the mean of 135.36±5.8, mean of controls is 138.5±3.1 (p value <0.001). Mild hyponatremia in 37%, moderate hyponatremia in 8% and severe hyponatremia in 2% cases.No significant correlation was seen in potassium and chloride in these stroke patients.

Conclusion: Electrolyte imbalance commonly occurs during acute stroke. Hyponatremia is most common electrolyte abnormality in acute stroke. Electrolyte imbalance may adversely affect recovery of patient .Serum electrolytes should be determined early in every patient with stroke.Early detection and management of electrolye imbalance in stroke may improve the overall outcome of stroke patients.

**OP150**

# Synthesis and characterization of herb loaded chitosan nanoparticles and its application in anticancer treatment

**Vinitha D[1]*, Rajendran R[2], Muthukrishnan P[2]**

[1]* Research Scholar, Department of Microbiology

[2] Associate Professor, Department of Microbiology

PSG College of Arts & Science, Coimbatore, Tamil Nadu, India 641014.

*Corresponding author: vinithavidhya00@gmail.com

## Abstract

In the present study, herb loaded nanoparticles was synthesized using *Nigella sativa* and its efficacy in anticancer treatment was tested. The bioactive compounds of *Nigella sativa* was extracted using solvents such as chloroform, ethanol, carbinol (methanol) and water showed the presence of phytochemicals such as alkaloids, saponins, proteins, flavonoids, glycosides, tannins, thiols, phenols, steroids and carbohydrates. Of the various solvents, methanolic extract showed highest antibacterial activity against *Staphylococcus aureus*(31mm), *Proteus sp.*,(19mm), *Klebsiella sp.*,(18mm), *Bacillus subtilis*(16mm), *Escherichia coli*(14mm) and least activity was observed against *Pseudomonas sp.*,. In antifungal assay, the zone of inhibition was higher against *Aspergillus flavus*(17 mm) and *Candida albicans*(12mm).The minimum inhibitory concentration of methanolic extract was effective at 40µg/ml for gram positive and 50µg/ml for gram negative test organisms. The nanoparticles loaded with herbal extract was synthesized using chitosan and sodium alginate by ion gelation method. Dynamic light scattering spectrum of control nanoparticle and herb loaded nanoparticle was in the size of 219 nm and 211.7 nm respectively. FE-SEM analysis of control nanoparticle and herb loaded nanoparticle showed amorphous topology and ranged in an average size of 150 nm and 125 nm in diameter rsepectively. GCMS chromatogram showed the presence of 28 major peaks, of which hexadecanoic acid, ethyl ester, N-hexadecanoic acid,9,12-octadecadienoic acid were predominant.*Invitro* cytotoxicity assay (MTT assay) of the methanolic extract ranging in concentration of 10-1000µg/ml against MCF-7 cell lines showed IC50 value of 81±1.2µg/ml inhibiting the proliferation of human cancer cells. It could be concluded that the synthesized nanoparticles has therapeutical potential against cancer.

**Keywords:** Chitosan, alginate, DLS, FE-SEM, GCMS, Cytotoxicity

**OP151**

# Assessment of PARK-2 Intronic Polymorphism rs1784594 in North Indian Patients with Oral Cancer

**Rashmi Kumari[1,2], Siya Ram[2], Imran Khan[3], M.M.A.Rizvi*[1]**

[1]Genome Biology Laboratory, Department of Lifesciences, Jamia Millia Islamia, New Delhi-110025, India

[2]Indira Gandhi National Open University, Discipline of Lifesciences, New Delhi-110068, India

[3]Department of Oral & Maxillofacial Surgery, Faculty of Dentistry, Jamia Millia Islamia,New Delhi-110068, India

: *: Corresponding author: mrizvi@jmi.ac.in rashmi.rash14@gmail.com

**Abstract**

**Purpose:** Oral cancer is the sixth leading cause of cancer-related death worldwide. Numerous studies have demonstrated the correlation between the implication of oral cancer susceptibility with genetic, epigenetic, as well as epidemiological variables. Recentresearchhas revealed that, a potential tumor suppressor gene called PARK2 displays genomic alterations such as intronic region deletion or modifications in a number of human cancer types. PARK2 germline variations and Single Nucleotide Polymorphisms (SNPs) have been linked to Parkinson's disease, but it is unclear whether they play a role in the onset or progression of oral cancer. A case-control model was used in this study to look for possible links between PARK2 intronic region polymorphisms (rs1784594) and oral cancer susceptibility in North Indian individuals. **Methods:** The present study based on case-control cases which comprises total 250 genetically distinct individuals of North India, 125 oral cancer cases and 125 healthy controls. The PCR-RFLP technique was used to examine SNP rs1784594. Risk and relationship of oral cancer with this polymorphism were assessed using the statistical analysis programme SPSS (version-22). **Results:** The genotype distributions of the rs1784594 SNPs were associated with TNM (p value-0.002), tumor grade (p value-0.001), smoking (p value-0.003), chewing tobacco (p value-0.012), age(p value-0.001), and gender (p value-0.0024). The risk of oral cancer was significantly higher in populations with the CT + TT genotype than in populations with the CC genotype (CT + TT vs CC). **Conclusion:** This study found a significant link between PARK2 SNPs rs1784594 and oral cancer. On the other hand, this SNPs and other clinicopathological variables, highlighting how rs1784594 SNPs affect oral cancer susceptibility in the North Indian individuals.

**Keywords:** PARK2, Oral cancer, Tumor suppressor gene, Single-nucleotide polymorphism (SNP).

**OP152**

# Anticancer Activity and Phytochemical screening of Red Algae, *Halymenia floresii* Collected from the Gulf of Mannar

**M. Shantha[1] and A. Arockia Jenecius Alphonse[2]***

[1]Assistant Professor , Department of Biotechnology, Kumararani Meena Muthiah college of Arts and science, Chennai Tamilnadu, India – 600020.

[2]Assistant Professor, Department of Botany, St. Mary's College (Autonomous), Thoothukudi, Tamilnadu, India- 628 001.

## Abstract

Cancer is a major public health problem worldwide, and there at present no completely effective treatments.. Marine macroalgae, sometimes known as seaweeds, contain a variety of bioactive secondary metabolites that have antioxidant, anti-inflammatory, and anticancer properties. Phytochemicals generated from natural products have been identified as a new generation of anticancer medicines that may reduce the risk of cancer while posing minimal damage to patients. Moreover, seaweed-derived chemicals target important substances that control cancer processes. This study explores the phytochemical constituents, GC-MS and anticancer properties of the *Halymenia floresii.* To evaluate the phyto components , quantification and GC-MS . Anti-tumor activity against skin cancer cell lines (A431) was assessed by 3-(4,5-Dimethylthiazol-2-cyl)-2,5-Diphenyltetrazolium Bromide (MTT) assay. Phytochemical investigations suggests that the *Halymenia floresii* showed the presence of phytochemicals like alkaloids, steroids, flavonoids and terpenoids which may contribute to its biological activities.. GC/MS analysis revealed the presence of 15 compounds , Nonadecane as the active antitumor constituent of *Halymenia floresii.* The findings show that the *Halymenia floresii* investigated here has a number of unique and novel ingredients, as well as active potent antitumor chemical constituents, and that it can be used as a potential antioxidant and anticancer agent for future uses in pharmaceutical and medical industries.

**Keywords:** Antioxidant, Anticancer, *Halymenia floresii*, Nonadecane, GC-MS

**OP153**

# Current and Future Direction of Biochip Technology for Medical Diagnosis

**S. Yazhini[1], A. Kaviya[1], and G. Krishnamoorthy[1,2,*]**

[1]Department of Biochemistry

[2]R & D Cell

Muthayammal College of Arts and Science, Rasipuram - 637 408, Namakkal-Dt, Tamil Nadu, India

Email Id: yazhinisahadevan2002@gmail.com

**Abstract**

Biochiphas been broadly studied and progressive to enable large-scale analyses of genomics and proteomics. This chip encompasses mostly three types:protein microarray, DNA microarray,and microfluidic chip.This chip has been widely used to provide quick results with small and could eventually outperform conventionally used diagnostic analyses.This technology is to efficiently screen large numbers of biological analytes, with potential applications ranging from disease diagnosis to detection of bioterrorism agents.Biochips are the tool that can meet the demands for high throughput and can advance or might eventually replace the existing technologies for diagnostics, drug development, clinical studies by creating a symbiotic relationship between technological engineering and medical sciences in such a way which provide results with accuracy, precision, linearity, reproducibility and with absolute robustness.The fabrication of microarraysis a major economic and technological difficulty that may ultimately decide the accomplishment of upcoming biochip platforms.We can expect that advances in micro-fluidic biochip technology will enable the miniaturization of devices that will allow highly sensitive analysis of complex biological interactions.

**Keywords**: Biochip, Biosensor, DNA biochip, Microfluidic, Diagnosis.

**OP154**

# A Study On Physio And Biochemical Contents Of Four Species Of A Genus *Padina* - Marine Brown Algae From Mandapam Coastal Regions Of Tamil Nadu, India

**Ravi P[1]* and Dr. G. Subramanian[2]**

[1]Research Scholar, Department of Botany, Arignar Anna Government Arts College, Namakkal – 637 002.
[2]Head of the Department, Department of Botany, Arignar Anna Government Arts College, Namakkal – 637 002.
**Corresponding Author:** ravibot_srkv@yahoo.co.in; gslifesciencegs@gmail.com

**Abstract**

Four seaweed extracts from the Mandapam coastal regions of Tamil Nadu, India, were examined for their physio and biochemical content. The moisture content (75.95–96.03%) was generally the highest for all seaweeds, followed by carbohydrate (26.86–74.10% dry weight basis), crude fibre (4.03–34.71% dry weight), ash(6.05–45.04% dry weight), crude protein (5.22-17.28% dry weight), and crude fat content (0.15–0.84% dry weight). The total phenolic contents were estimated using the Folin-Ciocalteu reagent method utilizing a UV-visible spectrometer (Perkin Elmer) and the standard calibration curve of phloroglucinol obtained at 740 nm. The total phenolic content of all seaweeds in the methanolic extract varied from 9.40 to 51.87 mg/g phloroglucinol equivalents (PGE) of the dried sample. The results of this investigation showed that there were four different species of brown algal seaweed that had significantly different physio and biochemical compositions (p 0.05).

**Keywords:** Brown Algae, Lipid, Protein, Carbohydrates, Phenoliccontents

**OP155**

## Optimizing the Biosynthesis of Silver Oxide Nanoparticles and Evaluating Their Anticancer Activity

**Vithiya Karunagaran***

***Department of Microbiology, Muthayammal College of Arts and Science, Rasipuram**

Silver oxide nanoparticles can be synthesized through both chemical and biological methods, with the latter gaining prominence as an environmentally friendly approach. However, the industrial feasibility of biological synthesis is hindered by its relatively slow process. Addressing this challenge, this study focuses on optimizing physiochemical parameters to achieve a rapid synthesis of silver oxide nanoparticles using *Bacillus thuringiensis* SSV1 culture supernatant. The resulting nanoparticles exhibit a spherical shape with an average particle size of 30 nm. Additionally, the cytotoxic effects of these nanoparticles were evaluated against HepG2 and Chang liver cell lines using the MTT assay. The results indicate a dose-dependent response on both HepG2 (IC50 = 0.47 µg/mL) and Chang liver cells (IC50 = 1.11 µg/mL).

**Keywords:** Silver oxide nanoparticle; *Bacillus thuringiensis*; anticancer; cytotoxicity.

**OP156**

# Zinc nanoparticles biogenic synthesis, characterization, and cytotoxic impact on the MCF-7 cell line

**M. Neelakandan*[1] and D. Rajasekaran[2]**

[1]Assistant Professor, Department of Biochemistry, Muthayammal College of Arts and Science (Autonomous), Rasipuram, Tamil Nadu, 637408. India.

[2]Assistant Professor, Department of Biotechnology, Muthayammal College of Arts and Science (Autonomous), Rasipuram, Tamil Nadu, 637408. India.

**Abstract**

Marine seaweeds are most of the most vital resources in our environment. Seaweed is the general term for a broad range of plant and algae species that thrive in seas, lakes and rivers, as to the National Ocean Service (NAS). Southeast Asia's traditional diet includes seaweed consumption, which has been found to have the potential to prevent a number of chronic diseases. Seaweeds have potent byproduct s such as antioxidants, flavanoids, terpenoids and glycosides. In the present study, we have produced zinc nanoparticles (ZnNPs) making use of an aqueous extract of marine red seaweeds Jania rubens. The synthesis of zinc nanoparticles was subjected to characterization of different techniques such as UV spectroscopy, EDAX, scanning electron microscope (SEM), Fourier transform infra red (FTIR) spectroscopy, and GC-MS analysis. The therapeutic potential of ZnNPs was investigated by determining the toxicity on MCF-7 cell line. The MCF-7 cell line compared with normal cancer derived cells models in this study. Our results showed ZnNPs had a mild to low cytotoxic effect on the MCF-7 cell line.

**Keywords:** Seaweeds, Apoptosis, MCF-7, Nanoparticles, Breast cancer

**OP157**

## Host targetedtherapy: A pan-antiviral strategies to combat human viral diseases

**R. Vinoth Kumar**

Assistant Professor, Department of Biotechnology, Faculty of Science and Humanities, SRM Institute of Science and Humanities, Ramapuram, Chennai – 600 089, Tamil Nadu, India.

**Abstract**

Viruses are an obligate intracellular pathogen. They encode fewer proteins so they hijack cellular pathways and host protein functions to infect cells and complete its life cycle. Viral diseases represent a major cause of mortality across the world. Available vaccines and chemical antiviral agents targeting viral factors are not broad spectrum and did not provide 100% antiviral efficiency. This necessitates to develop novel antiviral therapies targeting host proteins, to treat new emergingviruses or viral infections. The host factors can be identified through haploid, CRISPR/Cas9 and RNAi screening. Genome wide association studies and transcriptomic profiling have identified several host proteins that contribute to viral infections. Studying the interaction between viral and host proteins might help in decoding various host factors that can be used for devising antiviral strategies. Such strategies can be devised with limited side effects and high broad spectrum antiviral potential.

**OP158**

## Antibacterial Activity, Photochemical Analysis of *Bauhinia tomentosa* against Diabetic Wound Pathogens

**S. Subana[1] and P. Jeevan[*2]**

Department of Microbiology, J.J College of Arts and Science, Pudukottai

**Abstract**

In the present study, diabetic wound samples suspected of bacterial infection were analyzed. The antibacterial activity of *Bauhinia tomentosa* was tested against the isolated bacteria, revealing that Petroleum ether recorded a maximum inhibition zone against the organism tested. Secondary metabolites such as alkaloids, flavonoids, terpenoids, tannins, steroids, glycosides, phenols, and carbohydrates are present in the acetone solvent of *Bauhinia tomentosa* plant extract. *Bauhinia tomentosa* extract exhibited good antibacterial activity against all bacteria. The antibacterial activity of mixed extract was evaluated and exhibited that mixed extract was more effective against all bacteria than any of the cases alone, indicating the synergistic effect between these three extracts. From these samples, 31 isolates were isolated and identified *E.coli, S.aureus,Pseudomonas sp.,* and *Klebsiella sp.,* The isolated organism was tested against standard antibiotics.

**Keywords:** Medicinal plants, Anti-microbial activity, Antioxidant activity, Anti-cancer activity, phytochemical analysis.

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