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Silver Jubilee Celebration

Proceedings of International Conference on

Unravelling the Origins & Impacts of Emerging Pandemics

Organized by

Department of Biochemistry

BIOTRENDS'24

SOKA IKEDA COLLEGE OF ARTS AND SCIENCE FOR WOMEN

(Affiliated to the University of Madras)
Accredited with B++ Grade by NAAC, An ISO 9001:2015 Certified Institution
Sethu Bhaskara Nagar, Madhanangkuppam, Chennai - 99

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DEPARTMENT OF BIOCHEMISTRY

Biotrends'24

Organizes

INTERNATIONAL CONFERENCE ON "UNRAVELLING THE ORIGINS & IMPACTS OF EMERGING PANDEMICS"

10th & 11th September, 2024

SOKA IKEDA COLLEGE OF ARTS AND SCIENCE FOR WOMEN

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Silver Jubilee Celebration

Department of Biochemistry

BIOTRENDS'24

organises

International Conference on

Unravelling the Origins & Impacts of Emerging Pandemics

(Hybrid Mode)

CHIEF GUESTS

DR. ALBERT CLAUDE
Consultant
Academic & Industrial Research
Toronto, Canada

DR. LUKE ELIZABETH HANNA
Scientist 'F'
Head, Dept of Virology & Biotechnology
National Institute for Research in Tuberculosis (NIRT), India

MR. V.GUNASEKARAN
Chief Operating Officer
Think Health Care
India

DR. C. STELLA
Director, Sethu Bhaskara Agricultural College & Research Foundation &
Chairperson, Senior Professor & Head (Rtd)
School of Marine Sciences,
Alagappa University

EVENTS

- Paper Presentation
- Poster Presentation

10 & 11 Sept. 2024
10.00 am

for queries contact 9940032617 / 9042375310

Dr. Meera Murugesan
Principal

Mrs. Kogilam Kumanan
Secretary

Dr. Sethu Kumanan
Chairman

BIOTRENDS'24

International Conference on

Unravelling the Origins & Impacts of Emerging Pandemics

Program Schedule

Day : 1

10.00 am :	**Invocation**	
10.05 am :	**Welcome Address**	
10.10 am :	**Principal Address**	
10.15 am :	**Introduction of Chief Guests**	
10.20 am :	**Honoring of Chief Guests**	
10.25 am :	**Presentation of Department Activities**	
10.40 am :	**Chief Guest Address :**	**Dr Luke Elizabeth Hanna** Scientist 'F', Head, Dept of Virology & Biotechnology NIRT, India
11.30 am :	**Break**	
12.05 pm :	**Poster Presentation**	
01.05 pm :	**Chief Guest Address :**	**Mr V Gunasekaran** Chief Operating Officer Think Health Care, India
01.50 pm :	**Vote of Thanks**	

BIOTRENDS'24

International Conference on

Unravelling the Origins & Impacts of Emerging Pandemics

Program Schedule

Day : 2

09.15 am : **Invocation**

09.20 am : **Welcome Address**

09.25 am : **Introduction of Chief Guests**

09.30 am : **Chief Guest Address :** **Dr Albert Claude**
Consultant, Academic & Industrial Research
Toronto, Canada.

10.20 am : **Break**

10.40 am : **Chief Guest Address :** **Dr Stella**
Director, Sethu Bhaskara Agricultural College & Research Foundation.
Chairperson, Senior Professor & Head (Rtd)
School of Marine Sciences, Alagappa University
India.

11.30 am : **Prize Distribution**

12.05 pm : **Vote of Thanks**

ABOUT THE COLLEGE

Soka Ikeda College of Arts and Science for Women has gloriously embarked on the twenty second year with many accolades and achievements since its inception in the year 2000. Having emerged as a pioneer institution in its neighbourhood, the college offers humanistic education. "The Institution of Excellence" award given by the Indian Council of Gandhian Studies, New Delhi adds glory to the success saga of the institution.

The college is an ISO 9001:2015 Certified Institution and affiliated to the University of Madras and recognized by the Government of Tamilnadu (G.O.281). The college offers 13 courses at the U.G. level, 4 courses at the P.G. Level in Shift-I and 5 U.G. Courses, 3 P.G. courses in Shift-II.

The college strongly believes in the integral growth of young women and strives to impart a new model for higher education that will exert a strong influence on the development of education in the nation.

ABOUT THE DEPARTMENT

The Department of Biochemistry, established in 2000, has consistently garnered accolades for its rapid progress in teaching, particularly through its undergraduate course offerings. Additionally, the department provides a two-year diploma program in Medical Laboratory Technology.

Known for its dynamism and ambition, the Department of Biochemistry actively hosts a variety of academic events, including seminars, symposiums, workshops, hands-on training sessions, and guest lectures. These initiatives aim to equip students with the latest advancements in biochemistry and life sciences. The department is dedicated to supplying the biochemical, nutritional, and pharmaceutical industries with the expertise required for the discovery and analysis of biological components.

The Department of Biochemistry aims to live up to the promise of providing students with a strong foundation in biochemical processes, improving analytical, technical, and critical thinking skills, and developing their scientific literacy so that they may contribute to the field of academics and life science-based industries after graduation.

ABOUT THE CONFERENCE

The International conference on "Unravelling the Origins & Impacts of Emerging Pandemics" aims to bring together leading researchers, public health experts, and policymakers to explore the critical factors driving the rise of pandemics in the 21st century. As the world faces increasingly complex health challenges, this conference will delve into the environmental, social, and economic drivers of pandemics, including the role of climate change, urbanization and global travel.

Participants will engage in discussions on innovative strategies for pandemic preparedness, the ethical considerations in public health responses and the importance of global cooperation. By addressing these pressing issues, the conference seeks to contribute to a more resilient and equitable global health system, better equipped to prevent and manage future pandemics.

Organizing Committee

Patrons

Dr. Sethu Kumanan, Chairman

Mrs. Kogilam Kumanan, Secretary

Dr. P. Ranjithakani, Advisor

Dr. R. Jagannathan, President

Dr. Meera Murugesan, Principal

Dr. Kanmani Subramanian, Vice-Principal

Convener

Mrs. D. Subhashini, Head, Department of Biochemistry

Organizing Secretaries

Dr. C. Latha, Asst. Professor

Dr. L. Anna Sheba, Asst. Professor

Dr. S. Radhika, Asst. Professor

Mrs. K.Y. Ananthi, Lab Incharge

Message from Academic Advisor

Dr. P. Ranjithakani
Academic Advisor
Soka Ikeda College of Arts & Science for Women

Greetings,

Lifelong learning is the premier provider in quality science. Wide range of research is needed to expand the scientific horizon. Past few decades have seen the emergence of many novel agents causing new infections. Global environment spurred by climatic changes, overcrowding dwellings, increase in human density and mobility poses severe health hazards. Emerging Pandemics is one among the challenge in global health.

I am happy to note that the Department of Biochemistry, Soka Ikeda College of Arts and Science for Women, Chennai,has taken an initiative by organizing an International Conference captioned "Unravelling the Origins and Impacts of Emerging Pandemics". It is an age of emerging and re-emerging endemic threats. Early detection of new diseases, genomic studies and biotechnology of causative organisms, enhanced effective control measures are the thrust areas of this Conference. With well-defined scope, the programs are planned to suit the needs of the day. Excellent work by the Biochemistry Department deserves warmest compliments.

I profusely thank the eminent guests of the day Dr Albert Claude, Consultant, Academic & Industrial Research, Toronto, Canada, Dr Elizabeth Hanna, Scientist 'F', Head, Department of Virology and Biotechnology, NIRT, India, Dr C Stella, Director, Sethu Bhaskara Agricultural College and research Foundation, India, Mr V Gunasekaran, Chief Operating Officer, Think Health care, India for their greatest motivation apart from sharing their innovative research, deep appreciations to the Principal Dr Meera Murugesan,Vice Principal Dr Kanmani Subramanian for being the primary source of inspiration.Special Congratulations and compliments to Mrs .D. Subhashini, Convener and Head of the Department, Organizing Secretaries Dr. C. Latha, Dr.L.Anna Sheba, Dr. S Radhika and Mrs K.Y. Ananthi. Cheers and greetings to the delegates and participants for their enthusiasm in grasping recent scientific trends.

KEEP MOVING TOWARDS GLOBAL HEALTH

Warm wishes

Dr P Ranjithakani
Academic Advisor
Soka Ikeda College of Arts & Science for Women

Principal's Desk

Dr. Meera Murugesan
Principal

Dear Readers,

It is with immense sense of fulfillment that I introduce the proceedings of the International Conference on "Unravelling the Origins & Impacts of Emerging Pandemics". This publication represents the culmination of a significant intellectual endeavor, bringing together leading scholars and practitioners to address one of the most pressing global challenges of our time.

The importance of this conference, organized by our Department of Biochemistry, cannot be overstated. In a world that has been profoundly altered by recent pandemics, the need for rigorous research and informed dialogue on the origins, impacts, and future implications of such events is more critical than ever. The insights included in this volume offer valuable innovative perspectives that will undoubtedly contribute to the ongoing global discourse on pandemic preparedness and response.

As the Principal of this esteemed institution, I am honored to have witnessed the dedication and collaboration that went into making this conference a success. The quality of the work presented here is a testament to the academic excellence and commitment of our faculty, students, and all those involved in this remarkable event.

These proceedings are more than just a record of what was discussed; they are a reflection of our collective responsibility to advance knowledge and find solutions to the challenges posed by pandemics.

I extend my heartfelt congratulations to the organizing committee, the authors, and all contributors for their outstanding work. Your efforts have not only enriched this conference but have also made a meaningful contribution to the broader scientific community.

As you delve into these proceedings, I hope you find the content as inspiring and thought-provoking as I do. Let us continue to build on the knowledge shared here and work together towards a safer, healthier future for all.

Warm regards,

Dr. Meera Murugesan
Principal
Soka Ikeda College of Arts & Science for Women

MESSAGE FROM VICE PRINCIPAL

Dr Kanmani Subramanian
Vice Principal

'நோயற்ற வாழ்வே குறைவற்ற செல்வம்'

என்பதற்கேற்ப நோயில்லாத உலகைக் காண்பதற்கு, தங்களால் இயன்ற அளவில் விழிப்புணர்வை ஏற்படுத்த வேண்டும் என்ற உயர்ந்த நோக்கத்தில், சோகா இகெதா கலை மற்றும் அறிவியல் மகளிர் கல்லூரியின் உயிர்வேதியியல்துறை, "வளர்ந்துவரும் தொற்று நோயின் தோற்றம் மற்றும் தாக்கங்களை தெளிவுறுத்துதல்" என்ற தலைப்பிலான உலகாளாவிய கருத்தரங்கை ஏற்பாடு செய்துள்ளமை மிகவும் பெருமைக்குரிய செயலாகும்.

'உணவே மருந்து' *என்று வாழ்ந்தவர்கள் தமிழர்கள். அவர்களுடைய வாழ்வியல் முறைகள் நோய்க்கு இடமின்றி ஆரோக்கியமானதாக இருந்தது. தட்பவெப்ப நிலைக்கு ஏற்றதாகவும் உடலின் இயல்புத் தன்மைமாறாத அளவிலும் உணவு முறை இருந்தது.*

"மாறுபாடு இல்லாத உண்டி மறுத்துண்ணின்
ஊறுபாடு இல்லை உயிர்க்கு"

என்ற வள்ளுவரின் வாக்கிற்கேற்ப உடம்பிற்கு ஒவ்வாத உணவை விலக்கி, ஒத்துவரக்கூடிய உணவைக் கூடமிகுதியாக இல்லாமல் அளவுடன் உண்டால் நோயின்றி வாழலாம்.

இன்றைய காலத்தில் ஒவ்வாத உணவுகள் ஏராளமாகக் கிடைக்கின்றன. பாரம்பரியமானதும் இயற்கையானது மான உணவுகளை உண்டும் உடல் உழைப்பில் கவனம் செலுத்தியும் வாழ்ந்தால் நோயின்றி வாழ இயலும்.

கருத்தரங்கில் பங்கேற்கும் கட்டுரையாளர்கள் வழி, தொற்று நோயின் வளர்ச்சியையும் அதன் தாக்கங்களையும் தெளிவுபட அறிவுத்தும் பல்வேறு விதமான வழிமுறைகளை அறிந்து கொள்ள முடியும். "**முயற்சி திருவினைஆக்கும்**" என்பதற்கேற்ப இந்த நல்ல முயற்சிக்கு 'உயிர்வேதியியல் துறைத்தலைவர் பேராசிரியர் திருமதி. **சுபாஷினிக்கு** மனம் நிறைந்தவாழ்த்துகள். இணைந்து பணியாற்றும் பேராசிரியர்கள் முனைவர். **லதா,** முனைவர். **அனஷிபா,** முனைவர். **ராதிகா** ஆகியோர்க்கும் பாராட்டுகள்.

இக்கருத்தரங்கிற்கு உதவியாகப் பணியாற்றும் ஆய்வக உதவியாளர் திருமதி.**ஆனந்திக்கும்** பாராட்டுகள். உயிர்வேதியியல் துறை மாணவியர்கள் அனைவருக்கும் ஊக்கம் தரும் இந்தக்கருத்தரங்கில் பயன்பெறும் மாணவியர்க்கும் வாழ்த்துகள்.

Dr Kanmani Subramanian
Vice Principal
Soka Ikeda College of Arts & Science for Women

CSIR-CENTRAL LEATHER RESEARCH INSTITUTE

(Council of Scientific & Industrial Research)

Adyar, Chennai-600 020. INDIA.

Dr. N.Vedaraman, M.Sc., Ph.D

Principal Technical Officer

Chemical Engineering Division.

Message

I am glad to note that the Department of Biochemistry, Soka Ikeda College of Arts & science for Women, Chennai is hosting an International Conference on "Unravelling the Origins & Effects of Pandemics" to be held on 10th & 11th September 2024.

In an era where the global community continues to grapple with the aftermath of recent pandemics, this compilation of research, insights, and analyses seeks to contribute to the ongoing dialogue on understanding and mitigating the impacts of these global crises.

The genesis of this book lies in the International Conference on "Unravelling the Origins & Effects of Pandemics," where leading experts from diverse fields come together to share their knowledge and experiences. The chapters within this volume represent the culmination of those discussions, providing a comprehensive exploration of the multifaceted nature of pandemics—from their biological origins to their far-reaching social, economic, and psychological effects.

I congratulate the entire team of the Department of Biochemistry for their efforts in organising this conference and their concern towards the community, as conferences are the effective mode of dissemination of scientific knowledge amidst students and the scientific community.

Tel: Off (044) 24437406, Cell: 9444907898, Fax (044) 24911589.

Email: nvedaraman@yahoo.co.in

Editor's Desk

Dear Readers,

It is with great pleasure and a deep sense of responsibility that I present to you the proceedings of the International Conference on "Unravelling the Origins & Impacts of Emerging Pandemics." In these pages, you will find a comprehensive exploration of the complex and multifaceted nature of pandemics—an exploration that has never been more timely or necessary.

As the editor, my goal was to curate a collection of works that not only reflect the cutting-edge research and insights shared during our recent International Conference on the same theme but also provide a well-rounded perspective on the global challenges posed by pandemics. The contributors to this volume include some of the most respected voices in the fields of biochemistry, epidemiology, public health, and beyond. Their work has been instrumental in advancing our understanding of pandemics, from their origins in the natural world to their profound impacts on human societies. It is my hope that the insights and analyses contained within will contribute to ongoing efforts to prevent, manage, and mitigate the effects of future pandemics. The lessons we have learned—and continue to learn—are critical for shaping a safer, healthier world.

The journey of bringing this conference to life has been both challenging and rewarding. It would not have been possible without the dedication and hard work of the entire team of Biochemistry. I extend my deepest gratitude to each of them for their invaluable contributions.

As you read through the chapters, I encourage you to engage deeply with the material, to question, to reflect, and to consider the broader implications of the research presented. Pandemics are a global issue that requires a global response, and it is through collective knowledge and collaboration that we can hope to overcome these challenges.

Thank you for taking the time to explore this important work. I trust that it will serve as a meaningful addition to the ongoing dialogue and research in this critical area.

Warm regards,

Mrs. D. Subhashini
Head, Department of Biochemistry
Soka Ikeda College of Arts & Science for Women

INTERNATIONAL CONFERENCE
ON

"UNRAVELLING THE ORIGINS & IMPACTS OF EMERGING PANDEMICS"

ABSTRACT PROCEEDINGS

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INTERNATIONAL CONFERENCE
ON
"UNRAVELLING THE ORIGINS & IMPACTS OF EMERGING PANDEMICS"
10th & 11th September, 2024

INVITED ABSTRACTS

PROCEEDINGS OF INTERNATIONAL CONFERENCE ON
"Unravelling the Origins & Impacts of Emerging Pandemics"
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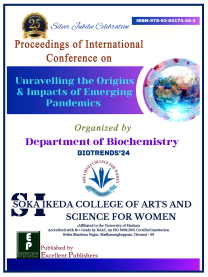

Invited Abstracts ***OP/01***

Vaccinology and Therapeutics

A. Jayanthi*

Sir Theagaraya College, Chennai, India – 600021

Email id : jayanthinak@gmail.com

Abstract

All pandemics start as localized disease outbreak that begins spreading rapidly and eventually becomes a global disease. Pandemics are caused by new infectious agents namely, bacteria or viruses. A pandemic is a specific type of epidemic, affecting various geographical regions. There have been numerous outbreaks throughout time, starting from the Swine Flu outbreak caused by the flu strain H1N1 flu virus, Asian flu pandemic caused by H2N2 flu virus, HIV pandemic, Spanish flu pandemic, Bubonic plague which resulted in the Black Death and at latest the Covid - 19 pandemic. Therapeutic vaccines regulate immune system against a specific type of target, thus enhance the immune system activity. Therapeutic vaccines mostly being used for viral infections and various types of cancers, helps an immune system to recognize a foreign agent such as cancerous cells or a virus. Dendritic cell based vaccine for prostate cancer, live attenuated vaccine for bladder invasive cancer, vaccine for advanced oncolytic melanoma, Remdesivir and Molnupiravir against Covid - 19 were found effective therapeutics against those target antigens. Though new therapeutic vaccines are manufactured to fight against pandemics, boosting our immunity and taking prophylactic measures is essential to prevent the prevalence and to manage future pandemics.

Keywords: Pandemic, antigens, therapeutic vaccines

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Invited Abstracts *OP/02*

Invitro Phytochemical Analysis of *Erythrina variegata* Leaves Extract and its Antihypertensive Action – An *Insilico* Study

S.Suvashini[1] and Dr.K.J.Umadevi[2]

[1]III B.Sc., Biochemistry, [2]Assistant Professor, Department of Biochemistry, Bhaktavatsalam Memorial College for Women, Chennai-50, India

Abstract

The study aimed to investigate the phytochemical composition of *Erythrina variegata* leaf extracts and evaluate their potential as chemopreventive agents, focusing on their ability to inhibit Angiotensin-Converting Enzyme (ACE), which is crucial in managing hypertension. Preliminary phytochemical analysis was conducted on methanol and ethanol extracts of *Erythrina variegata* leaves, revealing the presence of alkaloids, flavonoids, phenols, tannins, saponins, and other bioactive compounds. High-Performance Liquid Chromatography (HPLC) was used to identify key phytochemicals, including gallic acid, caffeic acid, rutin, quercetin, and ferulic acid. Molecular docking studies were performed to assess the inhibitory potential of these compounds against ACE. The study found that rutin exhibited the highest inhibitory activity against ACE, followed by quercetin, ferulic acid, caffeic acid, and gallic acid. These findings suggest that *Erythrina variegata* could serve as an effective antihypertensive agent. The presence of various phytochemicals also indicates the plant's potential for use in folk medicine and green synthesis of nanoparticles. *Erythrina variegata* shows promise as a source of chemopreventive agents with potential applications in treating various diseases and contributing to the pharmaceutical industry through the discovery of novel compounds.

Keywords: *Erythrina variegata*, Phytochemicals, Chemoprevention, Antihypertensive, Molecular Docking, HPLC, ACE Inhibition

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Invited Abstracts *OP/03*

Phytochemical Screening of Jamun Seed Extracts

S. Agasthiya and K.Karthick*

Department of Biochemistry, St. Peter's Higher Education and Research, Avadi, India

Abstract

Fruits contain a diverse assortment of bioactive compounds such as alkaloids, tannins, anthocyanins, flavonoids, phenolic acids, procyanidins that possess many functional properties such as antioxidant, anti-inflammatory, anti-diabetic, anti-carcinogenic properties and also protects against various degenerative and chronic diseases. These compounds are known to exhibit many health benefits and disease-preventive characteristics. The extraction of these phytochemicals from plant involves the use of various extraction techniques. Syzygium cumini (synonym Eugenia jambolana) or Jamun plant is known to possess diverse phytochemicals, most of which are observed to be of health benefits. The seeds are the most studied plant part. Polyphenols are present inherently in lots of fruits, which act as natural antioxidants and possess antioxygenic property with the advantage of low toxicity. The Antioxidant activity of phenolics in fruits is mainly because of their redox properties, which permit them to act as a reducing agent. The present study aims at screening various phytochemicals present in Jamun seeds extracted using different extraction methods both qualitatively and quantitatively. Keywords: Phytochemicals, Jamun seeds, polyphenols, extraction.

Keywords: Polyphenols, phytochemicals, jamun seeds, extraction

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Invited Abstracts *OP/04*

Reactive Oxygen Species Generation in the Antibacterial Activity of Coriander Leaves Extract

K. Ameena Muskan[1] and Dr. L. Anna Sheba[2]

[1]B.Sc Biochemistry, Soka Ikeda College of Arts and Science for Women, Chennai, India
[2]Assistant Professor, Department of Biochemistry, Soka Ikeda College of Arts and Science for Women, Chennai, India

Abstract

Redox perturbation in bacteria occurs from both exogenously and endogenously generated ROS that overwhelm bacterial antioxidant defense system. Reactive oxygen species contribution to lethal stress is complex. The live-or-die stress response provides a framework for explaining many complexities associated with ROS. Searching alternative antimicrobials targeting oxidative stress in bacteria becomes inevitable nowadays. The present work, provides information about the presence of proxidants in *Coriandrum sativum* and ability to kill bacteria, *Salmonella* spp. involving generation of ROS induced oxidative stress. The result revealed that the generation of ROS was elevated with time as evidenced from increasing absorbance at 620 nm. This finding may reduce the overuse and misuse of antibiotics and can be the primary step toward minimizing the antibiotic resistance crisis.

Keywords: *Coriandrum sativum, Salmonella* spp., reactive oxygen species, antibiotic.

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Invited Abstracts *OP/05*

Vitamin C in Fracture healing: Current Concepts and Future Perspectives

S. Bhuvaneswari*

Assistant Professor, Meenakshi College for Women, Kodambakkam, Chennai, India

Abstract

Vitamin C is an essential nutrient for humans and animals which are unable to synthesise it themselves. Tissue repair and regeneration within the body is enhanced by vitamin C. It is involved is the synthesis of connective tissue, particularly collagen. Vitamin C seemed to accelerate bone formation owing to an enhanced osteoblastic proliferation and differentiation and its antioxidant function when pro-oxidant substances were added particularly most of the animal cases. Randomized controlled trials (RCTs) and controlled clinical trials on the effects of vitamin C were searched for using PubMed, Google Scholar, Science Direct, and Research gate. Thus Vitamin C involved in wound healing by fastening recovery and attaining high leucocyte ascorbic acid levels. It is recommended to use vitamin C for wound healing while more RCTs may be required for detailed analysis. Vitamin C also involves in decreased post operative pain and prevent complex regional pain syndrome in orthopaedic procedures. Thus Vitamin C a promising therapeutic agent on fractured bone healing should be done on human studies in a larger scale considering its valuable benefits. The purpose of this review was to summarize the application of vitamin C in fracture healing and to identify potential areas for future study.

Keywords: Vitamin C, Randomized controlled trials, collagen

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Invited Abstracts *OP/06*

Phytochemical Analysis and Antifungal Property of Ethanol Extract of *Nelumbo nucifera* Flowers

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Abstract

Nelumbo nucifera Gaertn (Family: Nelumbonaceae), is medicinally versatile and used as an important raw material of age-old traditional medical practices like Ayurveda and folk medicine. The pharmacological studies have shown that N.nucifera possess various notable pharmacological activities like anti-ischemic, antioxidant, anticancer, antiviral, antiobesity, lipolytic, hypocholestemic, antipyretic, hepatoprotective, hypoglycaemic, antidiarrhoeal, antifungal, antibacterial, anti-inflammatory and diuretic activities. The main objective of the study was to conduct phytochemical screening and determine the antimicrobial activity of an ethanolic extract of *Nelumbo nucifera* flowers. The flowers were subjected to prepare the ethanolic extract of *Nelumbo nucifera* for analysis of phytochemical. Antifungal activity extract was serially diluted with Dimethyl Sulfoxide (DMSO) to get a final concentration of 500µg/ml and 1000µg/ml. A volume of 0.5ml of microorganism suspensions containing approximately 4 × 106 cells was used to inoculate the surface of the solidified media prepared using Sabouraud Dextrose agar (SDA) medium and allowed to set and then incubated at 37°C for 1- 4 weeks. The results were read by noting the presence or absence of growth of the organisms and compared with standard Clotrimazole (30µg). The qualitative phytochemical analysis of this crude extract exhibited the presence of alkaloids, phenols, flavonoids, tannins, saponins, and steroids. This extract showed antimicrobial activity against an array of fungal species. The ethanolic extract of the plant demonstrated significant antifungal activity, against- *Monascus purpureus*, and *Aspergillus niger*, with the highest inhibition zone of 15 mm in *Aspergillus niger*, at 1000µg/ml. These findings suggest that the ethanolic extract of N. nucifera possesses potent antifungal properties and highlights its potential for therapeutic applications.

Keywords: Phytochemical analysis, antifungal activity and Nelumbo nucifera.

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Invited Abstracts *OP/07*

Sinapic Acid, a Naturally Occurring Carboxylic Acid Derivative Ameliorates Hyperglycemia in High Fat Diet-Low Dose STZ Induced Experimental Diabetic Rats

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Abstract

Diabetes mellitus is characterized by the disturbances of carbohydrate, lipid and protein metabolism, with a high risk of morbidity and mortality from primary as well as secondary complications. Though drugs are plenty for the treatment of diabetes, none is found to be ideal due to the undesirable side effects associated with long term treatment. Hence, search for novel drugs especially from plant origin continues. The aim of this study is to evaluate the effect of sinapic acid, a naturally occurring carboxylic acid widely distributed in edible plants such as berries, kiwis and plums, in high fat diet- low dose streptozotocin induced diabetic rats. Oral administration of graded doses of sinapic acid for various time intervals to control as well as diabetic group of rats revealed the non-toxic nature of sinapic acid. Oral administration of sinapic acid at a concentration of 25mg\kg b.w for 30 days significantly decreased the levels of fasting blood glucose, glycosylated haemoglobin and improved the levels of plasma insulin. The altered levels of liver glycogen along with the activities of glycogen synthase and glycogen phosphorylase were reverted back to near normal after treatment with the sinapic acid. The data obtained suggested that sinapic acid is nontoxic and possess significant antidiabetic properties.

Keywords: Sinapic acid, Glucose, plasma insulin, Hba1c, Glycogen and Glycogen synthase.

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Invited Abstracts *OP/08*

Antibiofilm Effect of *Cissus quadrangularis* L. (Pirandai) Against *Aggregatibacter actinomycetemcomitans*

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Abstract

Bacterial biofilm is a universal threat to human health because of resistance to treatment and the capability to exacerbate nosocomial conditions. Henceforth, the search for novel effective agents to challenge this issue is a priority. *Cissus quadrangularis* L stem was extracted with ethanol and subjected to phytochemical and antibiofilm activity investigation. The study revealed that the plant extract possesses significant secondary metabolites and inhibits biofilm formation of *Aggregatibacter actinomycetemcomitans* effectively. Hence, it can be suggested that the natural products derived from *C. quadrangularis* L stem could provide an avenue for developing newly efficacious and clinically desirable chemotherapies against biofilms-mediated infections and their associated health consequences.

Keywords: *Cissus quadrangularis* L, *Aggregatibacter actinomycetemcomitans,* antibiofilm, phytochemicals

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Invited Abstracts *OP/09*

An *invitro* assay of the exfoliating effect of Ethanolic extract of tender, unripe, and ripe mangopulp

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Abstract

The skincare industry, particularly in the fields of dermocosmetics and cosmeceuticals, is increasingly utilizing plant-based ingredients, known as botanical ingredients, due to their non-toxic, gentle, and effective nature. Botanical extracts provide diverse skincare benefits, including antioxidant and anti-inflammatory properties. Notable phytochemicals, such as ferulic acid, quercetin, and resveratrol offer UV protection and promote skin regeneration and wound healing, aiding anti-aging. Plant-derived anti-tyrosinase drugs are becoming increasingly popular for their role in skin whitening and treating pigmentation disorders by suppressing melanin formation. This study examined the exfoliating potential of mango pulp extract, leveraging previous research that highlighted mango's skin-protective and healing properties. Additionally, mango pulp extract's potential for skincare varies depending on the stage of development. Prior studies have shown that mangiferin, a key compound in mango, can inactivate enzymes like elastase and collagenase. In order to investigate the exfoliating effect of extracts from mango pulp at different maturity stages (tender, unripe, and ripe), tyrosinase inhibitory capacities were tested. The phytochemical content, antioxidant activity, and wound - healing capabilities of the extracts were also evaluated in the study, highlighting the multifaceted skincare advantages of mango pulp. The comparison between a significant concentration of naturally occurring antioxidants and the associated activity, which in turn stimulates wound healing by more potently suppressing lipid peroxidation, which has the exfoliating effect, can explain the results obtained. Because of its distinctive flavor, texture, and high acidity, raw tender mango is ideal for pickling. India has produced a number of well constructed dishes with a variety of tastes, flavors, aromas, and textures for both local and foreign markets. Therefore, a comparative methodology was used in the study to look into their potential at various phases. Overall, the study demonstrates that the tender mango extract serves the most significant role in providing cosmetic applications, with the ripe mango extract coming in last and the unripe extract coming in second. These findings underscore the therapeutic and cosmetic value of mango pulp extract at different stages of ripening, highlighting the need for further research to validate their efficacy and bioavailability in vivo.

Keywords: Dermocosmetics, ethanolic extract, exfoliating effect, ripe mango, tender mango, unripe mango.

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Invited Abstracts *OP/10*

Nutritional and antioxidant properties of different traditional paddy varieties of Sivaganga Districts, Tamil nadu

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Abstract

Rice is a major cereal crop consumed as a staple food by over half of the world's population. The colorful varieties of rice are considered valuable for their health benefits. Evaluation of twelve different varieties and different color traditional paddy were grown in Sethu Bhaskara Agricultural College and Research Foundation Karaikudi, Sivaganga District Tamil Nadu, as dehusked grains were estimated for nutritional properties. Twelve different varieties of traditional paddy cultivated among Thooyamalli (83.12%) have maximum carbohydrate followed by Karudan samba(81%) whereas Poongar (72%) has minimum carbohydrate followed by Sempludhi samba (71%). Protein content was estimated Mappillai samba (13%) and Milagu samba (13%) has maximum protein content whereas Karuppu kavuni (10%) has minimum protein content. Crude content was estimated among Thanga samba (2.1%) has maximum crude fibre content followed by Thooyamalli (1.9%) whereas Kaatuyanam (0.9%) has minimum content of crude fibre. The total ash content estimated among Karunguruvai (2.1%) has maximum total ash followed by Thanga samba (2%) whereas Sempludhi samba (1%) has minimum amount of total ash. The total phenols content estimated among Karunguruvai (45%) has maximum total phenols followed by Poongar (40%) whereas Sempludhi samba (5%) and Milgu Samba (5%) has recorded minimum amount. The antioxident properties among Karunguruvai (16%) has maximum antioxidant activity followed by Thanga samba (15%) whereas Sempludhi samba (3%) has minimum antioxidant amount of activity.

Keywords: Traditional Paddy, Color Rice, nutritional properties, antioxidant properties

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Invited Abstracts *OP/11*

Antioxidant Properties of Sinapic Acid: *Invitro* Approach

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Abstract

This study was aimed to evaluate the antioxidant potential of sinapic acid in both in vitro and in vivo. Recently, we have reported that oral administration of sinapic acid (3,5-dimethoxy 4-hydroxycinnamic acid) an active phyto-ingredient widely distributed in rye, mustard, berries, and vegetables has been shown to ameliorate hyperglycaemia. In vitro, antioxidant scavenging properties of sinapic acid were determined using 1,1-diphenyl-2-picrylhydrazyl (DPPH), 2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonic acid) (ABTS), superoxide, and nitric oxide (NO) assay. The results of DPPH, ABTS, superoxide, and NO radical scavenging assays substantiate the free radical scavenging efficacy of sinapic acid. The results of this study evidenced that sinapic acid possess significant antioxidant properties which in turn may be responsible for its anti-diabetic properties.

Keywords: Sinapic acid, Oxidative stress, Antioxidant, In vitro antioxidant assay.

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Invited Abstracts ***OP/12***

Phytochemical Analysis and Antibacterial Activity of Seeds of *Caesalpinia bonducella*

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Abstract

In medication, healing plants are used to treat individuals' illnesses and are potential sources to maintain good health. *Caesalpinia bonducella* is classified under the Caesalpiniaceae family. It is also known as *C. bonducella* Flem and *C. crista* Linn. The plant is found in tropical and subtropical parts of Asia. It is a large prickly shrub with branches that are finely gray, downy, and armed with hooked and hard prickles. The leaves, seeds, roots, and bark of this plant are all useful for medicinal purposes. *Caesalpinia bonducella* (roxb.) exhibits antipyretic, anti-inflammatory, anthelmintic, antimalarial, antioxidant, antibacterial, antitumor, and antidiabetic activities. The seed kernel of the plant was extracted using the decoction method with an aqueous media, which was then subjected to phytochemical screening and GC-MS analysis. Furthermore, the extract was evaluated for antibacterial activity. GC-MS analysis identified twenty-six compounds, with the major component being 4, 7, 10-Hexadecatrienoic acid, methyl ester (28.26%), and the second major component being Androstane-11, 17-dione, 3-[(trimethylsilyl) oxy]-, 17-[O-(phenylmethyl) oxime], (3α, 5α) - (15.68%). The extract exhibited strong antibacterial activity against S. pyogenes (MIC of 200 µg/mL) and good activity against *E. coli* and *S. aureus* (MIC of 250 µg/mL). The major finding of this study is that the phytochemical constituents of the seed kernel of *Caesalpinia bonducella* can inhibit drug-resistant bacteria.

Keywords: Phytochemical analysis, antibacterial activity and GCMS study.

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Invited Abstracts *OP/13*

Antimicrobial Resistance - An Overview

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Abstract

Antimicrobial resistance (AMR) has emerged as one of the most critical global health challenges of the 21st century, posing a serious threat to public health, food security, and economic development. This paper explores the origins and widespread impact of AMR, which results from the ability of microorganisms-bacteria, viruses, fungi, and parasites-to resist the effects of antimicrobial agents that once successfully controlled or eradicated infections. The origin of AMR can be traced to natural evolutionary processes, but it has been significantly accelerated by the misuse and overuse of antibiotics in human medicine, agriculture, and animal farming. Inadequate infection control practices and poor sanitation further contribute to the rise and spread of resistant organisms. The Impact of AMR is profound, leading to prolonged illnesses, higher medical costs, and increased mortality as common infections become untreatable. This presentation highlights the global burden of AMR, particularly in low- and middle-income countries where healthcare resources are limited. Additionally, it examines the economic consequences of AMR, including reduced productivity and increased pressure on healthcare systems. Addressing AMR requires a multifaceted approach, encompassing better stewardship of existing antibiotics, development of new antimicrobial therapies, and international cooperation to promote surveillance and research efforts. This paper emphasizes the urgent need for comprehensive global action to mitigate the impacts of AMR and protect future generations from its consequences.

Keywords: Antimicrobial resistance, antibiotics, healthcare, infection control, global health, resistant strains, public health, antibiotic stewardship

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Invited Abstracts *OP/14*

Marsilea minuta: A Promising Aquatic Fern for Broad-Spectrum Antimicrobial and Antiviral Therapeutics in the Fight against Emerging Pandemics

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Abstract

Marsilea minuta, an aquatic fern, has emerged as a promising candidate in the quest for novel antimicrobial agents, particularly in the context of combating emerging pandemics. Extensive research has demonstrated its diverse antimicrobial properties, including antibacterial, antifungal, antiparasitic, and antiviral activities, highlighting its broad-spectrum potential as a therapeutic agent. Recent studies reveal that Marsilea minuta exhibits potent antibacterial effects against both Gram-positive bacteria such as *Staphylococcus aureus* and *Bacillus subtilis*, and Gram-negative bacteria like *Escherichia coli* and *Pseudomonas aeruginosa*. These findings are particularly significant given the escalating issue of antibiotic resistance, positioning Marsilea minuta as a potential alternative or adjunct to conventional antibiotics. In terms of antifungal activity, Marsilea minuta has demonstrated substantial efficacy against a wide range of fungal pathogens, including *Candida albicans*, *Aspergillus niger*, and *Fusarium oxysporum*. The plant's active phytochemicals, which disrupt fungal cell membranes, offer promising avenues for developing novel antifungal treatments amidst rising fungal resistance. Additionally, Marsilea minuta's antiparasitic properties have shown effectiveness against *Plasmodium falciparum* and *Leishmania donovani*, suggesting its potential in treating malaria and leishmaniasi. Its larvicidal activity against mosquito larvae further underscores its value in vector control and public health. Moreover, the fern's antiviral potential has been demonstrated against various viruses, including influenza, herpes simplex, and emerging viral strains. This broad-spectrum antiviral efficacy highlights Marsilea minuta as a crucial resource in managing viral outbreaks, especially amidst the threat of novel viral pathogens. The promising nature of Marsilea minuta lies not only in its demonstrated antimicrobial efficacy but also in its relatively low toxicity and availability as a natural product. These attributes, combined with its broad-spectrum activity, position Marsilea minuta as a candidate for further development into therapeutic agents that could address various infectious diseases and contribute to strategies for managing emerging pandemics.

Keywords: Antibiotic resistance, phytochemicals, Novel therapeutic agents, antimicrobial efficacy

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Invited Abstracts *OP/15*

Exploring the Antinociceptive Potential of β-Sitosterol from *Mirabilis jalapa*: A Novel Approach for Pain Management

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Abstract

Antinociceptive agents, commonly known as analgesics,pain relievers, play a crucial role in the supportive treatment of a wide range of diseases by alleviating pain and discomfort associated with various conditions. Although they do not directly address the underlying causes of infections, analgesics are essential for managing symptoms and enhancing patients' overall quality of life. However, the current therapeutic options for managing chronic pain are often limited by their effectiveness and safety profiles. Prolonged use of non-steroidal anti-inflammatory drugs (NSAIDs), for example, can lead to serious adverse effects, including gastrointestinal lesions, and renal and liver failure. This study focuses on identifying the antinociceptive properties of β-sitosterol, a compound isolated from Mirabilis jalapa, through in vitro analyses. High-performance thin-layer chromatography (HPTLC) of the plant's ethanolic extract revealed distinct bands of β-sitosterol at an Rf value of 0.70. The identity of these bands was confirmed by matching their UV absorption spectra with those of known standards. The antinociceptive potential of β-sitosterol was further investigated through molecular docking studies, targeting the active sites of Cyclooxygenase isoforms COX-1 (PDB ID: 2OYE) and COX-2 (PDB ID: 6COX), which are key mediators of pain and inflammation. The docking results indicated a strong binding affinity of β-sitosterol, with binding energies of -6.86 kcal/mol and -11.75 kcal/mol, respectively. Additionally, the Pass prediction scores (Pa = 0.558, Pi = 0.014) provided further evidence supporting the compound's antinociceptive role. These findings suggest that β-sitosterol may serve as a novel agent for alleviating nociceptive and inflammatory pain, as supported by in-silico studies. This research highlights the potential of β-sitosterol as a safer and more effective alternative for pain management, warranting further exploration in therapeutic applications.

Keywords: Analgesics, Inflammation, Pain, β-sitosterol, Molecular Docking

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Invited Abstracts *OP/16*

GC-MS Analysis of *Pergularia daemia* and *Terminalia catappa* L. Leaf extracts

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Abstract

In the present study was carried out to identify the phytochemicals present in the *Pergularia daemia* and *Terminalia catappa* L. leaf extracts. The Hydroalcoholic extracts of *Pergularia daemia* (HAEPD) and Terminalia catappa L. (HAETC) were used for the GC-MS analysis and molecular docking with selective proteins. Totally fifty-eight fractions were collected from the hydroethanolic leaf extracts of *Pergularia daemia* and *Terminalia catappa* by Silica gel column chromatography. Depending on the TLC profile, the above fractions were pooled together and finally five fractions were collected (PDF1-PDF5), (TCF1-TCF5) for each plant extract. The column fractions are used assess the cell viability (Hepatocyte cell) by MTT assay, the column fraction with high cell viability were used to study the bioactive constituents present in the above selected column fractions by GC-MS analysis. The plant extracts were subjected to GC-MS analysis and compounds was matched with data in the library of national Technology (NIST). A total of 12 phytocompounds were identified from leaves of HAEPD and 15 compounds from leaves of HAETC. The nature of the phytochemical compounds in HAEPD and HAETC are Isoflavone, flavones, Carotenoids, fatty acid methyl ester with various pharmacological activities.

Keywords: HAETC, HAEPD, TLC, PDF, TCF.

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Invited Abstracts *OP/17*

Invitro antiproliferative effectiveness of herbal preparation derived from *Aegle marmelos leaves* (Vilvum)

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Abstract

Chemotherapeutic chemicals continue to be the primary treatment for a wide range of cancers, but the therapy is paradoxical in the sense that, while these agents target malignant cells, they also cause damage in many other organs. Plants have been investigated as biological response modifiers that may act synergistically as adjuncts in cancer treatment, reducing the adverse effects of chemotherapeutic medicines while increasing their efficiency. In the current study, the ethanolic extract of *Aegle marmelos* leaves was investigated for secondary metabolites and antiproliferative effectiveness against pancreatic cancer cells, Beta Tc 6 Cell line. It was discovered that the A. marmelos leaf contained a substantial number of phytochemicals and shown significant cytotoxicity, which increased with incubation duration. The study shed light on the prospective benefits of *A. marmelos* as an anticancer agent, setting the framework for further research and development in this area.

Keywords: *Aegle marmelos*, antiproliferative, anticancer agent, cytotoxicity, Beta Tc 6 Cell line

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Invited Abstracts *OP/18*

An insight into the Characterization, Enumeration and Molecular detection of *Listeria monocytogenes* in leafy vegetables (Spinach)

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Abstract

A study framed to trace the contamination level and lineage of serotypes *L. monocytogenes* in leafy vegetables to focus on food safety and disease prevention. Atotal of 200 samples were collected from many market places of delta region in Tamil Nadu. A 4 % detected by isolation were purified and subjected to molecular detection by PCR. It has been observed that positive isolates possess hlyA pathogenic gene. Among the positive isolates 60% were of biofilm producers by conventional methods. Study, revealed that 80%isolatesresistance against ciprofloxacin, 60% to doxycycline hydrochloride. Whereas allisolates revealed sensitivity towards ampicillin, chloramphenicol, amoxiclav and cefotaxime. This study reported that the L. monocytogenes circulating thus makes an alarm to the health authorities to be more vigilant about the probable outbreaks of listeriosis. This could be the first report on the leafy vegetables circulating L. monocytogenes in and around delta region of Tamil Nadu further expanded for the documentations.

Keywords: Foodborne pathogens, Leafy vegetables, *Listeria monocytogenes*, antibiotic resistance, and biofilm

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Invited Abstracts *OP/19*

Study on the Effect of *Glycyrrhiza glabra* (Adhimadhuram) on the ALP Activity during Osteogenesis

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Abstract

Estrogen deficiency is associated with a gap between bone resorption and formation, indicating that estrogen is important for maintaining bone formation at the cellular level. One of the major consequences of the loss of estrogen is an increase in bone resorption and decrease in bone density. Phytoestrogens appear to enhance bone density, inhibit bone resorption, and promote osteoblast activity.*Glycyrrhiza glabra* is rich in phytoestrogen and may induce osteogenesis thereby preventing osteoporosis caused by estrogen deficiency. Hence, the current study has been undertaken to evaluate osteogenesisactivity of *Glycyrrhiza glabra* root by analysing alkaline phosphatase activity in the MG63 cell line. The present study highlighted the extract of *Glycyrrhiza glabra* root significantly induce the proliferation of the MG63 cells as evidenced by the increased ALP activity. Further, the study indicated that the root can be used as an alternative to hormonal replacement therapy in the diseases caused by estrogen deficiency particularly osteoporosis in post-menopausal women.

Keywords: *Glycyrrhiza glabra*, alkaline phosphatase,hormonal replacement therapy, estrogen

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Invited Abstracts *OP/20*

Comparative studies on the invitro anti - inflammatory activity of Virgin coconut oil and castor oil

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Abstract

Inflammation is the immune response generated by immune responsive compounds cytokines and interleukins for wound healing procedure. Plant and plant products possess excellent therapeutic properties that cater to its various biological activities. In the present study, anti – inflammatory activity of virgin coconut oil and castor oil at various concentrations were studied by ultrasonics and albumin denaturation assay. It was evaluated that the coconut oil demonstrated potent anti – inflammatory activity on comparison to castor oil. These results showed a percentage of inhibition of 85% at 50µg/ml which showed the coconut oil's significant anti –inflammatory activity. This property suggests its potential for management of inflammatory conditions and may be further supported by invivo studies.

Keywords: Anti-inflammatory, Virgin coconut oil, castor oil, cytokines and interleukins

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Invited Abstracts *OP/21*

A Comparative Study of Phytochemical analysis and Antioxidant Properties of Citrus Fruits Extracts from Lemon and Sweet Lime

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Abstract

Citrus limon is commonly known as "lemon". The juice extract contains various antioxidants which play a vital role in the development of numerous pharmacological activities in India and other tropical countries. Citrus limon has been used in the traditional medicine as antibacterial, antiseptic, antioxidant and anti-inflammatory agent. Lemon is also used for the treatment of many diseases such as scurvy, common cold, flu, H1N1 (Swine) flu, Meniere'sdisease and kidney stones. Citrus limetta is known as "Sweet lime" in South Asian countrieslike India, Egypt, Palestine. The juice has been used as a medicine since centuries for treating many diseases such as to reduce heart disease, kidney stones, cancer and to improve iron absorption and immunity. The juice was extracted using various solvents such as ethanol and aqueous and the crude extracts thus obtained were used for further investigation of phytochemical analysis. The results showed the presence of carbohydrates, proteins, lipids and the phytochemicals such as alkaloids, tannin, saponins, flavonoids. The juice extracts were analyzed for the light absorption study using UV- Visible Spectrometer.

Keywords: *Citrus limon, Citrus limetta,* Antioxidant, Antiseptic, UV- Visible Spectrometer..

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Invited Abstracts *OP/22*

Pandemic Preparedness and Response Strategies – A Review

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Abstract

Pandemic preparedness and response strategies are imperative to mitigate the prevalent impact of global health crises, as established by current pandemics like COVID-19. This review investigates the key components of effective pandemic preparedness, including surveillance systems, early detection, and rapid response mechanisms. It emphasises the significance of robust public health infrastructure, efficient communication networks, and international cooperation in managing the spread of infectious diseases. The review also scrutinizes the role of vaccination programs, stockpiling indispensable medical supplies, and the improvement of antiviral medications in enhancing pandemic resilience. Furthermore, the incorporation of digital technologies, such as data analytics and artificial intelligence, in guessing outbreaks and managing resources is discussed. The challenges faced during pandemic responses, such as logistical constraints, vaccine distribution inequities, and public compliance with health measures, are analyzed to provide lessons for future preparedness. Emphasis is placed on the need for a coordinated, multi-sectoral approach involving governments, healthcare systems, private sectors, and communities. The review concludes that ongoing investment in research, public health education, and global collaboration is essential to improve pandemic preparedness and ensure a swift and effective response to future health emergencies. By learning from past experiences and adapting strategies to new threats, the global community can better defend public health and minimize the societal and economic impacts of pandemics.

Keywords: Pandemic preparedness, COVID-19, public health

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Invited Abstracts *OP/23*

Evaluation of the Nootropic Activity of *Juglans regia* against Streptozotocin-Induced Amnesia in Albino Wistar Rats

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Abstract

Nootropics, commonly known as "smart drugs," encompass a range of substances designed to enhance cognitive functions, especially in individuals with deficits in thinking, learning, and memory. This study evaluates the nootropic potential of Juglans regia through its methanolic extract using a Streptozotocin (STZ)-induced amnesia model in Albino Wistar rats. A methanolic extract of Juglans regia was utilized to evaluate its nootropic effects, with Donepezil (5 mg/kg, i.p.) as a standard. Amnesia was induced in the rats using STZ (3 mg/kg, i.p.), and the impact of the treatments on learning and memory was assessed through open-field activity tests and elevated plus maze tests. Biochemical analyses measured acetylcholinesterase activity, lipid peroxidation, and glutathione levels, while histopathological examinations assessed brain tissue health. Results showed that Juglans regia significantly improved cognitive functions, reduced acetylcholinesterase activity (3.15 ± 0.20 U/mL) and lipid peroxidation (17.80 ± 0.65 µM/mL), alongside a significantly increased glutathione level (131.95 ± 3.20 µM/mL). Histopathological results indicated improved brain tissue regeneration in STZ-treated rats administered with methanolic extract of Juglans regiacompared to control groups.These findings suggest that Juglans regia has potential as a neuroprotective agent for treating memory disorders like Alzheimer's disease. However, further research is needed to understand the mechanisms behind these effects.

Keywords: Nootropic activity, Juglans regia, memory dysfunction, Donepezil, Streptozotocin, cognitive enhancement.

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Invited Abstracts *OP/24*

Unlocking the Bioactive Power of Marine Actinobacteria: As a Novel Agents for Combatting *Staphylococcus aureus* Biofilms and Enhancing Antimicrobial Resistance Strategies

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Abstract

Marine Actinobacteria are recognized as valuable biotechnological organisms, particularly due to their diverse capabilities in synthesizing secondary metabolites, including antibiotics. This study centres on the isolation and characterization of a marine Actinobacteria identified as *Nocardiopsis* sp., employing traditional techniques such as sugar utilization patterns, cell wall analysis, and spore chain morphology. The Actinobacteria displayed a long spore chain morphology, specific carbon source digestion patterns, and a type III cell wall index as indicated by cell wall amino acid analysis. The study further explored the anticancer potential of an Isoflavonoids compound derived from the marine Actinobacteria. Using the MTT assay on breast cancer cell lines, a dose-dependent cytotoxic effect was observed, with apoptosis rates ranging from 40% to 88%. Antioxidant activities were evaluated through DPPH, hydrogen peroxide scavenging, and Total Antioxidant Activity (TAA) assays, all of which demonstrated significant, dose-dependent antioxidant effects, with higher concentrations yielding greater inhibition percentages. Additionally, the research assessed the biofilm inhibition activity of the marine Actinobacteria against *Staphylococcus aureus.* At concentrations of 100 and 150 µg/ml, the Actinobacteria effectively inhibited biofilm formation. These findings provide valuable insights into the biomedical potential of marine Actinobacteria, highlighting their multifaceted bioactivities and promising role in combating bacterial infections, particularly through the inhibition of *S. aureus* biofilm formation.

Keywords: Marine Actinobacteria, *Staphylococcus aureus*, Antimicrobial Resistance, Biofilms

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Invited Abstracts *OP/25*

Antiviral Bustle of Phytocompounds against COVID 19

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Abstract

Viral contagion is the most serious health crisis which results in unpredicted higher rate of death globally. Many viruses are not still curable such as COVID 19, HIV, Hepatitis, etc. COVID 19 is an infectious epidemic caused by a lately ascertained corona virus from Wuhan, China. The World Health Organization proclaimed COVID 19 a pandemic resistance. This pandemic imposed to search for antiviral drugs from medicinal plants and other natural sources. Plants metabolism are an origin countless medicinal compounds, while the diversity of multi scale chemical structures has made them higher to treat serious diseases. Many research studies determine the prospective of medicinal herbs and plants and the phytoconstituents extracted from them to prevent the effect of these viral diseases. The antiviral activity of extracts are *Andrographis paniculata*, *Artemisia annua*, *Artenisa afra*, *Cannabis sativa*, *Curcuma longa*, *Piper nigrum* and *Punica granatum* and the phytocompound produced from these medicinal plants are artemisininns, glycyrrhizin, and phenolic compounds defend against the corona virus. These plant results have been shown to inhibit the adsorption of SARS - COV -2 to the host cell and control multiplication of the virus. Identification of secondary metabolites that is capable and effective against COVID 19 pandemic is obligatory. Different traditional medicinal plants, herbs and their bioactive components help in strengthening immune system and also play an imperative role to combat against microbial and viral infections including COVID 19. The possible role of plants through natural antiviral compounds for the development of plant based drug against corona virus has been reported. However many viruses continue without successful immunization and only a few antiviral drugs have been approved for clinical use. Hence, the development of antiviral drugs is much important and natural products are magnificent sources for such drug. In this aspect, phytomedicines as plant parts or plant derived metabolites can inhibit the entry of a virus or its communicable internal host are reported in earlier studies. Finally, it is concluded that the therapeutic potential of medicinal plants should be analyzed and estimated thoroughly in the control of COVID 19 disease.

Keywords: Medicinal plants, COVID 19, phytocompound, phytomedicines

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Invited Abstracts *OP/26*

Antimicrobial Resistance – "A Hushed Pandemic"

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Abstract

Antimicrobial resistance (AMR) propounds a noteworthy global wellbeing hazard, deteriorating the effectiveness of antibiotics and navigating to augmented morbidity, mortality, and healthcare expenses. The occurrences are determined by the exploitation and overeat of antibiotics in individual medicine, farming, and veterinary customs. This review investigates the comprehensive grounds of AMR, counting the inherited mechanisms that enable bacteria to defy antimicrobial driving force, such as mutation, horizontal gene transfer, and biofilm configuration. The review also emphasizes the task of ecological aspects, such as pollution and poor sanitation, in the propagation of resistant strains. The medical inferences of AMR are intense, restricting healing choice for contagions and obligating the utilization of last-resort drugs, which are often less effectual and more lethal. Strategies to warfare AMR are conversed, focusing on the requirement for global observation, stewardship programs, and the progress of new-fangled antibiotics and unconventional treatments. Attention is sited on the significance of civic consciousness and edification in averting the scatter of resistance. This review accentuates the emergent need for a synchronized universal reciprocation to allay the AMR contingency and defend the efficacy of existing antimicrobial treatments for upcoming cohorts.

Keywords: Antimicrobial Resistance, mutation, horizontal gene transfer, biofilm

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Invited Abstracts *OP/27*

Phytochemical and Antioxidant Activities of Pomegranate Peel Extracts

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Abstract

Plants with medicinal properties play an increasingly important role in food and pharmaceutical industries for their functions on disease prevention and treatment. This study characterizes the phenolic composition and antioxidant activity of *Punica granatum* L. with different extracts. Pomegranate (*Punica granatum*) peels have shown numerous health benefits such as antioxidant, anti-inflammatory, and antimicrobial activities. These health activities are owed to the unique phytochemical components present in pomegranate peels. Variations in the pomegranate cultivar, geographical region, and extraction methods significantly affect the phytochemical composition and concentrations of pomegranate fruits and their peels, hence their health outcomes. Therefore, this study aimed to examine the phytochemical contents of pomegranate peels of Indian origin and their antioxidant and antimicrobial activities. Among the different extracts of pomegranate peels tested, the GA total phenolic content (mg GAE/g DW), total flavonoids content (mg RE/g DW), highest hydrolyzable tannins (HT) contents (mg TE/g DW). Whereas the highest condensed tannins (CT) content was found in both the ethanol and methanol extracts. For the antioxidant activities, the water extract of pomegranate peels displayed the highest inhibitory effect on DPPH radicals. For the FRAP assay, the aqueous methanol extract exhibited the highest reducing activity. For the antimicrobial activities of various extracts of pomegranate peels, the highest antimicrobial activity against *Micrococcus luteus* was achieved by the ethanol extract, whereas the lowest antimicrobial activity was observed against *Candida krusei* using the methanol extract .These results indicate that pomegranate peels of Indian origin are rich in phytochemical content and exhibited strong antioxidant and antimicrobial activities and the peel is used for various medical applications and possible safe sources for important bioactive components. Such potent antioxidant activity of pomegranate peel can be described to the presence of different types of phenolic compounds and the high content in tannins,phenolic acids and flavonoids were found to be the dominant phenolic classes of the fruit peel. Consequently, despite the well-known antioxidant properties of these plant species, our study suggests pomegranate peel can stand out as a relatively more valuable plant source of natural bioactive molecules for developing novel functional food-pharma ingredients, with potential for not only promoting human health.

Keywords: DPPH, FRAP, HT, CT, GAE

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Invited Abstracts *OP/28*

Arising Pandemics and the Urgent Need for Organic Disinfectants: Exploring Sustainable Solutions for Public Health

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Abstract

In the face of emerging pandemics, the demand for effective and environmentally sustainable disinfectants is increasingly urgent. While traditional chemical disinfectants offer strong microbial control, they often present significant environmental and health risks due to their toxicity and persistence. Organic disinfectants, derived from natural sources, provide a compelling alternative by combining effective antimicrobial action with reduced ecological impact. This study investigates the potential of organic disinfectants, specifically focusing on *Cissus quadrangularis* Linn, for their role in combating emerging pathogens. The methanolic extract of *Cissus quadrangularis* was evaluated for its antibacterial efficacy against common Gram-positive and Gram-negative bacteria found in domestic settings. The extract demonstrated significant antibacterial activity, with a minimum inhibitory concentration (MIC) of less than 256 µg/ml effectively inhibiting bacterial growth. Fourier-transform infrared spectroscopy (FT-IR) analysis revealed the presence of various functional groups in the methanolic extract, while Gas Chromatography-Mass Spectrometry (GC-MS) identified key biomolecules, including n-Hexadecanoic acid, Hexadecanoic acid, and Phytol. Bioinformatics analysis further indicated that n-Hexadecanoic acid binds to bacterial cell walls (N-acetylglucosamine) with a binding energy of -6.3 kcal/mol, suggesting its role in the observed antibacterial activity. These findings highlight the potential of *Cissus quadrangularis* Linn as an effective organic disinfectant and emphasize the need for continued exploration of natural disinfectants in managing microbial threats in pandemic conditions. This research supports the integration of organic disinfectants into public health strategies, offering a safer and more sustainable approach to microbial control.

Keywords: Sustainable, disinfectant, antimicrobial, organic disinfectant, public health

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Invited Abstracts *OP/29*

Public Health Epidemiology

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Abstract

Infectious diseases continue to pose a significant threat to global health, with emerging and re-emerging outbreaks highlighting the need for robust public health responses. This study applies epidemiological principles to investigate the dynamics of infectious disease outbreaks, focusing on [specific disease or outbreak]. Using a combination of surveillance data, spatial analysis, and mathematical modeling, examine the factors driving transmission, identify high-risk populations, and evaluate the effectiveness of intervention strategies. The findings highlight the importance of disease prevention and controlling infectious disease outbreaks. This research contributes to the development of evidence-based public health policies and interventions, ultimately informing strategies to mitigate the impact of infectious diseases on communities worldwide.

Keywords: Infectious diseases, epidemiological principles, disease outbreaks.

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Invited Abstracts *OP/30*

Navigating the Antimicrobial Resistance Crisis: A Comprehensive Review of Current Challenges and Future Directions

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Abstract

Antimicrobial resistance refers to the state in which microorganisms, including bacteria, fungi, viruses, and parasites, become resistant to antimicrobial treatments and stop responding to them. Currently, a large number of multi-drug resistant organisms exhibit resistance to widely used antibiotics. AMR has emerged as one of the most important public health issues, according to the WHO. Even common infections have become harder to treat as a result of the rise in AMR. According to studies, antibiotic resistance will cause 1.27 million deaths in 2019 and up to 10 million deaths by 2050. AMR can arise spontaneously as a result of mutation and additional antimicrobial resistance mechanisms, including protein alterations, enzymatic degradation, and efflux pumps. Antibiotic misuse is the main cause of antibiotic resistance. Antibiotics are effective against bacteria, not viruses, although some people use them incorrectly to treat viral illnesses. Microorganisms are capable of changing and mutating, which produces new, resistant strains. Antibiotics are used in the food and animal production industries to protect the health of the animals. One nation where AMR spreads extensively with bacterial illnesses is India. The most prevalent MDRs include *Salmonella*, MRSA, and *Mycobacterium tuberculosis*. One of the biggest issues facing healthcare is educating the public about antimicrobial resistance.

Keywords: Antimicrobial resistance, *Salmonella*, MRSA, and *Mycobacterium tuberculosis*.

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Invited Abstracts ***OP/31***

Screening and Characterization of *Staphylococcus aureus* from Indigenous Cow Milk

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Abstract

A study focused on to document the prevalence of *Staphylococcus aureus* mecA gene resistant pattern in Indigenous cow milk. Altogether 78 pooled raw milk samples were seasonally collected throughout the year from Indigenous cow milk farms of Tamil Nadu and Puducherry. A total of 24 positive (30.7%) isolates were recovered identified as *Staphylococcus aureus*. Isolates further analysed by the polymerase chain reaction for the confirmation of mecA gene. Among the 24 isolates 13 (30.7%) samples showed positive results for coagulase test and biofilm production test. Isolates showed maximum sensitivity to Cefoxitin (87.2%), Cephalothin (80.5%), Kanamycin (76.3%), resistance to Nalidixic acid (75.8%)and Penicillin G (70.5%). Three isolates produced Vancomycin (23.7%) resistant also significant here. Present study shows that indigenous cow milk also tends to have equal chances of contaminations end up to public menace. As per the latest preference indigenous cow milk slowly rising places at market to bound back to olden days. Soundly, to improve the quality of milk supplied among the consumers, hygienic measures should be implemented from point of production to consumption.Concerning toavoid the disease outbreaks in future, breaking of the contaminations chain at farm level is considered much more important on Epidemiological point of view.

Keywords: *Staphylococcus aureus*, Indigenous cow milk, Milk borne outbreaks, antibiotic resistance, and Polymerase chain reaction.

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Invited Abstracts *OP/32*

Characterization and Biological Activities of Nanoparticles Synthesized from Medicinal Plants

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Abstract

Medicinal plants are given much importance now-a-days due to their beneficial medicinal properties that have been serving as world-wide human health. Several of the plants have beenused as traditional medicines by local medicine-men for curing several ailments. According to World Health Organization, it has been estimated that 80% population around the globe isdependent on primary health care. Due to the reliable cure in a natural way,the people in developed countries practically utilize medicinal plants against several diseases.The knowledge and the progress of the medical benefits of herbs have grown in both,developing and developed countries. Medicinal herbs have constituted the basis of alternative medicine and lead to be the main pathway for conceptualizing new drugs.Nanotechnology is blooming up in recent days due to the beneficial roles played by enormousnumber of nanomaterials especially in medicine and environmental remediation. Nanotechnology encompasses the production and applications of physical, chemical, andbiological systems at scales ranging from individual atoms or molecules to around 100 nanometres, as well as the integration of the resulting nanostructures into larger systems. The green synthesis of nanoparticles for various uses has beenincreasingly documented with reference to their application as antimicrobial agents. However, many of the ethnomedicinal plants used in Indian traditional system has notbeen well documented for their application as antimicrobial agents after the green synthesis and characterization as plant-derived nanoparticles.

Keywords: Nanoparticles, Medicinal plants, Nanotechnology.

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Invited Abstracts *OP/33*

Dye Extraction from Catharanthus roseus with Antibacterial Activity: A Dual-purpose Approach for Color and Microbial Control

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Abstract

Dye extraction from plants with inherent antibacterial activity presents a dual-purpose approach, combining the aesthetics of natural dyes with the potential for microbial control. This research work explores the extraction process of antibacterial plant dyes from *Catharanthus roseus* and highlights their significance in both artistic and antimicrobial applications. The natural dye was extracted from the flower of *Catharanthus roseus* by maceration technique. The extracted dyeoffered a vibrant and unique color for artistic expression during the dying process. The HPTLC study of water extract from *Catharanthus roseus* showed the presence of vincristine, an alkaloid with an Rf value of 0.76. Additionally, vincristine dyes proved their antibacterial activity against Gram +ve and Gram –ve bacteria. The in-silico studies showed the possible mechanism of interaction of the ligand with the bacteria leading to the inhibition of bacterial growth in this study. In conclusion, a dye extracted from *Catharanthus roseus* with antibacterial activity presents a promising approach for obtaining both color and microbial control. By combining artistic expression with natural antimicrobial properties, this approach offers an eco-friendly alternative to synthetic dyes by providing added benefits in terms of hygiene and infection control. Embracing the potential of antibacterial plant dyes opens avenues for innovative and sustainable applications in various fields, promoting both artistic creativity and microbial safety.

Keywords: Antibacterial activity, *Catharanthus roseus*, dying, in-silico studies, vincristine.

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Invited Abstracts *OP/34*

Contagion Geography of Mosquito Borne Dengue Rambling in Tamilnadu, India and GIS Based Vulnerability Mapping

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Abstract

Pandemics are sweeping outbreaks of infectious diseasethat can momentouslyupsurge morbidity and mortalityover a widespread geographic zone and cause noteworthy economic,social, health and political interruption. Dengue pandemic is a widespread vector-borne disease believed to affect between 100 and 390 million people every year. The interaction between vector, host and pathogen is influenced by various climatic factors. The boosted risk of dengue has been forced by numerous factors, together with climate change, polluted environments, temperature and increased travel.Dengue is one of the most important mosquito-borne viral diseases in tropical and subtropicalcountries. It is transmitted through the bite of Aedes mosquitoes infected with denguevirus (DENV 1–4 serotypes). *Aedes aegypti* and *Aedes albopictus* are believed to be the mainvectors of dengue virus in India.The Indian Council of Medical Research (ICMR) confirmed that dengue's infection geography has grown. Throughout the last two decades, there has been significant geographical spread of dengue with 11-fold increase and repeated outbreaks. Nearly 40 million people in India get infected with diseases spread by mosquitoes each year. Some of the most common mosquito-borne diseases include malaria, dengue, chikungunya, and zika virus. In India, Malaria is still one of the most common illnesses transmitted by mosquitoes.20 Aug 2023. According to the health department, the state reported 136 cases of Dengue till May 16 this year. In January 2024 there was a huge spike in Dengue cases with the state reporting more than 1,200 cases. However, compared to 2023, the mortality rate is low this year. Tamil Nadu reported 8,953 Dengue cases in 2023 with 10 people losing their lives to the disease. However, from 2024 till May, 4,000 cases have been reported with one death being reported in January.Dengue flourishes in Chennai, in the months of July, October, November and peaks in January. July generally is the month when the Monsoons from the west coast of India, drop a few showers in Tamil Nadu, but October and November are generally the months when the East Coast Monsoons inundate the state. The objectives of this study were to examine the influence of temperature and precipitation on oviposition of Ae. aegypti, and to determine the beginning and end of the seasonal activity of Ae. The study site consisted of a residential area in all districts of Tamilnadu.Residences were randomly selected as ovitrap sites. Ovitraps were placed at all field sites. Each week, ovitraps were inspected for the presence of mosquito eggs. Egg counts were used to calculate the following oviposition indices: the ovitrap index (OI) (percent of traps positive) and the egg density index (EDI) (eggs/positive traps). Oviposition occurred primarily from June through October, above a minimum temperature of 12°C.Our study proved that there is rise in places including Chennai, Coimbatore, Krishnagiri, Tirupattur, Theni, Madurai, Tirunelveli, Namakkal and Thanjavur. The inter-district variability was visualized using geospatial analysis. By using ESRI- ArcGIS,ArcMap, and the satellite image, covering area of Tamilnadu overlaid with a grid of 500 × 500 m. This area was divided into four zones, to make the calculations and Vulnerability Mapping of mosquito species diversity.

Keywords: *Aedes*, ArcMap, Dengue, ovitrap, Pupal Index, egg density index

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Invited Abstracts *OP/35*

Effects of Copper Nanoparticles by Using the Extract of *Kalanchoe pinnata*: Its Antioxidant activity and Physio-chemical Characterization

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Abstract

Kalanchoe pinnata generally known as house of prayer chimes, air plant, life plant, marvel leaf, "Patharchatta" and it broadly called as Goethe plant and love bramble, is a delicious plant local to Madagascar. It is a famous house plant and has become naturalized in tropical and subtropical regions. Kalanchoe pinnata is utilized to treat gallbladder stones and recuperate wounds. It has pharmacological properties such as anti-diabetic, anti-neoplastic, anti-oxidant, anti-allergies. Drugs from the plants are effectively accessible more affordable, safe and productive and side impacts. Enormous segments of the popular in agricultural actually depend on traditional nations professionals and natural meds for their primary care. This study is deals with the green synthesized of copper sulphate nanoparticles (CuNPs) from aqueous peel extracts of Kalanchoe pinnata. CuNPs synthesized in this way were characterized by standard techniques such as UV-VISIBLE Spectrophotometer analysis was performed to identify the functional groups of plant involved in the reduction of copper sulphate. Many phytochemicals are isolated from this plant like alkaloids, flavonoids, triterpenes, cardenolides, glycosides, steroids from various extracts were evaluated.

Keywords: *Kalanchoe pinnata*; copper sulphate (CuNPs); Nanoparticles (NPs); UV-visible.

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Invited Abstracts *OP/36*

Identification of Bioactive Compounds from Aqueous Leaf Extract of *Mukia maderaspatana* (L.) *M. roem* and *invitro* and *insilico* screening of its anti-hyperuricemic activity

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Abstract

The prevalence of hyperuricemia has steadily risen over the past few decades globally. Hyperuricemia often leads to Gout which is a prevalent musculoskeletal disease where high uric acid levels build up in joints as urate crystals, causing acute gouty arthritis Currently, recommended uric acid-lowering drugs are Allopurinol, an XO inhibitor that acts by inhibiting uric acid production, and Lesinurad, an inhibitor of URAT1 renal transporter, that acts by increasing renal uric acid excretion. However, they are associated with immense side effects like liver function abnormalities, mild to moderate renal impairment, diarrhea, headache, nausea, and rash. Hence, in light of the increasing prevalence of hyperuricemia within the community; being one of the most neglected investigations during routine health checkups; and the need to develop new drugs with more potency and less toxicity; the present work was designed to screen the bioactive compounds of aqueous extract of Mukia maderaspatana (L.) M. Roem leaves using HR-LCMS and to evaluate its in-vitro anti-hyperuricemic activity using XO inhibitor assay as well as in-silico studies using molecular docking of four selected bioactive compounds against XO and URAT1. In the present study, around 62 bioactive compounds were found to be present in the aqueous leaf extract of Mukia maderaspatana (L.). The extract was able to inhibit xanthine oxidase activity at low concentrations with an IC50 value of 215 µg/ml. In silico approaches showed a good SWISS ADME profile of selective bioactive compounds - 7, 8 Dihydroxycoumarin, (E)-Avenanthramide D, Lansiumamide C, and Carisoprodol. The ligand-receptor complex of Carisoprodol and Xanthine oxidase showed the best docking score of -8.24 kcal/mol among the four bioactive compounds while Allopurinol showed a docking score of -5.05 kcal/mol. Hence, the current research provides the evidence of anti-hyperuricemic effects of Mukia maderaspatana (L.) M. Roem aqueous leaf extract and this effect may be attributed to the potentiality of the identified compounds. However, further studies are needed to highlight the mechanism of action of aqueous leaf extract of Mukia maderaspatana (L.) M. Roem in this regard.

Keywords: Hyperuricemia, XO inhibitory assay, URAT1, *Mukia maderaspatana* (L.) M., HR-LCMS, Molecular docking, binding score

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Invited Abstracts *OP/37*

Herbal Bioactive Composites against Monkeypox and HIV – A Review

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Abstract

Medicinal plants continue to be a chief source for new chemical industries to develop new-fangled healing agents. Large number of plants has been shown to be active in vitro against a variety of human pathogenic viruses or their near congeners. The monkeypox virus was aroused as an emerging epidemic since 2022, with the first positive case identified in an individual with travel ties to Nigeria. This review evaluates the efficiency of different bioactive chemicals acquired from medicinal plants to defend against the monkeypox virus by molecular docking-based trial. A total of 56 bioactive compounds were recognized as a combatant against monekypox, with the top four individuals having a higher binding affinity than the control. The review targeted the monkeypox profiling like protein, which plays a key role in viral replication and assembly. Amid the metabolites, curcumin showed the strongest binding affinity. Further the review broadened to examine HIV, a high-flying sexually transmitted virus that targets the immune system. The advanced stage of the disease is acknowledged as the Acquired Immune Deficiency Syndrome HIV/AIDS by a skin rash, diarrhea and other symptoms or by reviewing patients by HIV laboratory test results performed. There are about 103 plant species used to treat patients with HIV/AIDS. The plant which was most commonly cited by traditional medical practitioners is Mangifera indica. The review concludes that these bioactive natural drug contenders could potentially wrestle against monkeypox and HIV virus.

Keywords: Bioactive compounds, Monkeypox, HIV/AIDS, molecular docking.

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Invited Abstracts *OP/38*

CRISPR cas9 Tool in Genetic Editing to Enhance Host Defense

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Abstract

CRISPR-Cas9 has emerged as a revolutionary tool in genetic engineering, offering unprecedented precision in genome editing. Originally discovered as a bacterial immune system, CRISPR-Cas9 allows for targeted modifications of DNA sequences with remarkable accuracy. This paper delves into the application of CRISPR-Cas9 in enhancing host defense mechanisms, focusing on its potential to improve resistance to pathogens and bolster immune responses. By precisely targeting and modifying genes involved in immune function, pathogen resistance, and cellular stress responses, CRISPR-Cas9 has the potential to significantly enhance an organism's ability to combat infections and other diseases. The paper reviews the underlying mechanisms of CRISPR-Cas9, its diverse applications across various organisms, and the profound impact these advancements have on host defense strategies. We highlight recent research developments, including clinical trials and experimental studies that showcase the benefits of CRISPR-Cas9 in developing diseaseresistant crops and enhancing immune cell functions. Furthermore, we discuss the challenges associated with CRISPR-Cas9, such as off-target effects, ethical considerations, and equitable access to the technology. Finally, the paper explores future directions for CRISPR-Cas9, emphasizing the need for continued innovation and ethical oversight to fully realize its potential in host defense enhancement. Through this comprehensive review, we aim to provide a detailed understanding of CRISPR-Cas9's transformative role in advancing host defense mechanisms.

Keywords: CRISPR-Cas9, genetic engineering, DNA sequences.

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Invited Abstracts *OP/39*

Green Synthesis of Selenium nanoparticles from *Milletia pinnata* and it's Antimicrobial activity

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Abstract

Selenium nanoparticles (Se NPs) show off plenty decrease toxicity and better bioactivity and bioavailability in comparison with different selenium species. They were extensively implanted in therapeutic, environmental remediation. In this study, simple approach was applied for the synthesis of selenium nanoparticles using *Millettia pinnata* aqueous leaf extract and it's antimicrobial activity against the pathogens was evaluated by disc diffusion method. The initial phyto-chemical screening is executed in an extract of *Millettia pinnata*. In this study, we performed phytochemical analyses of phenolic compounds, reducing sugars, flavonoids, glycosides, saponins, alkaloids, anthraquinones, quinones, proteins, tannins and steroids. The selenium nanoparticles studied using UV-visible (UV-vis) spectrophotometer showed the presence of selenium substance in a sample. Crystal size study using X-ray diffraction (XRD) of Se NP estimated to be about 24 nm and crystalline in nature. Fourier transformed infrared spectroscopy (FTIR) analysis revealed CeH bending vibrations at 1390 cm^{-1} and olefinic (617 cm^{-1}) and aromatic (900 cm^{-1}) groups in Se NP. The results of the study demonstrate the antimicrobial activity of stems of *Millettia pinnata* to prevent dental caries. This study provides a better approach to produce the nanoparticles which can be used as therapeutic drug as well as in dental implants.

Keywords: Green synthesis; Selenium nanoparticles; Millettia pinnata; Antimicrobial activity.

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Invited Abstracts *OP/40*

Case study on Lassa Virus: A Highly Virulent and Emerging Pathogen

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Abstract

Lassa virus (LASV) is a highly virulent and emerging arenavirus that causes Lassa fever, a severe and often deadly hemorrhagic disease. Endemic to West Africa, LASV is transmitted through contact with infected rodents, contaminated food and water, and human-to-human contact. With a mortality rate of up to 50%, Lassa fever poses a significant public health threat, particularly in resource-limited settings. This paper summarizes the current understanding of LASV biology, transmission, clinical presentation, diagnosis, treatment, and prevention strategies. We will also discuss the ongoing efforts to develop effective vaccines and therapies against LASV, as well as the challenges and opportunities in controlling this emerging pathogen.

Keywords: Lassavirus, Lassa fever, arenavirus, hemorrhagic fever, emerging pathogen, Public health.

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Invited Abstracts *OP/41*

An *invitro* and insilico study on anticoagulant effects of leaf extracts of *Mukia maderaspatana* (L.) M. Roem

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Abstract

Hemostasis is the vital process that preserves the delicate balance between thrombosis and bleeding by means of pro- and anticoagulant factors, allowing blood to remain in the blood arteries even after an injury. When blood clots clog arteries or veins, thrombosis results. Deep vein thrombosis (DVT) and Pulmonary embolism (PE) are frequent signs of thrombotic disorders. Medications that thin the blood or stop clots including anticoagulants like heparin, warfarin, and direct oral anticoagulants (DOACs) are part of the treatment, which works by influencing platelets and blood coagulation factors. However, these therapies besides being expensive often have potentially fatal adverse effects, such as osteopenia, bleeding episodes, and thrombocytopenia. Hence, the present study was designed to investigate the anticoagulant activity of various leaf extracts of *Mukiama deraspatana* (L.) M.Roem by using in vitro and in silico approaches. A member of the Cucurbitaceae family, frequently known as Musumusukkai in Tamil and Madras pea pumpkin in English, *Mukiama deraspatana* (L) M.Roem which is found all over India is used in the treatment for asthma,bronchitis, gastritis, tuberculosis, and toothaches. The present study demonstrated that theethyl acetate leaf extract of *Mukia maderaspatana* (L.) M. Roem has significant anticoagulantactivity as it displayed prolonged clotting time in the APTT test, however, no prolongation inthe PT test, suggesting that ethyl acetate extract inhibits preferentially intrinsic and/orcommon pathways of coagulation. Furthermore, molecular docking analysis revealed that thebioactive compound, columbin had a stronger ability to interact with FXa, FXIa, P2Y12, andVKORC1 target proteins that are involved in hemostasis. Thus, the current research providesevidence of anticoagulant effects of ethyl acetate leaf extract of *Mukiama deraspatana* (L.) M. Roem which may be attributed to the bioactive compounds and phytochemicals present init.

Keywords: Thrombosis, Anticoagulant, *Mukiama deraspatana* (L.), APTT assay, PT assay, Molecular docking, Columbin, target proteins, binding energy.

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Invited Abstracts *OP/42*

Evolution and Virulence of Influenza Viruses – A Review

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Abstract

Influenza pandemic of 1918–19, the most severe influenza outbreak of the 20th century and, in terms of total numbers of deaths, among the most devastating pandemics in human history. The investigation begins with a review of the events of 1918, the lessons they offer, and the historical and scientific questions they raise. Between worldwide outbreaks, known as pandemics, influenza viruses undergo constant, rapid evolution by a process called antigenic drift, which is driven by mutations in the genes encoding antigen proteins. Sporadically, the viruses undergo major evolutionary alteration by obtaining a new genome segment from another influenza virus an antigenic shift, efficiently becoming a novel subtype. Influenza is caused by any of several intimately associated viruses in the family Orthomyxoviridae, a group of RNA viruses. Viral progression is facilitated by animals such as pigs and birds, which serve as reservoirs of influenza viruses. When a pig is concurrently infected with different influenza A viruses, such as human, swine, and avian strains, genetic reassortment can occur. This process gives rise to new strains of influenza A. The review continues with a report of molecular studies underway to determine the origin of the 1918 virus and the sources of its exceptional virulence. Hints are being sought by investigating viruses conserved in frozen and fixed tissues of sufferers of the 1918 flu. Depiction of five of the eight RNA segments of the 1918 influenza virus signifies that it was the universal precursor of both subsequent human and swine H1N1 lineages, and experiments testing models of virulence using reverse genetics approaches with 1918 influenza genes have begun in hopes of identifying genetic features that confer virulence in humans. Advances in scientific understanding of influenza and vaccine technologies allows the development of a so-called universal influenza vaccine, capable of protecting individuals against a broad range of different influenza subtypes; the vaccine was scheduled for initial testing in clinical trials involving human subjects in 2019.These findings have significant implications for both pandemic planning and the prioritization of high-risk groups for vaccination in the scenario of vaccine shortage. Indeed, if one wishes to minimize the number of years-of-life-lost should vaccine be in short supply, then it would be more effective to immunize the middle aged and younger elderly than the very elderly.

Keywords: Influenza, Orthomyxoviridae, H1N1, antigenic drift, antigenic shift.

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Invited Abstracts *OP/43*

Investigating Genetic Variations in Fluoroquinolone-Resistant *Mycobacterium tuberculosis* and Assessing the Impact of Bedaquiline Resistance in atpE Gene.

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Abstract

The tuberculosis eradication program is challenged by the global issue of drug-resistant tuberculosis, which poses a serious health threat. The prevalence study was conducted to investigate the fluoroquinolone resistance and its related mutations in clinical isolates from Tamil Nadu (north zone) and Puducherry. Sputum samples from first-line drug-resistant patients were subjected to a GenoType MTBDRsl VER 2.0 assay to determine FQR (fluoroquinolone resistance). Further investigation of the atpE gene for Bedaquiline (BDQ) resistance was done by sanger sequencing of the amplified gene product. A computational analysis of the gene products of atpE with BDQ using the molecular docking method was done. In research investigating 430 specimens with GenoType MTBDRslV.2, 7.4% had fluoroquinolone (FQ) resistance; most of these cases were treatment-naïve or previous treatment failures. The majority of FQ-resistant isolates exhibited gyrA gene mutations, especially at codons 94 (D94G) and 90 (A90V). The D94G mutation is associated with Retreatment-recurrent and treatment failure cases. Additionally, one sample linked to BDQ resistance had the atpE gene mutation (A196G) with a codon change of I66V. A molecular docking study between BDQ and atpE gene shows a binding energy of -5.23 kcal/mol and an inhibition constant of 147.1 µM, inferring a favorable interaction.

Keywords: *Mycobacterium tuberculosis,* gyrA, Fluoroquinolones, Bedaquiline.

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Invited Abstracts *OP/44*

Isolation and Identification of Heavy Metal and Antibiotic Resistant Bacteria from Tannery Waste Water

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Abstract

The aim is to isolate naturally occurring bacteria from tannery effluent, screen top isolates for metal reduction, and characterize heavy metal resistance, focusing on favourable conditions. A tannery processes raw animal hides into durable leather, used in clothing, footwear, furniture, and accessories, through a series of key steps to create flexible and resistant materials. Leather processing leads to heavy metal pollution, posing a threat to human health and ecosystem stability. Industrialization and technological advancements have increased stress on the environment, releasing organic pollutants, heavy metals, and hazardous waste, causing significant harm to the ecosystem. Bacteria from tannery effluent were identified using morphological analysis, gram staining, and biochemical testing. The growth of bacteria was measured using nutrient broth containing various concentrations of copper sulphate and ferrous sulphate. The suppression of bacteria was determined by adding them to a plate containing lipase, protease, and amylase. The minimum inhibitory concentration of heavy metal-resistant bacterial isolates was determined by increasing the concentrations using the well diffusion method. The outer appearance of the bacteria's growth zone was used to measure growth. Antibiotic rings were used to assess antibiotic resistance. The study found that as the concentration of heavy metals increased, the growth of bacteria decreased, indicating that all tested heavy metals are toxic for them.

Keywords: Heavy metals, Copper sulphate, Minimal inhibitory concentration, Plate assay.

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Invited Abstracts *OP/45*

A Preliminary study on the Anti-helminthic activity of methanolic extract of Pavalamalli (*Nyctanthus arbor*-tristis)

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Abstract

The present study was aimed to study the anti-helminthic activity of methanolic extract of pavalamalli flowers. The flowers were collected from the local area, shade dried and powdered. The methanolic extract of the flower was prepared and preliminary phytochemical screening was done and it showed the presence of alkaloids, flavonoids, tannins, terpenoids, saponins, cardiac glycosides and tri-terpenoids. Then anti- helminthic activity of the extract was done with four different concentrations of the extract and albendazole was taken as the standard drug against earthworm as the test worm. The paralysis time and death time was noted.As the concentration of the extract was increased to 8mg the paralysis time and death time decreased than the standard drug. The results suggests that the presence of phytochemicals may be responsible for the anti-helminthic activity of the flower extract. Further studies may be explored to find out the active phytoconstituent responsible for the anti-helminthic activity of pavalamalli flowers.

Keywords: Anti-helminthic activity, Pavalamalli flowers, phytochemicals, earthworm, albendazole.

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Invited Abstracts *OP/46*

Isolation and Identification of Heavy Metal and Antibiotic Resistant from Stagnant Water

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Abstract

Heavy metals in wastewater pose health and environmental threats. Biotechnological techniques using bacterial strain inoculation may reduce toxicity. Bacteria isolated from stagnant water with distinct were identified after a 24-hour incubation period. The morphology of the colonies was considered, and samples were categorized into different groups for further identification. A 24-hour-grown culture was injected into nutrient broth-containing tubes containing different concentrations of heavy metals to assess strains tolerance. The tubes were incubated at 37°C for a day, and growth was observed at various time intervals using a UV Spectrophotometer. Antibiotics, produced by bacteria, selectively inhibit or kill other organisms in low quantities. Agar well diffusion method can quickly ascertain bacteria's antibiotic susceptibility.The disk agar diffusion method is a commonly used laboratory technique for assessing antibiotic susceptibility on commercial discs, offering a user-friendly and rapid method.The study evaluates bacteria's starch-hydrolysing capacity, lipase and protease activity using tributyrin plate assays and skim milk powder experiment, identifying clear zones around colonies for each. Heavy metal-resistant bacteria were isolated from stagnant water using screening techniques. Biochemical characteristics were investigated, including inhibitory concentrations (MIC) and antibiotic susceptibility. As the concentration of the heavy metal exceeded, the growth of bacteria decreased, indicating that all heavy metals are toxic for them as concentration increased. The discovery and isolation of these microorganisms suggest a workable solution for addressing heavy metal contamination in various environments.

Keywords: Heavy metals, ferrous sulphate, Minimal inhibitory concentration, Levofloxacin.

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Invited Abstracts *OP/47*

Unraveling the Origin and Impact of Emerging Pandemics: A Social and Behavioral Science Perspective

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Abstract

Emerging pandemics pose intricate problems that go beyond the purview of biomedical research. In order to control their effects and prevent further outbreaks, it is essential to comprehend the social and behavioral aspects. This study applies social and behavioral science to examine the causes and effects of emerging pandemics. It looks at the variables that lead to pandemics, such as socioeconomic inequality, environmental changes, and global interconnectedness. The research delves deeper into the behavioral adjustments and societal reactions to pandemics, emphasizing the ways in which cultural norms, public health initiatives, and disinformation sway pandemic outcomes. This paper attempts to provide a thorough understanding of how human behavior affects and is affected by pandemics, incorporating insights from social psychology, sociology, and epidemiology. It also provides recommendations for enhancing pandemic preparedness and response strategies.

Keywords: Emerging pandemics, environmental changes, and global interconnectedness.

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Invited Abstracts *OP/48*

Advances in Vaccinology and Therapeutic Strategies: A Comprehensive Review

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Abstract

Vaccinology, a rapidly evolving field, has significantly contributed to global health by preventing and controlling infectious diseases. The recent advancements in vaccine development, including mRNA vaccines, viral vector vaccines, and protein subunit vaccines, have revolutionized the approach to immunization, particularly highlighted by the swift development of COVID-19 vaccines. This review explores the principles of vaccinology, focusing on the mechanisms of immune response elicited by different vaccine platforms, their safety profiles, and efficacy. In addition to prophylactic vaccines, therapeutic vaccines targeting non-infectious diseases such as cancer, autoimmune disorders, and chronic infections are gaining momentum. These vaccines harness the immune system's ability to recognize and destroy abnormal cells, offering a promising avenue for personalized medicine. Moreover, emerging technologies like adjuvants and delivery systems enhance vaccine efficacy, providing long-term protection and minimizing adverse effects. Challenges such as vaccine hesitancy, access disparities, and antigenic variation in pathogens persist, demanding continuous innovation and policy interventions. This review provides a comprehensive overview of current vaccine strategies, therapeutic vaccine applications, and future directions in vaccinology, emphasizing the importance of collaboration between science, public health, and policy to achieve global health goals.

Keywords: Vaccinology, mRNA vaccines, therapeutic vaccines, immune response, public health, adjuvants, personalized medicine.

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Invited Abstracts *OP/49*

Exploring the Role of Synthetic Biology and Biotechnology in the Emergence and Impact of New Pandemics

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Abstract

As the world grapples with increasing pandemic threats, synthetic biology and biotechnology emerge as double-edged swords. While they offer groundbreaking tools for preventing, detecting, and treating infectious diseases, they also present new risks, including the potential creation and accidental release of novel pathogens. This paper investigates the dual role of these advanced technologies in the context of pandemics. It delves into how synthetic biology and biotechnology contribute to both the emergence of new pandemics and their management, offering insights through case studies and theoretical analyses. The paper concludes with recommendations for balancing innovation with safety and ethical considerations. In the evolving landscape of global health, synthetic biology and biotechnology have emerged as pivotal fields influencing the emergence and impact of new pandemics. This paper investigates how advances in these disciplines contribute to both the rise of novel infectious agents and the development of strategies to counteract pandemics. Conversely, these technologies also offer significant promise for pandemic preparedness and response. Biotechnology contributes to the development of advanced diagnostic tools, vaccines, and therapeutic agents. Rapid sequencing and genome editing techniques allow for swift identification and characterization of emerging pathogens, while synthetic biology enables the production of vaccines and therapeutics on a scalable level. The advent of mRNA vaccine technology, for instance, highlights how biotechnology can facilitate rapid vaccine development in response to emerging threats. The paper examines case studies such as the rapid development of COVID-19 vaccines, which leveraged synthetic biology and biotechnology to achieve unprecedented speed and efficacy. It also addresses potential risks associated with these technologies, including dual-use concerns where the same advancements used for beneficial purposes might be misapplied to create harmful pathogens. Furthermore, the research explores regulatory and ethical considerations in the use of synthetic biology and biotechnology. It emphasizes the need for robust oversight mechanisms to mitigate the risks of misuse and to ensure that advancements are used responsibly and equitably. In conclusion, while synthetic biology and biotechnology present both opportunities and challenges in the context of pandemics, their role is undeniably transformative. The integration of these technologies into global health strategies holds the potential to enhance our ability to prevent, detect, and respond to infectious diseases. However, careful management and ethical considerations are crucial to harness their benefits while minimizing associated risks. This paper advocates for continued interdisciplinary collaboration and vigilant oversight to navigate the complexities of these powerful tools in the fight against pandemics.

Keywords: Novel pathogens, Synthetic Biology and biotechnology.

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Invited Abstracts *OP/50*

Economic impacts Reviews of Pandemics

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Abstract

The pandemic has exposed the fragility of the global economy, triggering widespread disruptions and unprecedented economic contractions. This review synthesizes the empirical evidence on the economic impacts of pandemics, highlighting the far-reaching consequences for Global trade and supply chains; Labor markets and employment; Fiscal policy and government revenues; Small and medium-sized enterprises (SMEs); Tourism and hospitality industries; Healthcare systems and resource allocation; Income inequality and poverty; Economic growth and recession. The analysis reveals that pandemics can have devastating effects on economies, from immediate shocks to long-term scarring. The review also identifies key factors that exacerbate or mitigate economic impacts, including government responses, healthcare infrastructure, and global connectivity. By examining the economic consequences of pandemics, this review aims to inform policy decisions, business strategies, and individual preparedness, ultimately contributing to more resilient economies in the face of future pandemics.

Keywords: Global economy, economic contractions, pandemics.

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Invited Abstracts *OP/51*

Modifying the Threat: Exploring Pandemic Virus Mutations, Evolving Drug Therapies, and Innovative Prevention Strategies

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Abstract

The rapid evolution of pandemic viruses poses a significant threat to global health, necessitating continuous adaptation of therapeutic strategies and prevention measures. This presentation delves into the complex dynamics of pandemic virus modification, examining the mechanisms driving their mutation and spread. We will discuss the latest advancements in pandemic drug development, highlighting innovative approaches to stay ahead of evolving viral strains. Furthermore, we will explore cutting-edge prevention measures, including vaccine technologies, diagnostic tools, and public health interventions. By understanding the interplay between pandemic viruses, drug therapies, and prevention strategies, we can develop more effective countermeasures to mitigate the impact of future pandemics.

Keywords: Pandemic virus modification, drug evolution, prevention measures, global health, virus mutation, therapeutic strategies.

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Invited Abstracts *OP/52*

Investigation on antibacterial activity against tri herbal leaves

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Abstract

In this morden generation the study of science have acknowledged variety of disease cured by morden medicines but as we knew each herb has its own beneficial property, there is an huge interest in beneficial effect on green herbs such as neem, Tulsi, bael leaf which exhibits great activity against several diseases due to the presence of beneficial bioactive compound green leaf extract were investigated for their antimicrobial properties using specified common infectious agents therefore this study aims on green herbs extract efficiency against potential common infectious microbial agents

Keywords: Antibacterial activity, bioactive compounds, tri herbal leaves, neem, Tulsi, bael leaf.

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Invited Abstracts *OP/53*

Antibiotic Resistance Profiles of Bacteria Isolated from seminal fluid

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Abstract

Microorganisms can develop resistance to antibiotics used in the treatment with a variety of mechanisms.Resistance is the ability of a bacteria against theantogonizing effect of an antibacterial agent upon reproduction prevention or bactericidal. The development of resistance to antibiotics in bacteria often develop as aresult of unnecessary and inappropriate use of antibiotics.Through the intense use of antibiotics, resistantmicroorganisms have emerged over the years, and problems were started to be experienced for the treatmentof these infections emerged with these resistant microorganisms. Today, on the one hand trying todevelop new drugs, on the other hand, there are difficultiesin treatment as a result of development of resistanceto these drugs rapidly. The development of resistance toantibiotics is a major public health problem in all over theworld. Infections of the male genitourinary tract account for up to 15% ofcases of male infertility. Acute and chronic infections and consequent inflammation in the male reproductive system may compromise thesperm cell function and the whole spermatogenetic process, causing qualitative and quantitative sperm alterations. Microbiology investigation of male partners in infertile couple can be useful to detect the male urogenital tract infection and susceptibility to antibiotics for empiric treatment.In this study 100 (65.7%) out of a total number of 22 semen samples from infertile males collected yielded bacterial growth with domination of gram positive bacteria namely *Staphylococcus aureus*. The antimicrobial susceptibility profile showed that most of theorganism have increasing resistance to fluoroquinolones. All patientsresponded to the treatment very well and basic semen parameters and leukocytosis returned to normal level.

Keywords: Antibiotic Resistance Profiles, *Staphylococcus aureus*, semen samples.

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Invited Abstracts *OP/54*

Evaluation of *invitro* Study of Anti-Diabetic, Anti-Hyperlipidemic Anti-Oxidant Activity from different Solvent Pulp Extract of *Murraya koenigii*

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Abstract

The present study aimed to evaluate the in vitro anti-diabetic, anti-hyperlipidemic, and antioxidant activities of different solvent pulp extracts from Murrayakoenigii (curry leaves). The medicinal properties of Murrayakoenigii have been widely recognized, and its pulp extracts are believed to possess bioactive compounds with potential therapeutic effects.In this study, various solvent extracts, including aqueous, methanolic, and ethanolic extracts, were prepared from the pulp of Murrayakoenigii. The anti-diabetic activity was assessed by evaluating the α-amylase and α-glucosidase inhibitory activities of the extracts. The anti-hyperlipidemic potential was investigated by determining the effects on pancreatic lipase activity. Additionally, the antioxidant activity was measured using DPPH radical scavenging and reducing power assays. Results indicated that the methanolic extract exhibited the highest inhibitory activity against α-amylase and α-glucosidase, suggesting a strong anti-diabetic potential. The ethanolic extract demonstrated significant inhibition of pancreatic lipase, indicating anti-hyperlipidemic properties. All extracts showed notable antioxidant activity, with the methanolic extract displaying the highest DPPH radical scavenging activity. In conclusion, the pulp extracts of Murrayakoenigii exhibit promising anti-diabetic, anti-hyperlipidemic, and antioxidant activities, with the methanolic extract showing the most potent effects. These findings suggest that Murrayakoenigii pulp extracts could be further explored as potential therapeutic agents for managing diabetes, hyperlipidemia, and oxidative stress-related disorders.

Keywords: *Murraya koenigii*, anti-diabetic, anti-hyperlipidemic, antioxidant, α-amylase, α-glucosidase, pancreatic lipase, DPPH radical scavenging.

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Invited Abstracts *OP/55*

Effect of Nutrient analysis on Over heating of Gluten containing Food Product

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Abstract

Wheat (*Triticum aestivum* L.) is one of the major crops and occupies an essential position in agricultural production, providing around 20% of calories and protein in the human diet. The crop belongs to one of the most diverse and substantial families. Poaceae, is the principal cereal crop for the majority of the world's population. This cereal is polyploidy in nature and domestically grown worldwide. The present study investigates the moisture and gluten content of commonly consumed wheat products: The moisture content was found to be 35%, 42%, and 43% for atta flour, parotta, and chapathi. Atta flour exhibited lower moisture content, suggesting enhanced resistance to spoilage and an extended shelf life compared to the ready-to-eat parotta and chapathi, which had higher moisture levels. Furthermore, the gluten content in atta flour, ready-to-eat parotta, and ready to-eat chapathi was determined to be 97.25%, 99.9%, and 98.7%, respectively. The heightened gluten content in ready-to-eat parotta raises concerns, as it may lead to adverse effects such as bloating, constipation, and diarrhoea in susceptible individuals. Gluten intolerance or sensitivity should be considered when consuming products with elevated gluten levels. The experiment aimed to understand the impact of high temperatures on gluten-containing foods. Gluten, a protein found in wheat, barley, and rye, can undergo structural changes when exposed to heat. However, heating alone doesn't increase the gluten content in foods.The experiment likely involved heating gluten-containing foods at various temperatures to observe changes in texture, structure, and possibly taste. Results have shown alterations in the texture of the foods due to the denaturation of gluten proteins. Consulting with health care providers or registered dietitians specializing in gluten-related issues is recommended for personalized advice and guidance. The experiment may have sparked further questions or avenues for research, such as exploring the effects of different cooking methods (baking, frying and boiling) on gluten or investigating the role of additives or ingredients in gluten-containing foods during heating.

Keywords: Gluten, Moisture content, Commercial products

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