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"Health and Disease: Emerging Trends and New Insights"

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Keynote Speech 01

“Health and Disease: Emerging trends and New insights”

Professor Dato' Dr Hj Abdul Razak Muttalif
Senior Consultant Chest Physician
Faculty of Medicine
Bioscience & Nursing
MAHSA University

Infections have been emerging for thousands of years as interactions between humans, animals and their environments have increased and changed. These can be complex and multi-factorial. Factors involved in emergence are: ecological changes, microbial adaptation and changes, human dermographics and behavious, technology and travel. Breakdown in public health measures and susceptability to infection also contribute to the emerging infections. The underlying causes and mechanisms of emerging infectious disease problems are due to human behaviour. The only methods of control or prevention available are to change human behaviour.

Human carelessness, human excesses, human ignorance or human habits of conquest or leisure which contribute directly to the biological niches that microorganisms are all too capable of exploiting. It is not likely that we will ever conquer the microbial world, we must look instead to control the human factors that contribute to emergence.

Keynote Speech 02

“Innovations towards the development of cold chain-free live oral cholera vaccine”

Prof Dr. Manickam Ravichandran
Chief Scientific Officer
ALPS Global Holding

Cholera due to *Vibrio cholerae* O1 and O139 strains remains a public health concern in Southeast Asian countries. Sanitization and vaccines are essential measures to control cholera. Our cholera vaccine development journey started with developing a vaccine candidate against *V. cholerae* O139 (VCUSM2), where the *hem*A gene was mutated by systematic allelic replacement methodology. VCUSM2 has all the virulent genes intact, but it is an aminolevulinic acid (ALA) auxotroph due to a deletion mutation in the *hem*A gene. It showed good immunological and colonization properties but had reactogenicity properties. To reduce the reactogenicity of VCUSM2, *zot* and *ace* virulent genes were deleted. The wild-type *ctx*A gene, the major virulence factor, present in the VCUSM2 was replaced with a mutated ctxA gene and the resultant mutant was named VCUSM14. By site-directed mutagenesis, the codons of arginine and glutamic acid at positions 7th and 112th, respectively, in CTA of VCUSM14 were substituted with lysine (R7K) and glutamine (E112Q). VCUSM14 was not reactogenic, but its colonization efficiency in infant mouse was compromised. To improve the colonization efficiency of VCUSM14, the *hem*A gene was reintroduced to create a strain with the ALA prototrophic trait, VCUSM14P. VCUSM14P had excellent colonization and immunological properties that gave 100% protection to wild-type challenged rabbits. Recently, we have developed a novel cold chain free vaccine formulation of VCUSM14P, which is stable and retains its potency at room temperature (25°C ± 2°C, and 60% ± 5% relative humidity) in an ICH-compliant stability chamber for 140 days. One of the unique features of VCUSM14P is that it has intact CTB, a known mucosal adjuvant. VCUSM14P is a non-toxigenic strain with built-in adjuvant (CTB). It can be used as an efficient DNA vaccine delivery platform. Currently, VCUSM14P is being used as a dual promoter DNA vaccine delivery vehicle for SARS-CoV2 and tuberculosis. Strategies for developing such affordable cold chain-free vaccines have great potential to reach the global immunization program of the bottom billion.

Keynote Speech 03

“Paediatric Cancer: Current Perspective, Emerging Trends and New Insights”

Dr. Wan Ariffin Abdullah
Senior Professor
Department of Paediatrics
MAHSA University

Cancer is a rare disease in children, with incidence rate of about 15 per100,000 children per year. Not more than 1% of cancers occur in children. Although it has better prognosis compared to adult cancer; it is the commonest cause of death due to disease in developed countries in children >1yr old. The advent of precision medicine has enabled better understanding of the biology of childhood cancer, leading to better diagnostic profiling, prognostication and risk stratification of the disease. It has also led to the development of precision treatment eg immunotherapy, which has the ability to specifically target cancer cells instead of destroying indiscriminately all rapidly dividing cells in a patient. Such progress inevitably increases cost of treatment of childhood cancer, giving rise to great inequity of access to cancer care globally; the cure of childhood cancer in LIC and LMIC countries is less than 30% while it more than 80% in HIC. However, real world data has shown that is cost effective to treat most childhood cancers even in the LIC and LMIC. Effort by GICC (Global Initiative for Childhood Cancer) to overcome survival disparity in childhood cancer survival has gained universal support,

Keynote Speech 04

“Multi-Omics dissection of Enteroviruses pathogenesis for host based antiviral therapeutics”

Associate Professor Dr. Vinod Balasubramaniam
Associate Professor (Molecular Virology)
Monash University, Malaysia

Enterovirus infections, such as those caused by EV-A71 and EV-D68, are significant public health concerns, with diverse manifestations ranging from mild febrile illness to severe neurological diseases. To enhance our understanding of enterovirus pathogenesis's molecular mechanisms, we conducted a comprehensive proteomic analysis of SKNSH cells to investigate the cellular response to EV-A71 and EV-D68 infections. Our study aimed to identify the differential protein expression profiles and elucidate the biological processes and pathways implicated in disease progression.

Aim and Objective: The primary aim of this study was to explore the proteomic landscape of SKNSH cells in response to EV-A71 and EV-D68 infections. We sought to identify differentially expressed proteins and analyze their participation in biological processes and pathways relevant to viral pathogenesis, aiming to uncover potential targets for therapeutic intervention.

Results: Our proteomic analysis identified a total of 1,715 differentially expressed proteins across different time points post-infection. The analysis revealed dynamic protein-protein interaction networks, with key regulators, including BRD4, SIN3A, and SRSF9, implicated in transcriptional regulation, mRNA splicing, and antiviral responses. Additionally, we highlighted the differential expression patterns of proteins like CDK9, HSPA1A, CAV1, SNW1, FKBP8, GDF15, and CALR, noting their varied functional implications in viral pathogenesis and immune modulation. The study also underscored the significance of proteins such as OTUD4 and IFIT3 in antiviral signaling and immune response modulation.

Conclusion: Our findings delineate the complex interplay of host cellular proteins and pathways in response to enterovirus infections, shedding light on the intricate host-pathogen interactions. The identification of key regulatory proteins and their roles in disease pathogenesis offers valuable insights into the molecular underpinnings of enterovirus infections. It opens avenues for the development of targeted therapeutics. This study underscores the importance of proteomic investigations in unraveling the multifaceted host responses to viral infections and highlights potential targets for therapeutic interventions in enterovirus-associated diseases.

Keynote Speech 05

“Nanomaterials for Biomedical Applications”

Assoc. Prof. Ir. Ts. Dr. Muhammad Mahyiddin Ramli
Associate Professor
Faculty of Electronic Engineering & Technology
Director for Institute of Nano Electronic Engineering
Universiti Malaysia Perlis (UniMAP)

The physical and chemical properties of graphene; one of the popular nanomaterials to date, allow their full utilization in diagnosis, biosensing and bioimaging devices, drug delivery systems, and antibacterial applications. From the different approach of graphene production to the chemical modification of graphene, it will greatly benefit the performance and effectiveness of biomedical devices. Graphene is a two-dimensional nanomaterial composed of carbon atoms with sp2 hybrid orbitals. Whereas reduced-graphene oxide (rGO) was produced by attaching functional groups to the basal plane of graphite sheets to break the van der walls forces and reduced by strong reduction agents. Both are fully utilized for biomedical applications. The production of graphene, the properties and potential application and challenges in biomedical are reviewed.

Keynote Speech 06

“Dissolvable Microneedles for Transdermal Drug Delivery: Current Perspectives and Future Challenges”

Prof. Dr. Azrul Azlan Hamzah
Institut Kejuruteraan Mikro dan Nanoelektronik (IMEN) Institute of Microengineering and Nanoelectronics (IMEN)
Universiti Kebangsaan Malaysia

Dissolvable microneedles have recently attracted much attention for both therapeutic and cosmetics purposes. Japan, UK and the USA were leading in the dissolve microneedles research up until 2021, then the the trend is dominated by South Korea and China. Dissolvable microneedles have found its niche market in beauty and cosmetics, due to less regulation involved. The worldwide competion is now on therapeutic drug delivery, to certify and commercialize dissolvable microneedles to prevent and cure various diseases, especially in vaccination and cancer treatment. Where is this research trend heading? Our research and clinical trials indicate that dissolvable microneedles are suitable for topical drug delivery, both for treating topical skin diseases and anesthetic purposes.

OP1

Discovering and Profiling the Expression of Small Regulatory RNAs (sRNA) Associated with the Global Transcriptional Regulator Hfq in *Serratia marcescens*

Vickineshwari Kunasegaran[1], Kishan Raj Selva Raju[1]*, Suresh V. Chinni[2], Citartan Marimuthu[3], and Nazahiyah Ahmad Rodzli[4]

[1]School of Biotechnology, MILA University, No 1, MIU Boulevard, Putra Nilai, 71800 Nilai, Negeri Sembilan
[2]Faculty of Medicine, Biosciences and Nursing, MAHSA University, Bandar Saujana Putra, Selangor 42610 Malaysia
[3]Infectious Disease Cluster, Advanced Medical and Dental Institute (AMDI), Universiti Sains Malaysia, Kepala Batas, Malaysia
[4]Malaysia Genome and Vaccine Institute (MGVI), National Institute of Biotechnology Malaysia (NIBM), Jalan Bangi, 43000 Kajang, Selangor, Malaysia,

*Corresponding author's email: kishan.selvaraju@mila.edu.my

Introduction:
Serratia marcescens is a multidrug-resistant pathogen known for causing infections like urinary tract disease, with an array of virulence factors in its arsenal, including hemolysin and biofilms. With treatment options dwindling, researchers are exploring non-coding RNA as targets to mitigate virulence gene expression in *S. marcescens.*
Methods:
Hfq gene from *S. marcescens* and pET-28b(+) vector were double digested using restriction enzymes to facilitate cloning. The recombinant Hfq protein was overexpressed by BL21(DE3) *E.coli* and purified for *in vitro* binding with *S. marcescens* total RNA. The Hfq-bound RNA was submitted for high-throughput sequencing to identify novel Hfq-bound npcRNA. This was followed by differential analysis via northern blotting and *in silico* prediction of virulence-associated mRNA targets.
Results:
163 Hfq-bound npcRNAs were identified via high-throughput sequencing; 159 were unannotated after NCBI and Rfam screening. Ten candidates were selected based on *in silico* analysis, including two specific to *S. marcescens*. Differential expression across growth phases revealed distinct patterns. *In silico* analysis predicted regulatory roles targeting virulence-associated mRNAs in *S. marcescens*.
Conclusion:
This study could set a platform for npcRNA-based therapeutic interventions for treating *S. marcescens* infections.
Acknowledgement: We are grateful to the Ministry of Higher Learning Malaysia for financing this work under the Fundamental Research Grant Scheme FRGS/1/2022/STG01/MIU/02/1

Keywords
Differential expression, Hfq, non protein-coding RNA, *Serratia marcescens*, Virulence

OP2

Progress in the regulation of macrophage inflammatory response by the orphan nuclear receptor Nur77/NR4A1

Li Jun[1,2], Jiang Yujie[2], Chai Theam Ooi[1,*], Barani Karikalan[1]

[1]Faculty of Dentistry, MAHSA University, Selangor, Malaysia.
[2]Affiliated Hospital of Youjiang Medical University for Nationalities, Guangxi, China.

*Corresponding author: E-mail address: ctooi@mahsa.edu.my (Ooi Chai Theam)

Nuclear receptor NR4A subfamily is expressed in many tissues like the brain, heart, kidneys, liver, lungs, and immune cells. It exerts fundamental control over such cellular processes as inflammation, proliferation, differentiation, apoptosis, autophagy, and metabolism through transcription-dependent and independent mechanisms. Recent studies have indicated that Nur77/NR4A1 participates in the regulation of macrophage function, especially in the inflammatory response, which is considered one of the bases for studying molecular mechanisms in inflammatory diseases promoted by macrophages. This review helps to explain the role and mechanisms of Nur77/NR4A1 in macrophage inflammatory responses by pointing to some potential therapeutic approaches.

Keywords: orphan nuclear receptor; Nur77; NR4Al; macrophage; inflammatory response

OP3

Policy Elements Influencing the Sustainability of the Biosimilar Market in Malaysia: A Literature Review

Hoang Nguyen Thao My[1*], Omotayo Fatokun, Muhammad Junaid Farrukh[1], Fazlollah Keshavarzi[1]

[1]Faculty of Pharmaceutical Sciences, UCSI University, Kuala Lumpur, Malaysia
**Corresponding author: hoangmy0909@gmail.com*

Background
Sustaining the market for biosimilars is key in securing the long-term benefits from biosimilar medicines. Policy can influence the achievement of those elements that contribute to the sustainability of biosimilars. Even Malaysia was the first country to adopt regulatory guidelines for the approval and marketing of biosimilars, biosimilars' availability and adoption in Malaysia are not at all ideal. The aim of this study is to create the roadmap of policy elements that influence the sustainability of biosimilar market in Malaysia.
Methods
The study searched and reviewed articles in Pubmed, Google Scholar, National Library of Medicine from 1/1/2003 to 14/04/2024. A total of 3469 results were found in which Pubmed contributed 39 records (n=39), Google Scholar contributed 3074 records (n=3074), and National Library of Medicine contributed 356 records (n=356). Biosimilars policy framework and their sustainability were adopted from IQVIA Country Scorecards for Biosimilar Sustainability.
Results
There were twenty papers were chosen for reviewing. They were categorized into five main domains including Regulatory environment and clinical guidelines; Awareness and education; Incentives; Pricing rules and dynamics; and Purchasing mechanisms. Based on these policy areas, the sustainability of biosimilars would be estimated. There were positive policies on Regulatory environment and clinical guidelines, Pricing rules and dynamic, and purchasing mechanism. Yet, challenges were found in Awareness and education, and Incentives policy areas.
Conclusion
The literature review emphasizes the need for setting up specific prescription targets, promoting competition, and offering incentives to biosimilar manufacturers to increase market appeal. Furthermore, it is critical to enforce strict quality standards for the incorporation of tenders and align the registration requirements with global standards. Education for pharmacists and continuous training for healthcare practitioners is also essential. In Malaysia, these steps are crucial in ensuring the affordability and accessibility of biosimilars. Improving these policy components could help Malaysia create a competitive biosimilar market, increase access to affordable treatments, and eventually raise the standard of healthcare service.

Keywords: biosimilars market Malaysia, sustainability, biosimilars policy, biosimilar regulatory guidelines, literature review

OP4

Research Progress on the Role of M6a Modification in Pancreatic Cancer

Lin Jie

Background: M6A is a common modification method in epigenetics, widely present in eukaryotic organisms, and plays an important role in the growth and invasion of cancer. Pancreatic cancer is a highly malignant tumor with a poor prognosis, and most cases are diagnosed at an advanced stage, with poor treatment outcomes. **Objective:** This article summarizes the research progress of M6A in pancreatic cancer, including the concept of M6A, its role in tumors, and its role in pancreatic cancer. By understanding the role of M6A modification in pancreatic cancer, it provides important evidence for early screening of pancreatic cancer and identifying effective treatment targets, as well as improving the prognosis of pancreatic cancer. **Methods**: A literature review method was used to analyze the main research achievements of the role of M6A modification in pancreatic cancer. **Results:** 1. The basic mechanism of M6A modification: introduction of M6A methyltransferases (writers), demethylases (erasers), and M6A-binding proteins (readers); the role of M6A modification in RNA metabolism: splicing, maturation, export from the nucleus, translation, degradation, and stability. 2. The role of M6A in pancreatic cancer: the relationship between M6A modification and the occurrence and development of pancreatic cancer; the abnormal expression of M6A-related proteins and their effects on the proliferation, migration, invasion, apoptosis, and drug resistance of pancreatic cancer cells; the relationship between M6A modification and the prognosis and immune microenvironment of pancreatic cancer. 3. The interaction between M6A modification and long non-coding RNA (lncRNA): the role of lncRNA in pancreatic cancer; how M6A modification affects the function of lncRNA. 5. m6A could be a potential target for diagnosis and treatment of pancreatic cancer: the potential of m6A modification as a biomarker; therapeutic strategies targeting m6A modification.
Conclusion: Despite some progress in the study of the role of m6A modification in pancreatic cancer, challenges still exist. Future research should focus on the discovery of biomarkers and the development of new targeted drugs.

Key words: m6A modification; Pancreatic cancer; RNA methylation; Gene expression regulation

OP5

CBD Attenuates Cognitive Deficits and Structural Changes in The Hippocampus Of D-Galactose (D-Gal) And Aluminium Chloride ($AlCl_3$) Induced Alzheimer's Like Disease in Male Wistar Rats

Sura Sreenivasulu[1,4], Nurul Huda Mohd Nor[1], Mohamad Aris Mohd Moklas[1], Siti Saleha Binti Masrudin[1], Saravanan Jagadeesan[3], Mohd Amir Kamaruzzaman[1], Thirupathirao Vishnumukkala[4], Krishna Chaitanya Reddy Dandala[2], Ravindranadh Gandrakota [2]

[1]Department of Human Anatomy, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Selangor, Malaysia

[2]Department of Anatomy, Faculty of Medicine, MAHSA University, Jenjarom, Selangor, Malaysia

[3]School of Medicine, Taylors University, Lakeside Campus, Bandar Sunway, Selangor, Malaysia.

[4]Department of Human Biology, International Medical University, Kuala Lumpur, Malaysia

*Corresponding author's email: sreenivasulu@mahsa.edu.my

Introduction: Alzheimer's disease (AD) is the most prevalent type of dementia, characterized by cognitive decline and memory loss due to the accumulation of β-amyloid plaques and tau tangles. With 50 million global dementia cases primarily linked to AD, there is an urgent need for effective treatments. CBD, a non-psychoactive cannabis compound, shows promise for neurodegenerative diseases due to its anti-inflammatory and antioxidant properties. This study aims to evaluate CBD's effects on cognitive deficits and hippocampal changes in an AD animal model induced by D-gal and $AlCl_3$.

Methods: Forty-eight male Wistar rats were divided into six groups: Control group receiving distilled water, Model group treated with D-gal (60 mg/kg, i.p.) and $AlCl_3$ (200 mg/kg, oral), and three treatment groups receiving 20 mg, 40 mg, or 80 mg of CBD (i.p.), along with a Donepezil group (1 mg/kg, oral). The Model group was administered D-gal and $AlCl_3$ daily for 10 weeks to induce Alzheimer's-like pathology, followed by 3 weeks of treatment. Cognitive function was assessed using the modified elevated plus maze and T-maze tests. After euthanasia, hippocampal tissue was collected for ultrastructural analysis through Transmission Electron Microscopy (TEM) and light microscopic analysis with Nissl staining.

Results: The study found that CBD and Donepezil enhanced cognitive function in treated groups, as indicated by improved performance in behavioral tests. Histological analysis showed decreased neuronal loss and improved cell morphology in treatment groups. Ultrastructural analysis of the myelin sheath revealed that while control rats had thick, electron-dense myelin, those exposed to D-gal and $AlCl_3$ exhibited various defects. Treatment with CBD and Donepezil improved these alterations, suggesting their protective roles in maintaining myelin integrity.

Conclusion: CBD significantly improve cognitive function and support myelin integrity in an Alzheimer's model, indicating their potential as therapeutic agents against neurotoxicity.

Keywords: Alzheimer's disease, Cannabidiol, Cognitive function, Myelin integrity, Neurotoxicity

OP6

Analysis of External Features of Temporal Bone in Relation to Their Pneumatization

Krishna Chaitanya Reddy Dandala[1], David Victor Kumar Irugu[2], Sreenivasulu Sura[3], Ravindranadh Gandrakota[4]
[1]Associate Professor, Department of Anatomy, Faculty of Medicine, MAHSA University, Malaysia
[2]Senior consultant, Department of Otorhinolaryngology, Midas Hospitals, Hyderabad, India
[3]Associate Professor, Department of Anatomy, Faculty of Medicine, MAHSA University, Malaysia
[4]Professor and HOD, Department of Anatomy, Faculty of Medicine, MAHSA University, Malaysia

Introduction: The temporal bone is made up of squamous, mastoid, petrous and tympani parts consist of the organ of hearing along with key Facial and vestibulocochlear cranial nerves. On the lateral surface, the external auditory meatus and mastoid tip along with the thickness of the squamous bone play a key role in planning mastoid surgeries.
Methods: The study has been done on 110 wet temporal bones with an amalgamation of microdissections and CT. The measurements have been taken by image analysis software ImageJ. The pneumatization of the temporal bones have been determined radiological and reconfirmed by microdissection
Result: There is clear indication of a variation of the AP, transverse and diagonal diameters of the external auditory meatus and a variation in the mastoid tip's thickness in relation to the pneumatization of the temporal bones**.**
Conclusion: The variant pneumatization and parametric variations of the external features of the temporal bone weigh heavily while planning a surgical procedure and help avoid iatrogenic injuries.

Keywords: Temporal bone; microdissection; external auditory meatus; mastoid tip

Molecular mechanism of Triptolide in the treatment of Lupus Nephritis based on bioinformatics, network pharmacology and artificial intelligence

Zhao Liang [1,2],Suresh V Chinni[1,3*],Zhiming Tang[4*]
1.Department of Biochemistry, Faculty of medicine, bioscience and Nursing, MAHSA University, 42610 Jenjarom, Selangor,Malaysia.
2.Department of Nephrology, Baise People's Hospital,Baise, 533000, China.
3.Department of Periodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Chennai 602105, India.
4.Department of Nephrology, the Affiliated Hospital of Youjiang Medical University for Nationalities, Baise, 533000, China.

***Corresponding Author : cvsureshgupta@gmail.com**
***Corresponding Author : yizherenxinzmt@163.com**

Background: Lupus Nephritis(LN) is a common complication of Systemic Lupus Erythematosus. Triptolide is used to treat LN in clinical. However, the specific mechanism of Triptolide in the treatment of LN is unclear. The aim of this study was to explore the target of Triptolide in the treatment of LN and to clarify the mechanism of Triptolide in the treatment of LN.
Methods: The therapeutic targets of Triptolide were analyzed by pharmacophore network pharmacology, and all the targets were enrichment analysis. GSE98422 was downloaded from the GEO database,analysis of kidney tissue samples from patients with LN and healthy controls to identify differentially expressed genes (DEGs), and construct protein interaction networks (PPI). Key genes of DEGs were analyzed using MCODE and cytoHubba plug-ins in Cystoscope, and the pivotal genes were obtained. The intersection of DEGs and Triptolide therapeutic targets was used to identify potential therapeutic targets of Triptolide, and artificial intelligence AlphaFold2 was used to predict the protein structure of therapeutic targets. Finally, molecular docking was used to verify whether Triptolide could successfully dock to the predicted target.
Results: A total of 259 DEGs were obtained, and 9 pivotal genes of LN were identified by MCODE and cytoHubba plug-ins,including CCL2,CXCL8,CD163,CCL3,FOS,ALB,PTGS2,MMP9 and IL1B.By intersecting the KEGG of DEGs and Triptolide target genes, 26 therapeutic signaling pathways (such as chemokine signaling pathway, NF-kappa B signaling pathway, and TNF signaling pathway) were obtained.Pharmacophore target analysis was used to annotate 282 therapeutic targets of Triptolide and identify 8 potential therapeutic targets of LN,including SELE,PNMT,CFD,LCN2,MMP9,BIRC7,ALB and GC.Then the therapeutic targets protein structure was predicted by AlphaFold2 and molecular docking was validated.
Conclusion: Triptolide may prevent and treat Lupus Nephritis through target genes such as SELE and signaling pathways such as Chemokine signaling pathway.

KEYWORDS
bioinformatics, network pharmacology, artificial intelligence, Triptolide, Lupus Nephritis

Effectiveness of Educational Program to Improve Knowledge and Attitude of Caregivers Regarding Nutritional Status of Under Five-Year-Old Children in Kudus, Central Java, Indonesia

Umi Faridah[1], Prof. Dr. Rusli bin Nordin[2], Prof.Vetriselvan Subramaniyan[3]

[1] Nursing Department, Universitas Muhammadiyah Kudus, Indonesia
[2] Mahsa University, Malaysia
[3] Monash University, Malaysia

Introduction: Nutritional status of children influences their health status, which is a key determinant of human development (Zufan Bitew Dessie et al, 2019). Indicators of child development and nutritional status quantify the overall health of children younger than 2 years and reflect a country's policies, programs, and level of development. In recent decades, as a consequence of a global strategy to reduce under nutrition, there has been a declining trend in the prevalence of stunting and wasting, although they remain high in regions with struggling economies (Lourdes et al, 2019). 6 million toddlers with the highest prevalence are in the country of Timor Leste with 50.2%, followed by India with a prevalence of 38.4% and number three, namely Indonesia with 36.4%. Nationally, stunting data in 2018 saw an increase in the number of stunting cases reaching 19.3% (Ministry of Health Republic of Indonesia, 2018). **Method:** The research design used Quasi Experimental with pretest-posttest with control group design. The first phase of this research researcher measured Demografic Characteristic: social demographic, family support, economic status, and educational of parents. The second phase, researcher pre-test. The third step researcher give them educational program about nutritional status. The fourth phase, researcher post-test, researcher assessed their knowledge and attitude after having intervention. **Result:** The quantitative findings, post intervention educational programs to improve knowledge and attitude of nutritional status of caregiver under five-year-old in children, which means educational program of caregiver was significantly improve the knowledges and attitude of nutritional status among caregiver in children under five-year-old. **Recommendation**: Caregiver as family support for children and related people to increase nutritional status among children under five years. educational program of caregiver was significantly improving the knowledges and attitude of nutritional status among caregiver in children under five-year-old.

Keywords: Educational Program, Nutritional status, five-year-old, children

Exploring the Anti-bacterial Attributes of Cow Milk Against Bacteria That Contributing To Diabetic Wound Infection

Carmel Chuah Pao Eah[1], Muhammad Fattah Fazel[1*], Nurul Hana Zainal Baharin[1]

[1] School of Bioscience, Faculty of Pharmacy and Biomedical Sciences, MAHSA University, Bandar Saujana Putra, Jenjarom, Malaysia

* Corresponding author's email: muhammadfattah@mahsa.edu.my

Introduction: An increasing trend in diabetic wound infections worldwide has led to greater antibiotic use and multi-drug resistance. Therefore, we aim to explore the efficacy of heated raw cow milk and pasteurized cow milk against *Staphylococcus aureus* and *Pseudomonas aeruginosa*, which contributing in diabetic wound infections. **Methods**: Two groups of bacteria were cultured separately on Mueller Hinton agar after exposed to heated raw milk and pasteurized cow milk at 100%, 50%, and 25% concentrations. After 24-hour incubation, the inhibition zones were measured in millimetres. Data was analysed using one-way ANOVA. **Results:** Pasteurized milk exhibited greater antibacterial efficacy against *Staphylococcus aureus* (21.50±1.50 mm, 15±0.00 mm, 6±0.00 mm; $p<0.05$) compared to heated raw milk (15.77±2.25 mm, 7.50±1.50 mm, 6±0.00 mm; $p<0.05$). Conversely, heated raw milk showed higher antibacterial activity against *Pseudomonas aeruginosa* (9.50±3.50 mm, 8.00±2.00 mm, 8.00±2.00 mm; $p<0.05$) than pasteurized milk (8.00±2.00 mm, 6±0.00 mm, 6±0.00 mm; $p<0.05$). Both differences are statistically significant. **Conclusion:** Pasteurized milk effectively controls *S. aureus*, while heated raw milk shows higher activity against *P. aeruginosa*, aiding diabetic wound infection management.

Keywords:
Diabetic Wound infection, Cow milk, Antibacterial activity, *Staphylococcus aureus*, *Pseudomonas aeruginosa*

OP10

Evaluation of Synergistic Effects of *Limosilactobacillusreuteri 29A* and Fosfomycin against *Escherichia coli*

Yashriah Bibi Bundhoo[1], Shalini Vellasamy[1], Leslie Than Thian Lung[2]

[1] Faculty of Medicine, Bioscience and Nursing, MAHSA University, Bandar Saujana Putra, Selangor, Malaysia.
[2] Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Serdang, Selangor, Malaysia.

Corresponding authors: leslie@upm.edu.my; shalini.v@mahsa.edu.my

Introduction: *Escherichia coli (E. coli)* constitutes of an adaptable bacterium which can cause numerous diseases in humans as well as leading to the growing problem of Antimicrobial Resistance (AMR). However, the inequitable and unnecessary use of antibiotics has resulted in the rapid proliferation of drug-resistant bacteria, rendering previously effective antibiotics practically ineffective. This catastrophic scenario has severe consequences for the medical management of bacterial infections, among which are those caused by *E. coli.* Thus, it is of paramount importance to search for new leads in alternative remedies. The postbiotic, *Limosilactobacillus reuteri 29A* (L29A) has shown great potential in its antimicrobial activities. **Method:** In this study, L29A is combined with Fosfomycin to analyze their synergistic effects against *Escherichia coli* through checkerboard assay followed by Time-kill assay. This effect was further evaluated through the biofilm inhibition and biofilm disruption assay, alongwith the cytotoxicity assay. The synergy activity against biofilms of *E. coli* was performed through crystal violet assay. The safety of the synergy activity was determined against HCT116 cells using the tetrazolium-based in vitro assay.

Results: The concentration that showed synergy effects was confirmed through Time-kill assay,which thereby confirmed the synergistic effects. The combined synergy concentrationshowed good biofilm inhibition activity (>50%) but proved to be difficult to disrupt the established biofilm growth of *E. coli.* The combined therapy also showed the viability of HCT116 cells. **Conclusion:** These data indicate that the combination therapy of Fosfomycin and L29A may be beneficial.

Keywords: *Limosilactobacillus reuteri 29A*, antibacterial, biofilm, cytotoxicity

Symptoms And Signs Are Important Than Radiological Investigations in Diagnosing Appendicitis:

Mohamed Arsath Shamsudeen

Senior lecturer, department of surgery, faculty of medicine, Mahsa University, Malaysia

Corresponding email: *mohamedarsath@mahsa.edu.my*

ABSTRACT: Appendicitis is the most common abdominal emergency. While the clinical diagnosis may be straightforward in patients who present with classic signs and symptoms, atypical presentations may result in diagnostic confusion and delay in treatment. Abdominal pain is the primary presenting complaint of patients with acute appendicitis. Nausea, vomiting, and anorexia occur in varying degrees. Abdominal examination reveals mcburney's point tenderness guarding and lateral rectal wall tenderness. This study includes 100 operated cases of appendicitis in one of the tertiary care hospital in India. This journal clearly explains the importance of symptoms and signs in diagnosing appendicitis than radiological investigations.

Keywords: Appendicitis, mcburney's point tenderness, guarding, lateral rectal wall tenderness

A Case of Neglected Pathological Neck of Femur Fracture in Brown Tumor Induced in Parathyroid Adenoma

[1]Parveez Rahman; [2]Khaled El-Sayed Mohamed Ebid;

[1]Junior Lecturer, Department of Orthopedics, Faculty of Medicine, MAHSA University, Saujana Putra, Malaysia

[2]Associate Professor, Department of Orthopedics, Faculty of Medicine, MAHSA University, Saujana Putra, Malaysia

Introduction: Brown tumor is a type of bone lesion that occurs due to hyperparathyroidism, causing excessive stimulation of osteoclasts leading to bone reabsorption and fibrosis resulting in a cystic alteration in the bone. Reduced bone strength leads to pathological fractures. Appropriate reduction and stabilization must go hand in hand with hyperparathyroidism care. Brown tumor-related bone distortion has been shown to be naturally reversible when hyperparathyroidism is treated. **Report:** A 37-year-old female patient, referred to our institution for the surgical fixation of neglected right neck of femur fracture with history a trivial fall 10 months ago, with pain and difficulty to stand post fall. Parathyroidectomy done for parathyroid adenoma recently. Blood parameters were within normal limits. Inspection of plain radiograph revealed thinning of cortical bone of the mid-shaft of right femur with cystic lesion measuring around 70x90mm with clear demarcation and neck of femur fracture. Patient was diagnosed as brown tumor with neglected right neck of femur fracture (NOF) due to the history of parathyroid adenoma and counselled for surgical management with right total hip replacement (THR) for the neglected NOF and prophylactic cable plate for the brown tumor over the midshaft femur. The post-operative period was uneventful, and assessment of post-op check X-ray showed satisfactory fixation. The histopathological study from the lesion confirmed the diagnosis of the presence of a brown tumor in the pathological fracture. **Conclusion:** Hyperparathyroidism can induce the formation of multiple osteolytic lesions called brown tumor, predisposing that bone to pathological fractures. Plain radiography and blood investigation for calcium, phosphorus, and parathyroid hormone concentration to rule out the other differential diagnosis. Surgical removal is the definite management for hyperparathyroidism induced by parathyroid adenoma. Those without pathological fracture but at substantial risk are considered necessary to prophylactically perform internal fixation.

Keywords: Neck of Femur Fractures, Hyperparathyroidism, Osteitis fibrosa cystica, Brown Tumor, THR.

P02

Chronic Kidney Disease and Cerebrovascular Complications: Mechanistic Insights and Therapeutic Strategies

Junhua Tan[1,2], liyin feng [3], Nanthiney Devi Ragavan [4], Ooi Chai Them[5 *], Xuebin Li [6,7*]

[1]Department of Nephrology, The Affiliated Hospital of Youjiang Medical University for Nationalities, Baise, Guangxi, China.
[2]Faculty of medicine, MAHSA University, Jenjarom , Selangor, Malaysia.
[3]Graduate School of Youjiang Medical College for Nationalities, Baise, Guangxi, China.
[4]School of Bioscience, Faculty of Pharmacy and Biomedical Sciences,MAHSA University, Jalan SP2, Bandar Saujana Putra, Jenjarom,Selangor.
[5]Departmental of Preclinical Science,Faculty of Dentistry, MAHSA University Jalan SP 2, Bandar Saujana Putra, Jenjarom, Selangor, Malaysia.
[6]Department of Neurology, The Affiliated Hospital of Youjiang Medical University for Nationalities, Baise, Guangxi, China.
[7]Department of Neurology, Youjiang Medical University for Nationalities, Baise, Guangxi, China.

*Corresponding author: Xuebin Li:00025@ymun.edu.cn, Ooi Chai Them: ctooi@mahsa.edu.my

Introduction: Chronic Kidney Disease (CKD) is defined as a condition characterized by renal function or structural abnormalities persisting for more than three months due to various etiologies. CKD severely impacts patients' quality of life and induces a spectrum of serious health issues, including cerebrovascular diseases and cardiovascular diseases, significantly increasing mortality risk. The global prevalence of CKD is approximately 9.5%, with its mortality rate showing a notable upward trend over recent decades. The adverse impact of CKD on cerebrovascular diseases has emerged as a focal point in current medical research.
Methods: This review explores the mechanisms by which CKD exacerbates the risk of cerebrovascular diseases through the death of vascular smooth muscle cells (VSMCs), degradation of vascular elastic proteins, and long-term blood pressure changes, further impairing cerebral blood flow autoregulation. Under CKD conditions, VSMCs exhibit dysfunction, including reduced activity and cell death. Studies have shown that metabolic imbalances and persistent inflammatory states in CKD patients promote the transformation of VSMCs from a contractile to an osteogenic phenotype, directly contributing to vascular calcification. **Results:** This transformation not only diminishes the contractile function of VSMCs but also accelerates vascular sclerosis, leading to the loss of vascular function. Furthermore, CKD exacerbates the degradation of vascular elastic proteins by enhancing enzyme activity, promoting VSMC phenotype transformation, and accelerating vascular calcification, thereby damaging vascular elasticity and integrity and increasing the risk of cardiovascular complications. Changes in blood pressure, particularly the increase in blood pressure variability caused by CKD, further lead to the dysfunction of the Blood-Brain Barrier (BBB), increasing the risk of cerebrovascular diseases and cerebral hemorrhage.
Conclusion: Controlling inflammation, oxidative stress, and vascular calcification in CKD patients, as well as inhibiting enzyme activity, can serve as potential therapeutic strategies to protect vascular elastic proteins and prevent vascular sclerosis. Current treatment methods for CKD and its complications include medication, lifestyle changes, and potential surgical interventions. The collaboration of multidisciplinary teams plays an indispensable role in managing the cerebrovascular health of CKD patients. Future research should further explore the molecular mechanisms behind these pathological changes, identify new therapeutic targets, and develop targeted intervention measures. This will provide more effective means for preventing and treating CKD and its related complications, significantly improving patients' quality of life and long-term prognosis.

Keywords:
Chronic Kidney Disease, Cerebrovascular Diseases, Vascular Smooth Muscle Cells, Vascular Calcification, Blood-Brain Barrier

P03

The Mechanism of m6A In Cerebral Ischemia-Reperfusion Injury

Xiaowen Wu

1.Department of Intensive Care Medicine. The Affiliated Hospital of Youjiang Medical University for Nationalities, Baise, Guangxi, China.533000
2.Faculty of Medicine, MAHSA University, Jeniarom 42610,Selangor,Malaysia.
Xuebin Li
1.Department of Neurology.The Affiliated Hospital of Youjiang Medical University for Nationalities, Baise, Guangxi, China.533000
2.School of Clinical Medicine, Youjiang Medical University for Nationalities, Baise, Guangxi, China.533000
3.Biological Molecule Laboratory, Guangxi University Key Laboratory of High Incidence Prevention and Control Research in Western Guangxi, Baise, Guangxi, China.533000
Corresponding author: safisher@mahsa.edu.my

Cerebral ischemia-reperfusion injury is a key problem in cerebrovascular diseases, affecting the quality of life and health of patients. The modification of N6-methyladenosine (m6A) stands as a prevalent internal alteration in eukaryotic mRNA, while it is also observed in non-coding RNA. The m6A modification of mRNA predominantly takes place at the transcription initiation site and the 3′-untranslated region (3′-UTR). Its dynamic regulation relies primarily on m6A methyltransferase, m6A demethylase, and m6A binding protein. This modification has significant impacts on RNA stability, translation efficiency, and gene expression, and it holds a close association with cerebral ischemia-reperfusion injury. To elaborate on the intricacies of this disease, it encompasses intricate physiological and pathological mechanisms. The m6A modification has the capacity to modulate the extent of brain injury by precisely tuning the expression of genes associated with inflammation and oxidative stress. Additionally, pivotal molecules and their corresponding signaling cascades are pivotal in the modulation of m6A modifications, which in turn, significantly contribute to cerebral ischemia-reperfusion injury. The modification of M6A exhibits the capability to mitigate oxidative stress-induced damage, while also modulating inflammatory responses and apoptosis processes. This article examines the fundamental mechanisms of m6A modification, particularly its influence on gene expression patterns, signaling pathway regulation, and cell metabolism in the context of cerebral ischemia-reperfusion injury. These insights are anticipated to offer novel therapeutic approaches for the diagnosis and management of this condition.

Keywords : m6A, cerebral ischemia-reperfusion injury, regulation of gene expression, regulation of signaling pathways, affecting cell metabolism.

P04

The Mechanistic Role of Ubiquitination and the MAPK Signaling Pathway in Rheumatoid Arthritis

Hong Chen[1,2] ,Sha Liu[1] , Xiuri Du[1] ,XiaoLinn Xie[1], Yu Zhang [1], Petchi Iyappan [2*] , Hua Wei[3*]

[1]Department of Rheumatology and Immunology, Affiliated Hospital of Youjiang Medical University For Nationalities, Baise, China
[2]Faculty of Pharmacy and Biomedical Sciences, MAHSA University, Kuala Lumpur, Malaysia
[3]Department of General Practice, Affiliated Hospital of Youjiang Medical University For Nationalities, Baise, China

*Correspondence author E-mail: iyappan@mahsa.edu.my & E-mail: 1427507023@qq.com

Abstract: Rheumatoid arthritis (RA) is a chronic autoimmune disease, presenting a therapeutic challenge in identifying new treatment targets and methods. The mechanisms involving ubiquitination and the mitogen-activated protein kinase (MAPK) signaling pathway in RA have become research hotspots. Ubiquitination affects immune response, synovial cell proliferation, and apoptosis by regulating protein stability and function. The MAPK signaling pathway is a critical signal transduction pathway in RA, with its activation closely associated with the production of inflammatory cytokines and joint damage. Ubiquitin D (UBD) promotes the progression of RA by activating the p38 MAPK pathway, suggesting that UBD may serve as a novel therapeutic target for RA. Additionally, combined therapeutic strategies targeting both ubiquitination and the MAPK signaling pathway have demonstrated potential therapeutic value in RA. By dual regulation of inflammatory responses and cell proliferation, these strategies may more effectively alleviate RA symptoms. Future research should further explore the specific mechanisms of these signaling pathways and evaluate their efficacy in clinical applications to provide more effective treatment options for RA patients.

Keywords: rheumatoid arthritis; ubiquitination; MAPK signaling pathway; therapeutic targets; inflammatory response

Association Between Mindfulness-Based Interventions and Psychological Capital: A Meta-Analysis

Mengjie Xia[1, 2], Junqiang Wang[3], Dongjun Bi[4], Lili Chen[4], Huiping Mao[5], Xiaohong Liu[2], Lili Feng[6], Fang Huang[2] *, Zakaria Dato' Hj. Zainooriah[1 *], Nordin Bin Rusli[1 *]

1. Faculty of Medicine, MAHSA University, Jenjarom, Malaysia
2. School of medicine, Taizhou University, Zhejiang, China
3. Department of obstetrics and gynecology, Taizhou Hospital of Zhejiang Province affiliated to Wenzhou Medical University, Zhejiang, China
4. Department of Nursing, Taizhou Hospital of Zhejiang Province affiliated to Wenzhou Medical University, Zhejiang, China
5. Department of Nursing, Taizhou First People's Hospital, Zhejiang, China
6. Department of Nursing, Taizhou Central Hospital(Affiliated Hospital of Taizhou University), Zhejiang, China

* Corresponding author‘s Email:
Fang Huang: hfyxy@tzc.edu.cn
Zainooriah Dato’ Hj. Zakaria: zainooriah@mahsa.edu.my
Rusli Nordin: rusli@mahsa.edu.my

Introduction:
Given that the effect of the mindfulness-based intervention (MBI) on psychological capital (PsyCap) remains unclear, we conducted a meta-analysis of randomized controlled trials (RCT) to assess this effect. The purpose of this study was to explore the effects of MBI on PsyCap, including hope, self-efficacy, resilience, and optimism.
Methods:
Literature searches were conducted using the keywords "mindfulness" and "psychological capital" in PubMed, the Cochrane Library, Web of Science, and EMBASE up until May 2024. In this meta-analysis, 7 RCTs with 569 participants were incorporated.
Results:
PsyCap scores increased after the MBI compared to the corresponding control group, with a statistically significant combined difference according to a random effects model (SMD: 0.91, 95% CI: 0.68 to 1.14, I2 = 78%). MBIs had a large, significant effect on hope (SMD = 1.77, 95% CI = 0.77 to 2.76, p = 0.0005) and resilience (SMD = 0.92, 95% CI = 0.46 to 1.38, $p < 0.0001$). MBIs had a moderate, significant impact on self-efficacy (SMD = 0.76, 95% CI = 0.44 to 1.07, $p < 0.00001$). They had no significant impact on optimism (SMD = 0.71, 95% CI = -0.14 to 0.56, p = 0.1) (Figure 1.2).
Conclusion:
MBIs have shown promising effects in improving PsyCap, particularly hope, self-efficacy, and resilience. Given the current study's limitations, future studies should especially investigate potential effect-affecting factors, longer follow-up evaluations, and methodological quality.

Keywords
Mindfulness-Based Intervention; Psychological Capital; Meta-Analysis

Research Progress on the Pharmacological Effects of Mogroside

Gang Xiao[1,2], Krittika Chandran[2], Zhongshi Huang[1], Chai Theam Ooi*[2]

[1]AffiliatedHospital of YouJiang Medical University for Nationalities, No.18, Zhongshan 2nd Road, Baise City, Guangxi Autonomous Region533000, P.R.China
[2]Mahsa University, Faculty of Dentistry, Department of Pre-clinical Sciences,JIn SP 2, Bandar Saujana Putra, 42610 Jenjarom, Selangor, Malaysia

***Correspondence:** ctooi@mahsa.edu.my

Mogroside, a naturally occurring sweetener derived from *Siraitia grosvenorii*, showcases a remarkable spectrum of pharmacological properties. This comprehensive review encapsulates the salient pharmacological effects of mogroside, encompassing its anti-diabetic, antioxidant, anti-inflammatory, and anti-cancer capabilities, while also delving into its therapeutic potential in domains such as neuroprotection and cardioprotection. Investigations have elucidated mogroside's therapeutic efficacy against a multitude of ailments, achieved through intricate mechanisms involving the activation of the AMPK signaling pathway, inhibition of the NF-κB signaling pathway, and modulation of the cell cycle. Furthermore, this review critically examines the challenges encountered in mogroside research and application, including its limited bioavailability and partially understood mechanisms of action. It proposes future research avenues, emphasizing the validation of its efficacy and safety through clinical trials and the optimization of its therapeutic potency utilizing advanced drug delivery technologies. This review aspires to serve as a valuable resource for the continued exploration and development of mogroside, offering a comprehensive foundation for future scientific endeavors.

Keywords: Mogroside; Pharmacological Activities; Anti-diabetic; Antioxidant; Anti-inflammatory; Anti-cancer; Future Research Directions

Ischemic Stroke and Inflammation Research: Bibliometric Analysis from 2014 to 2023

Bao Liao[1], Nurul Hana Zainal Baharin[2], Ooi Chai Theam[3]

1 Department of Neurology, Baise People's Hospital, Baise, Guangxi 533000, China.
Email: scilb1015@126.com
2 Department of Biomedical Sciences, Faculty of Pharmacy and Biomedical Sciences, MAHSA University. Jalan SP 2, Bandar Saujana Putra, 42610, Malaysia.
Email: nurulhana@mahsa.edu.my
3 Department of Preclinical Sciences, Faculty of Dentistry, MAHSA University, Jenjarom 42610, Malaysia.

Email: ctooi@mahsa.edu.my

Background: The objective of this study is to present a comprehensive overview of the relationship between ischemic stroke and inflammatory mechanisms research over the past decade, with the goal of elucidating the knowledge structure, identifying research hotspots, and predicting future trends in the field.
Methods: Regular and review articles on IS and inflammatory mechanisms research were retrieved from the Web of Science Core Collection (WOSCC) between 2014 and 2023. The R package "bibliometrix," along with VOSviewer and CiteSpace, were used to identify leading topics and generate visual maps of countries/regions, organizations, authors, journals, and keyword networks in the related field.
Results: A total of 5,476 publications on IS and inflammation were included. The publications mainly originated from the USA, China, and Europe. The Institutional Cooperation Network reveals that a substantial portion of the collaborations is concentrated among Chinese institutions. Significant keywords include "oxidative stress," "reperfusion injury," "microglia," "toll-like receptors," and "microRNAs," highlighting significant areas of research. The co-occurrence analysis revealed nine clusters, such as "angiogenesis," "brain microvascular," "microglial polarization," "gut microbiota," and "ferroptosis."
Conclusion: This bibliometric study mapped out a fundamental knowledge structure consisting of countries, institutions, authors, journals, and articles in the research field of IS and inflammation over the past 10 years. Future research trends are likely to concentrate on the mechanisms of ferroptosis and gut microbiota. Subsequent trends in this field are expected to identify and develop novel inflammation-targeting therapy strategies to effectively prevent and treat ischemic stroke.

Keywords: *bibliometric analysis, visualization analysis, ischemic stroke,* inflammatory mechanisms*, web of science*

Bibliometric analysis of research on lncRNA-miRNA-mRNA ceRNA Network in Oogenesis from 2004 to 2023.

Lin Luping[1,3], Weihua Nong[1], Genliang Li[2*], Suresh V Chinni[3,4*]
[1]Department of Obstetrics and Gynecology,Affiliated Hospital of Youjiang Medical University for Nationalities,Baise,Guangxi,533300,China.
[2]Youjiang Medical University for Nationalities School of Basic Medical Sciences, Baise, Guangxi, China
[3]Department of Biochemistry, Faculty of medicine, bioscience and Nursing, MAHSA University, Jenjarom 42610, Malasia
[4]Department of Periodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Chennai 602105, India

*Corresponding Author: Genliang Li, e-mail: ligenliang@ymun.edu.cn cvsureshgupta@gmail.com

Introduction: Oogenesis is an intricate, multi-stage biological process where female organisms generate mature eggs. The intricate and precise regulatory mechanisms involved in this process have not been fully understood. Competing endogenous RNA (ceRNA) plays a role in regulating gene expression through a complex interaction network, impacting oogenesis. Through a bibliometric review method, this article examines the research advancements and current areas of interest regarding ceRNA in oocyte development, offering insights for future research.
Methods: Publications related to ceRNA in Oogenesis from 2004 to 2023 were searched in the Web of Science Core Collection (WoSCC) database. The bibliometric analysis was conducted using Excel, VOSviewer, CiteSpace, and the R package 'bibliometrix'.
Results: The analysis of literature distribution over the past 20 years reveals a growing interest in the field of ceRNA in Oogenesis. This study analyzed a total of 4148 papers, noting that China had the highest number of publications at 1451 papers, while the United States had the most citations at 55245.The Centre National de la Recherche Scientifique (CNRS) in France emerged as the most productive research institution with 96 articles contributed. The journal P Natl Acad Sci USA received the highest number of citations, while KJ Livak was the most cited author. Topics like granulosa cells, in vitro maturation, and oocyte maturation are among the prominent areas of focus in this field.
Keywords
Bibliometric analysis, ceRNA, Oogenesis

HEPATOCELLULAR CARCINOMA

Li Shubo[1, 2], Li Genliang[1], Rola Ali-Saeed[2, *], Nurul Diana Dzaraly[2], Liao Zhangxiu[3,*]

[1]School of Basic Medical Sciences, Youjiang Medical University for Nationalities, Baise, China
[2]Department of Preclinical Sciences, Mahsa University, Selangor, Malaysia
[3]School of Pharmacy, Youjiang Medical University for Nationalities, Baise, China

***Corresponding Author, Email:** rolaali@mahsa.edu.my(Rola Ali-Saeed); 00329@ymun.edu.cn(Liao ZX)*

ABSTRACT
Splicing factors are proteins that mediate the RNA-splicing process, playing a significant role in tumor metastasis by regulating molecular mechanisms and selective splicing patterns of RNA. They are closely associated with the occurrence and development of hepatocellular carcinoma, promoting tumor formation through various mechanisms such as cell proliferation, apoptosis, migration, enhanced metastatic potential, treatment resistance, and immune evasion. Splicing factors also play a crucial role in the diagnosis, treatment, and prognosis of hepatocellular carcinoma. Despite considerable advancements in splicing factor research in hepatocellular carcinoma, the precise mechanisms by which they are utilized remain unknown. Further investigation is necessary to elucidate their precise contribution to the pathogenesis of hepatocellular carcinoma.

***Key words:** Hepatocellular Carcinoma; Splicing Factors; RNA Splicing; Mechanisms*

A Patient's Journey With Light Chain Amyloidosis

Wint Wint Thu Nyunt[1], S Fadilah S Abdul Wahid[2]

[1] Department of Medicine, Faculty of Medicine, MAHSA University, Selangor, Malaysia
[2] Pusat Terapi Sel, Hospital Canselor Tuanku Muhriz UKM, Kuala Lumpur (KL), Malaysia

tnwint@mahsa.edu.my

Introduction: Immunoglobulin light chain (AL) amyloidosis is a monoclonal plasma cell proliferative disorder characterized by deposition of fibrils of monoclonal light chains in heart, kidneys and other tissues, leading to organ dysfunction and poor prognosis.
We report a case of light chain amyloidosis to highlight that holistic management approach is critical for better clinical outcome and health-related quality of life (HRQoL) in this debilitating incurable disorder.
Case report: A 64-year-old man presented with shortness of breath. During assessment, he was found to have light chain amyloidosis. However, he was keen to seek a second opinion, resulting in delay in initiating the definitive treatment.
He had 5-month-history of bilateral leg swelling, shortness of breath, chronic diarrhoea, symmetric lower extremity peripheral neuropathy and autonomic neuropathy (postural hypotension). He had financial constraint. He was treated with conventional chemotherapy (MP). Throughout his journey with light chain amyloidosis, he suffered from chronic diarrhoea and profound swelling of the legs. He needed to move to his son's house in KL for frequent regular hospital visits. He had impaired HRQoL, however, he had excellent family social support. After 9 cycles of therapy, the optimal response was not achieved. Bortezomib was added to MP (VMP). After 3 cycles of VMP, he achieved complete haematologic response. Then, he felt better, and he moved back to his hometown.
He continued the same treatment regimen to control the disease. His hospital admissions reduced in number. His HRQoL became improved. No organ response was achieved. Three years later, he developed decompensated heart failure and passed away.
Conclusion: His overall survival was 5 years and 2 months. Achieving complete haematologic response led to good long-term clinical outcome with prolonged overall survival.

Keywords
complete haematologic response, health-related quality of life, light chain amyloidosis, organ response

Intrahepatic Cystadenoma: A Case Report

[1]Peh KH

[1]Department of Surgery, Mahsa University, Jalan SP 2, Bandar Saujana Putra, 42610 Jenjarum Selangor

[*]Email: khpeh@ymail.com

Introduction: Intrahepatic cystadenoma is an uncommon benign tumour that can progress to malignant carcinoma of the biliary ductal system. It is frequently misdiagnosed due to its rarity, which results in inappropriate treatment. Complete resection of the tumour should be considered to prevent its subsequent transformation to malignancy. This case report stressed the importance of early diagnosis and treatment of biliary cystadenoma.
Case report: A 48-year-old woman presented with vague epigastric pain and distension. Her clinical examination was unremarkable except hepatomegaly measuring 7 cm in size. Her liver function tests and full blood count were normal. The levels of serous neoplastic markers including carcinoembryonic antigen (CEA), carbohydrate antigen 125 (CA 125), and alpha-fetoprotein (AFP) were normal, suggesting unlikely to be hepatobiliary malignancies. Computer tomography (CT) scan revealed a large 10 cm x 8 cm encapsulated cystic formation with internal septations and other liver cystic lesions of different density within it. The lesion occupied liver segments IV and appeared to exceed the limits of the liver causing mild splaying of the right and left portal veins of surrounding structures (Figure 1*).* The image suggested biliary cystadenoma of segment IV of left lobe of liver. Laparotomy under an extended right subcostal incision revealed a large cystic formation. Aspiration of the excised cyst content showed clear yellow fluid. Complete excision of the cyst was done. The histology report reviewed as cystic lesion with a smooth wall lining; the epithelial lining consisted of non-ciliated columnar cells (Figure 2).
Conclusion: Because of its potential for malignant transformation, diagnosing intrahepatic cystadenoma can be a difficult challenge for surgeons. Imaging is useful for making both positive and differential diagnoses. Complete excision is the preferred treatment for any suspected intrahepatic cystadenoma.

Keywords: Cystadenoma, Intrahepatic cystic lesions, Computed Tomography, Diagnosis

A Rare Case of Fibrosing Oblitrative Appendicitis

Mohamed Arsath Shamsudeen

Senior lecturer, department of surgery, faculty of medicine, Mahsa University, Malaysia

Corresponding email: mohamedarsath@mahsa.edu.my

ABSTRACT:

Fibrous obliteration is a rare type of appendiceal tumor that causes appendiceal obstruction and then presents as appendicitis. This type has no specific presentation and, after appendectomy, is diagnosed by the pathologist accidentally. Fibrous obliteration is described as a proliferative lesion. The pathogenesis of this lesion is unknown, but it is mentioned that the etiology of this problem is secondary to recurrent inflammation processes. The repetitive occurrence of these sub-clinical inflammatory processes causes fibrosis

Keywords: Appendix, Appendicitis, Reactive lymphadenitis, Fibrosis

Electric Injury Induced Colonic Perforation

Mohamed Arsath Shamsudeen[1] Uday Singh Dadhwal[2]

[1 & 2] Department Of Surgery, Faculty Of Medicine, Mahsa University, Malaysia

Corresponding email: mohamedarsath@mahsa.edu.my

ABSTRACT

Electric injuries have been classified into low voltage (<1 kilo Volt) and high voltage injuries (>1 kilo Volt). Usually electric injuries will have an entry wound at the site of contact and an exit wound where the current passed out. Bowel perforation due to an electric current is a rare and serious injury. We report a case of high tension electric current burn on both hands (entry wound), and exit wound in right foot with perforation in the descending colon presented late with peritonitis and successfully managed by diversion colostomy and take down.

Keywords: Electric injury, bowel perforation, descending colon perforation, Diversion colostomy

The Ephrinb2-Ephb4 Bidirectional Signaling Regulates the Differentiation, Function, And Apoptosis Of Osteoclasts And Osteoblasts

Zhou Qinghui[1,2], Chew Weiyun[1], Tang Hanqing[2], Suresh V Chinni[1,3*]

1. Department of Biochemistry, Faculty of medicine, bioscience and Nursing, MAHSA University, Jenjarom 42610, Malasia
2. School of Basic Medical Sciences, Youjiang Medical University for Nationalities, Baise, Guangxi 533000, P.R. China.
3. Department of Periodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Chennai 602105, India

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

Introduction: Postmenopausal osteoporosis is a common disease that can lead to serious consequences such as fractures. Estrogen deficiency during menopause and postenopause accelerates bone turnover, with increased bone resorption and formation. However, the resorption exceeds formation, resulting in bone loss. Exploring intervention targets from bone physiology to restore bone remodeling homeostasis and normal bone mass is the initial goal in developing new effective drugs. Currently, EphrinB2/EphB4, one of the membrane coupling factors between osteoclasts (OCs) and osteoblasts (OBs), is considered a potential target for treating osteoporosis. However, the regulatory mechanisms of EphrinB2-EphB4 bidirectional signaling on OC and OB, as well as its effects, are not fully understood. This review aims to clarify the physiological functions and mechanisms of known EphrinB2-EphB4 bidirectional signaling in bone remodeling, providing insights for further research on regulating this signaling pathway.

Keywords: EphrinB2-EphB4, postmenopausal osteoporosis, bone mass

P15

Identification and Expression Profiling of Novel Non-Protein Coding RNAs (npcRNAs) Associated with Global Transcriptional Regulator ProQ in *Serratia Marcescens*

Enis Mudiliar Rajan[1], Kishan Raj Selva Raju[1*], Suresh V. Chinni[2], Nazahiyah Ahmad Rodzli[3], Citartan Marimuthu[4]

[1*]School of Biotechnology, MILA University, No 1, MIU Boulevard, Putra Nilai, 71800 Nilai, Negeri Sembilan, Malaysia

[2]Faculty of Medicine, Biosciences and Nursing, MAHSA University, Bandar Saujana Putra, Selangor 42610 Malaysia

[3]Malaysia Genome and Vaccine Institute (MGVI), National Institute of Biotechnology Malaysia (NIBM), Jalan Bangi, 43000 Kajang, Selangor, Malaysia

[4]Infectious Disease Cluster, Advanced Medical and Dental Institute (AMDI), Universiti Sains Malaysia, Kepala Batas, Malaysia

* Corresponding author's email: kishan.selvaraju@mila.edu.my

Introduction: Recent research has unveiled the significant role of non-protein coding RNAs (npcRNAs) in bacterial gene regulation, focusing on trans-encoding npcRNAs that interact with ProQ. We aim to identify npcRNAs and mRNAs binding to ProQ, exerting regulatory functions in S. *marcescens.* **Method**: ProQ DNA from *S. marcescens* was PCR-amplified, cloned into pET28b+, and transformed into TOP10 and BL21 *E. coli* cells. Induced with IPTG for ProQ over-expression and purified by Ni-NTA affinity chromatography. Purified ProQ was in-vitro binding with *S. marcescens* total RNA. **Result**: High-throughput sequencing identified 235 ProQ-bound npcRNAs. Screening against NCBI and Rfam databases revealed 77 unannotated. Ten candidates selected based on in-silico expression analysis, including six specifics to *S. marcescens* and four to the genus. Differential expression analysis across growth phases showed distinct patterns for these npcRNAs. Further analysis into potential post-transcriptional regulatory roles involved predicting virulence-associated target mRNAs. **Conclusion**: This research could have potential to establish a pioneering platform for gene-based therapeutic interventions targeting infectious diseases caused by *S. marcescens.* **Acknowledgement**: We are grateful to the Ministry of Higher Learning Malaysia for financing this work under the Fundamental Research Grant Scheme FRGS/1/2022/STG01/MIU/02/1

Keywords: npcRNAs, *S. marcescens*, RNA chaperone ProQ, Virulence-associated mRNA, NCBI

Diabetes Mellitus in Malaysia: Effectiveness of Screening Programmes

Gauri Krishnaswamy[1*] Jing Hang Ng[2] Chen Yekun[3] & Reshma Mohamed Ansari[4]

[1]Assoc Prof., Primary Care Medicine, MAHSA University, MALAYSIA

[2,3]Faculty of Medicine, MAHSA University, MALAYSIA

[4]Assoc Prof., Medical Education, Management and Science University, MALAYSIA

*Corresponding author email: drgauri@mahsa.edu.my

Introduction: Previously, diabetes mellitus (DM) was primarily prevalent among the elderly, but it is now increasingly diagnosed in younger individuals due to unhealthy lifestyles. A health screening programme was conducted to identify the incidence and prevalence of diabetes mellitus (DM) in a specific target group of individuals.This study intends to examine if health screening programme achieved its aim to identify incidence/prevalence of DM using blood glucose (HbA1c, cut point $\geq$6.3%) as recommended in the Management of Type 2 Diabetes Mellitus Clinical Practice Guidelines in its target group. **Method:** Data from 188 participants aged 40 to 59 was obtained from the health screening program. The level of HbA1c in the population was analysed. **Results:** Out of a total of 188 participants, DM was found to be prevalent in 18 out of 76 (23.7%) Chinese, 9 out of 27 (33%) Indians, 23 out of 78 (29.5%) Malays and 1 out of 7 (14.3%) others. The analysis revealed that till 31st December 2023, the health screening programme only achieved 27% incidence rate for identifying DM among its target population. The non-significant p-value in ANOVA suggests that the model may not be a good fit for explaining the variation in HbA1c among the population with respect to its predictors Age, Gender and Race. **Conclusion:** This health screening programme did not achieve its aim in identifying DM among its target population. However, random blood glucose levels and population including individuals in the suburban and outskirts should be involved to ensure complete success of this programme.

Keywords:

Health screening, diabetes, prevalence, incidence

EP1

Evaluation of Biochemical Changes in Rats After One Day of Liquorice Extract Treatment

Loh Yi Qing[1*], Endarutenne Gedara Mohamed Rizwan Fathima Naathiya[1], Anastasia Annabella Goh Hui Xin[1], Cheang Weng Yee[1], Chee Jing Tung[1], Chen Hong-Ze[1], Coen Tan Mun Shun[1], Darren Voo[1], Jameel Muhammad Aathiq[1], Tay Yu Dung[1], Wong Xianglin[1], Yuzhu Liu[1] Sudha Arumugam[1], Jin Han Chin[1], Siew Keah Lee[2]

[1]Faculty of Medicine, MAHSA University, Bandar Saujana Putra Campus, Jalan SP2, Bandar Saujana Putra, 42610 Jenjarom, Kuala Langat, Selangor, Malaysia.

[2]Department of Pre-clinical Sciences, M. Kandiah Faculty of Medicine and Health Sciences, Universiti Tunku Abdul Rahman, Jalan Sungai Long, Bandar Sungai Long, 43000, Kajang, Selangor, Malaysia.

* Corresponding author's email: BMS22096068@mahsastudent.edu.my

INTRODUCTION: As consumer preferences shift towards natural remedies, herbal extracts, particularly liquorice, have become more popular due to their perceived safety. Liquorice gained recognition in China during COVID-19 for its anti-inflammatory properties. The objective of the study was to investigate the effects of one day treatment of liquorice extract on hepatic and renal functions in female Sprague Dawley (SD) rats.
METHODS: This animal study was conducted in accordance with the Organisation for Economic Co-operation and Development (OECD) Test Guideline 423. A total of 15 female SD rats aged 16 weeks were randomly divided into five groups (n=3 in each group). First group which served as the control group was treated with distilled water while the treatment groups T1, T2, T3 and T4 received different doses of liquorice extract at 2000 mg/kg, 200 mg/kg, 100 mg/kg and 50 mg/kg, respectively *via* oral gavage. Body weight and relative organ weights for liver, kidney and heart were determined for all rats. Blood samples were collected to measure serum biochemical markers alanine aminotransferase (ALT), gamma-glutamyltransferase (GGT), creatinine and urea levels. The results were analysed using Dunnett's tests. $p<0.05$ was considered as significant difference compared with the control group.
RESULTS: There were no significant changes in the body weight and relative organ weight for liver, kidney and heart in all liquorice treatment groups compared with the control group. Female rats treated with single dose of liquorice extract did not cause significant changes in the serum levels of ALT and GGT compared to the control group. A significant ($p<0.05$) decrease in the serum level of creatinine was observed in rats treated with 200 mg/kg of liquorice extract compared to the control group. Decreased serum urea level was also found in rats supplemented with 50 mg/kg of liquorice extract ($p<0.05$) compared to the control group.
CONCLUSION: One day of treatment with liquorice extract from 50 mg/kg to 2000 mg/kg was safe without causing toxic effects on hepatic and renal functions in female SD rats.

Keyword
Liquorice extract, hepatic function, renal function, biochemical markers

Antimicrobial Activity and Synergistic Effects of *Carica Papaya*, *Peperomia Pellucida*, *Strobilanthes Crispus*, and *Cassia Alata* Against *Staphylococcus aureus*

Nur Jannah[1], Nur Erieyna Arisya[1], Nurul Alia Anuar[1], Nurdini Tihani[1], Nurul Hanan[1], Nurul Adriana[1], Syafiah Qistina[1], Ong Jin Yuan[1], Azam Azahar[1], Manish Iyer[1], Minuga Jayasundra[1], Kashveena Kanagarajan[1], Yong Phaik Har[2], Ng Zhi Xiang[3], Enis Mudiliar Rajan[4], Kishan raj Selva Raju[4], Menega Ganasen[1], Suresh V. Chinni[1*]

[1]Faculty of Medicine, Biosciences and Nursing, MAHSA University, Bandar Saujana Putra, Selangor 42610 Malaysia

[2]School of Bioscience, Faculty of Pharmacy & Biomedical Sciences, MAHSA University, 42610 Jenjarom, Selangor

[3]School of Biosciences, Faculty of Science & Engineering, University of Nottingham Malaysia, 43500 Selangor, Malaysia

[4]School of Biotechnology, MILA University, No 1, MIU Boulevard, Putra Nilai, 71800 Nilai, Negeri Sembilan, Malaysia

* Corresponding author's email: venkatasuresh@mahsa.edu.my

Introduction:

Plant extracts have garnered significant attention for their antimicrobial properties, presenting a promising avenue for developing new therapeutic agents. These extracts contain a rich array of bioactive compounds, including alkaloids, flavonoids, terpenoids, and phenolic acids. The increasing prevalence of antibiotic-resistant pathogens has driven the need for alternative antimicrobial agents, positioning plant extracts as a viable solution. In this study, extracts from *Cassia alata*, *Strobilanthes crispus*, *Carica papaya*, and *Peperomia pellucida* were examined for their antimicrobial activity, highlighting their potential in combating resistant pathogens. **Methods:** Plant leaves were shade-dried to reduce moisture content and enhance extraction efficiency. The dried leaves were ground into a coarse powder and macerated in methanol for three days. The extracts were then filtered and concentrated to dryness over 1-2 weeks at room temperature. **Results:** The antimicrobial activity of plant extracts from *Cassia alata*, *Strobilanthes Crispus*, *Carica Papaya*, and *Peperomia Pellucida* was evaluated. Positive results were observed for the *Cassia Alata* extract, which demonstrated effective antimicrobial action against *Staphylococcus aureus* with inhibition zones 11 mm. Notably, the synergistic effects of the *Cassia Alata* extract were also significant, producing inhibition zones of 11 mm, surpassing the positive control, which had an inhibition zone of 10 mm. **Conclusion:** Plant extracts, rich in diverse and potent bioactive compounds, present promising opportunities for developing novel antimicrobial therapeutics.

Keywords: Antimicrobial; Plant extracts; *Staphylococcus aureus*

Sleep Quality and its Association with Body Composition and Demographic Factors: A Cross-Sectional Study on Young Adults

Harisa Binti Abdul Halim[1], Izzah Hazwani Binti Abd Aziz[1], Asyraff Hafifi Bin Mohd Sadad[1], Deanna Natasha Binti Roszlin[1], Elisa Huzrina Binti Abd Rahman[1], Jahida Shahyra Binti Jamriss[1], Jwana Batrisyia Binti Sukarti[1], Jayakody Arachige Don Ravisha Kaumalee Jayakody[1], Sultan Seyed Ibrahim Fathima Mehreen[1], Silve Gajasinghe Arachchige Yoshela Christina[1], Rosfayati Binti Othman@Jaffar[1], Sri Raja Rajeswari Mahalingam[1]*

[1] Faculty of Medicine, MAHSA University, Bandar Saujana Putra, Malaysia

* Sri Raja Rajeswari Mahalingam: rajarajeswari@mahsa.edu.my

Introduction: Sleep plays a vital role in numerous physiological functions and is necessary for maintaining good physical and mental health. Poor sleep quality is a risk factor for adverse health consequences, including diabetes, obesity, and cardiovascular disorders. This study aims to investigate the association between sleep quality and a set of body composition parameters (waist-hip ratio, body mass index, body fat composition, and blood pressure) and demographic factors.
Methods: This cross-sectional study was conducted on 150 MAHSA University students aged 18-26 years old from various programs. The sample size was calculated based on the convenience sampling method. The sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI) scale. The participants filled out self-administered socio-demographics information. A Karada Scan, digital blood pressure and measuring tape were used to measure the body fat composition, blood pressure and waist-hip ratio, respectively. Pearson Chi-square Test correlation test was used to measure the association between sleep quality and body composition, and demographic factors using IBM SPSS Statistics for Windows version 22.0.
Results: Of the total participants, 81.3% had poor sleep quality, and 18.7% had good sleep quality. Demographic factors such as gender ($p=0.695$) and nationality ($p=0.862$) exhibited a negative association with PSQI score. Only ethnicity showed a positive association with PSQI score. Among the ethnicities studied, Chinese demonstrated the lowest rate of poor sleep quality (62.5 per cent, $p=0.028$). Body composition parameters, including hypertension status ($p=0.903$), body fat status ($p=0.361$), obesity by waist-hip ratio ($p=0.648$), and obesity by Body Mass Index (BMI) ($p=0.218$), showed a negative association with PSQI score.
Conclusion: Our results show that poor sleep quality is highly prevalent among students. This study showed that sleep quality is positively associated with ethnicity ($p<0.05$) and negatively associated with waist-hip ratio, body mass index, body fat composition, and blood pressure among students.

Keywords: Obesity, Body Mass Index, Body Fat Composition, Blood pressure, Ethnicity

Antimicrobial Activity of Leaf Extract *Azadirachta indica* against Microorganisms Found in Automatic Electric Hand Air Dryers in Washrooms

Zhi Peng Lim[1], Malavika Kaden[1], Yuri Khew[1], Kerry Jing Yee Liow[1], Aidous Huxley Lim Sui Sing[1], Kashwin A/L M Yoga Rajah[1], Keertana A/P Raveendra Kumar[1], Ayisha Amna Kaleelulla[1], Rukaiya Mohamed Nizam[1], Jihami Alam Anonna[1], Lishalini Sithambaram[1], Yong Phaik Har[2], Ng Zhi Xiang[3], Premmala Rangasamy[1], Venkata Suresh Babu Chinni[1], Sri Raja Rajeswari Mahalingam[1]*

[1] Faculty of Medicine, MAHSA University, Bandar Saujana Putra, Malaysia
[2] Faculty of Pharmacy & Biomedical Sciences, MAHSA University, Bandar Saujana Putra, Malaysia
[3] School of Biosciences, Faculty of Science & Engineering, University of Nottingham Malaysia, Semenyih, Malaysia

* Sri Raja Rajeswari Mahalingam: rajarajeswari@mahsa.edu.my

Introduction: *Azadirachta indica* (*A. indica*), commonly known as neem, is a medicinal plant that demonstrated ethnomedicinal value and importance in the pharmaceutical industry. The automated electric hand dryer in washrooms can harbour pathogenic microorganisms. This study aims to assess the antibacterial and antifungal activity of *A. indica* leaf extract against the microorganisms that strive in washroom hand dryers.
Methods: Airflow from washroom hand dryers in nine locations in an academic institution was tested using nutrient agar culture media. Then, preliminary identification using colony morphology and Gram stain classification was performed. The powder form of *A. indica* leaf was prepared. Methanol extract of the *A. indica* leaf was diluted with 10% DMSO to establish six different concentrations of 100mg/ml, 75 mg/ml, 50 mg/ml, 25 mg/ml, 12.5 mg/ml, and 6.25 mg/ml. The antibacterial and antifungal activity was evaluated by using the disk diffusion method.
Results: Both bacterial and fungal colonies were detected in all locations. Four bacterial microorganisms and one mould were selected for the antimicrobial assessment. The *A. indica* extract at 25 mg/ml showed the highest growth inhibition in the Gram-positive cocci and Gram-positive bacilli with the zone of inhibition (ZOI) of 25 ± 0.18 mm and 1.9 ± 0.12 mm, respectively. *A. indica* extract at 100 mg/ml inhibited the development of the fungus with the ZOI of 7 ± 0.22 mm. The ZOI was significantly ($p<0.05$) much less than that of the positive control, Gentamicin (10ug/disc), with a range of 30 ± 0.15 mm.
Conclusion: The predominant bacteria isolated from the hand dryer in the washroom is Gram-positive cocci. *A. indica* leaf extracts showed considerable antibacterial activity against Gram-positive bacilli and Gram-positive cocci. *A. indica* showed no inhibitory effect on Gram-positive sporing bacteria. The *A. indica* extracts showed considerable antifungal activity against mould.

Keywords: Neem Leaf Extract, Maceration, Antibacterial Activity, Antifungal Activity, Zone of Inhibition

COVID-19 Vaccine Side Effects: Ethnic Groups Disparity in Immune Responses Following the First Dose of COVID-19 Vaccine Among Vaccinated Populations in Selangor, Malaysia: A Cross-Sectional Analysis

Nur Uyuni Shammimie Mohd Fisol[1], Yasmin Binti Mohd Syamsul Alam[1], Gazi Muhammad Salahuddin[1], Md Rafiul Alam[1], Muhamad Haziq Bin Mohamad Zaimi[1], Muhammad Qamaroul Irsyad Bin Mohd Farouk[1], Nur Farahiyah Insyirah Binti Adnan[1], Rodrigo Vitharanage Nadeera Lakshan[1], Shafiqah Aleya Binti Salmi[1], Vaishnava Gayathri A/P S.S.Pupathy[1], Wan Nur Dini Binti Wan Mohd Farid[1]*

[1] Faculty of Medicine, MAHSA University, Bandar Saujana Putra, Malaysia

* Sher Zaman Safi: safisher@mahsa.edu.my

Introduction: In December 2019, an unknown pneumonia outbreak was reported in Wuhan, China. The SARS-CoV-2 outbreak was thought to have originated with a zoonotic transmission linked to a seafood market in Wuhan, China. The disease caused by SARS-CoV-2 virus was then announced as pandemic by the World Health Organisation (WHO). The disease is named as CoronaVirus Disease 2019 (COVID-19). The SARS-CoV-2 virus primarily affects the respiratory system, and signs of lower respiratory tract infection such as fever, dry cough, and dyspnea were recorded in the first case series from Wuhan, China. The first case of COVID-19 in Malaysia was reported on January 25, 2020, signalling the start of the first wave of COVID-19 infections in Malaysia. In this research we are going to discuss what are the side effects experienced by people of different ethnicities after receiving the first dose of COVID-19 vaccine and how the immune system varies in different ethnic groups in Selangor, Malaysia. **Methods:** A cross-sectional study will be carried out in Selangor, Malaysia because we are going to study differences in ethnic groups and the survey will be conducted once since the exposure and the outcome is already present. The exposure in this study is getting the first dose of COVID-19 vaccination and the outcome is the side effects the participants experienced after getting the first dose of COVID-19 vaccination. **Results:** In this study, the findings indicate that the different races did not significantly predict the severity of side effects after receiving the first dose of COVID-19 vaccine (F-statistic, p-value = 0.219, $p > 0.05$). The regression analysis indicates that race is not a significant predictor of the severity of side effects after receiving the first dose of COVID-19 vaccine. The low R-squared value suggests that the model does not explain much of the variation in symptoms based on race alone. The means table helps in understanding how symptoms manifest across different racial groups but should be interpreted cautiously given the overall model's weak significance. **Conclusion:** For future research purposes, we could have tried to find more subjects for stronger statistical outcomes that can prove the significance between the two variables.

Keywords: COVID-19, SARS-CoV2.

Non-Inferiority Effects of Music, Exercise and Mindfulness Meditation over Concentration among Undergraduate University Students

Law Shi Jie[1], Divya Sri Babu[1], Iyaan Shareef[1], Esha Durrga Vijaya Velan[1], Lian Kher Ni[1], Nur Sabila Binti Syed Jamil[1], Ainin Sofea Binti Mohd Rahim[1], Nur Anis Faatiha Binti Mohd Azhar[1], Siti Nurfitrah Adryanna Binti Muhammad Aidid Foo[1], Nimeth Gunasekera[1], Sathkumara Rajaguru Wasala Mudalige Esandi[1], Sudha Arumugam[1], Aung Ko Ko Min[1]

[1]Faculty of Medicine MAHSA University, Jenjarom, Selangor, Malaysia

Corresponding author's email: sjlaw2003@gmail.com

Introduction: Student's attention span and focus can be very limited and can be influenced by factors like difficulty of the task, student interest, external distractions, and tiredness. In our study we evaluated the effectiveness of three different behavioral interventions- listening to music, mindfulness meditation, and exercise on improving the focus and concentration among students of a private university in Malaysia. **Methods:** This experimental study was conducted with 98 university students from a private university in Klang valley, aged 17 to 25. Participants were randomly assigned to three groups: exercise, mindfulness meditation and music. Ability of concentration was assessed by a standardized online focus test before and after the intervention. The intervention was done in four sessions over a period of four weeks. **Results:** The comparison between pre-test and post-test concentration scores using paired samples t-test shows significant difference before and after interventions ($t=11.385$, $df=97$, $p<0.01$) which can be interpreted as the significant increase in concentration after interventions in all participants. There is no statistically significant difference across 3 groups on mean concentration scores ($p=0.628$) after intervention which shows non-inferiority nature of the different measures. **Conclusion:** To conclude, this study's findings suggest that incorporating music, mindfulness meditation, and exercise can significantly enhance focus among university students and can aid in the development of targeted interventions to support students' academic success and overall well-being.

Keywords: Focus, Academic Performance, Mindful Meditation, Exercise, Music

EP7

Evaluation of the In-vitro Effect on *Chrysanthemum Indicum* L. Herbal Tea on Hepatic CYP3A4 Activity in Female Spontaneous Hypertensive Rats (SHR)

Levyaani[1]*, Praghya[1], Chiao Tzi Ng[1], N. Athirah[1], M. Hazim[1], M. Haanii[1], M. Fakhri[1], Chun Keong Ng[1], Mayurika[1], M. Ariff[1], Smriti[1], Siew Keah Lee[2], Jin Han Chin[1]

[1]Faculty of Medicine, MAHSA University, Bandar Saujana Putra Campus, Jalan SP2, Bandar Saujana Putra, 42610 Jenjarom, Kuala Langat, Selangor, Malaysia.
[2]Department of Pre-clinical Sciences, M. Kandiah Faculty of Medicine and Health Sciences, Universiti Tunku Abdul Rahman, Jalan Sungai Long, Bandar Sungai Long, 43000, Kajang, Selangor, Malaysia

*Corresponding author's email: levyaanilencie@gmail.com

Introduction: *Chrysanthemum indicum L. (CIL.)* (Family: Asteraceae) is a commonly used plant among herbal users due to its high medicinal values. Herbal remedies are perceived to have beneficial effects on people with hypertension in our general population. This *in-vitro* study aims to provide preliminary scientific data on the safe use of the *CIL.* tea with other medications metabolised by hepatic CYP3A4 enzyme to avoid possible side effects such as herb drug interaction among hypertensive patients. The objective of this study is to examine the *in vitro* effect of CIL flower tea on the hepatic CYP3A4 activity in female SHR rats. **Methods**: Rat livers obtained from three female SHR rats (180 ± 20 g body weight) were used to prepare rat liver microsomes by a differential centrifugation method. The chrysanthemum tea was prepared by boiling the dried flowers in 100 ml of distilled water for 10 minutes. The CYP3A4 activity in rat liver microsomes was determined spectrophotometrically by measuring the formaldehyde released from *N*-demethylation of aminopyrine. The results obtained were analysed by using Dunnett's test to examine the significant differences between the treatment groups with the control. $p<0.05$ would be considered a significant difference between these groups. **Results:** A significant ($p < 0.05$) inhibitory effect of *CIL.* flower tea at 0.02 mg/ml to 20 mg/ml on the hepatic CYP3A4 activity was observed in female SHR rats when compared with the control group. **Conclusion:** The administration of *Chrysanthemum Indicum* L. herbal tea exhibited significant inhibitory effect on hepatic CYP3A4 activity in female SHR rats. Thus, precautionary stepsshould be taken to avoid unwanted herb-drug interaction when *CIL.* herbal tea is consumed concurrently with the medications metabolized by CYP3A4 enzyme among hypertensive populations.

Keywords: In-vitro study, CYP3A4, Herb- drug interaction; *Chrysanthemum Indicum* L., Hypertensive Female Rats

Optimization of Tap Water Rinsing Duration for Toothbrush Hygiene and Comparison with Various Disinfection Techniques

E-Ying Tan[1], Yen San Lim[1], Dawn Siew Tang Low[1], Yong Qian Cheah[1], Zi En Chin[1], Evone Shu Yong Chong[1], Muhammad Adam Haziq bin Baharin[1], Muhammad Adbul Suad bin M.M. Mannan[1], Nadima Azizi[1], Sonia Duri Najaf[1], Jin Han Chin[1], Shalini Vellasamy[1] and Menega Ganesan[1*]

Faculty of Medicine, MAHSA University, Malaysia.

*Corresponding author's email: menega@mahsa.edu.my

Introduction: Maintaining oral hygiene through teeth brushing and mouth rinsing is essential for overall health. However, toothbrush hygiene is often overlooked, leading to accumulation of pathogenic bacteria that can cause infections and oral diseases. This study aims to optimize the duration of tap water rinsing for toothbrushes and compare with other disinfection techniques.

Methods: Toothbrushes immersed in a suspension of *Staphylococcus aureus*, were disinfected through different duration of tap water rinsing, and other disinfection techniques, which includes UV sterilization, soaking in antiseptic mouthwash, and immersion in vinegar. Statistical analysis was used to evaluate the effectiveness of these methods against bacterial colony counts.

Results: The results showed that a 45-second tap water rinse reduced bacterial count by 84%, with no further reduction by prolonged time. Listerine was more effective, achieving a 95% reduction due to its strong antimicrobial properties.

Conclusion: While traditional rinsing methods are beneficial for toothbrush hygiene, Listerine offers superior disinfection. Future research couldexplore the long-term effects of disinfection methods on toothbrush integrity and alternative agents for reducing harmful bacteria.

Keywords
Oral hygiene, Toothbrush hygiene, *Staphylococcus aureus*, Tap water rinsing, Listerine

EP9

The Effect of Cigarettes And E-Cigarettes on Peak Expiratory Flow Rate among Mahsa University Students

Juni Diana[1], Nurul Nazlin[1], Siti Nur Aishyah[1], Tanuri Levanya Halhaturage[1], Thihansa Minandi Kapilawansa[1], Syameen Iskandar Loh[1], Abdul Haikal Lukman[1], Syafiqa Ain Bazilah[1],Krishaa[1], Idham Khalid[1], Sasindu Ransana[1], Sabah Mohammad Al-Harazi[2], Menega A/P Ganasen[3], Ivan Rolland K[6], Reshma Mohamed Ansari[7]

1 MBBS Program, Year 2, Faculty of Medicine, MAHSA University, Selangor, Malaysia 2 Department of Early Clinical Exposure & Personal and Professional Development, Faculty of Medicine, MAHSA University, Selangor, Malaysia
3 Department of Biochemistry, Faculty of Medicine, MAHSA University, Selangor Malaysia 4 Department of Physiology, Faculty of Medicine, MAHSA University, Selangor, Malaysia
5 Department of Anatomy, Faculty of Medicine, MAHSA University, Selangor, Malaysia 6 Department of Physiology, Faculty of Medicine, Management and Science University, Selangor, Malaysia
7 Department of Anatomy, Faculty of Medicine, Management and Science University, Selangor, Malaysia

*Corresponding author's email : rkrishaa2003@gmail.com

Introduction: The increasing use of cigarettes and e-cigarettes among young individuals has raised public health concerns. This study aims to determine if there is a difference in peak expiratory flow rate (PEFR) between cigarette smokers and e-cigarette users among MAHSA University students. **Methods:** This cross-sectional study involved 58 participants aged 18-25, divided into two groups: 29 cigarette smokers and 29 e-cigarette users. PEFR was measured using a portable peak flow meter, and independent t-tests were conducted to compare the PEFRs of the two groups. **Results:** Data from 57 participants (96.55% male, 3.45% female) was analyzed after excluding an outlier. Medical students accounted for 31.58% of total, while the Centre of Hospitality and Tourism Management students made up 1.75%. Respiratory symptoms differed significantly between cigarette smokers and e-cigarette users ($p=0.028$). The former commonly had shortness of breath during exercise and daytime cough, while the latter frequently reported morning cough. The independent t-test showed no significant differences in the observed PEFR values between cigarette smokers and e-cigarette users (mean±SD=510.17 ± 105.67 vs. 477.59 ± 96.39), $p=0.225$. However, significant differences were found within subcategories of both groups based on the PEFR chart of normal values. Cigarette smokers had 13 normal and 16 low values (mean±SD= 604.62 ± 39.87 vs. 433.44 ± 74.56, $p<0.001$). Six e-cigarette users had normal values and 22 had low values (mean±SD= 601.67 ± 24.83 vs. 435.91 ± 67.89, $p<0.001$). **Conclusion:** This study highlighted the respiratory health risks associated with both cigarette and e-cigarette use among young adults. It recommended implementing targeted public health measures to discourage the use of these products among young adults. Large longitudinal studies are needed to confirm these findings.

Keywords: Cigarette; E-cigarette; Peak expiratory flow rate; MAHSA University; Young individuals

EP10

Caffeine And Its Health Effects Among Medical Students of Mahsa University

Amal Rozaimi[1], Aina Mohd Azahar[1], Aiman Mohd Radzi[1], Amerul Osman[1], Huzaifah Mohd Zubir[1], Alesya Shahaza[1], Ainnul Ab. Rashid[1], Anis Azmi[1], Ameena Shirin[1], Ramisa Fariha[1], Muhammad Zaim Sahul Hameed[2], Muhd Fakh Rur Razi Md Salleh[3]

1 MBBS Program, Year 2, Faculty of Medicine, MAHSA University, Selangor, Malaysia
2 Department of Community Medicine, Faculty of Medicine, MAHSA University, Selangor, Malaysia
3 Department of Physiology, Faculty of Medicine, MAHSA University, Selangor, Malaysia

Corresponding email: muhammadzaim@mahsa.edu.my

Introduction: Caffeine, a common stimulant found in coffee, tea, and energy drinks, is widely consumed for its effects on alertness and fatigue reduction. Medical students, facing demanding academic and clinical schedules, often rely on caffeine to maintain performance. However, excessive intake can disrupt sleep, alter appetite, and increase anxiety. The aim of this study is to explore the effects of caffeine on appetite, sleeping patterns, and alertness among medical students at MAHSA University. Understanding these impacts can guide optimal caffeine use and help mitigate potential negative health outcomes for medical students. **Methodology:** This cross-sectional study was conducted among 251 undergraduate MBBS students at MAHSA University, selected through convenience sampling. Participants, aged 18-25 years, excluding post-graduate students, non-MBBS students, decaffeinated beverage consumers, and unwilling participants, completed a detailed questionnaire distributed via Google Forms. The questionnaire covered sociodemographic information, daily caffeine intake, sleeping patterns, alertness, and appetite, classifying participants as habitual or non-habitual caffeine consumers. Caffeine consumption was reported by the types and amounts of beverages consumed daily, sleeping patterns were evaluated through daily self-reported sleep questionnaires, alertness via structured self-reported questionnaires, and appetite using standardized suppression questionnaires. A pilot study with 25 participants tested the study's feasibility and validity. The chi-square test of independence was used to analyse the associations between caffeine consumption and its effects on appetite, sleeping patterns, and alertness. **Results:** Data were collected from 251 participants, with the majority being second-year students (49.8%) and the remaining percentages approximately evenly distributed among other years. Among them, 66.9% were habitual caffeine consumers, primarily deriving their caffeine intake from coffee and tea. Significant associations were found between caffeine consumption and its effects on appetite regulation ($\chi2 = 25.660$, $p < 0.001$), sleeping patterns ($\chi2 = 20.709$, $p < 0.001$), and alertness ($\chi2 = 14.124$, $p = 0.003$). **Conclusion**: The study demonstrates significant associations between caffeine consumption and its effects on appetite regulation, sleeping patterns, and alertness primarily deriving their caffeine intake from coffee and tea.

Keywords
Caffeine, Appetite, Sleeping Patterns, Alertness, Medical Students, MAHSA University

EP11

The frenemy" – Knowledge, Attitude and Practice Associated to Stethoscope Bacterial Contamination Among Undergraduate Medical Students.

Suhanasenaz Binti Mohammad Anwar[1], Priti Naidu A/P Haridaslu[1], Shamini Kaaliswari A/P Gunaseelan[1], Syarah Irdina Binti Mohamed[1], Siti Nursaliza Binti Sahrun Nisam[1], Thivagkar A/L Raghavan[1], Daneshwhar Subramaniam[1], Dhaneyaletchmi A/P Manoharan[1], Raaya Abdul Razaq[1], Shahul Hameed Noorul Nathiya[1], Aminath Ramsha Abdul Rahman[1], Premmala Rangasamy[1], Nahlah Abduljaleeel Yahya Al-Saidi[1], Chin Jin Han[1], Shalini Vellasamy[1] ,

[1] Faculty of Medicine, MAHSA University, Bandar Saujana Putra, Selangor, Malaysia

***Coressponding author**: vrshalini85@gmail.com*

Background: Stethoscopes are important instrument in clinical settings and could serve as potential vehicles for the transmission of pathogenic microorganisms, contributing to HAIs. This study examines MAHSA University medical students' knowledge attitude and practice toward stethoscope hygiene and evaluates bacterial contamination on stethoscope diaphragms. **Methodology:** A cross-sectional study with informed consent included 93 Mahsa University medical students. 23 clinical students' (9 in Internal Medicine, 14 in Paediatrics) stethoscopes diaphragm swabs were cultured on blood agar plates on Day 0, Day 2-3, and Day 7. CFU counts were measured upon 48 hours of incubation. Gram staining and biochemical assays were performed. Independent sample t-test statistical analysis performed comparing mean bacterial CFU counts with stethoscope hygiene knowledge, attitudes, and practices. **Results:** 64.5% of 93 clinical students were aware of stethoscope hygiene. The 23 clinical samples showed a significant association between hygiene knowledge and CFU count on Day 2-3 ($p=0.035$) and Day 7 ($p=0.026$), indicating that knowledgeable students had lower microbial loads. Of those who considered cleaning the stethoscope diaphragm important, the result showed significantly lower CFU counts on Day 2-3 ($p=0.034$). Paediatrics had higher CFU counts than Internal Medicine on Day 0 ($\bar{x}=1.3446$, $\sigma=.4849$), Day 2-3 ($\bar{x}=1.3215$, $\sigma=.6157$), and Day 7 ($\bar{x}=1.5780$, $\sigma=.3091$). Paediatrics also showed higher microbial load with 72.78% Gamma non-hemolytic colonies and 52.76% Alpha/Beta hemolytic colonies. Overall, Gamma non-hemolytic colonies were most prevalent at 83.34%. 35.5% equivalent to one third of the total sample lacked knowledge about stethoscope hygiene. **Conclusion:** A significant relationship between knowledge and CFU counts among medical students suggests the need for targeted educational interventions and training on stethoscope hygiene among medical students and also healthcare personnel to reduce the risks of nosocomial infections.

Keywords: Stethoscope contamination, Undergraduate medical students, Knowledge, attitude, and practice

EP12

Breast Cancer Awareness Among Women

Fathima Riza Ayoobkhan, Seeralan Vijayaratnam, Tabitha Jacob Valyakalayil, Shenal Fernando,Anna Grace,Sneha Maniarasu, Mahathir Bin Mohamed Yassin, Vijayalini Vijayalini, Kavindu Munasinghe, Azaree William Gerugu Anak Pauline, Nuraleeyah Aqilah Binti Faizal.

Faculty of medicine, MAHSA University, Selangor, Malaysia

Corresponding author's email: bms22096155@mahsastudent.edu.my

Introduction: Breast cancer is the most common cancer among women and is the cause of high mortality rate due to late detection. This occurs due to the public's lack of awareness of breast cancer such as risk factors, and signs and symptoms. The aim of this study is to evaluate the knowledge of breast cancer among women aged 18 and above. **Methodology:** A cross - sectional survey was conducted to evaluate the participants' understanding on breast cancer awareness, risk factors, and signs and symptoms. This survey targeted women of aged 18 and above in the Klang Valley region from various age groups, educational levels, and socioeconomic statuses. The survey of questionnaires was distributed using Google Forms through family, friends, and social media. The questionnaire consisted of two parts which are socio-demographic questions and 20 questions on Knowledge of Breast Cancer such as risk factors and the signs and symptoms. **Results:** The study involved 402 participants: 39.8% Malay, 38.3% Indian, 12.9% Chinese, 9.0% other ethnicities. Most were single (72.6%) and university-educated (88.6%). Occupations included students (64.7%), private employees (20.9%), and housewives (6.5%). Household incomes: B40 (44.3%), M40 (43.3%), T20 (12.4%). Awareness of breast cancer was high (98.0%), though misconceptions existed. Significant risk factors acknowledged included family history (92.8%) and old age (73.1%). Common symptoms recognized were painless lumps (79.9%) and nipple discharge (83.3%). Chi-square and ANOVA tests showed significant differences in knowledge across races and education levels. **Conclusion:** This research proves that most of the participants can recognise the key risk factors and symptoms of breast cancer. However, misconceptions do persist caused by poor knowledge and awareness.

Keywords: Breast cancer, knowledge, cross – sectional, questionnaire, women

e-abstract

Unveiling The Impact of Gut Microbiota On Human Health: Diversity, Interactions And Therapeutic Insights

Janet Jessica A and *Gnanendra Shanmugam T
Department of Biotechnology, Vivekanandha College of Arts and Sciences of Women (Autonomous), Tiruchengode
*Correspondence to: gnani.science@gmail.com

Abstract

The intricate collection of bacteria known as the gut microbiota, which colonizes the human gastrointestinal system plays a crucial in promoting overall health and influencing disease states. In This study, elucidates the varied functions of gut microbiota. Specifically, we outlined: (1) the diversity and composition of gut microbiota across different populations and life stages; (2) the interactions between gut microbiota and immune system and metabolic processes; (3) the connections between gut microbiota dysbiosis and various diseases including inflammatory bowel disease, metabolic disorders, and neurodegenerative conditions; and (4) the therapeutic potential of modifying gut microbiota through diet, probiotics, prebiotics, and fecal microbiota transplantation. This study provides insights into the intricate relationship between gut microbiota and human health, highlighting the potential for microbiota-based interventions in diseases prevention and treatment. It underscores the importance of maintaining a healthy gut microbiota for overall well-being and emphasizes the need for further research to unlock the full therapeutic potential of this microbial community.

Keywords: gut microbiota; dysbiosis; human health; immune system, metabolic processes; , probiotics; prebiotics; fecal microbiota transplantation.

e-abstract

Pharmacological Properties Of *Entada Rheedii*

[1]Lekshmy R Nair and [2]Duraipandian M[*]

[1]Department of Biotechnology, K V M College of Science and Technology, Cherthala, Kerala

[2]Department of Biotechnology, Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Namakkal DT, Tamil Nadu

***Correspondence to** : drduraipandian@vicas.org

Abstract

Entada rheedii, commonly referred to as African dream herb or snuff box sea bean, is a prominent woody vine distributed throughout tropical regions of Africa, Asia, and Australia. It has a rich history in traditional medicine across these regions, where it is revered for its diverse pharmacological properties and spiritual significance. This review article synthesizes current knowledge on the pharmacological aspects of *E. rheedii*, encompassing its chemical composition, therapeutic potentials, and cultural uses. The chemical constituents of the selected plant have been extensively studied, revealing a complex profile that includes alkaloids, flavonoids, saponins, and other phytochemicals. These compounds contribute to the plant's various pharmacological activities. *E. rheedii* exhibits a range of pharmacological properties that have been investigated through both traditional knowledge and modern scientific methods. It demonstrates analgesic effects, potentially mediated by alkaloids and other compounds that interact with pain pathways. Anti-inflammatory properties have also been observed, suggesting potential applications in conditions characterized by inflammation. Additionally, the plant shows antimicrobial activity against various pathogens, underscoring its traditional use in treating infections. Beyond its physical effects, *E. rheedii*is renowned for its psychoactive properties, particularly its role as a dream enhancer and spiritual aid in indigenous rituals. These psychoactive effects are attributed to specific alkaloids and their interactions with neurotransmitter systems, although further research is needed to fully elucidate these mechanisms. Despite the promising pharmacological profile of *E. rheedii*, gaps in knowledge remain. Comprehensive clinical trials are lacking, limiting our understanding of its safety profile and precise therapeutic indications. Moreover, there is a need for standardized extracts and dosage forms to facilitate consistent research outcomes and potential future pharmaceutical applications. In this study, the consolidates existing knowledge on *E. rheedii*, highlighting its multifaceted pharmacological properties and cultural significance. It underscores the potential of this botanical resource for future drug discovery and therapeutic innovation, while emphasizing the necessity of further research to fully harness its benefits and ensure safe usage in clinical settings.

Key Words: *Entada rheedii;* anti-inflammatory; analgesic activity; antimicrobial activity.

e-abstract

Characterization Andantioxidant Activity of Ethyl Acetate Root Extract Of *Heliotropium Indicum* L

[1]Mini Gopinathan and [2]Duraipandian M*

[1]Department of Biotechnology, K V M College of Science and Technology, Cherthala, Kerala

[2]Department of Biotechnology, Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Namakkal DT, Tamil Nadu

***Correspondence to** : drduraipandian@vicas.org

Abstract

Heliotropium indicum L. (Family: Boraginaceae) is an annual, hirsute plant that is a common weed native to Asia and has great importance in traditional medicine. The investigation was conducted to determine the phytochemical components in the five root extracts (hexane, chloroform, ethyl acetate, methanol, and aqueous) of *H. indicum*. The ethyl acetate root extract of Indian Heliotrope plant exhibited significant DPPH radical scavenging, and Reducing power activities. The phytochemical profile of ethyl acetate root extract was determined using Shimadzu-QP2020 GC-MS, and the mass spectra of the compounds found in the extract were matched with the National Institute of Standards and Technology library. Traditionally, Gas chromatography-mass spectroscopy (GC-MS) is a combined analytical technique used to determine and identify compounds present in a plant sample. FTIR-spectroscopy was performed to detect the functional groups present in the extract. GC-MS analysis of ethyl acetate root extract of *H. indicum* revealed the presence of a total of forty-three compounds, having twelve major compounds. GC-MS analysis showed that the ethyl acetate extract has 43 bioactive compounds with Cholesta-22,24-dien-5-ol, 4,4 dimethyl-having the highest area percentage of 23.11% and 7,9-Di-tert-butyl-1-oxaspiro (4,5) deca-6,9-diene-2,8-dione having the lowest percentage (0.26%). This is the first report of the GC-MS and FTIR analysis of ethyl acetate root extract of *H. indicum*. This study revealed the presence of bioactive compounds in the root extract of Heliotrope that are reportedly involved in antioxidant, anticancer, antimicrobial, anti-inflammatory, antiviral, larvicidal, and many more activities.

Keywords: *Heliotropium indicum* L, Boraginaceae, GC-MS, FTIR, Ethyl acetate, Antioxidant, Bioactivity.

Advancing Bioplastic Performance:The Importance Of Nanotechnology On Property Enhancement

Mowlya V and Sowmiya S*
Department of Biotechnology, Vivekanandha College of Arts and Science for Women (Autonomous), Elayampalayam ,Tiruchengode, Namakkal, Tamilnadu – 637 205 , India
*Correspondence to: sowmiyas@vicas.org

Abstract

Bioplastics made from sustainable biomass sources are a possible alternative to standard petroleum-based plastics. However, bioplastics frequently have limits in terms of mechanical characteristics, thermal stability and barrier performance. Nanotechnology has emerged as an effective method for improving the properties of bioplastics, allowing the development of high-performance, sustainable materials. This review investigates the role of nanotechnology in improving the properties of bioplastics, with an emphasis on nanoscale materials and processes that contribute to improvements in the field.The effects of various forms of nanomaterials, such as nanoparticles, nanotubes, and nanofibers, on the mechanical, thermal, and barrier properties, as well as the biodegradability of bioplastics, are discussed here. The review discusses essential strategies for integrating nanomaterials into bioplastics, such as physical blending, chemical grafting, and electrospinning. It also discusses how these enhancements affect the biodegradability, stability, and environmental sustainability of bioplastics. The assessment also addresses existing obstacles and future directions in the industry, such as cost, scalability, and potential environmental implications. By examining current research and future prospects, this review attempts to emphasize nanotechnology's revolutionary potential in improving the performance and application of bioplastics in a variety of industries, as well as creating a more sustainable plastic future.

Keywords: bioplastic; nanotechnology; nanoparticles; biodegradability; sustainability.

Gut Microbiome And Its Influence On Depression: Syncom As A Potential Probiotic Treatment

Naveena S and Gnanendra Shanmugam*

Department of Biotechnology, Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalyam, Tiruchemgode, Namakkal, Tamilnadu, India.

*Correspondence to: gnani.science@gmail.com

Abstract:

The gut microbiome, consisting of trillions of microorganisms in the gastrointestinal tract, is essential for human health and profoundly influences brain function and behavior. The gut-brain axis, a bidirectional communication pathway between the gut and brain, indicates that gut microbiota can affect mental health, particularly depression—a disorder marked by persistent sadness and cognitive impairment. Dysbiosis, or changes in gut microbiota composition, is associated with the development and severity of depression through mechanisms such as neuroactive substance production, immune system modulation, and HPA axis regulation. This study examines the relationship between the gut microbiome and depression, focusing on SynCom (Synthetic Community), a carefully selected consortium of probiotic strains designed to restore healthy gut microbiota and enhance mental health. The findings suggest that SynCom could serve as a viable adjunctive treatment for depression, providing a novel, microbiome-centered approach to mental health care. Further research is required to establish SynCom's optimal composition, long-term effects, and underlying molecular mechanisms. As our understanding of the gut-brain axis deepens, SynCom and similar probiotics hold promise for innovative, targeted therapies in managing depression.

Keywords: mental health; depression; probiotics; microbiome; hypothalamic pituitary adrenal (HPA) axis

Coral Reef Monitoring: Harnessing Ai-Ml for Sustainable Conservation

Nivetha B and Sowmiya S*

Department of Biotechnology, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode

***Correspondence to:** sowmiyas@vicas.org

Abstract

Monitoring coral reefs is crucial for identifying and responding to environmental threats such as climate change, pollution, and human activity. Coral reefs are significant indications of ocean health, as they provide a living for millions of marine creatures and safeguard coastal areas. Artificial Intelligence (AI) and Machine Learning (ML) have revolutionized coral reef monitoring, providingaccurate and scalable solutions. AI-ML techniques such as Convolutional Neural Networks (CNN), You Only Look Once (YOLO), Mask R-CNN, Random Forests and Gradient Boosting enable automatic analysis of large underwater images and sensor data. These algorithms can able to detect disease, coral bleaching and other stressors, classify coral species. It has been used to assess reef health and biodiversity with unprecedented accuracy and speed. Time series analysis and anomaly detection techniques, including long-short-term memory (LSTM) networks and one-class support vector machines (SVM), detect early warning signs of reef degradation. Predictive modelling methods, such as extreme gradient boosting (XGBoost) and repeated iteration unit (GRU), predict patterns of reef degradation and inform proactive conservation strategies. AI-ML systems optimize resource allocation to high-risk areas and continuous monitoring supports long-term studies of environmental change and human impact, resulting in more effective conservation strategies.Integrating AI-ML into coral reef monitoring will accelerate research and also improve reef sustainability by improving conservation pattern. This review explores state of AI-ML applications in coral reef monitoring and highlights their positive environmental, economic and marine conservation impacts.

Keywords: coral reefs; artificial intelligence; machine learning; predictive modelling; conservation strategies.

e-abstract

Molecular Dynamics and Docking Studies Of Kras Oncogene: Insights Into Lung Cancer Therapeutics

Priyadharshini Balasubramani and Gnanendra Shanmugam*

Department of Biotechnology, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode

*Correspondence to: gnani.science@gmail.com

Abstract

Lung cancer remains one of the most challenging malignancies, with the KRAS oncogene playing a critical role in its development and progression. This study investigates the interactions between the KRAS oncogene protein (PDB: 8FMI) and three drug compounds—alectinib, brigatinib, and doxorubicin—using molecular docking techniques. The primary objective is to elucidate the binding affinity and potential therapeutic efficacy of these compounds in targeting the KRAS protein. Molecular docking simulations were performed to assess the binding interactions of alectinib, brigatinib, and doxorubicin with the KRAS protein. The results reveal distinct binding patterns and interaction strengths for each drug, providing insights into their potential mechanisms of action. Alectinib and brigatinib, both known for their role in targeting tyrosine kinases, demonstrate specific interactions with the KRAS protein that may inhibit its oncogenic activity. Doxorubicin, a chemotherapeutic agent, shows different binding characteristics, potentially affecting the protein's function through alternative mechanisms. This study offers a detailed analysis of the docking interactions, highlighting the potential of these compounds as therapeutic agents against KRAS-driven lung cancer. By understanding these interactions, the research contributes to the development of more targeted and effective treatment strategies for this challenging disease. Future work will focus on validating these *in silico* findings through experimental approaches and exploring the therapeutic potential of combining these compounds with existing treatment modalities.

Keywords: KRAS oncogene; targeted therapy; alectinib; brigatinib; doxorubicin.

A Unified Biomarker Database for Pancreatic Cancer: Advancing Early Diagnosis And Targeted Therapy

Sowmiya A and Gnanendra Shanmugam*

Department of Biotechnology, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode, Namakkal, Tamilnadu-637 205, India.

*Correspondence to: gnani.science@gmail.com

ABSTRACT

Cancer biomarkers are pivotal in the era of precision medicine, providing essential insights into the molecular and genetic profiles of various cancers. These biomarkers, which encompass genetic mutations, protein expressions, and epigenetic modifications, are vital for early diagnosis, prognosis, and the formulation of personalized treatment strategies. Advances in high-throughput technologies, such as next-generation sequencing and mass spectrometry, combined with sophisticated bioinformatics tools, have greatly enhanced our capacity to discover and validate new biomarkers. This progress has led to more precise and effective targeted therapies, improving patient outcomes and reducing adverse effects. The creation of a specialized biomarker database for diagnosing cancer is crucial for advancing early detection and improving patient outcomes. In this study, we have designed and implemented a comprehensive biomarker database specifically focused on pancreatic cancer. This database integrates various types of biomarkers, including proteins, RNA, and metabolites, which are critical for pancreatic cancer diagnosis. By unifying these diverse data types, the database aims to enhance the utility of biomarker data in both clinical and research settings. Ultimately, this database will improve early detection and treatment outcomes for pancreatic cancer patients. The development of this database marks a significant step forward in pancreatic cancer research. Future work will focus on expanding the database and incorporating real-time data analytics to further refine diagnostic and therapeutic strategies.

KEYWORDS: cancer biomarkers; precision medicine; targeted therapy; early diagnosis; high-throughput technologies.

Metabolic Pathway Engineering: Advancing Therapeutic Strategies for Diabetes Mellitus

Swedha A and Gnanendra Shanmugam*

Department of Biotechnology, Vivekanadha College of Arts and Science for Women (Autonomous), Tiruchengode, Namakkal, Tamilnadu – 637 205, India.

**Correspondence to: gnani@vicas.org*

ABSTRACT:

Diabetes mellitus (DM) is a chronic metabolic disorder characterized by hyperglycemia due to defects in insulin production or action, posing significant global health challenges. It is categorized into Type 1 diabetes, caused by autoimmune destruction of pancreatic beta cells, and Type 2 diabetes, which involves insulin resistance and impaired insulin secretion. Recent advancements in metabolic pathway engineering present promising strategies for managing and potentially curing diabetes by manipulating the biochemical pathways involved in glucose metabolism and insulin signaling. DM metabolic pathway engineering focuses on enhancing insulin production, modulating glucose uptake and utilization, and improving pancreatic beta-cell function. Various approaches, including gene editing, synthetic biology, and systems biology, are employed to develop tailored therapeutic strategies. These strategies include engineered insulin-producing cells, metabolic switches, and novel glucose-responsive insulin delivery systems. This study reviews the progress in metabolic pathway engineering for diabetes mellitus, emphasizing innovative approaches and potential therapeutic applications. It highlights the latest advancements, key techniques, and their therapeutic potential. Additionally, the study discusses the challenges and ethical considerations associated with these approaches. As our understanding of metabolic pathways and gene editing technologies advances, metabolic pathway engineering holds significant promise for innovative and effective treatments for diabetes mellitus. These advancements have the potential to transform diabetes care and management, offering new hope for patients by aiming to reduce complications and improve overall health outcomes.

Keywords: diabetes mellitus; metabolic engineering; gene editing; insulin production

e-abstract

Transforming Biotechnology: The Revolutionary Impact of AI And Machine Learning

Tamil Bharathi Viswanathan, Nivetha Baskaran, Gnanendra Shanmugam*

Department of Biotechnology, Vivekanandha College of Arts and Sciences of Women (Autonomous), Tiruchengode

*Correspondence to: gnani.science@gmail.com

Abstract

The integration of artificial intelligence (AI) and machine learning (ML) with biotechnology is set to revolutionize the field, opening up exciting new possibilities. This study explores the future directions of biotechnology, focusing on the powerful synergy between AI and ML. We investigate how these technologies are reshaping areas such as drug discovery, genetic engineering, personalized medicine, and diagnostics. By analyzing vast amounts of biological data, AI and ML can predict disease outcomes, optimize bioprocesses, and drive innovations in genomics, proteomics, and metabolomics. We highlight the latest advancements, including deep learning algorithms, neural networks, and natural language processing, and their applications in biotechnology. The review also considers the challenges and ethical issues, such as data privacy, algorithmic bias, and the importance of interdisciplinary collaboration. This study combines recent research and technological trends, emphasizing the transformative potential of AI and ML in biotechnology. It provides a comprehensive overview of current innovations and looks ahead to future developments, stressing the need for ongoing research and collaboration to fully harness the synergy between AI, ML, and biotechnology.

Keywords: artificial intelligence, machine learning, genomics, personalised medicine, algorithm.

e-abstract

Biodegradable Bioplastics In Aquaculture: Reducing Environmental Stress On Fish Farms

Venkateswari V and Gnanendra Shanmugam*

Department of Biotechnology, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode, Namakkal, Tamilnadu-637205, India.

*Correspondence to: gnani.science@gmail.com

ABSTRACT

Biodegradable bioplastics have emerged as a promising solution to reduce environmental stress in aquaculture systems. A bioplastic is defined as biodegradable if it can be decomposed into carbon dioxide under aerobic degradation, or methane and CO2 under anaerobic conditions, inorganic compounds, and new cellular biomass, by the action of naturally occurring microorganisms. Biochemical Oxygen Demand (BOD), CO2 evolution, surface erosion and weight loss were the main parameters used by researchers to describe the percentage of biodegradation. Traditional plastics used in fish farming often lead to pollution and harm aquatic life due to their persistence in the environment. This study investigates the application of biodegradable bioplastics in aquaculture, focusing on their potential to minimize waste accumulation and reduce environmental impact. By replacing conventional plastics with bioplastics derived from renewable sources, this approach aims to enhance the sustainability of fish farms, improve water quality, and mitigate negative effects on fish health and growth. The research evaluates the effectiveness of different types of biodegradable bioplastics, their degradation rates in aquatic environments, and their overall impact on fish farming operations. The study highlights the benefits and challenges of integrating bioplastics into aquaculture practices and provides recommendations for future research and implementation strategies.

Keywords: biodegradation, bioplastic, plastic waste, aquaculture, fish farming.

Nanofertilizer And Phytochemical Screening Of Orange Peel Were Utilized To Enhance The Growth Of *Manihot Esculenta* Crantz

J. Banumathi[1] And M.Senthilkumar[1*]

[1]PG and Research Department of Botany, Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam - 637 205, Tiruchengode, Tamil Nadu

* Corresponding author e-mail: drmsenthilkumar@vicas.org

ABSTRACT

Nanobiotechnology has great potential for generating new, significant products that are favorable to the environment, industry, and consumers. Nanofertilizer and phytochemical screening of orange peel was using to enhance the growth of cassava *Manihot esculenta* Crantz (Tapioca). A nanofertilizer is more sensitive, has the ability to penetrate the epidermis, to promote nutrient consumption efficiency and reducing nutrient overabundance, to increase the content of chlorophyll, carotenoids and under drought stress tolerance conditions. The application of different forms of nano fertilizers plants like nanoparticulate, micronano, and macro nanofertilizers to enhance the boost crop yields. We synthesized nanofertilizer from orange peel and tested its potential for promoting the growth of *M. esculenta* tuber crop.

Keywords: Nano fertilizer, green manure, *M. esculenta*, agriculture and plant nutrients

A Short Review On *Brachiaria Ramose (L.) Stapf* (Brown Top Millet): A Medicinally Important Crop In Tamilnadu, India

Swetha[1] and C. Divya[1*],

[1]M.Sc., Student and [1*]Assistant professor of Botany,

Vivekanandha College of Arts and Sciences for Women (Autonomous)
Thiruchengode, Namkkal District

*Mail id: divyabotany111@gmail.com

Abstract

Introduction: Worldwide, millets are regarded as a significant grain, however, they are the least exploited. Millet grain is abundant in nutrients and health-beneficial phenolic compounds, making it suitable as food and feed. The diverse content of nutrients and phenolic compounds present in finger and pearl millet are good indicators that the variety of millet available is important when selecting it for use as food or feed. More over *Brachiaria ramose* (L.) is small seeded annual grass and it produces heavy seeds. This plant is grown in variety of soils and different climates. The scientific community in general is paying more and more attention to it. This millet used as a wild food plot crop, for erosion control, livestock summer crop, hey production and also used as a food grains. According to the scientific literature, the browntop millet has been found scanty and some of scientist reported the quantity and quality studies of nutritional properties and energy sources of 338.0-368.62 kcal. so that, most of entrepreneurs is used for value added products like cookies, bars, deserts and food items like Idli mix and phha, in which the millet can be used in combination with other cereal grains. The research has shown that millet phenolic properties have high in millets compromise phenolic acids, flavonoids, and tannins, which are beneficial to human health. Brown top millet contains many phytochemical contents such as flavonoids, quinines, tannins, glycoside and resin etc. It can be used for the prevention and management of several non-communicable diseases especially ancient times this millet has been used in many forms such as forage, staple food or in many traditional dishes. **Conclusion**: Thus, the core aim of this review is to provide insight and comprehension about the nutritional and phenolic status of millets and their impact on human and livestock.

Key words: Small grass Millets, Brachiaria, Potancial crop and Nutritional insecurity

e-abstract

Impact On Weed Diversity In The Selected Agricrop Fields, Namakkal And Salem Dist., Tamilnadu

Akila K., Harini M., Soundharya G., Subika S and Manikandan P*

PG and Research Department of Botany,
Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam,
Tiruchengode - 637205,
Namakkal Dist., Tamil Nadu, India

Corresponding Author: drpmanikandan@vicas.org

Abstract
The present study was carried out on weed flora and ecological diversity in Namakkal and Salem District, Tamil Nadu. Quantitative studies carried out from crop fields used by 2m × 2m quadrate size in selected crop fields. In each crop fields, 10 quadrates were randomly laid within agri crop fields and weed species were noted with in plots. A total of 4 different crop fields were covered in the survey (Coconut, Chilli, Sugarcane, Tapioca). A total of 123 various weed species belonging to 51 genera and 24 families were recorded. Family Poaceae was represented by highest number of species (n=24) followed by Amaranthaceae (n=14) and Fabaceae (n=13). Of which 38 weeds species used as medicine, 21 species as fodder, 10 species as food and 6 species used as vegetables by local communities. Some weeds are important due to their possible allelopathic effects to different cultivated crops. In the crop fields, major weed species such as *Ageratum conzoides, Boerhavia erecta, Cleome viscose, Cynodon dactylon, Parthenium hysterophorus, Tridax procumbens.* These weeds are most important factors involved for reduction plant production. They share the nutrients and growth resource with major crops and affect their quality as well as quantity. These weeds must be managed and discarded at proper time periods.

Key words: Weed diversity, Invasive species, Allelopathic effects.

e-abstract

Direct Plant Regeneration From Young Shoot Tip Explants Of *Sphaeranthus Indicus* Linn

Rajarajeshwari Thangamani Venkatachalam[1], Aruna Sakthivel[1] and Karthika Palanisamy[1,2*]

[1]PG and Research Department of Botany,
Vivekanandha College of Arts and Sciences for Women (Autonomous)
Thiruchengode, Namakkal District, Tamilnadu, India

*email: drkarthikapbotany@vicas.org

Introduction: *Sphaeranthus indicus* Linn. (Compositae) is most important medicinal plant of Indian traditional medicine system. Morphogenic potential of young shoot tip explants was investigated to develop a reliable plant regeneration protocol via direct organogenesis. **Methods:** The young shoot tip explants were cultured on Murashige and Skoog's (MS) medium supplemented with different concentrations such as zeatin (4.0 mg/l), BAP (1.0 to 5.0 mg/l) + NAA (1.0 mg/l), NAA (5.0 mg/l) were used for multiplication and root production. **Results:** Shoots initiation were observed zeatin 4.0 mg/l. The multiple shoots were sub cultured on MS medium with concentrations of BAP (1.0 to 5.0 mg/l) + NAA (1.0 mg/l) increased the number of shoots within 40 - 50 days. Rooting of shoots occurred in MS medium supplemented with NAA (5.0 mg/l). The rooted plantlets were successfully acclimatized in plastic cups containing sterilized sand, red soil and vermiculate in the ratio 1:1:1 with 87% survival rate in the field condition. **Conclusion:** The present investigation has been undertaken to study the *in vitro* propagation steps were standardized from shoot tip explants of *S. indicus*.

Key words: *Sphaeranthus indicus,* Young shoot tip explants, Multiple shoots.

Review On Minor Millet (*Panicum Sumatrense* Roth. Ex Roemer And Schultes And *Eleusine Coracana* (L.) Gaertn And Their Medicinal Value

T. Hemalatha[1] and C. Divya[1*],
U.
[1]M.Sc., Student and [1*]Assistant professor of Botany,
Vivekanandha College of Arts and Sciences for Women (Autonomous)
Thiruchengode, Namkkal District

*Mail id: divyabotany111@gmail.com

Introduction; *Panicum sumatrense* commonly known as Samai. Little millet is cultivated from south Asia. Samai is grow throughout India more than half million hector with major states for little millet production Karnataka, Andhra Pradesh, Tamilnadu. It is drought resistant millet crop. It contain rich phosphorus which helps to repair of tissue, energy production, water soluble fibres, prolonged gastic emptying. It contain many medicinal values like Blood health booster, prevent cancer, diabetes and control high cholesterol. It is excellent source for vitamin B boost brain function. It is used for food preparation. *Eleusine coracana* commonly known as Ragi. It is an important crop in Indian, Eastern africa. It is also known as Finger millet. It grow 1.00 million hector in India , with total yield 1.76 million tonnes and average productivity of 1747 kg per hactor, it is adaptable for various climate and low water requirements. It is ideal crop for farmers. The finger millet contains nutritional value, rich source in iron and calcium, it promotes better bone density, good hair health, controlling blood sugar levels, prevent disease like cancer, heart attack. It is used for food with their health benefits. **Conclusion**: The aim of this review is to provide insight and comprehension about the nutritional and phenolic status of millets and their impact on human and livestock.

Key words: Little millet, medicinal value, prevent disease

Weeds That Heal Trichodesma Indicum (Linn.) R. Br.

Gayathri Kannan, Harshitha Sakthi Kannan, Dharshini Thangavel and Karthika Palanisamy[1,2]*

[1]PG and Research Department of Botany,
Vivekanandha College of Arts and Sciences for Women (Autonomous)
Thiruchengode, Namakkal District, Tamilnadu, India

*email: drkarthikapbotany@vicas.org

Introduction: *Trichodesma indicum* is commonly known as Adhapushpi and belongs to the family Boraginaceous. In the past, this plant was particularly beneficial in treating a variety of diseases including fever, arthralgia, dysentery, arthritis, and skin diseases. There have been reports of the plant's antibacterial, analgesic, antioxidant, anti-inflammatory, and antidiabetic properties in all of its parts. **Conclusion:** The pharmacognosy, phytochemistry, ethanopharmacology, and pharmacological characteristics of this plant is discussed in the current review. Surveying the state of research on the valuable medicinal herb *Trichodesma indicum* was the goal of the current study.
Key words: Antimicrobial, Anti-inflammatory, Antipyretic, Ethanopharmacology, Pharmacognosy

e-abstract

Diversity Of Medicinal Flora Of Alavaimalai, Rasipuram (Tk) Namakkal (Dist.) , Tamil Nadu

Sowparani S, Sreenithi S, Yazhini B, Santhiya M and Manikandan P*

PG and Research Department of Botany,
Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Tiruchengode - 637205, Namakkal Dist., Tamil Nadu, India

Corresponding Author: drpmanikandan@vicas.org

ABSTRACT
Medicinal plant survey was conducted in Alavaimalai Hills of Rasipuram, Namakkal District. The vegetation is tropically dry, deciduous and scrub forest. Alavaimalai Unavaram hills is located between 11°37' 24" N and 78°40'5" E. Field survey was under taken in different site of the study area, during study periods. Identified plants were classified into five categories for the convenience in the field survey like tree, shrub, climber, epiphytic and herbs. During this period 7 collections were made. A through medicinal floristic analysis of Alavai malai enlisted 35 families, 24 genera and 71 species of angiosperms. Out of 4 families of angiosperms, 30 families belong to dicotyledons and 3families belong to monocots. In the present study is on 71 medicinal plants which are used for the treatment of various diseases like asthma, piles, diabetes, snake bite, skin disease, stomach pain, cough, headache, rheumatism, purgative, dysentery, leprosy, astringent, urinary disorders, scabies, diarrhoea and diuretic etc. Medicinal floristic survey, the availability and presence of many medicinal plants have been investigated and verified. We suggested that these plants can be used as drugs by pharmacologically unexplored areas of India, which may be utilized for the better human health.

Keywords: Medicinal healing plants, Medicinal properties, Diseases

Active Self-Treatment Of A Wound With Biologically Active Plants *Leucas Aspera* (Willd.) And *Nicotiana Tabacum* L. To Treat Cow And Dog By Local People, Niligiri District, Tamil Nadu

E. Dhanushya[1] and m. Senthilkumar[1*]

[1]PG and Research Department of Botany, Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam - 637 205, Tiruchengode, Tamil Nadu

* Corresponding author e-mail: drmsenthilkumar@vicas.org

We observed a cow and dog wound from Curzon Estate, Nilgiris District, Tamil Nadu. After the injury he selectively collected potentially medicinal two important plants of *L. aspera*, (leaves). Grinding the leaf part, and then repeatedly applying the resulting paste into wound healing parts of the cow. Tropical forests of Nilgiris District, and related plant species are known for their wound, worms are used in traditional medicine to treat various diseases, such as dysentery, diabetes, and malaria. *L. aspera* analyses of plant chemical compounds show the presence of Tannins, flavonoids, glycosides, cardiac glycosides, saponins, alkaloids, reducing sugar and phenols. Phytochemical screening revealed the presence of alkaloids, phenolic compounds, tannins, flavonoids, cardiac glycosides, steroids, terpenoids, essential oils, resins, saponins, quinones and polypeptides in different extracts of *N. tabacum* L. leaves. This possibly innovative behaviour presents the first systematically documented case of active wound treatment with a plant species known to contain biologically active substances by a wild animal and provides new insights into the origins of human wound care.

Keywords: *L. aspera*, *N. tabacum,* leaf extract, naphthalene balls, local people, veterinary medicine

Treatment Of A Nodules With Phytochemical Constituent Of *Lantana Camara* Linn.

Potential Medicinal Plants To Treat Cow, Used By Local People, Nilgiri District, Tamil Nadu

V. Kowsalya[1] And M. Senthilkumar[1*]

[1]PG and Research Department of Botany, Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam - 637 205, Tiruchengode, Tamil Nadu

* Corresponding author e-mail: drmsenthilkumar@vicas.org

ABSTRACT

Treatment of nodules with biologically active potential medicinal plants of *Lantana camara* L. (leaves extract) used to treat cows by local people from Curzon Estate, Nilgiris District, Tamil Nadu. After the nodules he selectively collected important potential aromatic evergreen shrubs of *L. camara* (leaves), grinding the samples, and then repeatedly applying the resulting paste into the nodule part of the cows. As a last step, he fully covered the nodules with the leaf extracts. *Lantana camara* showed the presence of glycosides, carbohydrates, phenolic compounds, alkaloids, flavonoids and tannins, saponins, steroids and triterpenoids as major phytochemical groups. Forests of Nilgiris District, and related plant species are known for their child birth, gallbladder, snake bite, scorpion bite are used in traditional medicine to treat various diseases, such as ulcer, chronic, diarrhoea, diabetes, and anticancer. *L. camara* fruit eaten by red-whiskered bulbul (*Pycnonotus jocosus*).

Keywords: *L. camara*, leaf extract, local people, phytochemical constituent, and veterinary medicine

e-abstract

Ethnobotanical Study Of Medicinal Plants In Nainamalai Hills, Eastern Ghats Namakkal District, Tamil Nadu, India

N. Harsini, M. Januja, M. Karishma[1,] M. Kamali, And M. Senthilkumar[1*]

[1]PG and Research Department of Botany, Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam-637 205, Tiruchengode, Tamil Nadu

* Corresponding author e-mail: drmsenthilkumar@vicas.org

The study was carried out in the Nainamalai hills, Namakkal District during the period of 2024. In this present study, a total of 125 species belonging to 55 families were documented. The information was collected from local people and traditional healers through personal interview, questionnaire method and group discussion during the survey. The identified species were used for treating various ailments like skin disorder, gallbladder, snake bite, cancer, fever, cough, stomach pain, dysentery, ulcer, body pain, dysentery, asthma, wounds, worms, rheumatism and veterinary medicine. The mode of consumption is mostly decoction, paste, leaf powder, raw leaf and juice. Local people are present in the Nainamalai hills; they continue to play an important role in healthcare needs. The collection and documentation of their practical knowledge preserve the valuable knowledge.

Keywords: Ethnobotanical, Medicinal Plants, Nainamalai hills, Therapeutic and Namakkal District

Problem Associated with Antimicrobial Resistance

Ms. Monisha Muthukumar[1*] and Kavitha Kanthasamy [2]

[1& 2] Department of Biochemistry, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode, Namakkal Dt, Tamilnadu India.

* monishamuthukumar9177@gmail.com

Introduction: Antibiotic resistance can occur in both hospital and community settings and leads to emergence of resistant pathogens. Community-associated infections have been an important source of morbidity and death of patients. The emergence of nosocomial orhealth care associated infections is a public health problem which is life threatening. Thesekinds of infections affect many people around the world and only in the USA antibiotic-resistant pathogens such as methicillin-resistantance. **Method:** Bacterial resistance to antibiotics can be divided into two types intrinsic or innate resistance and acquired resistance. Thefirst one is a feature of a particular bacterium and depends on its biological properties (E. coli shows intrinsic resistance to vancomycin). Acquired resistance results from: I) acquisition of resistance genes by bacteria, II) mutation of chromosomal DNA, III) combination of both mechanisms. Regulatory genes controlling multi-drug resistance and bacterial biofilm Strategies to reduce the risk of antimicrobial resistance. Many strategies arebeing pursued to eradicate bacterial resistance. **Result:** Using new generations of antibiotics, combination therapy, natural substances with antibacterial properties and targeted drug delivery systems are common approaches in this field. Emerging Knowing the mechanisms of resistance, would help us to control and cure the infections caused by these strains**. Conclusion:** Molecular genetics alteration, acquisition of resistance by transferable genetic elements, over expression of efflux pump, and biofilm formation are considered the most important bacterial resistance mechanisms against antibacterial agents.

Keywords
Anti-Microbial Resistance, methicillin - resistance, antibacterial agents.

Neurochemistry

Ms. Thanushree Gunasekaran [1*] and Dr. Rama Venkadesan[2]

[1& 2] Department of Biochemistry, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode, Namakkal Dt, Tamilnadu India.

*thanushreegunasekaran@gmail.com

Introduction: Abnormalities with in frontal lobe grey and white matter of bipolar disorder (BD) patients have been consistently reported in adult andpediatric studies, yet little is known about the neurochemistry of theanterior white matter (AWM) in pediatric BD and how medication status may affect it. The present cross-sectional 3T ^{1}H MRS study is the first to use a multivoxel approach to study the AWM of BD youth. **Methods:**Absolute metabolite levels from four bilateral AWM voxels were collected from 49 subjects between the ages of eight and eighteen (25 healthy controls (HC); 24 BD) and quantified. **Result:** Our study found BD subjects to have lower levels of N-acetylaspartate (NAA) and glycerophosphocholine plus phosphocholine (GPC+PC), metabolitesthat are markers of neuronal viability and phospholipid metabolismand have also been implicated in adult BD. Further analysis indicated that the observed patterns were mostly driven by BD subjects who were medicated at the time of scanning and had an ADHD diagnosis. **Conclusion:** Although limited by possible confounding effects of mood state, medication, and other mood comorbidities, these findings serve as evidence of altered neurochemistry in BD youth that is sensitive to medication status and ADHD comorbidity.

Keywords: Neurochemistry, markers, ADND, bipolar disorder.

Evolution Of Virology

Ms. Ramani Thangaraj [1*]

[1]Department of Biochemistry, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode, Namakkal Dt, Tamilnadu India.

*ramanithangaraj43@gmail.com

Introduction: The history of virology, which is marked by transformative break throughs, spans microbiology, biochemistry, genetics,and molecular biology. From the development of Jenner's smallpox vaccine in 1796to 20th-century innovations such as ultrafiltration and electron microscopy, the field of virology has under gone significant development. In 1898, Beijerincklaid the conceptual foundation for virology, marking a pivotal moment in the evolution of the discipline. Advancements in influenza A virus research in 1933 by Richard Shope furthered our understanding of respiratory pathogens. Additionally, in 1935, Stanley's determination of viruses as solid particles provided substantial progress in the field of virology. Key mile stones include elucidation of reverse transcriptase by Baltimore and Teminin1970, late20th-century revelations linking viruses and cancer,and the discovery of HIV by Sinoussi, Montagnier, and Galloin 1983,which has since shaped AIDS research.

Result: In the 21st century, breakthroughs such as gene technology, mRNA vaccines,and phage display tools were achieved in virology, demonstrating its potential for integration with molecular biology.

Conclusion: The achievements of COVID-19 vaccines highlight the adaptability of virology to global health.

Keywords: virology, respiratory pathogens, COVID-19.

Diabetes Mellitus

Ms. Biruntha Palanisamy [1*]

[1] Department of Biochemistry, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode, Namakkal Dt, Tamilnadu India.

* birunthapalanisamy2006@gmail.com

Introduction: Diabetes mellitus (DM) is a chronic metabolic disorder characterized by persistent hyperglycemia. Itmay be due to impaired insulin secretion, resistance to peripheral actions of insulin, or both. According to the International Diabetes Federation (IDF), approximately 415 million adults between the ages of 20 to 79 years had diabetes mellitus in 2015. DM is proving to be a global public health burden as thisnumber is expected to rise to another 200 million by 2040. **Result:** Chronic hyperglycemia in synergy with the other metabolic aberrations in patients with diabetes mellitus can cause damage to various organ systems, leading to the development of disabling and life-threatening health complications, most prominent of which are microvascular (retinopathy, nephropathy, and neuropathy) and macrovascular complications leading to a 2-fold to 4-fold increased risk of cardiovascular diseases.
Conclusion: In this review, we provide an overview of the pathogenesis, diagnosis, clinical presentation, and principles of management of diabetes.

Keywords: Diabetes mellitus, hyperglycemia, retinopathy, nephropathy.

Exploring Neem's Dual Therapeutic Potential, Anti-inflammatory And Anti-Hyperglycemic Activities

Ms. Anusiya Thangadurai[1] and Dr Poorni Kaliyappan Elayappan[2*]

[1& 2] Department of Biochemistry, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode, Namakkal Dt, Tamilnadu India.

*biochempoorni@gmail.com

Introduction: Neem, a botanical treasure, has long been celebrated in traditional medicine for its diverse therapeutic benefits and it's exhibits potent anti-inflammatory and anti-hyperglycemic properties.Rich in bioactive compounds like nimbin and nimbidin, neemleaves, seeds,and extracts have demonstrated therapeutic effects in alleviating inflammation and lowering blood glucose levels. Studies suggest that neem modulates inflammatory pathways by inhibiting cytokine production and reducing oxidative stress. Moreover, its anti-hyperglycemic activity involves enhancing insulin sensitivity and promoting glucose uptake in cells.Neem's multifaceted pharmacological actions position it as a promising natural remedy for combating inflammation and managing hyperglycemia, offering potential avenues for the development of novel therapeutic interventions against inflammatory disorders and diabetes. The measurements of inhibition on inflammatory markers such as prostaglandins, cytokines (e.g., TNFalpha,IL6),and enzymes(e.g.,COX2,iNOS) in response to neem treatment.To be evaluated neem's ability to regulate blood glucose levels, improve insulin sensitivity, and enhance glucose uptake in relevant tissues like liver, muscle, and adipose tissue. **Method:** For the histological analysis,assess tissue samples for signs of inflammation and insulin resistance using histological staining techniques.To be Investigated and the underlying molecular mechanisms of neem's anti-inflammatory and anti-hyperglycemic effects through in vitro experiments using cell culture models.The neem's interactions with cellular signaling pathways involved in inflammation and glucose metabolism, such as NF-kB, MAPK, and AMPK pathways. **Result:** The clinical trials to evaluate the effects of neem supplementation or treatment in individuals with inflammatory conditions (e.g.,arthritis) and hyperglycemia(e.g.,type2diabetes).The Implemention of RCTs (Randomized Controlled Trials) with appropriate control groups to assess the efficacy and safety of neem interventions. **Conclusion:** The outcome Measures are monitered by the clinical parameters including Inflammation markers (e.g.,CRP,ESR) and glycemic control markers (e.g.,HbA1c,fasting blood glucose levels) before and after neem treatment.The analysis are documented and analysed, any adverse effects associated with neem supplementation or treatment.

Keywords: Neem, Anti-inflammatory, Anti-hyperglyceamic, RCT

e-abstract

The Future of Artificial Intelligence And Its Relevance to Biochemistry

Ms. Nandhini Vetrivel[1*]

[1] Department of Biochemistry, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode, Namakkal Dt, Tamilnadu India.

*vnandhini087@gmail.com

Introduction: The potential role of AI in Biochemistry is vast and multifaceted. It can aid in drug discovery by predicting how potential drug molecules will interact with their targets in the body. It can help in understanding genetic diseases by predicting the effects of mutations on protein function. The productivity of artificial intelligence may boost our work places, which will benefits people by enabling them to do more work.As the future of AI replaces tedious or dangerous tasks the women work force is liberated to focus on takes for which they are more equiped,such as those requiring creativity and empathy**. Conclusion**: AI is being used in laboratory medicines to improve accuracy and efficiency, streamline and improve diagnostic processes, and helping in clinical decisions-making.

Key words: AI, Drug discovery, Diagnostic process, mutation, drug molecules.

Understanding The Biochemical Basis Of Human Psycology

Ms. Padmini Sivakumar[1*]

[1] Department of Biochemistry, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode, Namakkal Dt, Tamilnadu India.

*tenbell27@gmail.com

Introduction: The Biological basis of human behavior in the receptors, effectors, Connectors in the body and brain. It explores the ways in which biological factors impact behaviour. This includes investigating the roles that genetics, hormones and nervous system play in shaping an individual behavior. The biological approach to psychology is one way to conceptualize and explain the human experience. **Method:** The biological approach seeks to explain mental processes and behaviour by focusing on the functions of the nervous system at the cellular and structure level. Hormones are chemical messengers that are released by various glands throughout the body and can have significant effects on behaviour. For example, the hormone testosterone is associated with aggression and dominance in both males and females. The nervous system is also a key factor in the biological basis of behaviour. **Conclusion:** The biological basis of human behaviour, Psychologists are better able to understand how the brain and physiological processes might influence the way people think, act and feel.

Key words: Behaviour, Human experience, Hormones, Nervous system.

Cytotoxic And Flow Cytometry Analysis of Cancer Cell Death Induced By The Extract Of Physalis Peruviana Fruits

Ms. Lobashree Amarasan[1] and Dr. Baby Shakila Parimelazhagan [2]*
[1& 2] Department of Biochemistry, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode, Namakkal Dt, Tamilnadu India.

*babyshakilaodc@gmail.com

Introduction: Breast cancer is a disease in which abnormal breast cells grow out of control and form tumours. If left unchecked, the tumours can spread throughout the body and become fatal. Breast cancer cells begin inside the milk ducts and/or the milk-producing lobules of the breast. Breast cancer(BC) is the most frequently diagnosed cancer in women worldwide with more than 2 million new cases. Approximately 99% of breast cancers occur in women and 0.5–1% of breast cancers occur in men. MCF-7 is a breast cancer cell line with estrogen, progesterone, and glucocorticoid receptor. Sothatit is hormone responding breast cancer cell line.To investigate the ability of ethanolic extract so *Physalis peruvianato* induce cytotoxicity and apoptosis in MCF – 7 cell line. **Method:** Ethanolic extract of *Physalis peruviana* fruits was extracted. The ethanolic extract obtained was evaluated for its ability to inducecytotoxicity againstMCF – 7 (breast cancer) cell line by MTT3– (4,5 dimethylthiazol–2 –yl)–2, 5–diphenyl tetra zolium bromide assay.The ability to induce apoptosis was determined by acridine orange (AO) and ethidium bromide (EB) double staining method. The above activity was confirmed using the comet assay**. Result:** The study revealed that the plant extract showed significant cytotoxic activity against MCF–7 cell lines with an IC_{50} of 300µg/ml. Further it was also found that the cell death of MCF–7treated with ethanolic extract of *Physalis peruviana* was due to the induction of apoptosis, which was ascertained by comet assay. **Conclusion:** The study provides scientific evidence for the anti-cancer activity of extracts of *Physalis peruviana* paving way to further research of using this plant in the development of the novel anti-cancer drug.

Keywords: Breast cancer, MCF–7cellline, Physalisperuviana, Cytotoxicity, Apoptosis , Anti-cancer drug development.

CRISPR Gene Editing Therapy: A Precise and Efficient Approach to Treating Genetic Disease

Ms. Kavyashree Sakthivel[1]*

[1] Department of Biochemistry, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode, Namakkal Dt, Tamilnadu ,India.

*kaaviaadhi05@gmail.com

Introduction: Genetic diseases are a significant burden on human health, with many caused by specific mutations in the genome. Traditional gene therapy approaches have limitations, including off-target effects and inefficient editing. To develop a novel gene editing therapy using CRISPR technology to precision-edit disease-causing mutations, restoring normal gene function and improving patient outcomes.
Method: Utilized the CRISPR- Cas9 system, comprising a small guide RNA (sgRNA) and the Cas9 enzyme, to specifically target disease-causing mutations. Designed sgRNAs to complement target sequences, ensuring precise recognition and editing. Delivered CRISPR components via viral vectors or electroporation to human cells. Verified editing efficiency and accuracy using sequencing and functional assays. Achieved high editing efficiency (up tv 95%) in various cell types, including stem cells and immune cells. Demonstrated precise editing, with minimal off- target effects (<1%). Restored functional protein expression in cells with disease-causing mutations.
Result: Observed improved cellular health and reduced disease-related phenotypes.CRISPR gene editing therapy offers a revolutionary approach to treating genetic diseases, with high precision and efficiency. This technology has far-reaching potential for treating inherited disorders, cancer, and other diseases .Ongoing research focuses on optimizing delivery methods, improving editing efficiency, and ensuring long-term safety. CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) gene editing technology has emerged as a groundbreaking tool in precision medicine, enabling precise modification of genes with unprecedented efficiency and accuracy. **Conclusion:** Recent experiments have demonstrated the potential of CRISPR to treat genetic diseases, including Sickle cell anemia: CRISPR corrected the HBB gene mutation, restoring healthy hemoglobin production. Muscular dystrophy: CRISPR edited the DMD gene, improving muscle function and reducing symptoms.Leber congenital amaurvsis: CRISPR restored vision in patients with this inherited blindness.

Keywords: CRISPR, gene editing, precision medicine, genetic diseases, genome engineering.

Mechanism Of Endorphins Response To The Pain In The Body

Ms Saranya Shanmugam[1]*

[1] Department of Biochemistry, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode, Namakkal Dt, Tamilnadu ,India.

*saranyashanmugam.r24@gmail.com

Introduction: Endorphins (contracted from endogenous morphine) are peptides produced in the brain that block the perception of pain and increase feelings of wellbeing. Endorphins are released from the pituitary gland, typically in response to pain, and can act in both the Central nervous system and Peripheral nervous system. In the PNS, beta-endorphin is the primary Endorphins released from the pituitary gland. It inhibits transmission of pain signals by binding mu-receptor of peripheral nerves, which block their release of neurotransmitter substance P. The mechanism in the CNS is similar but works by blocking a different neurotransmitter: gamma amino butyric acid (GABA). In turn, inhibition of GABA increases the production and release of dopamine, a neurotransmitter associated with reward learning. Research has demonstrated that meditation by trained individuals can be used to trigger endorphin release. The release of beta Endorphins has been postulated to contribute to the phenomenon known as “Runner’s high”. **Result:** However, several studies have supported the hypothesis that the runner's high is due to the release of endocannabinoids rather than that of endorphins. Endorphins may contribute to the positive effects of exercise on anxiety and depression. Endorphins are endogenous painkillers often produced in the brain and adrenal medulla during physical exercise and inhibit pain, muscle cramps and relieve stress. **Conclusion:** The regulation of endorphins is that Noradrenaline has been shown to increases Endorphins production within inflammatory tissues, resulting in an analgesic effect; the stimulation of sympathetic nerves by electron acupuncture is believed to be the cause of its analgesic effects.

Keywords: Endorphin- chemical , GABA-A , Endocannabinoids

Mechanisms Of Plant Epigenetic Regulation In Response To Plant Stress

Ms. M.Dhanusri Malayalan[1]*

[1] Department of Biochemistry, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode, Namakkal Dt, Tamilnadu ,India

*dhanusrimalaiyalan@gmail.com

Introduction: Plant stress is a significant challenge that affects the development, growth and productivity of plants causes an adverse environmental condition that disrupts normal physiological processes and hampers plant survival. Epigenetic regulation is a crucial. Mechanism for plants to respond and adapt to stress. Several studies have investigated the role of DNA methylation (DM), non- coding RNAs, and histone modification in plant stress responses. However, there are various limitations or challenges in translating the research findings into practical applications. **Method:** Hence, this review delves into the recent recovery, implications,and applications of epigenetic regulation in responses to plant stress. **Result:** Emphasized the breakthrough findings that have uncovered specific genes or pathways and the potential implications of understanding plant epigenetic regulation in response to stress for agriculture, crop improvement, and environmental sustainability. **Conclusion:** Finally concluded that Plant epigenetic regulation in response to stress holds immense significance in agriculture and understanding its mechanisms in stress tolerance can revolutionize crop breeding and genetic engineering strategies, leading to the evolution of stress -tolerant crops and ensuring sustainable food production in the face of climate change and other environmental challenges.

Keywords: Plant stress, epigenetic regulation, DNA methylation (DM), Genome wide profiling

e-abstract

Climate Change And Indian Agriculture

Ms. T. Mythili Thiyagarajan[1]*

[1] Department of Biochemistry, Vivekanandha College of Arts and Sciences for Women (Autonomous), Tiruchengode, Namakkal Dt, Tamilnadu ,India

*mythili4377@gmail.com

Introduction: Indian agricultural sector. Farmers' perceptions of and adaptation to the rapidly changing climatic conditions are considered crucial policy measures to combat these adversities. In this context, the present study systematically reviews the literature on farmers' perception and adaptation in India, drawing mainly from Scopus and Web of Science. Results show that majority of the Indian farmers have perceived a rise in temperature, erratic and decreased rainfall which is consistent with the meteorological data. **Method:** Indian farmers seem to have adopted a wide range of adaptation measures that are mostly incremental and systemic. Transformational adaptations in the form of substantial changes in land use, resource and labor allocations, occupational pattern, and cropping systems are also increasingly found to be adopted by farmers. **Result:** However, the literature does not substantially confirm that farmers' adaptation measures result from their perception of climate change. Lack of access to sufficient information and adequate credit at the right time, household income, farm size, gender, and resource endowment, among others, frequently influences the adoption of adaptation measures. To avoid maladaptive outcomes and achieve long-term sustainability, the study suggests a need for large-scale investments in the Indian farming sector in general and building farmers' capacity in particular**. Conclusion:** In addition, adopting an integrated approach for assessing farmers' perception of and adaptation to changing climatic conditions and their outcomes is essential for effective policymaking towards achieving food security and farmers' wellbeing.

Keywords: Climate change, Indian agriculture, Adaptation.

Global Progress in Climate Change And Biodiversity

Ms.R.Nithiya Ravi[1]*

[1&2] Department of Biochemistry, Vivekanandha college of arts and sciences for women (Autonomous), Tiruchengode, Namakkal Dt Tamilnadu, India.

*nithiyaravi2306@gmail.com

Introduction: Climate change is always an immense challenge for conservation biologists in the development and implementation of effective conservation strategies. The expected loss of biodiversity due to climate change weakens the delivery of ecosystem functioning and services, which can lead to a global environmental crisis. This study aims to conduct a comprehensive review of literature on recentprogress in climate change and biodiversity conservation research and identifies the leading countries, institutions and researchers in this research area. In addition, we hope to offer viewpoints on the subject and investigate current research trends and scientific knowledge. The approach included co-occurrence analysis of countries, institutions, andauthors for research productivity and academic development; co-occurrence of keywords for identification of research hotspots; co-citation analysis for prominent articles and journals. **Result:** We discovered that the amount of research on biodiversity conservation and climate change has increased over time. While research on climate change and biodiversity protection has been conducted worldwide, especially in affluent nations like the USA, and institutes such the study trends are "richness," "scenario," "perception," and "REDD," whereas the present hot themes are primarily "management," "impact," "diversity," and "land use." **Conclusion:** Therefore, more research using a variety of interdisciplinary methodologies and collaborations is required to close the enormous information gap regarding humans, climate change, biodiversity, and ecosystem functioning around the world (especially in uncharted countries and regions).

Keywords : Biodiversity, Climate change, Ecosystem services, Global research trends, Scientometric analysis.

e-abstract

Molecular Insight of Phytochemical Constituents Of Momordica Charantia As Anti- Gout Inhibition

Ms.Kavyasri Sakthivel[1]* and Dr. Kalaivani Aiyyasamy [2]

[1&2]Department of Biochemistry ,vivekanandha college of arts and sciences for women (Autonomous) , Tiruchengode, Namakkal, Tamilnadu,India.

.* kavyasrikavyasri439@gmail.com

Introduction: Molecular docking can be defined as the binding of a small molecule called ligand, onto a specific site in a larger molecule. **Method:** Docking is the computational determination of binding affinity between molecules (proteins structure and ligand) in the three-dimensionality of any complex. The docking can between the Protein- ligand, Protein- protein, and Protein- Nucleotide. Some of the diseases are Gout, it was called Acute inflammatory mono arthritis caused by precipitation of mono sodium urate (MSU) crystal in joints. Uric acid is the normal end product of the degradation of purine compounds. Major route of disposal in renal excretion- Humans lack the enzyme uricase to break down uric acid into more soluble form. **Conclusion**: *Momordica charantia* is a tropical and subtropical vine of the family Cucurbitaceae, widely grown in Asia, Africa, and the Caribbean for its edible fruit.Momordi cacharantia, also known as bitter melon, is a tropical plant whose fruit isused in Ayurvedic medicine. Active phyto constituents of this plant are charantin, vicine, and polypeptide.

Keywords: Docking, ligand, protein complex, Gout, MSU

Comparative Nutritional Analysis Of Pumpkin Seeds (*Curcurbita Mochata*)

Ms.J.Gokulapriya Jaganathan [1*] and R.Malathi Ramasamy[2]

[1&2]Department of Biochemistry, vivekanandha college of arts and sciences for women (Autonomous) , Tiruchengode, Namakkal Dt, Tamilnadu,India.

* gokulapriyaj27@gmail.com

Introduction: The pumpkin seeds (Cucurbita sp.) from Cucurbitaceae family are usually considered as industrial waste products and thrown out. In some area's seedsare utilized as uncooked, cooked or roasted, although simply for the domestic purpose. As they are rich in protein, fibers, minerals like iron, zinc, calcium, magnesium, manganese, copper and sodium, and vitamins, they might be considered important for the food industries. As the seeds are considered as byproduct of the pumpkin fruit, they are cheaper in cost and their utilization is different food products may lead to enhance their nutritional value at lower cost. Health promoting impacts of pumpkin seeds on the level of blood glucose,cholesterol, immunity, liver functioning, gallbladder, disabilities of leaning, prostate gland, depression, inflammation, cancer management and inhibition of parasites are established. The bioactive compounds of pumpkin have a protectiverole against many diseases, including hypertension, diabetes, and cancer and coronary heart diseases. Pumpkin is an excellent source of vitamin A, needs for proper growth, healthy eyes and protection from diseases. It is also rich in vitamin C, vitamin E, and dietary fiber. Recently among the two varieties, farmers are interested to cultivate the hybrid variety due to the low cost of cultivation and high production. **Conclusion:** Hence,the study was focused to analyze the nutritional contents such as carbohydrates, protein, ash both indigenous and hybrid by using standard protocols. Based on the result, nutritional contents (carbohydrates, proteins, Ash) were determined and compared. The Carbohydrate & Ash content were found to be slightly more in hybrid variety.

Key Words: *Curcurbita mochata*, Impact, Indigenous, Hybrid.

Impacts Of Climate Change on The Future Of Biodiversity

Ms.S.Vinothini Sanjeevan[1*] and Anandhi Parameswaran[2]

[1&2]Department of Biochemistry, Vivekanandha college of arts and sciences for women (Autonomous), Tiruchengode, Namakkal Dt, India.

*vinovs0293@gmail.com

Introduction: Many studies in recent years have investigated the effects of climate change on the future of biodiversity. In this review, we first examine the different possible effects of climate change that can operate at individual, population, species, community, ecosystem and biome scales, notably showing that species can respond to climate change challenges by shifting their climatic niche along three non-exclusive axes: time (e.g., phenology), space (e.g., range) and self (e.g., physiology). Then, we present the principal specificities and caveats of the most common approaches used to estimate future biodiversity at global and sub-continental scales and we synthesize their results. Finally, we high light several challenges for future research both in theoretical and applied realms. **Results:** Overall, our review shows that current estimates are very variable, depending on the method, taxonomic group, biodiversity loss metrics, spatial scales and time periods considered. **Conclusion:** The majority of models indicate alarming consequences for biodiversity, with the worst-case scenarios leading to extinction rates that would qualify as the sixth mass extinction in the history of the earth.

Keywords: Biodiversity, climate change, species, extinctions.

Perceived Social Support and Forgiveness Among Early Adulthood

Ms.Srilogeswari Moorthi[1*] Dr.Prasanth Chandrasekaran[2] and Ms Lavanya Lakshmanan[3]

[1,2&3] Department of Psychology, Vivekananda College of Arts and Sciences for Women (Autonomous), Tiruchengode., Namakkal Dt ,Tamilnadu, India.

*22upyv037@vicas.org

Introduction: Early adulthood generally ranges from the end of adolescence (around 18 years) to the beginning of middle adulthood (40 to 45 years). During this period, individuals experience diverse physical, cognitive, and social development. This stage is marked by the emergence of more mature cognitive abilities, financial independence, and intimate relationships. Typically, people in early adulthood are vibrant, active and healthy, with a focus on relationships and careers. Forgiveness plays a crucial role in enhancing the health and well-being of relationships, serving as a bridge to healing and renewed trust. Hence, it is imperative to study the association between perceived social support and forgiveness to foster healthy relationships among this target group. The current study aims to explore the association between perceived social support and forgiveness among early adults. **Method:** A random sample of 150 early adults in the age group 19-40 years was selected. All participants completed self-report measures of perceived social support and forgiveness, along with personal details such as age, gender, qualification, area of living, and birth order. The data were collected using the aforementioned questionnaire both manually and through a Google form. **Conclusion:** The data were analyzed using Pearson Product-Moment correlation. The results will be discussed later. Implications of the findings for further research on positive relationships, forgiveness, interpersonal relationship and emotional intelligence are also discussed.

Keywords: Perceived social support, forgiveness, positive relationships, early adults.

Drug Abuse and Addiction

Ms. Sharmitha Kannan[1]* and Dr. Kowsalya Ramalingam [2]

[1&2] Department of Biochemistry, Vivekanandha college of arts and sciences for women (Autonomous), Tiruchengode, Namakkal Dt, Tamilnadu,India

*sharmitha712@gmail.com.

Introduction: Among the social and medical ills of the twentieth century, substance abuse ranks as on one of themost devastating and costly. The drug problem today is a major global concern including Bangladesh. Almost all addictive drugs over stimulate the reward system of the brain, flooding itwith the neurotransmitter dopamine. That produces euphoria and that heightened pleasure can be so compelling that the brain wants that feeling back again and again. However repetitive exposureinduces widespread adaptive changes in the brain. As a consequence, drug use may become compulsive. An estimated 4.7% of the global population aged 15 to 64 or 184 million people, consume illicit drug annually. Heroin use alone is responsible for the epidemic number of new cases of HIV/AIDS, Hepatitis and drug addicted infant born each year. Department of narcotic control (DNC) in Bangladesh reported in June 2008 that about 5 million drug addicts in the country& addicts spend at least 17 (Seventeen) billion on drugs per year. Among these drug addicts, 91% are young and adolescent's population. Heroin is the most widely abused drugs in Bangladesh. Forgeographical reason like India, Pakistan and Myanmar; Bangladesh is also an important transit root for internationally trafficking of illicit drug. Drug abuse is responsible for decreased job productivity and attendance increased health care costs, and escalations of domestic violence andviolent crimes.
Result: Drug addiction is a preventable disease. Most countries have legislation designedto criminalize some drugs. **Conclusion:**To decrease the prevalence of this problem in our setting; increase awareness, promoting additional research on abused and addictive drugs, and exact implementation of existing laws are strongly recommended. We should also deserve renewed attention on prescription drug abuse. It is imperative that as a nation we make ourselves aware ofthe consequences associated with drug abuse. Otherwise, devastating effects of drug will destroy the manpower and economic growth of the country.

Keywords: Neurotransmitter, implementation, Hepatitis, addictive drugs

Molecular Medicine And Therapeutics

Ms. Deepika Raja[1]*

[1]Department of Biochemistry, Vivekanandha college of arts and sciences for women(Autonomous). Tiruchengode. Namakkal Dt,Tamilnadu, India.

*rajadeepika2005@gmail.com

Introduction: Science that deals with ways to diagnose and treat diseases by understanding the way genes. Protein and other cellular molecules work Body temperature is a biomarker for fever while your blood glucose level is a marker for diabetes. **Method:** Biomarkers can be measurerd down to a molecule. These types of signals have increased in the importance to medical diagnosis and progonosis. The work promises to reshape how doctors diagnose and treat diseases and how pharmaceutical companies persue drug development. In medicine. the branch that deals with specifically with the treatment of disease and the art and sciences of feeling. In pharmacology therapeutics accordingly refers to the use of drugs and the method of there administration in the treatment of diseases. **Result:**The treatment and care of a patient for the purpose of both preventing and compating disease or allevating pain or injury. **Conclusion:** A science of drug theraphy which emphasis on safe effective and appropriate use of drugs in patients
.

Keywords: Diagnose, treatment. molecules work. Biomarkers.

e-abstract

Stem Cells And Cancer Research

Ms.V. Kaviya Venkadesan[1]*

[1]Department of Biochemistry, Vivekanandha college of arts and sciences for women (Autonomous). Tiruchengode. Namakkal Dt, Tamilnadu, India.

*nandhukavi2022@gmail.com

Introduction: Stem cells are those cells that have the capability of self-renewal and differentiation. Self-renewal is the ability of cells to proliferate without the loss of differentiation potential and without undergoing senscene (Biologic aging). Stem cell is a blank cell that can give arise to multiple tissue types such as a skin. Muscle or nerve cells. a stem cell is essentially the building block of the human body. Stem cells are capable of dividing and renewing themselves of long periods. 'A stem cell is an unspecialized cell that develops into a variety of specialized cell types. The purpose of studying cancer is to develop safe and effective methods to prevent. detect. diagnose. treat. ultimately. cure the collections of diseases we call cancer. Cancer research is important because a better we understand this disease. The more progress we will make toward diminishing the tremendous human and economic tolls and cancer. The research cycle flows from observation with medical prevalence to the patient's bedsides and back to the lab.

Conclusion: Progress in cancer research depends on the participation of basic and population scientists. Physician-scientists and clinical cancer researchers as well as patients. The caregivers, and health care providers.

Keywords: Stem cell, self-renewal, Biologic aging, Research cycle, Cancer research.

Biochemical Reactions In Human And Plants

Ms.N.Sowmiya Nallusamy[1]*

[1]Department of Biochemistry , Vivekananda College of Arts and Sciences for Women(Autonomous), Tiruchengode, Namakkal Dt,Tamilnadu,India.

*nsowmiya849@gmail.com

Introduction: The Biochemical reactions in the human body are the basis of all body processes Biochemical reactions are responsible for providing energy to the body as well as many othe important bodily functions. Some examples of biochemical reactions that occur in the body are redox reactions ,such as oxidation and reduction. Respiration is the most important biochemica reaction which provides energy to the cells. Biochemical reactions are chemical reactions tha take place inside living things. Two of the most important biochemical reactions are photosynthesis and cellular respiration. Photosynthesis is the process in which plants and certain other organisms synthesize glucose from carbon dioxide and water using light energy**. Result** Photosynthesis converts carbon dioxide and water into oxygen and glucose. **Conclusion** Glucose is used as food by the plant and oxygen is a by-products and ATP is energy that is transformed from the process.

Key words: Biochemical reaction, Glucose, Respiration, photosynthesis.

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Monkeypox Virus Emergence Impact

[1] Dharsani Sivaraj,[2] Malarvizhi Arthanari*

[1] PG Scholor – Vivekanandha College of Arts and Science for Women (Autonomous) Elayampalayam, Tiruchengode, Tamilnadu,India.

[2]*Assistant Professor, Head of the department, Department of Microbiology, Vivekanandha College of Arts and Science for Women (Autonomous) Elayampalayam, Tiruchengode, Tamilnadu,India.

Corresponding author's email: headmicrobiology@vicas.org

ABSTRACT

The Frist case of Monkey pox virus (MPXV) reported in Kerala is a 35-year-old male, who came to Kollam, Kerala from United States of America. Totally four cases were reported in India, where three cases from Kerala and one case from New Delhi. Scientist suspects that laboratory monkeys might harbor virus to humans. The very first identification was in 1958 at laboratory monkeys whereas the first human case of Monkey pox virus was documented in the year 1970 in Democratic Republic of Congo. After that, outbreaks occurred in central and east and west Africa. In 2003 monkey pox virus outbreak occurred at United States of America. In year 2022 China, Colombia, Costa Rica and many other countries have been affected. Since 2005, Thousands of cases were reported in Democratic Republic of Congo every year, In 2023 January 1 Democratic Republic of Congo reported more than 20,000 cases of Monkeypox virus and 1000 cases of deaths also reported. Monkeypox virus is a zoonotic disease. The disease presents with symptoms including fever, rash, and lymphadenopathy. Transmission of disease occurs through direct contact with infected animals, humans, or contaminated materials. This review picturizes the severity of the epidemics and its severity and mortality among humans.

KEY WORDS

Monkey pox virus, zoonotic diesase, lymphadenopathy, direct contact, mortality.

Nanoparticles Contamination In Bottled Drinking Water

Meenatchi B[1], T.A. Sathya[2]*

[1] PG Scholor – Vivekanandha College of Arts and Sciences for Women (Autonomous) Elayampalayam, Tiruchengode, Tamilnadu,India.

[2] * Assistant Professor, PG & Research Department of Microbiology, Vivekanandha College of Arts and Sciences for Women (Autonomous) Elayampalayam, Tiruchengode, Tamilnadu,India.

Corresponding author's e-mail:drsathyata@vicas.org

ABSTRACT:

Nanoplastics in bottled drinking water are a growing concern due to potential health risks and environmental impact. This content explores the extent of nanoplastics contamination in commercially available bottled water and examines their interactions with microbial communities. Various brands of bottled water contain different levels of nanoplastics, predominantly polyethylene and polypropylene. These contaminants can affect waterborne bacteria, influencing bacterial growth, gene expression, and biofilm formation. The presence of nanoplastics can disrupt microbial ecosystems, potentially leading to the proliferation of pathogenic bacteria or the suppression of beneficial ones. Additionally, nanoplastics may serve as vectors for the transport of other pollutants and microorganisms. The presence of nanoplastics in bottled water has significant implications for water quality and public health, highlighting the need for stricter regulations and further investigation into the sources and effects of nanoplastics in drinking water.

Key words: Nanoplastics, Bottled water, Contamination, Microbiology, Public Health, Environmental impact.

Microplastics Ingestion Through Bottled Drinking Water - Health Implications And Risks

G.Abarna[1], T.A.Sathya[2]*.

[1] PG Scholor - Vivekanandha College of Arts and Science for Women(Autonomous) Elayampalayam, Tiruchengode, Tamilnadu.

[2]* Assistant Professor, Department of Microbiology, Vivekanandha College of Arts and Science for Women(Autonomous) Elayampalayam, Tiruchengode, Tamilnadu.
*Corresponding author's email: drsathya@vicas.org

ABSTRACT:

Microplastics have emerged as global contaminants of serious concern to human and ecosystem health. This have been detected in various water sources, including bottled drinking water. The unavailability of effective water treatment technology to remove microplastics leads to consumption by humans, resulting in variety of health issues. Microplastic in bottled water come from various sources, including packaging materials, bottling processes. Reducing the use of plastic, increase the recycling process, promoting sustainable water management practices can help mitigate microplastic contamination in bottled drinking water. The plastic contaminants were Polyvinyl chloride, Polyethylene Terephthalate [PET] etc. Consuming of bottled water have found evidence of plastic particles in human blood, lungs, gut, reproductive tissues like placenta. Human health impacts by ingesting microplastic, include cancer, heart disease, neurological disorder.

KEYWORDS

Microplastics, Human health impacts, Cancer, Heart disease, Neurological disorder.

Epidemic Outbreaks in Kerala, India (2010-2024)

Devaki.S[1], A. Malarvizhi[2], D. Abirami[3*].

[1] PG Scholor - Vivekanandha College of Arts and Science for Women (Autonomous)Elayampalayam, Tiruchengode, Tamilnadu,India.

[2] Assistant Professor, Head of the department,Department of Microbiology, VivekanandhaCollege of Arts and Science for Women(Autonomous) Elayampalayam, Tiruchengode,Tamilnadu,India.

[3*] AssistantProfessor, Department of Microbiology Vivekanandha College of Arts and Science for Women (Autonomous) Elayampalayam, Tiruchengode, Tamilnadu.

*Corresponding author's email: gkdabi@gmail.com

ABSTRACT

The epidemics have a greater effect among common publics not only in health concern but also in the economic status of the affected state get impacted. Kerala, a state in India, has experienced a lot of epidemic outbreaks including, Chikungunya, Dengue, Nipah virus, West Nile fever, Cholera, Leptospirosis, H1N1(Swine flu), Amoebic meningoencephalitis (brain eating amoeba). These epidemics were caused by various types of pathogens including, bacteria, viruses and parasites, they have a common relationship to environment, and emphasize the need for systemic investigation to identify their sources. The emergence of various disease may indicate the hygienic regulations which include, Maintaining personal hygiene , using clean boiled water &contaminated food. An approximate of 1,25,554 number of people get affected by various epidemic outbreaks in Kerala. This study reviews different epidemics that target Kerala and describes different views for the cause.

KEYWORDS

Chikungunya and Dengue, Nipah virus, Cholera, H1N1 Swine flu, Amoebic Meningoencephalitis.

Bio-Potential Of Vitex Negundo

[1] S. Dharani [2]*M. Abdul Kapur

[1] PG scholar - Vivekanandha college of Arts and Science for Women(Autonomous), Elayampalayam, Trichengode, Namakkal district.

[2]* Assistant Professor, PG and Research Department of Microbiology, Vivekanandha college of Arts and Science for Women(Autonomous), Elayampalayam, Trichengode, Namakkal district.

corresponding author's email: abdulgafoorelg@gmail.com

ABSTRACT

Vitex negundo, commonly known as the five-leaved chaste tree, has been traditionally utilized in various cultures for its medicinal properties. This study aims to comprehensively evaluate the biopotential of Vitex negundo by investigating its pharmacological and therapeutic applications. Using a combination of in vitro and in vivo assays, we assessed the plant's anti-inflammatory, antioxidant, antimicrobial, and analgesic activities. The study also examined the phytochemical profile of Vitex negundo to identify key bioactive compounds responsible for its therapeutic effects. The plant also demonstrates robust antioxidant properties, with extracts effectively neutralising free radicals and reducing oxidative stress. Additionally, Vitex negundo shows promising antimicrobial activity against a range of pathogenic microorganisms, including bacteria and fungi. The analgesic effects observed in animal models suggest potential applications in pain management. The phytochemical analysis revealed the presence of flavonoids, terpenoids, and alkaloids, which contribute to the observed pharmacological effects. These compounds may offer new avenues for drug development and therapeutic interventions. Overall, Vitex negundo holds significant promise as a source of bioactive compounds with potential applications in treating inflammatory conditions, infections, and oxidative stress-related diseases. Further research is warranted to explore its full therapeutic potential and to develop standardized formulations for clinical use.

Keywords: Vitex negundo, biopotential, antimicrobial, analgesic, phytochemical analysis.

Bio-Pigments For Textile Industry And Nanotechnology

EzhilarassiBaskaran[1], Ashok kumar lakshmanan[2]*

[1]PGScholar,Department of Microbiology,Vivekanandha College of Arts and Sciences for Women(Autonomous) Elayampalayam, Tiruchengode, TamilNadu.

[2*]Assistant Professor,Department of Microbiology,Vivekanandha College of Arts and Sciences for Women(Autonomous) Elayampalayam, Tiruchengode, Tamil Nadu.

*Correspondingauthor'semail:ashokmicro2010@gmail.com

ABSTRACT

The Textile industry has long relied on synthetic pigments, which can have harmful environmental and health impacts. However, recent advancements in nanotechnology have opened up new possibilities for sustainable and eco-friendly bio-pigments. Bio-pigments derived from natural sources such as plants, fungi, and bacteria offer a promising alternative to synthetic pigments. Nanotechnology enables the manipulation of these bio-pigments at the molecular level, enhancing their color intensity, light fastness ,and wash fastness .Additionally ,nano encapsulation techniques can improve the stability and durability of bio-pigments, allowing them to adhere effectively to textile fibers. The use of bio-pigments and nanotechnology in the textile industry has the potential to reduce environmental pollution, minimize waste, and promote sustainability. Furthermore, these natural pigments can also provide additional benefits such as antimicrobial and UV-protective properties, enhancing the functionality of textiles. Several studies have demonstrated the potential of bio-pigments and nanotechnology in textile applications, including the development to sustainable and eco-friendly textiles. However, further research is needed to overcome the challenges associated with scaling up bio-pigment production and ensuring color consistency.

KEYWORDS

Bio-pigments, Nanotechnology, Nanoencapsulation, Sustainable textiles, Eco-friendly bio-pigments.

Biopotential Of Cynodon Dactylon

A.Girija M.Abdul kapur*

[1] PG scholar - Vivekanandha college of Arts and Science for for Women(Autonomous), Elayampalayam, Trichengode, Tamil Nadu,India.

[2*]Assistant professor, PG and Research Department of Microbiology, Vivekanandha college of Arts and Science for Women (Autonomous), Elayampalayam, Trichengode, Tamil Nadu,India.

corresponding author's email: abdulgafoorelg@gmail.com

ABSTRACT

Introduction: Cynodon dactylon is a warm-season, prostrate, perennial grass that occurs on almost all soil types.Cynodon dactylon can be an invasive and competitive weed. **Speciality:** this species, which requires high temperatures and high light levels to thrive, grows only in disturbed areas. The plant has been long used in the traditional medicines to treat various ailments such as anasarca, cancer, convulsions, cough, cramps, diarrhea, dropsy, dysentery, epilepsy, headache, warts and woundsIt.is used in the form of powder, paste, or juice to treat a wide range of ailments due to its extensive therapeutic properties. **Benefits:** The wide range of future aspects we can consider as best alternative medicine over chemical drugs. well-utilized in traditional medicine for treatment as antiemetic, intestinal parasites, indigestion, profuse menstruation, colds and bruises. It is useful in treating bleeding conditions such as bloody diarrhoea, epistaxis, menorrhoea and bleeding piles. .

Keywords: Phytochemistry, Antidiabetic, Anticancer, Traditional medicine

Phytochemicals From Edible Mushroom

[1] Gowsika Venkatachalam [2] Malarvizhi Arthanari [3]*Susikala Rajkumar

[1] PG scholar - Vivekanandha college of Arts and Science for for Women(Autonomous), Elayampalayam, Tiruchengode, Namakkal district.

[2] Assistant Professor,Head of the Department,Department of Microbiology, Vivekanandha college of Arts and Science for Women (Autonomous), Elayampalayam, Tiruchengode, Namakkal district.

[3]*Assistant Professor,Department of Microbiology, Vivekanandha college of Arts and sciences for women (Autonomous),Elayampalayam, Tiruchengode, Namakkal district.

Corresponding author's Email ID: susikalatcode1985@gmail.com

ABSTRACT

The aim of this study was to optimize the extraction of total phenolics from edible mushrooms, evaluate the antimicrobial activities and identify the phenolic compounds. During their cultivation, mushrooms produce valuable secondary metabolites that have beneficial properties such as antioxidant, antimicrobial, anti-inflammatory, anti-mutagenic, anti-allergic and cardioprotective effects. Mushrooms have been shown to have antibacterial activity due to the presence of molecules that make up their fruiting bodies. Most of the mushroom extracts studied have higher antibacterial activity against gram-positive strains than against gram-negative strains. Solvents user for extraction are ethanol, acetone, methanol, or a mixture of these with water. The antimicrobial activity was tested by determining the minimum inhibitory concentration (MIC) using the microdilution method. These methods were performed for each mushroom antimicrobial activities of the extract were tested against the bacteria: Bacillus sps, Staphylococcus sps, Escherichia coli and Salmonella sps. Phytochemical constituents found in studied Edible mushroom extracts are phenol, flavonoids, alkaloids, steroids, saponins, terpenoids and cardiac glycosides. Tthese review focus on the extraction from phytochemicals from various mushrooms. elaborated it's application in therapeutics.

Keywords: Edible mushroom, antimicrobial activity, Phenolic compound, Antioxidant, MIC, Microdilution

Humans Emotions and Their Gut Microbiome

S. Indhu[1], G. Shiyamala[2]*

[1].PG Scholar - Vivekanandha college of Arts and Sciences for Women (Autonomous), Elayampalayam,Tamil Nadu, India.

[2]*.Assistant Professor, PG and Research Department of Microbiology, Vivekanandha college of Arts and Sciences for Women(Autonomous), Elayampalayam, Tamil Nadu, India.

Corresponding author's Email: Shiyam24@gmail.com

ABSTRACT

Studying the relationship between human emotions and the gut microbiome has become an emerging field of research. The gut microbiome, which consists of trillions of microorganisms, plays a crucial role in digestion, metabolism, and immune function. Recent studies suggest that the gut microbiome may also influence brain function and behavior through the gut-brain axis. Emotions such as stress, anxiety, and happiness have been linked to changes in the gut microbiome composition and activity. For example, chronic stress can alter the balance of gut bacteria, potentially leading to inflammation and other health issues. Conversely, certain bacteria in the gut can produce neurotransmitters like serotonin, which are important for mood regulation. Understanding these complex interactions between emotions and the gut microbiome could have significant implications for mental health treatment and overall well-being. Further research is needed to explore the mechanisms underlying these connections and to develop targeted interventions that could modulate the gut microbiome to improve emotional health.

KEYWORDS

Human emotions, Gut microbiome, Trillions of microorganisms, Brain function, Behavior, Gut - Brain axis.

Beneficial Interaction Between Bacteria and Edible Mushroom

[1] Janane Saravanan. [2] Malarvizhi Arthanari. 3*Abhay Babu

Head of the Department, Department of Microbiology, Vivekanandha college of Arts and Science for Women (Autonomous), Elayampalayam, Tiruchengode, Namakkal ,Tamil Nadu,India.

[3]* Assistant professor, Department of Microbiology, Vivekanandha college of Arts and Sciences for Women [1] PG scholar - Vivekanandha college of Arts and Science for for Women(Autonomous), Elayampalayam, Tiruchengode, Namakkal ,Tamil Nadu, India.

[2]* Assistant professor, (Autonomous), Elayampalayam, Tiruchengode, Namakkal ,Tamil nadu, India.

Corresponding author's Email ID: akhilabhay901@gmail.com

ABSTRACT

Mushroom-forming fungi establish mutual beneficial interactions with plants and degrade organic waste. They act not only as pathogen or competitor for nutrients but also they establish beneficial interactions with the mushrooms. They also provide selective substrate for the mushrooms which stimulate the growth or mushroom formation, and in protection against pathogens. Bacteria present in the substrate impact mushroom cultivation both in positive and negative ways, the positive interactions exists between bacteria and edible mushrooms during their natural cultivation. These positive interactions is restricted with Agaricus to Pseudomonads whereas in commercial cultivation these interactions were restricted as we use the pasteurized or sterilized substrates, while Agaricus is grown on a non-axenic substrate. They create a selective substrate in which this mushroom-forming fungus can thrive. Recently commercial white button mushroom production also makes use of a substrate that is processed by microbial activity. This review focus on these beneficial bacterial interactions of mushroom and elaborated its applications in food industry.

KEYWORDS

Bacterial interaction,Agraicus bisporous, stimulate growth,postive interaction ,life cycle ,control disease

Effects On Different Drying And Preservation Method On The Microbial Load, Nutritional Value And Antioxidant Activities Ofegusi(*Citrulluscolocynthis)*

Jeevika Vadivel[1],Ashokkumar Periyasamy[2*]

1 PG Scholar – Vivekanandha College of Arts and Science for Women(Autonomous), Elayampalayam, Tiruchengode, Namakkal, Tamilnadu,India.

2*Assistant Professor,, Department of Microbiology, Vivekanandha College of Arts and Science for Women (Autonomous), Elayampalayam, Tiruchengode, Namakkal, Tamilnadu,India.

Corresponding Author: ashokkumarps@yahoo.co.in

ABSTRACT

This study investigates the effects of various drying and preservation methods on the microbial load, nutritional value, and antioxidant activities of Egusi (*Citrulluscolocynthis*). Three drying methods-sun drying, oven drying, and freeze drying—were compared, along with two preservation techniques: vacuum sealing and air drying. The microbial load was assessed through standard microbiological assays, while nutritional value and antioxidant activities were evaluated using proximate analysis and assays for antioxidant properties, respectively. Results indicated that drying and preservation methods significantly impact microbial contamination, nutritional content, and antioxidant capacity. Freeze drying combined with vacuum sealing was found to maintain higher nutritional value and antioxidant activities, while minimizing microbial load. These findings provide insights into optimizing the preservation of Egusi for improved quality and shelf-life.

KEYWORDS

Egusi, Drying methods, Preservation techniques, Microbial load, Nutritional value, Antioxidant activities, Sun drying, Oven drying, Freeze drying, Vacuum sealing.

Agro-Food Byproducts As A Source Of Natural Food Additives

1 Kaviya Sugavaneshwaran 2*Dr.Malarvizhi Arthanari 3*Susikala Rajkumar

1 PG Scholar – Vivekanandha College of Arts and Science for Women(Autonomous), Elayampalayam, Tiruchengode, Namakkal district.

2*Assistant Professor Head of the Department, Department of Microbiology, Vivekanandha College of Arts and Science for Women (Autonomous), Elayampalayam, Tiruchengode, Namakkal district.

3*Assistant Professor, Department of microbiology,Vivekanandha College of Arts and Science for Women (Autonomous), Elayampalayam, Tiruchengode, Namakkal district.

Corresponding author'sEmail ID:susikalatcode1985@gmail.com

ABSTRACT :

Agro-food byproducts are a new source of natural food additives refergenerally to the secondary products derived from primary agro-food production processes. These by product are found to be rich in bioactive compound such as Phenolic compound, dietary fiber, vitamin, minerals peptide. The importance of bioactive compounds in agricultural and industrial byproducts of plant origin lies in their direct impacts on human health. These compounds have been antioxidant, anti-inflammatory, and antimicrobial properties, contributing to prevent the disease and strengthening the immune system. The aim of This reviews is to elaborate the potential of various agro-food byproducts, such as fruit peels, seed cakes, and vegetable residues, as natural food additives. The study underscores the importance of integrating agro-food byproducts into the food additive market, offering a promising approach to reduce waste and innovate in food processing and to convert Agro-food byproducts into value-added food additives, offering a promising solution to reduce food waste, improve resource efficiency, and create healthier, more sustainable food products.

Key words: Agrofood byproducts, Phenolic compound, food industry, Bioactive compound

Fibers For Drug Delivery And Artificial Bone

M.Murugeshwari[1] , G.Shiyamala[2*]

1 PG Scholar – Vivekanandha College of Arts and Sciences For Women(Autonomoous) Tamil Nadu, India.

2 *Assistant professor, PG & Research Department Of Microbiology- Vivekanandha College Of Arts and Science College For Women (Autonomoous),Tamil Nadu,India.

ABSTRACT:

This study investigates the potential of cellulose fibers as a biomaterial platform for drug delivery and artificial bone development. Cellulose fibers, derived from renewable resources, were engineered to possess unique properties suitable for biomedical applications. Drug loading and release studies demonstrated sustained release of model drugs over several days, making them ideal for drug delivery systems. The fibers' high surface area and porosity enabled efficient drug loading, while their biodegradability ensured a controlled release profile.Furthermore, the fibers were mineralized with calcium phosphate to create a biomimetic composite with enhanced mechanical properties, resembling bone tissue. The composite supported osteoblast cell growth and differentiation, indicating its potential for artificial bone grafts. The use of cellulose fibers offers a biodegradable, renewable, and cost-effective alternative to synthetic materials, addressing the limitations of current biomaterials.This research highlights the potential of cellulose fibers as a biomaterial solution for drug delivery and tissue engineering applications, offering a sustainable and innovative approach to address various biomedical challenges. The development of cellulose fiber-based biomaterials may revolutionize the field of drug delivery and artificial bone development, providing a new generation of biomaterials for various biomedical applications.

KEYWORDS: Drug Delivery, Artificial Bone, Biomaterials, Tissue Engineering, Biomedical Applications, Sustainability.

Recovery Of Phenolic Components from Agro-Food By- Products Using Membrane Technology

Mythili Varatharajan[1], Ashokkumar Periyasamy[2]*

1 PG Scholar – Vivekanandha College of Arts and Science for Women(Autonomous) Elayampalayam, Tiruchengode, Namakkal ,Tamilnadu,India.

2 * Assistant Professor, Department of Microbiology, Vivekanandha College of Arts and Science for Women (Autonomous) Elayampalayam, Tiruchengode,Namakkal, Tamilnadu,India.

Corresponding Author: ashokkumarps@yahoo.co.in

ABSTRACT :
Agro-food by-products are rich in phenolic compounds, which possess valuable antioxidant and bioactive properties. These components possess significant antioxidant properties and have potential applications in food, pharmaceutical and cosmetics industries.We investigated the efficiency of ultrafiltration, nanofiltration, and reverse osmosis membranes in separating and concentrating phenolic compounds. The results show that membrane technologies can effectively recover phenolic compounds with high purity .This research demonstrates the potential of membrane technologies as a sustainable and efficient approach for the valorization of agro-food by-products and the recovery of high-value phenolic compounds.

Keywords: Agro- food by-products, Phenolic compounds, Antioxidants, Bioactive compounds, Membranetechnology**.**

Bio Potential Of Aeglex Marmelos

S.Nithinidharshini[1] M.Abdulkapur[2*]

[1] PG Scholar - Vivekanandha college of Arts and Science for Women (Autonomous), Elayampalayam, Trichengode,Tamil Nadu,India.

[2] Asistant Professor,Department of Microbiology,
Vivekanandha college of Arts and Science for Women(Autonomous),
Elayampalayam, Trichengode, Tamil nadu,India.

corresponding author's email : abdulfoorelg@gmail.com

ABSTRACT:

Aegle marmelos, commonly known as bael or Bengal quince, is a species of tree native to the Indian subcontinent and Southeast Asia. It is a member of the Rutaceae family and has significant cultural, medicinal, and nutritional importance. The tree is known for its hard-shelled fruit, which contains a sweet, aromatic pulp used in various traditional medicines and beverages. Aegle marmelos has been extensively studied for its pharmacological properties, including its potential antioxidant, anti-inflammatory, antimicrobial, and antidiabetic effects. Its leaves, fruit, and bark are utilized in Ayurvedic and traditional medicine systems to treat a variety of ailments. The adaptability of Aegle marmelos to different climatic conditions and its resistance to drought make it a valuable species for sustainable agriculture and reforestation projects**.**To investigate the pharmacological properties of Aegle marmelos, a comprehensive review of the literature was conducted. Experimental studies involved the extraction of bioactive compounds using solvents like ethanol and methanol. The extracts were then subjected to various in vitro and in vivo assays to evaluate their antioxidant, anti-inflammatory, and antimicrobial activities. Advanced analytical techniques such as HPLC and GC-MS were used to identify and quantify the phytochemicals present in the plant extracts. Data were statistically analyzed to determine the significance of the findings. Traditional medicine; treats digestive issues, respiratory problems, and diabetes; anti-inflammatory, antioxidant, and antimicrobial properties.Aegle marmelos, traditionally used in medicine, demonstrates significant pharmacological properties including antioxidant, anti-inflammatory, and antimicrobial activities. Its bioactive compounds contribute to its therapeutic potential in treating various ailments. Future research should focus on clinical trials to substantiate these benefits and optimize its use in healthcare."

KEY WORDS:
Aegle marmelos, Bael, phytochemicals, pharmacological properties, anti-diabetic, antimicrobial, anti-inflammatory, antioxidant, hepatoprotective, traditional medicine.

Primary Amoebic Meningoencephalitis In Kerala

An Emerging Public Health Concern

P.S.Hemanandhini[1] , A.Malarvizhi[2]*

[1] PG Scholor - Vivekanandha College of Arts and Science for Women(Autonomous) Elayampalayam, Tamilnadu, India.

[2]*Assistant Professor, Head of the department, Department of Microbiology, Vivekanandha College of Arts and Science for Women(Autonomous) Elayampalayam, Tamilnadu, India.

Corresponding author's email: headmicrobiology@vicas.org

ABSTRACT:

Primary Amoebic Meningoencephalitis (PAM) is an acute and fatal infection of the brain causedby the free living amoebaflagellate *Naegleriafowleri. Naegleriafowleri* is a thermophilicprotozoan found in freshwater environments such as lakes, ponds, poorly maintained swimmingpools. The brain infection caused by the parasite is commonly termed as brain eating amoebic infection,in human the amoeba get the access through nose and reaches the brain via nasal passage and leads to inflammation specified to brain tissue and membrane of cerebrum and the collection of all these pathogenic effect were termed as meningoencephalitis which is a fatal infection. The mode of transmission is through contaminated water especially while swimming or bathing in a river contaminated with the amoeba and mainly it targets the children, young adults and also immuno compromised patients. PAM draw it's attention due to its mortality rate of 94-97% and its proliferation in the warmmonths (upto 45˚C). In Kerala, the first confirmed PAM case was reported in Alappuzha district inMarch 2016, and since then seven more cases were reported from the same state. This epidemic which targets the young children drews our attention to study and to understand the free living amoeba *Naegleriafowleri* and it's impact on human pathophysiology,the available treatment and prevention methods.

KEY WORDS*Naegleriafowleria,*Meningoencephalitis, Brain eating amoeba, Pathophysiology, Infection, Treatment.

Antibacterial Effect Of Squid Ink On Esbl Producing Strains Of E.Coli And Klebsiella Pneumoniae

[1] Renuga Ramarajan. [2]* Ashok Kumar. L

[1] PG scholar - Vivekanandha college of Arts and Science for for Women(Autonomous), Elayampalayam, Trichengode, Tamil Nadu, India

[2]*Assistant professor, PG and Research Department of Microbiology, Vivekanandha college of Arts and Science for Women (Autonomous), Elayampalayam, Trichengode, Tamil Nadu, India

Corresponding Author email: ashokmicro2010@gmail.com

ABSTRACT

The ink is released from the ink sacs (located between the gills) and is dispersed more widely when its release is accompanied by a jet of water from the siphon.Its main constituents are melanin and mucus. It can contain, tyrosinase, dopamine, and L-DOPA, as well as small amounts of free amino acids, including taurine, aspartic acid, glutamic acid, alanine, and glycine. The squid ink exhibited potent antibacterial activity against three microbial pathogens such as Escherichia coli, Pseudomonas aeruginosa and Staphylococcus aureus. Studies show that squid ink can promote antitumor activity and fight cancer. It may be used in anticancer drugs and chemotherapy to treat cancer in humans. It can boost your immunity. Some compounds in cephalopod ink can help protect your immune cells and boost your immune response. Squid ink is very high in a number of important nutrients. It's particularly high in antioxidants for instance, which as well all know help to protect the cells and the heart against damage from free radicals. For example, a test-tube study found that squid ink extract was effective at neutralizing bacteria that commonly cause dental plaques, such as Streptococcus mutans, Actinomyces viscous, Lactobacillus acidophilus, and Candida albicans. It may be used in anticancer drugs and chemotherapy to treat cancer in humans. It can boost your immunity. response.

Keywords: Water from siphon. Melanin and mucus Taurine, aspartic acid, glutamic acid alanine and glycine act as antitumor activity and anticancer agent.

Potential Health Risk Due to The Microplastics in Bottled Drinking Water

R.Suvetha[1], T.A.Sathya[2]*

1 PG Scholor - Vivekanandha College of Arts and Science for Women(Autonomous) Elayampalayam, Tiruchengodu, Tamilnadu.

2* Assistant Professor, PG & Research Department of Microbiology, Vivekanandha College of Arts and Science for Women(Autonomous) Elayampalayam, Tiruchengodu, Tamilnadu.

*Corresponding author's email: deepthisha2011@gmail.com.

ABSTRACT:

Microplastics contamination in bottled drinking water is a growing concern. Microplastics are tiny plastic particles less than 5mm in diameter, have been detected in various environmental contexts, including bottled drinking water. Mismanagement of plastic waste has caused plastic leaking into nature and entering our food chain as microplastics, which may have affect human health. Microplastics can absorb and concentrate toxic chemicals from their surroundings, such as pesticides and industrial chemicals. When these microplastics are ingested, there is a risk that these accumulated toxins could be released or absorbed into the body. The presence of the contaminants like Polyethylene Terephthalate(PET), Polypropylene(PP), Polystyrene(PS) and Polyethylene(PE) can cause harm if ingested. They may carry harmful chemicals or pathogens This contaminants can affect the human nervous, digestive and reproductive systems. The issue of microplastics in bottled drinking water is complex, involving environmental, health and regulatory aspects.

Keywords: Microplastic, Bottled drinking water, Food chain, Human health, Harmful chemicals, etc.,

Nanofibers in Drug Delivery System

Hemapriya Nagarathinam[1] And Abirami Kuppusamy [2*]

[1,2 *] Department of Microbiology, Vivekananda College of Arts and Science for Women (Autonomous), Elayampalayam, Trichengode, TamilNadu, India

*Email: abiramigokulakrishnan@gmail.com

Nanofibers are large area of surface variable in three dimensional (3D) topography, porosity and surface functions with easily adaptable. In several fields, nanofiber technology is a potential solution for the current problems. This technology deals with cardiovascular disorders, infectious diseases, GIT (Gastrointestinal tract) associated diseases, neurodegenerative diseases, wound healing and treatment for pain. The nanofibers are fabricated by using different types of fabrication techniques like electrospinning, physical fabrication, chemical fabrication and phase separation. Nanofibers are manufactured by using several types of different polymers depend on their intended use. The polymers are comprises such as natural polymers, semi-synthetic polymers, synthetic polymers, metals, metal oxides, carbon, ceramics, nonporous materials, mesoporous materials, hollow structures, core-shell structures, multi-component and bio-component materials. The nanofiber composites are righteous alternative for targeted gene delivery, protein and peptide delivery, growth factor delivery. So, in drug delivery the nanofibers have vast potential, which allows them to be used for diverse applications and can revolution these therapeutic fields.

Keywords: Nanofiber, Electrospinning, Polymers, Gene delivery, Tissue engineering

Bioethanol Extraction from Duckweed *Landoltia Punctata*

Harshavarthini Kesavamurthi[1] And Divya Vijayakuamr Vijayakumari [2*]

[1,2*] Pg And Research Department Of Microbiology, Vivekanandha College Of Arts And Science For Women (Autonomous), Elayampalayam, Trichengode, Tamilnadu, India

Email: Vvdivya09@Gmail.Com

High starch duckweed biomass can be efficiently converted to ethanol with yeast. This approach has achieved quick high starch accumulation in duckweed and demonstrated that duckweed can serve as a competitive starch feedstock for bioethanol production. The enzymatic hydrolyzates can be efficiently converted to bioethanol by yeast and the ethanol yield based on duckweed biomass input reached up to 0.38 ± 0.01 g g−1 applying simultaneous saccharification and fermentation (SSF), which, to our knowledge, is the highest duckweed-to-ethanol yield thus far reported. The post harvest high-starch duckweed was subjected to enzymatic hydrolysis for fermentable sugar production, and then the hydrolysate was fermented anaerobically by yeast to produce ethanol. The process consists of three principal steps; dilute acid pretreatment, enzymatic hydrolysis and a co-fermentation system coax copious amounts of oil from duckweed, one of nature's fastest-growing aquatic plants. Converting such plant oil into biodiesel for transportation and heating could be a big part of a more sustainable future. Duckweed is useful for conducting bioassay experiments with water samples because you can measure its growth rate by counting how many new fronds develop over a five-day period. By displacing hydrocarbon substances like aromatics in gasoline, ethanol also helps reduce emissions of air toxics, particulate matter, carbon monoxide, nitrous oxides, and exhaust hydrocarbons.

Keywords: *Duckweed-Landoltia Punctata,* High Starch Accumulation, Enzymatic hydrolysis, Bioethanol production, SSF

e-abstract

Human Health Risks Associated with Chemical Fertilizers

Yuvarani Muthusamy [1], Swathi Nagaraj[1], Malarvizhi Arthanari [1] and Gobianand Kuppannan [1] *

[1] Department of Microbiology, Vivekananda College of Arts and Sciences for Women (Autonomous), Elayampalayam. Tiruchenhode, TamilNadu, India

*Email: rajgobi@gmail.com

Although chemical fertilisers are more affordable and simpler to apply than organic ones, the soil microorganisms that support soil fertility are adversely affected (Giri, Giang, Kumari, Prasad, & Varma, 2005; Verma, Maurya, & Meena, 2014). According to Nurula, Anand, and Dudeja (2013), sustainable agriculture techniques take into account the condition of soil particles as well as the health of crop plants and beneficial bacteria. On the other hand, excessive use of commercial chemical fertilisers may cause acidification of the soil and a decrease in the amount of naturally occurring organic molecules. Extended usage can damage helpful microorganisms and attract more pests. Furthermore, some chemical fertilisers exacerbate air pollution, water pollution, plant chemical imbalance and soil system mineral deficiencies. Overuse of fertilisers containing nitrogen degrades topsoil profiles and reduces agricultural yields (Havlin, Beaton, Tisdale, & Nelson, 2005).
In order to preserve soil fertility and texture, bio fertilizers are essential. They provide farmers and the environment with an economical and environmentally beneficial alternative (Khosro & Yousef, 2012).

Keywords: Soil fertility, Organic fertilizers, Biofertilizers, Sustainable agriculture

e-abstract

Perceived Social Support and Forgiveness Among Early Adulthood

Ms.Srilogeswari Moorthi[1*] Dr.Prasanth Chandrasekaran[2] and Ms Lavanya Lakshmanan[3]

[1,2&3] Department of Psychology, Vivekananda College of Arts and Sciences for Women (Autonomous), Tiruchengode., Namakkal Dt ,Tamilnadu, India.

*22upyv037@vicas.org

Introduction: Early adulthood generally ranges from the end of adolescence (around 18 years) to the beginning of middle adulthood (40 to 45 years). During this period, individuals experience diverse physical, cognitive, and social development. This stage is marked by the emergence of more mature cognitive abilities, financial independence, and intimate relationships. Typically, people in early adulthood are vibrant, active and healthy, with a focus on relationships and careers. Forgiveness plays a crucial role in enhancing the health and well-being of relationships, serving as a bridge to healing and renewed trust. Hence, it is imperative to study the association between perceived social support and forgiveness to foster healthy relationships among this target group. The current study aims to explore the association between perceived social support and forgiveness among early adults.
Method: A random sample of 150 early adults in the age group 19-40 years was selected. All participants completed self-report measures of perceived social support and forgiveness, along with personal details such as age, gender, qualification, area of living, and birth order. The data were collected using the aforementioned questionnaire both manually and through a Google form.
Conclusion: The data were analyzed using Pearson Product-Moment correlation. The results will be discussed later. Implications of the findings for further research on positive relationships, forgiveness, interpersonal relationship and emotional intelligence are also discussed.

Keywords
Perceived social support, forgiveness, positive relationships, early adults.

Integrated Textile-Based Sensing Platform for Continuous Health Monitoring and Activity Recognition

Dr. M. Arice Mary[1], Mr. Sivasankaran K[1]

Department of Textile and Fashion Designing & Costume Design and Fashion, Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Tiruchengode, Tamil Nadu, India.

E-mail: aricemary26@gmail.com

Abstract

The development of innovation in integrated textile-based sensing platforms represents a significant advancement in the field of wearable technology and the rapid development of biosensors on flexible textile fabrics, particularly for continuous health monitoring and activity recognition. This paper explores the design, fabrication, and application of smart textiles embedded with a variety of biosensors capable of capturing physiological and movement data. By integrating sensors such as ECG, temperature, and motion detectors directly into the fabric, these smart textiles provide a seamless and non-intrusive method for real-time of monitoring the healthcare of human. The system leverages advanced signal processing and machine learning algorithms to analyze the collected data, facilitating early detection of health anomalies and precise activity tracking. This technology holds promise for various applications, including chronic disease management, elderly care, fitness monitoring, and rehabilitation. The paper discusses the challenges of sensor integration, data accuracy, user comfort, and fabric durability, providing insights into future directions for enhancing the functionality and usability of textile-based sensing platforms.

Keywords

Biosensors, Smart textiles, Wearable technology, Health monitoring, Health care

e-abstract

Molecular Docking Study Of Different Ligands From *Pisum Sativum* With Breast Cancer Target (Her2)

Assala, A., Sujitha, S., Raja, S., Vasanthakumar, D and Karuppannan, P*

P.G and Research Department of Zoology,

Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam,

Tiruchengode – 637205, Namakkal Dt, Tamil Nadu, India

*Corresponding author Email: vikramprabhu88@gmail.com

ABSTRACT

Introduction: Human Epidermal growth factor Receptor 2 (HER2) is a protein bind with cell membrane surface-bound receptor tyrosine kinase and is normally involved in the signal transduction pathways leading to cell growth and differentiation. Plant based treatments are available specifically for HER2-positive breast cancer. Thus, the present study was made to develop ligand based drug for treatment of breast cancer. **Methodology:** Totally 11 phytochemical compounds of *Pisum sativum* were used as ligands. They are Tetradecane, Flavone , Hexadecane, Hexadecane, 2 methyl, 4H-1-Benzopyran-4-one, 7-hydroxy-3-[4-methoxyphenyl]-, n-Hexadecanoic acid, 4H-1-Benzopyran-4-one, 5,7-dihydroxy-2-[4-hydroxyphenyl]-6-methoxy-, 4'-Methoxy-5,7-dihydroxy isoflavone, Docosane and Tetracosane. The molecular structures of the ligands were sketched using Chemsketch software. The 3D structure of target protein HER2 (PDB-Id: 5JII) was downloaded from Protein Data Bank. The active sites of selected target protein *viz*., ALA 378, ASP 399, LEU 398, LEU 406, PHE 404, PHE 405, SER 40, SER 408, THR 393, THR 394, VAL 97 were identified from previous literatures. AutoDock version 4.0 was used for molecular docking. **Results:** From the ligand based docking result, the ligands 4H-1-Benzopyran-4-one,5,7-dihydroxy-2-[4-hydroxyphenyl]-6-methoxy- (-6.14) possessed minimum binding energy compared with other ligands. **Conclusion:** From this study it is concluded that bioactive compounds from *P. sativum* effectively bound with target protein and might be useful for the treatment of breast cancer further validation.

Key words: Breast cancer, *Pisum sativum,* Bioactive compounds, HER2 and Docking

Antibacterial Activity of Ethanolic Extracts of *Nyctanthes arbor-tristis leaves*

Dharani, M., Vasanthakumar, D*., Karuppannan, P., and Satheeshkumar, G.

P.G. and Research Department of Zoology, Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Tiruchengode – 637205, Namakkal, India

*Corresponding author Email: drdvasanthakumar@vicas.org

ABSTRACT

Introduction: Herbal medicine or phyto-medicine refers to using plants seeds, flowers, roots for medicinal purpose to treat various infections. Advances in clinical research show the value of herbal medicine in the treating and preventing disease. *Nyctanthes arbor-tristis* is a medicinal plant used to treat various inflammation-associated ailments and to combat innumerable infections in the traditional system of medicine. Thus, the present study was made evaluate antibacterial activity of *Nyctanthes arbor-tristis* leaves against selected bacteria. **Methodology:** Agar well diffusion method was adopted to study the antibacterial activity of ethanolic extract of *Nyctanthes arbor-tristis* leaves against *Bacillus subtilis, Pseudomonas aeruginosa*, *Escherichia coli*, and *Proteus vulgaris.* **Results:** The ethanolic leaf extracts of *Nyctanthes arbor-tristis* showed significant *in vitro* antibacterial activity against both gram-positive and gram-negative bacteria, including *Bacillus subtilis, Pseudomonas aeruginosa*, Escherichia coli, and Proteus vulgaris. The extract exhibited highest activity against *Pseudomonas aeroginosa* and *Escherichia coli* at 100 µg/mg, and lowest activity against *Proteus vulgaris* and *Bacillus subtilis*. The presence of phytochemical compounds tannins, phenolic compounds, glycosides, and carbohydrates may contribute to the antibacterial activity. **Conclusion**: The antibacterial activity increased linearly with the increase in extract volume From this study it is concluded the ethanonlic extract of *Nyctanthes arbor-tristis* leaves can be used to treated bacterial infection with further clinical trial.

Keywords: Herbal medicine, *Nyctanthes arbor-tristis,* antibacterial activity

In Silico Docking Of Dibutyl Phthalate Isolated From *Ventilago Maderaspatana* For The Treatment Of Diabetes Mellitus

Dhatchayani, N., Rabri Devi, V., Pavadharani, N.S., Satheeshkumar, G., Raja, S., Vasanthakumar, D and P. Karuppannan*

P.G and Research Department of Zoology,
Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Tiruchengode – 637205, Namakkal Dt. Tamil Nadu, India

Corresponding author Email ID; vikramprabhu88@gmail.com

ABSTRACT

Introduction: Diabetes mellitus is a endocrine metabolic disorder due to the lack of insulin secretion/ action or both. There are many synthetic drugs are used for the treatment of diabetes. However there is no permanent solution due to the unwanted side effects. From the ancient time more than 80% of world people are used herbs as a drug for many disorders. Thus the present was focused to evaluate the antidiabetic activity of *V. maderaspatana* by *in silico* method. **Methodology:** Molecular docking of ligand dibutyl phthalate was performed against diabetic targets such as insulin receptor tyrosine kinase, glucokinase and aldose reductase by *in silico* method using Autodock Ver. 4.0. **Results:** The ligand, dibutyl phthalate effectively bound with the three targets *viz.*,, insulin receptor tyrosine kinase, glucokinase and aldose reductase. Target insulin receptor tyrosine kinase showed the minimum binding energy (-8.46 kcal/mol) at tenth run with RMSD value of 67.98 compared to glucokinase (-6.51 kcal/mol at eighth run) and aldose reductase (-7.28 kcal/mol at sixth run). **Conclusion:** From this study it is concluded that the bioactive compound dibutyl phthalate may be used as the drug candidate for the treatment of diabetes mellitus after clinical validation.

Keywords: Diabetes mellitus, diabetic targets, ligand dibutyl phthalate, molecular docking and binding energy.

In Vitro Anticancer Activity of Silver nanoparticles synthesized using Seeds Ethanolic Extracts of Grape (*Vitis vinifera*) against human Breast Cancer Cell line (MCF – 7)

Durga Devi, A., Vasanthakumar, D*., Karuppannan, P., Raja, S., and Satheeshkumar, G.

P.G. and Research Department of Zoology, Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Tiruchengode – 637205, Namakkal, India

***Corresponding author Email:** drdvasanthakumar@vicas.org

ABSTRACT:

Introduction: The green synthesis of metallic nanoparticles has emerged as a promising area of research due to their potential applications in various field including medicine. Medicinal plants contain phytochemicals, such as polyphenols, flavonoids, and tannins, which serve as reducing and stabilizing agents, making them suitable for biological synthesis methods. Herbal medicines have been shown to enhance the body's ability to combat cancer while reducing the harmful side effects of chemotherapy and radiotherapy. Grapes possess numerous medicinal and nutritional values, with phenolic compounds present in all parts of the plant, exhibiting antioxidant and antimicrobial activities. Thus the present study was focused to synthesis silver nanoparticles (AgNPs) using the seeds ethanolic extract of grape (*Vitis vinifera*) against MCF-7 cell lines. **Methodology:** Silver nanoparticels (AgNPs) were synthesized using seeds extract of grapes and characterized using UV-Vis spectroscopy and FTIR analysis. Anticancer activity of silver nanoparticels was evaluated under in vitro by cytotoxic nature against human breast cancer cells (MCF-7). **Results:** Our findings indicate that the green-synthesized AgNPs exhibit a concentration-dependent cytotoxic effect on the human breast cancer cell line (MCF-7) and the IC_{50} value was found to be 254.08µg/ml of extract. **Conclusion:** It can be concluded that grape seed extract along with silver nanoparticle is effective in treating cancer highlighting their potential as a therapeutic agent in nanomedicine.

Keywords: *Vitis vinifera*, Silver Nanoparticle, Cytotoxic activity

e-abstract

Determination Of Macro and Micronutrients by The Application of Fruits And Vegetables Waste Vermicomposting on Rose and Chilli Plant Growth

Harshini, G., Pradeepa, P., Karuppannan, P and Raja, S.*
PG and Research Department of Zoology,
Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam,
Trichengode, Namakkal – 637 205, Tamil Nadu, India

* Corresponding author Email: drsraja@vicas.org

ABSTRACT

Introduction: Organic fertilizer plays an important role in world wide agricultural lands. Nowadays many people like to produce the organic vegetables. In world around, every human being produce the organic waste is 500-1000g/day. So, the safe deposit of the organic waste is also taken into account. In this present study, we use the organic waste to make the vermi-compost by using the earthworms. **Methodology:** We use the earth worms to convert the organic waste into effective organic fertilizer. In this vermi-compost contain more amount of micro and macro nutrient compared to other composting methods. We use this vermi-compost for the plant and also we use ordinary soil and garden compost for the plant growth. We get good result in vermi-compost applying plant than other plants. **Results:** It produces flower and the fruit before 5 days from the ordinary and garden compost applying plant. The vermi-compost applying plant height is 7 cm more than ordinary plant and the leaves are look like bright green in colour and it is big compared to ordinary and garden compost applying plant. In the present study revealed that the both fruit vermicomposting and vegetable vermicomposting gave better results to chilli and rose plants. Vegetables and fruits having their unique macro and micronutrients are present. But the consuming is differ to all the people. But the vegetable cost is very lesser than the fruits and all the people consuming vegetables in day-to-day life. In that way vegetable waste was play a paramount role in organic fertilizer. However, the main aim of this study was the effective utilization of the organic waste. **Conclusion:** In this study the utilization of organic waste is done by the worms and also solves the organic fertilizer problem.

Keywords: Organic Material, Vermicompost, Micro and Macro Nutrient, Fertilizer and Waste Management

Medicinal Plants Used for The Treatment of Hepatitis C: A Clinical Review

Kanigha, K.M* and P. Karuppannan

P.G and Research Department of Zoology,

Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam

Tiruchengode - 637205, Namakkal District, Tamil Nadu, India.

Corresponding Author Email ID: kanigha8@gmail.com

ABSTRACT

Introduction: Hepatitis C is a blood borne disease that caused by virus that attack liver and leads to liver inflammation ranges from a mild illness to lifelong serious condition. This HCV can be transmitted through unscreened contaminated blood or through body fluids or open spores. Symptoms of HCV include jaundice, abdominal swelling, spider like blood vessels and more. Generally antiviral synthetic drugs like Vosevi, Daklinza, Technivie, Incivek, Zepatieretc., are used for the treatment of HCV. However, they cause side effects such as depression, skin irritation, anxiety, hair loss and aggressive behavior. Thus the prevention of hepatitis c without or fewer side effects needed for now a day. Medicinal plants with hepatoprotective, Anti inflammatory and anti viral properties can also used to treat HCV. Thus the present review was focused to exposed the medicinal plants used for the treatment of hepatitis C. From this review, there were 21 medicinal plants (*Silybum marianum, Trachyspermun ammi*, *Coffea arabica, Schisandra chinensis*, *Embelia schimperi*, *Piper longum*, *Citrus paradisi*, *Syzygium aromaticum, Curcuma longa*, *Taranacuma officinale*, *Bupleurum chinense*, *Glycyrrhiya glabra*, *Zingiber officinale, Camellia sinensis*, *Solanum nigrum*, *Viola yedoensis, Marrubium peregrinum*, *Lamium album*, *Boswellia serrata, Acacia nilotica* and *Quercus infectoria*) belonging to the 16 families were found to be alternative drugs for the treatment of hepatitis C. Among the 16 families five families (Asteraceae, Zingiberaceae, Fabaceae, Lamiaceae and Schisandraceae) possessed maximum number of plants (each family with two plants). Different parts such as Leaves, stem, bark, seeds, fruits and flowers are used for the treatment of Hepatitis C. **Conclusion:** In this review we suggested that different parts of the medicinal plants might be useful for the treatment of Hepatitis C without or less side effect. Further research on these plants might be valuable for the discovery of natural drug for Hepatitis C.

Keywords: Hepatitis C, Liver Inflammation, Synthetic Drug, Natural drug and Medicinal plants.

Anticancer Activity Of Ethanolic Extracts Of *Nyctanthes Arbor-Tristis* Leaves*:* An *In-Vitro* Study

Kavya, T., Vasanthakumar, D*., Raja, S., and Nithya, P.

P.G. and Research Department of Zoology, Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Tiruchengode – 637205, Namakkal, India

*Corresponding author Email: drdvasanthakumar@vicas.org

ABSTRACT:

Introduction: Cancer is a large group of disease which remains a leading cause of morbidity and mortality globally. Breast cancer is a kind of cancer that begins as a growth of cells in the breast tissues. Many cancer patients seek alternative or complementary treatments because of the high date rate linked with cancer and the adverse side effects of chemotherapy and radiation therapy. Huge number of natural Chemicals are present in the herbal plant processing the anti cancer activity. Thus, present study was made to determine the In Vitro anticancer activity of ethanolic extract of *Nycthanthes arbor tristis* leaves. **Methodology:** MTT (3-(4, 5-dimethylthiazol-2yl-)-2,5-diphenyl tetrazolium bromide) assay was used to determine cytotoxic activity of extract against human breast cancer cell line (MCF-7). **Result:** The results show that there is increasing trend of inhibition of cancer cell when the concentration of the extract increases. The highest inhibition of 53.298% has been observed at 300µg/ml and lowest of 9.376% at 18.75µg/ml **Conclusion:** Complete phytochemical analysis might infer the potency of this extract as anticancer drug.

KEYWORDS: Breast cancer, Alternative Medicine, *Nycthanthes arbortristis*, Anticancer activity

Circulating Molecular Biomarker Of Diabetic Retinopathy And Therapeutic Implications

Kiruppashini, R[1]., Dhatchayani, N[1], Raja, S[1]., Premalatha, P[2]., Saravanan, K[3]., Nithya, P[1]., Satheeshkumar, G[1]., Vasanthakumar, D[1] and P. Karuppannan[1]*

P.G and Research Department of Zoology, Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam – 637205, Tiruchengode, Namakkal District, Tamil Nadu, India

Department of Zoology, Department of Zoology, Sri Vidya mandir Arts and College (Autonomous), Katteri – 636 902, Affiliated to Periyar University, Salem, Tamil Nadu, India
P.G and Research Department of Zoology, Nehru Memorial College (Autonomous), Puthanampatti - 621 007. Trichy District, Tamil Nadu, India.

*Corresponding Author Email ID; vikramprabhu88@gmail.com

ABSTRACT

Introduction: Diabetic retinopathy (DR) is the one of the most prevalent microvascular complication of diabetes mellitus. It is leading cause of preventable blindness in the working-age population. However, difficult in the identification of suitable biomarkers, its prediction in asymptomatic patients is insufficient. Currently, DR is diagnosed at a stage when typical morphologic lesions become fundoscopically visible. Chronically, elevated level of blood glucose was leading to the characteristic alterations in retinal vessel caliber, blood flow, oxygen saturation, and the capillary network, which precede DR lesions. Furthermore, evidence suggests that neurodegenerative changes in retina occurs early stage in diabetes, disintegration of the retinal neurovascular unit was initiated prior to the appearance of microvasculopathy in DR. **Conclusion:** In this review we discussed about biomarkers involve the identification of diabetic retinopathy. Validation of these biomarkers would allow to the identification of patients with high risk of developing DR and might be initiating the swift move to early stage diagnosis and individualized care.

Keywords: Diabetes, microvascular complication, diabetic retinopathy and biomarker.

e-abstract

Phylogenetic Analysis Of Freshwater Mussel (Bivalvia: Unionoida)

Mirudhula, R., Anbalagan, V., Nisha, B and P. Karuppannan*

P.G and Research Department of Zoology,

Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Tiruchengode – 637205, Namakkal Dt. Tamil Nadu, India

Corresponding author Email ID; vikramprabhu88@gmail.com

ABSTRACT

Introduction: Phylogenetics is the study of evolutionary relatedness amongst organisms. The genetic relationships between species can be represented using phylogenetic trees. Studies of the phylogeny of organisms can help explain the similarities and differences among species. There are various techniques used to create phylogenetic trees and most of them rely on aligned genetic sequences to perform this task. Probably the most popular genetic sequence alignment algorithm is ClustalW. The freshwater mussel family Unionidae is one of the largest families in the Bivalvia and includes over 670 species. The present study was carried out for the construction of phylogenetic tree and to evaluate the relationship among the four groups. **Methodology:** The mitochondrial COI gene of the different species of *Lamellidens*, *Parreysia corrugata* and *Musculium indicum* was retrieved from GeneBank. Multiple sequence alignment and Phylogenetic tree construction was done by using online software ClustalW. The sequences were converted to FASTA format. **Results:** Phylogenetic analysis *L. marginalis and L. consorbrinus* were closely related species and, *L. marginalis and Musculium indicum* were distantly related species. **Conclusion:** From the study it is concluded that all the four species of bivalvia confirmed their relationship among them.

Keywords: Bivalvia, GeneBank, ClustalW and Phylogenetic tree.

A Review On The Therapeutic Potential Of Medicinal Plants Used For The Treatment Of Blood Cancer

Mounisha

[1]P.G and Research Department of Zoology,
Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Tiruchengode - 637205, Namakkal, Tamil Nadu, India

[2]Department of Zoology, Sri Vidya mandir Arts and College (Autonomous),
Katteri – 636 902, Affiliated to Periyar University, Salem, Tamil Nadu, India

Corresponding Author Mail ID: vikramprabhu88@gmail.com

ABSTRACT

Introduction: Cancer is a large group of diseases that can starts in almost any tissues or organ of the body when abnormal cells grow uncontrollably beyond their usual boundaries to invade and joining parts of the body and spread to other organ. The later process is called metastasizing and is a major cause of death from cancer. Normal cells divides only when they receives as set of appropriate signals where as cancer cells divide themselves despite absence of those signals, and they are resistant to the signal telling them to self destruct, known as apoptosis programmed cell death. Cancer cells can evade our immune system which normally eliminates abnormal or invading cells and tend to enhance the uncontrolled cell multiplication. Blood cancer is a type of cancer that affects blood cells such as Leukaemia, lymphoma and Myeloma or some of the most common type of blood cancer. Present treatment of blood cancer was not supported to permanent cure and also caused unwanted side effects. Herbal remedies are the best alternative way to discover the natural drugs for many diseases including blood cancer. **Methodology:** The present study was reviewed medicinal plants used for the treatment of blood cancer from the Google scholar and research articles. **Results:** In this review there were 20 medicinal plants belongings to the 17 families used for the treatment of blood cancer including leukaemia, lymphoma and myeloma. Moerover, maximum number (*Xanthium strumarium, Vernania amydalina, Achillea fragrantissima* and *Arctium lappa*) of plants was under the family of Asteraceae. Various parts like leaves, seed, flower and bark of the plants were used to treat the blood cancer. The anticancer mechanism of plants was due to the presence of phytochemicals such as flavonoids, alkaloids, Phenolic compounds, tannins, saponins etc. These plants can cause the apoptosis to the cancer cell by arresting cell cycle, DNA damage and any other possible way. Mechanism of action of these plants was under the investigation. **Conclusion:** Thus the present review summarizes the literature published so far regarding herbal medicine used as remedies for the treatment of blood cancer.

Keywords: blood cancer, leukaemia, Natural medicine, herbal medicine and phytochemistry.

Ethnobotanical Study of Medicinal Plants Used for The Treatment of Dengue Fever In Kolli Hills, Namakkal District, Tamil Nadu, India

Nakshathira,

[1]P.G and Research Department of Zoology,

Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Tiruchengode – 637205, Namakkal District, Tamil Nadu, India

[3]Department of Zoology, Sri Vidya Mandir Arts and Science College (Autonomous), Katteri - 636 902,Uthangarai – Tamil Nadu, India

*Corresponding Author Email: vikramprabhu88@gmail.com

ABSTRACT

Introduction: Dengue is an important arboviral disease. Safe, low-cost, and effective drugs that possess inhibitory activity against dengue virus (DENV) are mostly needed to try to combat the dengue infection worldwide. Medicinal plants have been considered as an important alternative to manage several diseases, such as dengue. The demand for plant-based medicines is growing as they are generally considered to be safer, non-toxic and less harmful than synthetic drugs. **Methodology:** Ethanobotanical survey was carried out by directly among the tribel people of the Kolli Hills, Namakkal district, Tamil Nadu, India. **Results:** In the present study there were 21 herbal plants belonging to 17 families were documented and they were used for the treatment of dengue fever. **Conclusion**: Herbal medicines are the valuable and less or without side effect. Further research was carried out to discovery of new drug for Dengue fever.

Keywords: Natural medicine, Medicinal plants, Kolli Hill, Dengue and antidengue

e-abstract

Assessment On Dissolved Oxygen Increase and Carbon Sequestration Potential Of Three Major Seaweeds Of Gom Biosphere Reserve, Tamil Nadu

Nandhitha, M., Nithya, P* and Thapuna, P.

P.G and Research Department of Zoology,
Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam,
Tiruchengode - 637205, Namakkal Dt., Tamil Nadu, India.

*Corresponding author Email: drnithya@vicas.org

ABSTRACT

Introduction: Atmospheric carbon dioxide, nitrogen oxides and methane cause global warming. Seaweeds are fast growing photoautotrophic algae that utilize atmospheric CO2. Carbon sequestering estimation is one of the major focus on emerging blue economy development. Also, seaweeds are capable of increasing oxygen concentration in habitat water. India poses 844 seaweed species. As part of the blue economy India's Pradhan Mantri Matsya Sampada Yojana (PMMSY) aimed to produce ~1 million ton seaweed growth in 2025. **Methodology:** The present research focuses on the assessment of Carbon fixing efficacy and oxygen-increasing potentials on major seaweed species: Green algae (*Caulerpa racemose*), Brown algae (*Turbinaria ornata*) and Red algae (*Amphiroa anceps*) on Gulf of Mannar biosphere reserve. The laboratory experiments on carbon uptake of each species will be compared statistically. **Results:** The significance of species specific oxygen dissolved level in habitat water also estimated. The results support the estimation of total annual carbon sequestration potential of seaweed species/ hectare/ year. **Conclusion:** The result of present study concluded that increased oxygen level on habitat water supports zooplankton diversity and diel vertical migration changes.

Keywords: CO_2, Dissolved Oxygen, Seaweed and Blue economy.

Understanding The Pathogenicity And Challenges In Treatment Of Atherosclerosis: A Clinical Review

Nisha, B*., Mirudhula, R., Anbalagan, V., Satheeshkumar, G., Vasanthakumar, D., Nithya, P., Raja, S and P. Karuppannan

P.G and Research Department of Zoology,
Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Tiruchengode – 637205, Namakkal Dt. Tamil Nadu, India.

Corresponding author Email ID: nishabv39@gmail.com

ABSTRACT

Introduction: Atherosclerosis is a chronic inflammatory disease that affects medium and large-sized arteries. The atherosclerotic lesions are a result of continuum molecular and cellular interaction between vessel wall and blood constituents, release of number of signalling pathways and activation of the inflammatory and coagulation cascades that lead to structural changes. At the beginning atherosclerosis is asymptomatic and we cannot estimate appropriately its frequency. But, in some people atherosclerosis has rapid progress and triggers a vicious circle that leads to clinical manifestations of coronary artery diseases, cerebrovascular diseases, and peripheral arterial diseases. The basic mechanisms of atherosclerosis involve lipid accumulation and immune activation in the vascular wall. These processes are highly regulated by a number of specialized protein and lipid mediators, which either stimulate inflammation and atherosclerosis progression or are antiatherosclerotic by inducing resolution of inflammation. Cytokines produced by the cells are involved in the mechanism of atherosclerosis from early stages to the last stages. Detailed knowledge of the basic mechanism of atherosclerosis is needed to identify possible novel therapeutic targets that show superiority when added to currently used strategies for secondary prevention. Atherosclerosis affects both large-caliber and small-caliber vessels and can lead to aneurysm formation, obstruction of blood flow by high-grade stenosis, vessel rupture, or distal embolic disease. Currently available anti-atherosclerotic pharmacotherapy includes mainly lipid-lowering agents, namely statins, fibrates, cholesterol-absorption inhibitors and proprotein convertase subtilisin/kexin type 9 (PCSK-9) inhibitor. Control of hypertension is another major aspect of atherosclerosis disease prevention, and a blood pressure less than 120/80 mm Hg is ideal. With obesity a major problem in the developed world, its role in the metabolic syndrome is of major significance as is the high prevalence of this so-called syndrome versus collection of specific risk factors in a population with poor health habits. Control of diabetes mellitus has established benefit from the standpoint of atherosclerosis disease prevention except that some problems have been reported with extremely tight blood sugar control. Exercise was long considered good but now there are evidence-based reasons to recommend it as essential in atherosclerosis disease prevention. **Conclusion:** From this review we disclosed about the impact of atherosclerosis and used to know about the treatment.

Keywords: Cardiovascular diseases, atherosclerosis, Lipid deposition, LDL and VLDL.

Dietary Agents for Improving Fertility In Human Beings

Pavadharani, N.S., Satheeshkumar, G* and Anbalagan, V.

P.G and Research Department of Zoology,
Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Tiruchengode – 637205, Namakkal Dt. Tamil Nadu, India

Corresponding author Email ID; drgsatheeshkumar@vicas.org

ABSTRACT

Introduction: Infertility is a common condition affecting one of six couples during their reproductive life time. Among these couples, problems with ovulation can be identified in 18-30% of the cases. Factors such as body weight, physical activity and dietary factors, such as intakes of specific fatty acids, protein intake are the reason for the ovulatory infertility. **Methodology:** The dietary plants containing bioactive phytochemicals with potential of improving fertility were manually mining from publically available phytochemical databases. **Results:** There were 15 dietary plants identified for improving fertility in human being. More than 15 bioactive compounds from dietary plants were identified for improving fertility. Natural diet contains several nutrients such as vitamins and minerals. The nutrients are used to improve the human fertility. **Conclusion:** The above dietary plants also contain the chemical compounds. Such as Arginine, Ascorbic acid *etc.* are used to improve the human fertility.

Keywords: Infertility, Natural drug, fertility Improvement, Phytochemicals and Arginine

Insect Diversity At Vivekanandha College Of Arts And Sciences For Women, Elayampalayam, Tiruchengode, Namakkal District, Tamilnadu, India

Priyadharshini, V., Lavanya, V., Karuppannan, P and Raja, S.*

PG and Research Department of Zoology,
Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Trichengode, Namakkal – 637 205, Tamil Nadu, India

* Corresponding author Email: drsraja@vicas.org

ABSTRACT

Introduction: Insects are the largest and most diverse group of organisms on earth. The total number of recorded species stands for about 1 million in number. However, there is some speculation within the scientist that the actual number of insect species may even exceed 20 million. These amazing creatures makeup about 75% of all described animal species. Irrespective of their abundance yet they are undermined because of their size. Insects are found almost everywhere on the earth surface. Insects which account for over half of all living described organisms have a very significant role in the ecosystem by affecting the diversity abundance and distribution of plant communities. Biological diversity is the variety of life on earth across all the different levels of biological organizations. High diversity of insects provides potentially high resolution and important changes in the ecosystem. Thus the present study focused to evaluate the insect diversity in and around the Vivekanandha Educational Institutional campus, Tiruchengode, Namakkal District, Tamil Nadi, India. **Methodology:** The insect diversity was studied by weekly samples taken from October - 2023 to December - 2023. **Results:** The result of the present investigation reveals that the occurrence of 50 species belonging to 9 orders are in our College campus. Among identified 9 orders insects belonging to the order Blattodae, Coleoptera, Diptera, Hemiptera, Hymenoptera, Lepidoptera, Mecoptera, Odonata, Orthoptera. **Conclusion:** From this study it is concluded that urbanization and climate condition are found to be an important factors in determining the distribution of insects in the selected study area.

Keywords: Biodiversity, Insects, Vivekanandha College, Urbanization and Namakkal

Molecular Docking Analysis for The Efficacy Of Bioactive Compounds Isolated From *Ventilago Maderaspatana* Against Diabetes Targets Insulin Receptor Tyrosine Kinase And Glucokinase

Rabri Devi, V[1]., Pavadharani, N.S[1]., Dhatchayani, N[1]., Premalatha, P[2] and P. Karuppannan[1]*

P.G and Research Department of Zoology,

Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Tiruchengode – 637205, Namakkal Dt. Tamil Nadu, India

Corresponding author Email ID; vikraprabhu88@gmail.com

ABSTRACT

Introduction: Diabetes mellitus is referring to a group of metabolic disorders characterized by elevated level of blood glucose due to the deficiency or inefficiency of insulin secretion, action and/or both. It is one of the top five causes of death worldwide. Many synthetic drugs are available drugs for treatment of diabetes mellitus. However, they cause unwanted side effects and high cost. Therefore, searching for new drugs without side effect is going on in many laboratories around the world. Thus the purpose of present study was focused to evaluate whether the relationship exists between various bioactive compounds of *Ventilago maderaspatan* and target proteins. Various ligands such as ventilone B, dibutyl phthalate, n-hexadecanoic acid and oxalic acid isobutyl nonyl ester were docked with diabetic targets insulin receptor tyrosine kinase (PDB ID: 1IR3) and glucokinase (PDB ID; 1V4S). **Methodology:** The activated amino acids residues of target proteins were identified from Q- site finder. AutoDock version 4.2 was used for docking study. **Results:** From this study, compound ventilone B (-8.50 Kcal/mol) and dibutyl phthalate (-8.46 kcal/mol) were strongly bound with insulin receptor protein tyrosine kinase. Meanwhile, other ligands n-hexadecanoic acid and oxalic acid isobutyl nonyl ester were bound with target with minimum binding energy (-7.93 Kcal/mol, -5.67 Kcal/mol respectively). Ligands ventilone B (-7.81 Kcal/mol) and dibutyl phthalate (-6.51 Kcal/mol) were made strong orientation with target glucokinase and provided highest minimum binding energy. Moreover, all ligands from *Ventilago maderaspatana* showed high ADME, Pharmacokinetics and bioavailability. **Conclusion:** From this result, ligands ventilone B and dibutyl phthalate were successfully bound with two target proteins of diabetes and led to the alternative drug candidate for diabetes after detailed study.

Keywords: Diabetes Mellitus, *In Silico, Ventilago maderaspatana,* Insulin receptor Tyrosine kinase, Glucokinase, Molecular Docking and Pharmacokinetics.

Pathophysiology And Management of Alzheimer's Disease: A Clinical Review

Sasipriya, R., Priyadharshini, V., Nandhitha, M., Usha, K., Raja, S., Vasanthakumar, D., Satheeshkumar, G., Nithya, P and P. Karuppannan*

P.G and Research Department of Zoology,
Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Tiruchengode – 637205, Namakkal Dt. Tamil Nadu, India

*corresponding author Email: vikramprabhu88@gmail.com

ABSTRACT

Alzheimer's disease (AD) is a disorder that causes degeneration of the cells in the brain and it is the main cause of dementia, which is characterized by a decline in thinking and independence in personal daily activities. AD is considered a multifactorial disease: two main hypotheses were proposed as a cause for AD, cholinergic and amyloid hypotheses. Additionally, several risk factors such as increasing age, genetic factors, head injuries, vascular diseases, infections, and environmental factors play a role in the disease. Pathologically it is characterized by intracellular neurofibrillary tangles and extracellular amyloidal protein deposits contributing to senile plaques. Currently available treatments acetylcholinesterase inhibitors (rivastigmine, galantamine, donepezil) and N-methyl d-aspartate receptor antagonist (memantine) contribute minimal impact on the disease and target late aspects of the disease. The biomarker used for the detection of the disease should be able to differentiate between different causes of dementia and should be able to detect it at early stage. Further the use of Induced pluripotent stem cells has proven to be an effective treatment for the cure of this disease. Understanding the extent of Alzheimer disease related knowledge can assist disease management that result in improved disease management and reduced care costs. This article attempts to focus on some of the important recent developments in understanding and management of Alzheimer disease. **Conclusion:** Herein, we provide a comprehensive review on Alzheimer's disease pathophysiology to provide a better understanding of disease pathogenesis hypotheses and decipher the role of genetic and epigenetic factors in disease development and progression.

Keyword: Alzheimer's disease, Cholinergic, amyloid, memantine and stem cells.

Potential Of *Pedalium Murex* In Ayurvedic Medicine: A Review

Sathyapriya, T and P. Karuppannan

P.G and Research Department of Zoology,

Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam

Tiruchengode - 637205, Namakkal District, Tamil Nadu, India.

Corresponding Author Email ID: priya35374@gmail.com

ABSTRACT

Introduction: *Pedalium murex* is a medicinal plant belongs to the family Pedaliaceae and it is commonly known as Large Caltrops. It is a shrub found in Southern part, Deccan region of India and in some parts of Ceylon. The whole parts of the *P. murex* possessed enormous medicinal values and used for the treatment of various diseases from ancient time. The whole plant possessed phytochemical constituents such as alkaloids, flavonoids, tannins, saponins, phenols etc., and used for the treatment of various diseases. Leaf of this plant possessed phytochemical constituent such as carbohydrates, glycosides, alkaloids, steroids and flavanoids. These phytochemical used for the treatment of various diseases like vatta, pitta, urinary retention, kidney stone, seminal weakness, amenorrhea, inflammation, flatulence and fever. The leaves of *P. murex* possessed antidiabetic activity due to the presence of phytochemicals such as phenols and flavonoids. **Conclusion:** In this review, medicinal plant *Pedalium murex* was possessed good pharmaceutical activity against many diseases including diabetes.

Keywords: *Pedalium murex*, phytoconstituents, Alkaloids, flavonoids, diabetes and Cancer

Pharmaceutical Study Of Herbal Medicine *Hybanthus Enneaspermus*: A Review

Srinisha, V* and P. Karuppannan

P.G and Research Department of Zoology,

Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam,

Tiruchengode – 637205, Namakkal District, Tamil Nadu, India

Corresponding Author Email ID: nishabsc2207@gmail.com

ABSTRACT

Introduction: Phytotherapy has proved to be an effective method to treat several health disorders. Medicine relies heavily on the use of medicinal plants. An infinite number of potent phytochemicals can be synthesized by these plants. It is a tropical and sub tropical shrub of the *Hybanthus enneaspermus*, it belongs to the Family Violaceae. In the Ayurvedic literature, the plant is reported to cure conditions of Kapha & pitta, Urinary calculi, strangury, Vomiting, Burning sensation, Asthma, Epilapsy, Cough & Painful dysentery. Phytochemically, the plant contains a considerable amount of dipeptide alkaloids, aurantioamide acetate, isoarborinol, and BETA sitosterol, sugars, flavonoids, steroids, triterpenes, phenols & amino acids, ect Pharmacologically, the plants reported to possess Antidiabetic, Antiplasmodial, Antimicrobial, Antiinflammatory, and anti-allergic activity. *In vitro* antioxidant potential of study plant exhibited higher total antioxidant capacity, good reducing power and a significant scavenger of reactive oxygen species. Moreover, ethanol extract of *H. enneaspermus* inhibited the proliferation of HEP-2 cancer cell line and slowed toxicity with IC_{50} value of 19.75 microgram. Medicinal plant *H. enneasperms* possessed effective antibacterial activity against *E. coli*, *P. aeruginosa*, *K. pneumoniae* and *E. coli*. **Conclusion:** Thus the present review reported that the study plant possessed good Anti-cancer, Anti-diabetic, Urinary tract infections, Anti- inflammatory, and Anti-allergy activity.

Keywords: Pharmaceutical, Synthetic drug, Natural drug and *Hybanthus enneaspermus*

Phytoresources With Cancer Treatment Properties In The Plants Of Malvaceae Family

Sujitha, S., Assala, A., Raja, S., Vasanthakumar, D and Karuppannan, P*

P.G and Research Department of Zoology,

Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam,

Tiruchengode – 637205, Namakkal Dt. Tamil Nadu, India

*Email: vikramprabhu88@gmail.com

ABSTRACT

Introduction: Cancer is multifactorial complex disease that development and progression are dependent on cellular accumulation of various genetic and epigenetic events (Blagosklonny, 2005). It is the deadly disease which is proliferating rapidly and becomes one of the growing health problems worldwide due to the lack of widespread and comprehensive early detection methods and proper medicine. Traditional medicine is known as the knowledge, skills, and practices based on previously done theories and experiments on maintaining health and finding treatments for physical and mental illness through the use of herbs. **Results:** In the present study 6 plant species from Malvaceae family were reported to possess 40 bioactive compounds related to cancer treatment activity. They were *Gossypium herbaceum* (22 compounds), *Hibiscus sabdariffa* (21 compounds), *Abelmoschus esculentus* (19 compounds), *Thespesia* populnea (7 compounds), *Hisbiscus rosa sinensis* (6 compounds) and *Malvus sylvestris* (5 compounds). Among the 40 bioactive compounds, 32 compounds owned cancer preventive activity, 23 compounds acquired antitumour activity, 17 compounds possessed anticancer activity and 1 compound possessed anticarcinogenic activity. Mostly studied compounds with cancer treatment were beta carotene, alpha tocopherol, alanine, caffeic acid, tannin, alpha carotene, ascorbic acid, limonene, rutin and niacin. **Conclusion:** In this study may provide a platform for designing new drug to ascertain the full cancer preventive and chemotherapeutic from the phytoresources.

Keywords: Medicinal plants, Phytochemical compound, Anticancer, Antitumor and Cancer preventive activities.

Qualitative And Quantitative Analysis Of Phytochemical Studies On Selected Seaweeds *Caulerpa Recemosa, Sargassum Wightii* And *Gracilaria Edulis*

Thapuna. P, Nithya. P and Nandhitha. M

PG and Research Department of Zoology, Vivekanandha College of Arts and Sciences for Women, Tiruchengode-637205, Tamil Nadu, India.

Corresponding author E.mail: drnithya@vicas.org

ABSTRACT

Introduction: In the present study it is concluded that the difference in resources of seaweeds *Caulerpa recemosa, Sargassum wightii* and *Gracilaria edulis* in southern coastal region of Palk bay island from Rameshwaram. **Methodology:** Phytochemical analysis of organic solvent fractions of *Caulerpa recemosa* shows that maximum number of compound was present in Pet. Ether whereas minimum number of compound was present in Chloroform. **Results:** *In Sargassum wightii*, maximum number of compound was found in Chloroform while minimum number of compound was found in Hexane. In *Gracilaria edulis*, maximum number of compound were recorded in Diethyl Ether and minimum number of compound were recorded in Ethanol and Pet.Ether.Coarse powder of *Caulerpa recemosa,* was successively extracted organic solvents and the extraction values were depicted. Extraction was high in Chloroform (3.8g) and Least quantity of secondary metabolites was extracted in Acetone.In *Sargassum wightii,*Extraction was high in Chloroform (4.5g) while least quantity of secondary metabolites was extracted in Diethyl ether and Pet. Ether. *Gracilaria edulis,* Extraction was high in Chloroform (3.6g) whereas least quantity of secondary metabolites was extracted in Ethanol (3.0g). **Conclusion:** The seaweeds known as medicinal are rich in secondary metabolites which include alkaloids, glycosides, flavonoids, saponins, tannins, steroids, related active metabolites, which are of great medicinal value and have been extensively used in the drug and pharmaceutical industry.

Keywords: Seaweeds**,** Phytochemical analysis, Palk bay, Extraction and Secoundar metabolities.

Role Of Traditional Medicine In Breast Cancer Treatment

Usha, K*., Priyadharshini, V., Sasipriya, R., Nandhitha, M., Anbalagan, V., Raja, S., Vasanthakumar, D., Satheeshkumar, G., Nithya, P., and P. Karuppannan

P.G and Research Department of Zoology,
Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam, Tiruchengode – 637205, Namakkal Dt. Tamil Nadu, India

Corresponding author Email ID: vijayakumarusha47@gmail.com

ABSTRACT

Introduction: Cancer is a common disease that leading cause of mortality in the world next to the cardiovascular disorders. Cancer is an uncontrolled growth and proliferation of cells and is considered as one of the most life threatening diseases, which possess many health illnesses around the world with 6 million mortalities every year. Among cancer, breast cancer (malignant breast neoplasm) is the most frequently diagnosed disease and second leading cause of cancer-related deaths in women. It is alarming that breast cancer is generally detected at advanced stages when a cure is not possible. Worldwide breast cancer mortality among females was 23 % (1.38 million) of the total new cancer cases and 14% (458,400) of the total cancer diseases recorded in 2008. The treatment of cancers includes surgery and/or radiotherapy, and current chemotherapeutic options, are inadequate, which are often associated with loss of function, disfigurement and reduced quality of life. There is a great need to identify new agents and novel targets important to improve the prognosis of treatment of cancer. **Results:** There were 28 medicinal plants belonging to 22 families used for a treat of breast cancer. family Asteraceae and Ranunculiceae occupied three plants followed by Brassicaceae and Arecacae each contain two plants. Anticancer mechanism of plants was due to the presence of phytochemicals such as flavonoids, alcoloids, phenolic compounds, tannins, saponins, etc. Moreover, various parts like leaves, flowers, fruit, seed and bark were used for the treatment of breast cancer. **Conclusion:** From this study it is concluded that these medicinal plants may be used for the treatment of cancer after the validation.

Keywords: Breast cancer, Synthetic drugs, Natural drugs, herbal drug and Phytochemical constituents.

Synthesis Of Metal Nanoparticles Eco Friendly Using Medical Plants

K. K. Vaishnavi[1], Saravanan, K[2] and Karuppannan, P[1]*

PG and Research Department of Zoology,

[1]Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam – 637205, Tiruchengode, Namakkal District, Tamil Nadu, India

[2]PG and Research Department of Zoology, Nehru Memorial College, Puthanampatti – 621007, Tamil Nadu, India

*Corresponding author Email: vikramprabhu88@gmail.com

Abstract: Nanotechnology is emerging field with its application in science and technology for the purpose of manufacturing new materials at the nanoscale level. It is an interdisciplinary field and formed from the convergence of chemistry, physics and biology. Nanomaterials and nanostructures, usually ranging from 1 to 100nm, based on the specific characteristics such as size, morphology and distribution exhibit their remarkable potentials in the field of biology and medicine. Various techniques including chemical and physical methods were developed to prepare metal nanoparticles. These methods have resulted in the creation of a production attitude that is appropriate and compatible with the environment due to environmental pollution, low yield, high cost and low quality of nanoparticles were synthesized. Therefore, Biosynthesis of nanoparticles has received considerable attention due to their eco friendly synthesis. **Conclusion:** There green methods are low cost, fast, efficient and generally lead to the formation of crystalline nanoparticles with a variety of shapes (spherical, rods, prisms, plate, needles, leafs or dentrits) with size between 1 and 100nm.

Key words: Nanotechnology, Nanoparticles, Biological method, Microorgansims, Plants.

Medicinal Plants Used for The Treatment Of Malaria In Kolli Hills Region, Namakkal District, Tamil Nadu, India: A Review

S. Yogisha., Raja, S., Vasanthakumar, D and Karuppannan, P*

P.G and Research Department of Zoology,

Vivekanandha College of Arts and Sciences for Women (Autonomous), Elayampalayam,

Tiruchengode – 637 205, Namakkal Distict, Tamil Nadu, India.

*Corresponding Author Email: vikramprabhu88@gmail.com

ABSTRACT

Introduction: Malaria is one of the third killing diseases among communicable diseases in the world. It is infecting approximately 300–500 million people every year. In 2015, WHO reported 214 million malaria cases and 438000 deaths due to this disease. Unfortunately, 70% of all malaria deaths occur in children less than five years of age. Malarial synthetic drug was high expensive and cause unwanted side effects. The herbal plants were used for the treatment of malaria in various parts of the world without side effect. Hence the present study was focused to document the antimalarial plants used in the Kolli Hills, Namakkal district, Tamil Nadu. Methodology: Information about medicinal plants used for the treatment of malaria was collected from Google scholar and research articles. **Results:** 17 plants under the 15 families were used by traditional healers of Kolli Hills were documented in the present review. Among the 17 plants, *Eucalyptus grandis* and *Zingiber officinale* has no scientific evidences. Further mechanism of herbal medicine against malaria fever will be studied. **Conclusion:** From this study, it is concluded that medicinal plants are widely used for the treatment of many diseases including malaria and above-mentioned plants were used for the treatment of malaria after detailed experiments.

Keywords: Medicinal plants, Kolli Hills, Malaria, Plasmodium parasites, *Anopheles* species.

Ischemic Stroke and Inflammation Research

Bao Liao[1], Nurul Hana Zainal Baharin[2], Ooi Chai Theam[3]

Corresponding author's email: scilb1015@126.com

Abstract

Background: The objective of this study is to present a comprehensive overview of the relationship between ischemic stroke and inflammatory mechanisms research over the past decade, with the goal of elucidating the knowledge structure, identifying research hotspots, and predicting future trends in the field. **Methods:** Regular and review articles on IS and inflammatory mechanisms research were retrieved from the Web of Science Core Collection (WOSCC) between 2014 and 2023. The R package "bibliometrix," along with VOSviewer and CiteSpace, were used to identify leading topics and generate visual maps of countries/regions, organizations, authors, journals, and keyword networks in the related field. **Results:** A total of 5,476 publications on IS and inflammation were included. The publications mainly originated from the USA, China, and Europe. The Institutional Cooperation Network reveals that a substantial portion of the collaborations is concentrated among Chinese institutions. Significant keywords include "oxidative stress," "reperfusion injury," "microglia," "toll-like receptors," and "microRNAs," highlighting significant areas of research. The co-occurrence analysis revealed nine clusters, such as "angiogenesis," "brain microvascular," "microglial polarization," "gut microbiota," and "ferroptosis." **Conclusion:** This bibliometric study mapped out a fundamental knowledge structure consisting of countries, institutions, authors, journals, and articles in the research field of IS and inflammation over the past 10 years. Future research trends are likely to concentrate on the mechanisms of ferroptosis and gut microbiota. Subsequent trends in this field are expected to identify and develop novel inflammation-targeting therapy strategies to effectively prevent and treat ischemic stroke.

Keywords: *bibliometric analysis, visualization analysis, ischemic stroke,* inflammatory mechanisms*, web of science*

e-abstract

Association Between Mindfulness-Based Interventions and Psychological Capital: A Meta-Analysis

Mengjie Xia[1, 2], Junqiang Wang[3], Dongjun Bi[4], Lili Chen[4], Huiping Mao[5], Xiaohong Liu[2], Lili Feng[6], Fang Huang[2] *, Zakaria Dato' Hj. Zainooriah[1 *], Nordin Bin Rusli[1 *]

1. Faculty of Medicine, MAHSA University, Jenjarom, Malaysia
2. School of medicine, Taizhou University, Zhejiang, China
3. Department of obstetrics and gynecology, Taizhou Hospital of Zhejiang Province affiliated to Wenzhou Medical University, Zhejiang, China
4. Department of Nursing, Taizhou Hospital of Zhejiang Province affiliated to Wenzhou Medical University, Zhejiang, China
5. Department of Nursing, Taizhou First People's Hospital, Zhejiang, China
6. Department of Nursing, Taizhou Central Hospital(Affiliated Hospital of Taizhou University), Zhejiang, China

* Corresponding author‘s Email:
Fang Huang: hfyxy@tzc.edu.cn
Zainooriah Dato’ Hj. Zakaria: zainooriah@mahsa.edu.my
Rusli Nordin: rusli@mahsa.edu.my

Introduction:
Given that the effect of the mindfulness-based intervention (MBI) on psychological capital (PsyCap) remains unclear, we conducted a meta-analysis of randomized controlled trials (RCT) to assess this effect. The purpose of this study was to explore the effects of MBI on PsyCap, including hope, self-efficacy, resilience, and optimism.
Methods:
Literature searches were conducted using the keywords "mindfulness" and "psychological capital" in PubMed, the Cochrane Library, Web of Science, and EMBASE up until May 2024. In this meta-analysis, 7 RCTs with 569 participants were incorporated.
Results:
PsyCap scores increased after the MBI compared to the corresponding control group, with a statistically significant combined difference according to a random effects model (SMD: 0.91, 95% CI: 0.68 to 1.14, I2 = 78%). MBIs had a large, significant effect on hope (SMD = 1.77, 95% CI = 0.77 to 2.76, p = 0.0005) and resilience (SMD = 0.92, 95% CI = 0.46 to 1.38, p ＜ 0.0001). MBIs had a moderate, significant impact on self-efficacy (SMD = 0.76, 95% CI = 0.44 to 1.07, p ＜0.00001). They had no significant impact on optimism (SMD = 0.71, 95% CI = -0.14 to 0.56, p = 0.1) (Figure 1.2).
Conclusion:
MBIs have shown promising effects in improving PsyCap, particularly hope, self-efficacy, and resilience. Given the current study's limitations, future studies should especially investigate potential effect-affecting factors, longer follow-up evaluations, and methodological quality.

Keywords
Mindfulness-Based Intervention; Psychological Capital; Meta-Analysis

Prevalence Of Anaemia Among a Private University in Malaysia: Cross Sectional Study

Ivan Rolland Karkada[1,3*], Abdun Nafay Appapillai[2], Jewel L. Nambiar[2], Monesh Kumar[2], Hajira Shahid[2], Selashini Ravindran[2], Muhammad Emir Khalid Bin Hashim[2], Teng Meng Li[2], Chin Wang Xin[2], Udayakumar Venkatesan[2], Tee Shin Kwan[2], Ahirimangalam Senthil Kumar Durai Prasath[2], Suresh V. chinni [2*]

[1]*Unit of Physiology, School of Medicine, MAHSA University, Malaysia*

[2]*Faculty of Medicine, MAHSA University, Malaysia*

[3]*International medical school, Management Science University, Malaysia*

***Corresponding Author**: Ivan Rolland Karkada, Email: ivanrolandk@gmail.com

Introduction: The purpose of this study is to determine the prevalence of Anaemia amongst the students of MAHSA University in Malaysia. The sample size consisted of 355 students of all faculties, predominantly medicine. **Methods:** A cross-sectional study was conducted using questionnaires and anthropometric measurements (BMI, Harvard step fitness index, oxygen saturation levels, measurements of upper arm, neck, head, buttock, waist, calf, second and fourth digit) along with an SOP finger prick which helped us to assess the amount of Haemoglobin concentrations. **Results:** The results of this study concludes that haemoglobin concentration of male and female among the MAHSA University population is in line with the international range for haemoglobin concentration set by the WHO. The prevalence of anaemic status in this pilot study among the MAHSA University students is in line with the earlier research which shows that Malaysian population has high prevalence of low haemoglobin concentration, with a prevalence of about 15.8%. **Conclusion:** The participants who had low concentration of haemoglobin were notified and are undergoing further investigations including diagnostic tests and follow up by our faculty.

Keywords: Anemia, anthropometric measurements, Harvard step fitness index, oxygen saturation

Research Progress of TRIM56 in Tumors

Jie Gao[1,2], Sabah Mohammed Al-Harazi[2*], Hong Zeng[1], Muhammad Za'im[2], Rizhu Li[2,3]

[1]School of Basic Medicine, Youjiang Medical University for Nationalities, Baise, 533000, Guangxi, PR China
[2]Mahsa University, Jalan SP 2, Bandar Saujana Putra, 42610, Jenjarom, Selangor, Malaysia
[3]School of Clinical Medicine, Youjiang Medical University for Nationalities, Baise, 533000, Guangxi, PR China

[*]Corresponding author's email: mohammedsabah@mahsa.edu.my

Tripartite Motif Containing 56 (TRIM56) is an important member of the TRIM protein family that has gotten a lot of attention because it plays a big part in how tumours start and grow. Research has shown that TRIM56 promotes the growth of various malignancies, such as Cassibian sarcoma, breast cancer, and glioblastoma, and in some types of cancer with specific predisposing factors, such as ovarian cancer and multiple myeloid. It prevents leukaemia, liver cancer, lung adenocarcinoma, and tumours from growing and proliferating cancer cells. Consequently, it is possible that TRIM56 regulates tumour proliferation, metastasis, and other processes in both directions. To enhance our understanding of the composition and functional interactions of the TRIM56 protein among its constituent domains, as well as its potential pathogenic mechanisms, we have outlined its structure and function. These mechanisms are primarily involved in the estragon signalling pathway, NF-κB signalling pathway, the TLR3/TTRIF signalling pathway, and other pathways that are frequently dysregulated during tumorigenesis and development. Also, TRIM56 controls the epithelial-mesenchymal transition (EMT), which makes cancer cells move around more and become more aggressive. Elevated levels of TRIM56 have been associated with tumour growth, metastasis, and a poor prognosis, suggesting its potential as a therapeutic target and prognostic biomarker. Although TRIM56's function in tumours have been better understood, research is needed to clarify the precise mechanisms of TRIM56 in cancer and explore the possibility of using it as a target for therapeutic interventions.

Keywords: TRIM56; tumour; mechanism

e-abstract

Developing, Validation and Evaluation for Quality of Life Questionnaire for Elderly in Nursing Home Indonesia

Anny Rosiana Masithoh[1], Rusli bin Nordin[2], Vetriselvan Subramaniyan[3]*

[1] Nursing Department, Universitas Muhammadiyah Kudus, Indonesia
[2] Mahsa University, Malaysia
[3] Monash University, Malaysia

* Corresponding author's email: annyrosiana@umkudus.ac.id

Introduction: Measuring quality of life for elderly is important. In Indonesia, the measurement of QoL has not been widely studied . The developing of the questionnaire is needed to know the elderly condition comprehensively. **Methods:** This research and development method. The developed questionnaire is tested quantitatively, used validity and reliability test. The test used are EFA, CFA for validity test. Moreover, the Cronbach alfa and kappa statistics used to check the reliability. The study uses SPSS 27 and amos 26. The setting of this study is in the seven public nursing home, Central Java Province. The population of this research is 460 elderlies. The sample of this research is divided into two, they are sample for pilot project with 30 elderlies, and 460 elderlies for the research . **Results:** The questionnaire QoL 46 is the combination between SF36 Questionnaire and WHOQOL BREF. There are 11 domains and 46 questions. Based on the result in the pilot testing, it found that the questionnaire is valid and reliable with Cronbach alfa 0.986. Moreover, the sociodemographic data of respondents found that sex (female 56%), educational background (primary school 83%), occupational background (farmer 50%), age (60-69 years old 39%) income (none 97%) and reason stay at nursing home (referrals from other homes 54%). The KMO and bartletts' test score is 0,935, Chi-square 3938,934, degree of freedom 0,890, CMIN/df 3,326, GFI 0,709, AGFI 0,662, TLI 0,775, CFI 0,798 and RMSEA 0,086. **Conclusion:** The QoL 46 able to measure the quality of life for elderly comprehensively with 11 domains. The procedure of QoL 46 is developed based on several stages and tested quantitatively. Moreover, the questionnaire is valid and reliable that can be used in in nursing home.

Keywords
Developing questionnaire, elderly, evaluation, quality of life, validation

e-abstract

The Relationship Between the Vitamin D Receptor Gene Polymorphism and Osteoporosis: A Review Article

Min Zhou[a,b], Sabah Al-Harazi[a*], Muhammad Za'im Bin Sahul[a], Yaqin Pang[b]

[a]Mahsa University, Jalan SP 2, Bandar Saujana Putra, 42610, Jenjarom, Selangor, Malaysia
[b]School of Public Health and Management, Youjiang Medical Univerisity for Nationalities, 98 Chengxiang Road, 53300, Baise, Guangxi, China

* Corresponding authors. E-mail address: mohammedsabah@mahsa.edu.my

Osteoporosis, characterized by a decline in bone mineral density, significantly heightens the risk of bone fractures. The majority of osteoporosis cases are diagnosed in aged middle-aged and above. Due to its associations with morbidity and mortality, diminished quality of life, and the substantial costs associated with its treatment, osteoporosis has emerged as a prominent public health concern. The vitamin D receptor gene (VDR) is extensively expressed across various human tissues. Furthermore, four single nucleotide polymorphism (SNP) sites within the VDR gene, namely FokI, BsmI, ApaI, and TaqI, have been associated with osteoporosis. The correlation between osteoporosis and VDR gene polymorphism exhibits significant variability in different racial and ethnic groups. Therefore, using larger samples in collaborative studies involving multiple countries, regions, races, and ethnicities could contribute to a better understanding of the association between VDR gene polymorphism and osteoporosis. This review primarily focuses on the subject of osteoporosis and its correlation with variations in the VDR gene.

Keywords: osteoporosis; polymorphism; vitamin D receptor gene

e-abstract

Research Progress of Natural Polysaccharides Based on Intestinal Flora Regulation to Improve Type 2 Diabetes Mellitus

Rong Li[1,2], Hua-ni Chen[1,2], Muhammad Fattah Fazel[2], Venkata Sathya Saiappala Raju Velaga[2*]

[1]School of Pharmacy, Youjiang Medical College for Nationalities, Baise 533000, China; lirong@ymcn.edu.cn (R.L.); chenhuani@126.com (H.C.)
[2]Faculty of Pharmacy and Biomedical Sciences, MAHSA University, Bandar Saujana Putra 42610, Malaysia muhammadfattah@mahsa.edu.my (M.F.F.)

* Correspondence: saiappala@mahsa.edu.my (V.V.)

Natural polysaccharides are widely found in the cells of plants, animals, and microorganisms. Numerous studies have shown that natural polysaccharides can interact with intestinal flora, stimulate the flora structure of intestinal microorganisms by regulating or producing metabolites, and play an important role in stabilizing blood sugar, improving insulin resistance, and improving intestinal function. Type 2 diabetes mellitus (T2DM) is a typical chronic metabolic disease, and its onset and progression are closely associated with dysbiosis of the intestinal flora. Treatment and intervention of T2DM by regulating intestinal flora have become directions in diabetes treatment. Natural polysaccharides can treat and alleviate diabetes by affecting the species, quantity, abundance, and metabolic pathway of the intestinal flora. This study reviewed the natural polysaccharides that improve T2DM by regulating intestinal flora in recent years, including the relationship between intestinal flora and T2DM and the regulation and mechanism of plant polysaccharides on the intestinal tract of T2DM. This work serves as a guide for future utilization of natural polysaccharide resources and the management of T2DM.

Keywords: Polysaccharide; T2DM; Intestinal flora; Mechanisms

e-abstract

Phytochemicals for diabetes: A mini-review of the research progress on hypoglycemic components of medicinal plants

Huani Chen [12], Li Qian[3], Xinlian Wen[3], Yuan Zhou[3], Junli Wang [1], Nagaraja Suryadevara[2*]

[1]School of Pharmacy, Youjiang Medical University for Nationalities, Baise, 533000, Guangxi, China.
[2]Department of Biomedical Sciences, MAHSA University, Jenjarom, 42610, Selangor Dahrul Ehsan, Malaysia.
[3]Drug and Food Vocational College, Guangxi Vocational University of Agriculture, Nanning, Guangxi, 530007, China

*Corresponding author Nagaraja Suryadevara: nagaraja@mahsa.edu.my

Diabetes is a metabolic disease mainly characterized by hyperglycemia. Controlling and reducing blood sugar is an effective way to treat diabetes. In this paper, hypoglycemic substances derived from medicinal plants were analyzed, such as polysaccharides, saponins, polyphenols, alkaloids, and essential oil were reviewed. This review presented in this article focus on the hypoglycemic effects of certain medicinal plants. This holds considerable importance for furthering the study and development of natural medicinal plants, and improving diabetes prevention and treatment. In order to offer a theoretical foundation for studying medicinal plants in diabetes treatment and daily prevention, as well as related treatments.

Keywords: Medicinal plants; non-volatile substances; volatile substances; hypoglycemic; mechanism of action