



Annai Violet Arts & Science College

(Affiliated to the University of Madras, Co-Ed | NAAC Reaccredited)

Seek

Strive

Succeed

Two Day
INTERNATIONAL CONFERENCE
On



NEOPERSPECTIVES IN
**Biochemical,
Chemical &
Microbial Techniques**
(ICNBCMT- 2024)

Jointly Organized by
**IQAC, Department of Biochemistry
Chemistry & Microbiology**

20th & 21st February, 2024

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**Annai Violet Arts and Science College
Mode: Hybrid**



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NEOPERSPECTIVES IN BIOCHEMICAL, CHEMICAL &
MICROBIAL TECHNIQUES

(ICNBCMT-2024)

Editors

Dr. C. INITHA LEBANON EBENCY

Dr. R. HARINI

Mrs. S. JEBA SHEEJA

Mrs. B. ANGEL JENEFA

ABOUT THE COLLEGE

Annai Violet Arts & Science College started by Nesarathinam Educational Trust in the year 1997 with a view to facilitate students with futuristic education to compete in the unforeseen global future. The Management believes that right knowledge is a basic requirement for the pursuit of spiritual aims, righteous conduct, integration of caste and creed, word and deed and the ultimate aim is to “Seek, Strive, Succeed” which is the motto of the college

ABOUT THE DEPARTMENTS

The Departments of Biochemistry, Chemistry and Microbiology aims to create awareness about the in-depth research in biological sciences. The departments works diligently and faithfully to perform the teaching tasks to provide qualified graduates, practically and scientifically to serve the community.

Events are organized every year to revolutionize students into balanced holistic individuals who can combine academic expertise with creative energies to forge their way forward and get an edge over their peers.

SCOPE OF THE CONFERENCE:

Many of the recent advances in biology have been driven by the development of new technologies and instrumentation. Each of these technologies has opened new opportunities to explore both fundamental and applied biological problems. Moreover, these technologies have proven to be synergistic each operating in conjunction with the others to amplify their potentials. It provides researchers with new tools to conduct their research and places a strong emphasis on immediate practical relevance and potential to advance new biological applications.

Chev. Dr. N. R. Dhanapalan
Founder & Chairman
Annai Violet Group of Institutions



MESSAGE

I take immense pride in observing that the Department of Biochemistry, Chemistry & Microbiology is jointly organising a Two-day International Conference on “Neoperspectives in Biochemical, Chemical and Microbial Techniques” on 20th & 21st February 2024. This program unites us together and motivates us to set the forum for the researchers, scientists, students and institutions in enlightening their knowledge and scholastic information. I value that the gathering consolidates technical mediums, similar to the lead of paper introductions, to examine and address the more up to date methods relating to Biological and Chemical Sciences. This establishment generally targets teaching College in the high-level methodologies, and I am sure that this conference stands obvious to it. I am certain that the gathering would work with the members with their plentiful aptitude.

I express my genuine wishes to the departments for sorting out such a significant program. I urge the group to keep on accomplishing the great work. The institution always aims at educating students in the advanced approaches and the conference stands evident to it. I am sure that the conference would facilitate the participants with their abundant expertise.

I express my sincere wishes to the departments for organising such a relevant program.

Chev.Dr.N.R. Dhanapalan



Mr. N. R. D. Prem Kumar
Secretary
Annai Violet Group of Institutions

MESSAGE

I am delighted in acknowledging the two days International Conference on “Neoperspectives in Biochemical, Chemical and Microbial Techniques”. This gathering is pointed towards growing the program by remembering all viewpoints connected with the new advances for innovation and instrumentation. The variety of specialisations and related subjects will empower us to accomplish our designated command and vision.

I value the getting sorted out panel for showing a distinct fascination with coordinating an effective gathering and contributing groundbreaking thoughts and exploration discoveries. I wish them well for their undertakings to spread information.

Mr.N.R.D. Prem Kumar



Dr. P. E. R. Premchand
Joint Secretary
Annai Violet Group of Institutions

MESSAGE

It gives me immense pleasure that the Department of Biochemistry, Chemistry and Microbiology is jointly organising a Two-day International Conference on “Neoperspectives in Biochemical, Chemical and Microbial Techniques” to be held on 20th and 21stFebruary, 2024. This conference provides a gathering to specialists, scholastics, researchers, and students to examine propels in Compound, Biochemical, and Microbial Sciences. I stretch out my appreciation to the division for moving forward in dispersing information to the understudies through examination and educating.

I might want to see the value in the convener and board individuals for their excellent endeavours in leading the virtual gathering for students and specialists which will clear the way for future innovative work.

I wish all of you a pleasant hybrid experience and we hope that ICNBCMT-2024 will be a successful and enjoyable event for all participants.

Dr.P.E.R. Premchand



Dr. C. Initha Lebanon Ebency
Principal
Annai Violet Arts and Science College

MESSAGE

It is quite gratifying to note that the Department of Biochemistry, Chemistry and Microbiology is jointly organising a Two-day International Conference on “Neoperspectives in Biochemical, Chemical and Microbial Techniques” on 20th and 21st of February 2024. This meeting will assist us with tracking down ways of social affair and examine scholastic procedures successfully conquering scientific areas. By attending such meetings, the students are presented to recent advances in their separate disciplines.

I want to offer my earnest thanks to the getting sorted out council and each and every individual who has endeavoured to make this meeting a reality and a triumph. I express my most profound thanks to the recognized featured experts and Warning individuals.

I would like to express my deepest gratitude to the distinguished Keynote speakers and Advisory members.

Dr. C. Initha Lebanon Ebency



Mrs. Japhia Solomon

Vice Principal

Annai Violet College of Arts & Science

MESSAGE

"Winners are ordinary people with extraordinary determination". The Department of Biochemistry, Chemistry and Microbiology of Annai Violet Arts and Science College stands as an epitome for the quote with its yet another venture by conducting a Two-day International Conference on "Neoperspectives in Biochemical, Chemical and Microbial Techniques" on 20th& 21st February 2024. It demands monumental integrity to take such a leap to raise the quality of education for students through these initiatives.

Most of all, I thank the participants for enriching these annual conferences by your presence. I hope you will enjoy the content as well as have an opportunity to renew old friendships, make new friends, get new ideas, and above all, have a good time. I wish you all good luck!

Mrs. Japhia Solomon



Mrs. S. Jeba Sheeja

Assistant Professor and Head
Department of Chemistry
Annai Violet Arts & Science College

MESSAGE

It is my proud privilege and honour that the Department of Biochemistry, Chemistry and Microbiology are organising an International Conference on “Neoperspectives in Biochemical, Chemical and Microbial Techniques (ICNBCMT-2024)” on 20th & 21st, February 2024.

The major objective of this conference is to provide a common platform to academicians, research scholars and students to share their ideas and research experiences in various aspects of biological and chemical sciences.

The response to the call for papers was overwhelming and papers have been received from researchers and academicians from reputed institutes and organisations.

We are extremely thankful to our management, speakers, advisory committee members, participants, reviewers, session chairs, organising committee members, and all those who have helped us to organise and to make it a success.

I extend my best wishes to the organising team to achieve a grand success in the conference.

Mrs. S. Jeba Sheeja

Convenor



Mrs. Angel Jenefa B.

Assistant Professor and Head
Department of Microbiology
Annai Violet Arts & Science College

MESSAGE

I am extremely happy and delighted that the Department of Biochemistry, Chemistry & Microbiology is hosting a Two-day International Conference in “Neoperspectives in Biochemical, Chemical and Microbial Techniques” on 20th & 21st February 2024. Conferences like these sure will provide an affable environment for the academicians and research scholars to freely exchange their views and ideas, with considerable mutual benefits, to shape up the future strategy for research in the field of science and technology. The whole spectrum of topics that are going to be discussed during ICNBCMT-2024 will definitely provide an excellent opportunity to all delegates to exchange information on the latest developments.

“Growth is never by mere chance; it is the result of forces working together.”

With this quote I wish to extend my heartfelt felicitations to our Patrons, Advisory Committee members, Resource persons, Organising committees & Technicians for their valuable support.

Mrs. Angel Jenefa B

Convenor



Dr. R. Harini
Assistant Professor and Head
Department of Biochemistry
Annai Violet Arts and Science College

MESSAGE

I am extremely pleased that the Department of Biochemistry, Chemistry and Microbiology are organizing an International Conference on “Neoperspectives in Biochemical, Chemical and Microbial Techniques (ICNBCMT-2024)” on 20th& 21st of February 2024. This conference serves as a pivotal platform for scholars, researchers, and practitioners from around the world to converge, exchange insights, and chart the course for the future of our disciplines.

Throughout this conference, we have the privilege of exploring cutting-edge research, engaging in stimulating discussions, and fostering meaningful collaborations. As convenors of this esteemed gathering, it is our privilege and responsibility to facilitate an environment conducive to collaboration, innovation, and knowledge exchange. I am sure we, together, can seize this opportunity to inspire one another, challenge conventional wisdom, and collectively shape the future of biochemical, chemical, and microbial sciences. I am also confident that we can unlock new frontiers of knowledge and leave a lasting impact on generations to come.

As we embark on this intellectual journey together, let us remain steadfast in our commitment to advancing knowledge, fostering innovation, and ultimately, contributing to the betterment of society. I extend my deepest gratitude to the Management and Participants for their invaluable contributions to making this conference a resounding success.

I wish you all fruitful deliberations and look forward to the transformative outcomes that will undoubtedly emerge from our collective endeavors.

Dr. R. Harini
Convenor

CONFERENCE TEAM

Patrons

1. Chev.Dr.N.R.Dhanapalan, Chairman
2. Mr. N. R.D. Prem Kumar, Secretary
3. Dr.P.E.R.Premchand, Joint Secretary
4. Dr.C.Initha Lebanon Ebency, Principal
5. Mrs.Japhia Solomon, Vice Principal & IQAC Co-ordinator

Convenors

1. Dr.R. Harini
Head, Department of Biochemistry
2. Mrs. S.Jeba Sheeja
Head, Department of Chemistry
3. Mrs. B. AngelJenefa
Head, Department of Microbiology

Advisory Committee Members

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3. Dr. Meera Murugesan, Principal,
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4. Dr. S. Amalraj, Professor, Centre for Environmental Studies, Anna University.

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7. Dr.K.Geetha- Asst. Prof.(Microbiology)
8. Dr.A.Gejalakshmi- Asst. Prof.(Microbiology)

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**International Conference on
“Neoperspectives in Biochemical, Chemical and
Microbial Techniques”
(ICNBCMT - 2024)**

Programme Schedule

DAY – I: 20th FEBRUARY 2024, TUESDAY

10.00 am - 10.30 am	<p>Prayer song</p> <p>Inauguration – Lighting of traditional lamp</p> <p>Felicitation</p> <p>Welcome Address Mrs. B. Angel Jenefa Assistant Professor & Head Department of Microbiology Annai Violet Arts and Science College</p> <p>Inaugural Address Dr. C. Initha Lebanon Ebency Principal Annai Violet Arts and Science College</p> <p>Releasing of Conference Proceedings</p>
10.30 am - 11.30 am	<p>TECHNICAL SESSION I</p> <p>Special Talk I</p> <p>Topic : Waste to Bioenergy</p> <p>Dr. AshokKumar Veeramuthu Professor & Head Centre for Waste Management and Renewable Energy, SDC Saveetha Institute of Medical and Technical Sciences (SIMATS) Saveetha University, Chennai Visiting Professor, Department of Chemical Technology Chulalongkorn University, Thailand.</p>
11.30 am – 11.45 am	<p>Tea Break</p>
11.45 am – 1.00 pm	<p>Contributory Papers – Oral Presentation Chair Person: Dr. S. Radha, Dr. S. Uma Sarulatha</p>

1.00 pm – 2.00 pm	Lunch
2.00 pm -3.00 pm	<p>TECHNICAL SESSION II</p> <p>Special Talk II</p> <p>Topic : Synergistic effect of NilavembuChoornam-gold nanoparticles on antibiotic-resistant bacterial susceptibility and biofilm formation</p> <p>Dr. Ramachandran Samivel Assistant Professor Department of Optometry College of Applied Medical Sciences King Saud University, Riyadh, Kingdom of Saudi Arabia.</p>

DAY – II: 21st FEBRUARY 2024, WEDNESDAY

10.00 am - 11.00 am	<p>TECHNICAL SESSION III</p> <p>Special Talk III</p> <p>Topic: Stimuli Responsive Self-Healable polymers in Water Treatment.</p> <p>Dr. Arunbabu Dhamodaran Assistant Professor Department of Chemistry Madanapalle Institute of Technology and Science (MITS) Chittoor District Andhrapradesh, India</p>
11.00 am - 11.15 am	Tea Break
11.15 am - 12.30 pm	TECHNICAL SESSION IV

	<p>Special Talk IV</p> <p>Topic :Key techniques and career prospects in Biochemistry</p> <p>Dr.Kalirajan Arunachalam Senior Lecturer Department of Chemistry and Biology School of Natural and Applied Sciences Mulungushi University Kabwe 80415, Zambia.</p>
<p>12.30 pm - 1.30pm</p>	<p>Lunch Break</p>
<p>1.30 pm - 3.00 pm</p>	<p>Valedictory Dr. D. Prabhu Assistant Professor and Head i/c Department of Microbiology University of Madras</p> <p>Conference Report Dr. R. Harini HOD, Department of Biochemistry Annai Violet Arts and Science College</p> <p>Declaration of awards Mrs. Japhia Solomon Vice Principal & IQAC Coordinator Annai Violet Arts and Science College</p> <p>Vote of thanks Mrs. S. Jeba Sheeja HOD, Department of Chemistry Annai Violet Arts and Science College</p>

**INTERNATIONAL CONFERENCE ON “NEOPERSPECTIVES IN BIOCHEMICAL,
CHEMICAL AND MICROBIAL TECHNIQUES”(ICNBCMT - 2024)**

PAPER PRESENTATION

S.NO	PG.NO	TITLE OF THE PAPER
1	P-01	Invitro antioxidant and anti-hyperglycemic activity of aqueous and ethanolic extracts of Mangifera indica seed kernel Deepika. S and Dr. N. Sudha Department of Biochemistry, Ethiraj College for Women
2	P-02	Comparative biochemical study on the metabolic profile of early and prolonged PCOS patients with similar BMI Kavitha R, Dr. M. Sujatha, Department of Biochemistry, Ethiraj College for Women HOD, Department of Biochemistry, Ethiraj College for Women
3	P-03	Phytochemical screening and antimicrobial activity of Senna auriculata (tanner's cassia) against selective pathogens causing urinary tract infection in normal and pregnant women Indumathy.V, R.Karthika, P.Harini, S.Keerthana, A.Aaliya Banu, K.Santhiya Assistant Professor, Department of Biochemistry, Theivanai Ammal College for Women
4	P-04	Phytochemical characterization, antimicrobial and wound healing activity of combined mixture of ethanol extract of rhizomes of Acorus calamus (sweet flag) and bentonite clay (naamakatti) Jayashree. J M and Dr. N. Sudha Department of Biochemistry, Ethiraj College for Women
5	P-05	An in vivo experimental approach to reveal the biological impact of commercially available crisps on koi carp Jemima. N, Dr. N. Sudha and Dr. P. Parimala Department of Biochemistry, Ethiraj College for Women
6	P-06	Antimicrobial efficacy and antidiabetic activity of Ethanolic extract of flowers of Melia dubia (malabar neem) Kaviya. S and Dr. N. Sudha Department of Biochemistry, Ethiraj College for Women
7	P-07	Cytotoxicity and DNA fragmentation induced Apoptosis on HeLa cell line by polyherbal concoction Sukkumallikashayam Priya J, Monika Associate Professor, Department of Biochemistry, Ethiraj College for Women PG Scholar, Department of Biochemistry, Ethiraj College for Women
8	P-08	A review on therapeutic effects of brown algae Sargassum species G. MercycaMary and Dr.V. Shyamala PG Student, Annai Violet Arts and Science College Assistant Professor, Annai Violet Arts and Science College

9	P-09	<p>Assessment of antibacterial activity of squid ink extracts against multidrug resistant food borne pathogens S. IrfanaTabassum ,AmthulAzeez and K. Kavitha Research Scholar, Department of Zoology, Justice Basheer Ahmed Sayeed College for Women Principal, Head & Associate Professor, Department of Zoology, Justice Basheer Ahmed Sayeed College for Women Associate Professor, Department of Microbiology, Madras Christian College</p>
10	P-10	<p>Gracilariafollifera Capped Selenium Nanoparticles: Green synthesis, Characterization and Cytotoxicity Assessment Subhiksha. S and K. Sonia PG Biochemistry, Ethiraj Collegefor Women Assistant Professor in Chemistry, Department of Biochemistry, Ethiraj College for Women</p>
11	P-11	<p>Molecular targets on insect control of alkaloids derivative insecticide and their impact on insecticide resistance using bioinformatics techniques Shunmugavadivu R, Hemandhini.R Assistant professor, Department of Biochemistry, SRM Dental College MBBS 3rd year student Saveetha Medical College</p>
12	P-12	<p>Antifungal activity of zoo-mediated cuo nanoparticles using sea urchin test against isolated fungal pathogen from storage grain Karnan R, Sukumaran M and Shunmugavadivu R PG and Research Department of Zoology, Rajah Serfoji Government College (Aut.). Assistant professor, Department of Biochemistry, SRM Dental College</p>
13	P-13	<p>Ai based machine learning algorithms Anti-microbial resistance modelling. Dr. Vinodhini. V Department of Pharmacology, SRM Dental College, Ramapurams</p>
14	P-14	<p>A study on synapis alba (yellow mustard seed)-mediated green synthesis of silver nanoparticles and its antimicrobial, anti-inflammatory, and anti-diabetic properties K Aarthy, Dr. Safiya Department of biochemistry, Ethiraj College for Women</p>
15	P-15	<p>Sesquiterpene coumarins of Asafoetida mask the functional site of pathogenic proteins of SARS-CoV-2 to combat COVID-19 disease – A pilot study Surekha Ramachandran Department of Biochemistry, SRM Dental College</p>
16	P-16	<p>Antimicrobial activity of polyphenols in <i>Moringa oliefera</i> against uropathogens Soniya R, Savithri S, Sangeeta R SRM Dental College</p>
17	P-17	<p>Green chemistry approaches to the synthesis and characterization of gold nanoparticles using Cotton seeds with Tween-20 and efficient application of antibacterial activity M. Prabakaran Department of Chemistry, KarpagaVinayaga College of Engineering and Technology, Palaynoor, Maduranthakam -603308.</p>

18	P-18	<p>Synthesis, Characterisation and Biological Activity of Manganese Doped Cadmium Sulphide Nanoparticles</p> <p>V. Umamageshwarana,b , D. Ramasamy*</p> <p>Department of Chemistry, Government Thirumagal Mills College, Gudiyattam, Vellore Dt. PG and Research Department of Chemistry, KMG College of Arts and Science, Gudiyatham, Vellore 632803.</p>
19	P-19	<p>Anticancer Activity and Molecular Docking Studies of Ni (II), Zn (II), Cd (II) And Hg (II) of Dptpp - Based Pyrazol Pyrimidine Complexes</p> <p>Dr. DMohanambal , Dr. J. Edward Jeyakumar</p> <p>Assistant Professor, Department of Chemistry, Loyola Institute of Technology, Palanchur, Chennai-600123</p> <p>Assistant Professor, Department of Chemistry, DMI College of Engineering, Palanchur, Chennai-600123</p>
20	P-20	<p>Synthesis and Characterization of Schiff base from 3,5-Di chloro Salicylaldehyde with ethylene diamine</p> <p>P. Shakila, M. Santhana raj prabhu</p> <p>PG and Research Department of Chemistry, Muthurangam Government Arts College (Autonomous), Vellore-632 002</p>
21	P-21	<p>Transition metal complexes of Bis (Salicylaldehyde) Ortho phenylene diamine Schiff base complexes: Synthesis, characterization and biological activities</p> <p>G. Ramasamy & D. Ramasamy</p> <p>Assistant Professors, PG & Research Department of Chemistry, Government Thirumagal Mills College, Gudiyattam, Vellore Dt. Tamilnadu-632602.</p>
22	P-22	<p>Synthesis and Characterization of Schiff base from 3,5-Di Iodo Salicylaldehyde with ethylene diamine</p> <p>V. Palani M. Santhana raj prabhu</p> <p>PG and Research Department of Chemistry, Muthurangam Government Arts College (Autonomous), Vellore-632 002</p>
23	P-23	<p>Investigation of the effect of Mg²⁺ doping on the mechanical properties of Bis (hydrogen maleate) magnesium chloride non linear crystal</p> <p>Sudharsan.G, Dr.K.Premlatha , Kowshik.V</p> <p>, Department of Chemistry, Annai Violet College of Arts and Science College</p>
24	P-24	<p>Physicochemical, Preliminary phytochemical investigation and antimicrobial activity of plant Trichodesma species.</p> <p>R. Manimaran, D. Ramasamy</p> <p>Research Scholar, Assistant Professor, Department of Chemistry, Government Thirumagal Mills College, Gudiyattam - 632602, Vellore Dt. Tamil Nadu, India.</p>
25	P-25	<p>Preliminary phytochemical screening and its in-vitro Antibacterial activity of Capparis Species.</p> <p>V. Sabithra, D. Ramasamy</p> <p>Research Scholar, Assistant Professor, Department of Chemistry, Government Thirumagal Mills College, Gudiyattam - 632602, Vellore Dt. Tamil Nadu, India.</p>

26	P-26	<p>Green Synthesis and Characterization of Zinc Selenide nanoparticles and it's Photocatalytic application</p> <p>E. Jagana, V. Umamageshwarana,, S. Praveen Kumara and D. Ramasamy PG and Research Department of Chemistry, KMG College of Arts and Science, Gudiyatham Vellore, 632803. PG and Research Department of Chemistry, Government Thirumagal Mills College, Gudiyatham, Vellore</p>
27	P-27	<p>Preparation and Characterization of Schiff Base Derived from 4-hydroxyacetophenone and ortho phenylenediamine metal complexes: Its Biological Activities</p> <p>D. Ramasamy, G. Ramasamy Assistant Professors, PG & Research Department of Chemistry, Government Thirumagal Mills College, Gudiyattam, Vellore Dt. Tamil Nadu 632602.</p>
28	P-28	<p>Structure, Optical Characteristics, and Electrochemical features of V2O5 @ AC Nanoparticles synthesised by the Time-Efficient Microwave Autoclave technique</p> <p>Rajesh V, Veeramuthu K, and Mohan B PG & Research Department of Physics, Thiru Kolanjiappar Government Arts College, Vriddhachalam - 606 001. PG & Research Department of Chemistry, Government Thirumagal Mills College, Gudiyatham - 632 602.</p>
29	P-29	<p>Investigate the therapeutic potential of Plectranthusamboinicus Plant Extracts as a source and their efficacy.</p> <p>R. Srilekha, K. Viswanathan 1–Department of Chemistry, Saveetha school of engineering, Saveetha Institute of Medical and Technical Sciences (SIMATS), Chennai-600 077</p>
30	P-30	<p>Efficacy of Seagrass <i>Syringodiumisoetifolium</i> on antidiabetic and anticancer activity</p> <p>Kalaivani P Assistant Professor, Department of Biochemistry, Annai Violet Arts and Science College</p>

31	P-31	<p>Corrosion inhibition studies of polymethacrylic acid and functionalized polymethacrylic with hydroquinone on pure aluminium in acidic medium</p> <p>C.Binnu, R. Abinaya, V. Keerthika, Dr. J. Devakumar Department of Chemistry, Annai Violet Arts and Science College</p>
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32	P-32	<p>Effect of room temperature storage on the physiochemical properties of Thuthuvalai P. Everest Helen Rani*¹, T. Afsan, Dr. John Milton, Department of Microbiology, Jaya college of Arts & Science, Thiruninravur.</p> <p>Department of Microbiology, Jaya College of Arts & Science, Thiruninravur. Assistant Professor, PG and research department of Microbiology, St. Joseph College of Arts & Science, (Autonomous) Cuddalore.</p>
33	P-33	<p>Synthesis, Characterization of Tetradentate Schiff base ligand Rangaswamy Venkatesh¹, M. Suresh¹, Dr. R. Venkatesh*¹</p> <p>^{1,2} PG & Research Department of Chemistry, Muthurangam Government Arts College</p>
34	P-34	<p>A Case - Control Study on Incidence of Toll-like receptor 4- TLR4 (Asp299Gly) Polymorphism in Periodontitis by Tetra ARMS PCR</p> <p>Meena K¹</p> <p>¹Assistant Professor, Department of Biochemistry, Annai Violet Arts and Science College, Ambattur Chennai</p>
35	P-35	<p>Mycosynthesis of Silver Nanoparticles and their Incorporation into Sodium Alginate Films for Fruit Preservation</p> <p>Dr. Nirmala Devi. S^{1*}</p> <p>¹Assistant Professor, Department of Biochemistry, Annai Violet Arts and science college</p>
36	P-36	<p>Studies on Phytochemical analysis, Anticancer activities, Molecular Docking & DNA sequencing of Phoenix Sylvestris Extract</p> <p>Dr. R. Harini*¹ & Mr. M. Arulmani¹</p> <p>¹Assistant Professor & Head, Department of Biochemistry, Annai Violet Arts and Science College, Ambattur, Chennai.</p>
37	P-37	<p>Exploring the antiobesity and antioxidant potential of the methanolic extract of Camellia Sinensis</p> <p>Mrs. S. Jeba Sheeja*¹ & Ms. Gayathri¹</p> <p>¹ Assistant professor and Head, Department of Chemistry, Annai Violet Arts and Science College, Ambattur, Chennai</p>

38	P-38	<p>Green Synthesis of Zinc Oxide Nanoparticle with Ethanolic Extract of Plumbago Zeylanica and their Antimicrobial Activity.</p> <p>Dr. Kalaivani P^{1*}, D. Nithish Kumar¹, Ponnarasi¹</p> <p>^{1*} Department of Biochemistry, Annai Violet Arts and Science College</p> <p>^{1*} Assistant Professor, Department of Biochemistry, Annai Violet Arts and Science College</p>
39	P-39	<p>Design and fabrication of Emergency Braking System in four-wheeler</p> <p>Aravinth Kumar. A*, Nithish Kumar. R, Lalith Kumar. P, Balaji. A, S.Baskar, S.Deepakkumar</p> <p>^{1* to 4} UG Students, School of Engineering, Vels Institute of Science, Technology & Advanced Studies, Chennai - 600 117, Tamilnadu</p> <p>⁵ Assistant Professor, School of Engineering, Vels Institute of Science, Technology & Advanced Studies, Chennai - 600 117, Tamilnadu, baskar133.se@velsuniv.ac.in,</p> <p>⁶ Assistant Professor, Department of Chemistry, Annai Violet Arts and Science College, deechem10@gmail.com</p>
40	P-40	<p>Synthesis and Characterisation of MgO reinforced Polyaniline Composites</p> <p>R.Sasikala¹, Jeevagan K¹, V. Merlin Rani²</p> <p>¹ Assistant professor, Department of Physics, Annai Violet Arts and Science College, Menambedu, Ambattur, Chennai-600053, Tamilnadu</p> <p>² Assistant professor, Nadar Saraswathi College of Arts and Science, Theni, Tamilnadu</p>
41	P-41	<p>Synthesis and characterization of pure Ag codoped MgTiO₃ nanoparticles</p> <p>S.Sushimitha¹, V. Merlin Rani², R.Sasikala³</p> <p>¹ M.Sc, Department of Physics, Nadar Saraswathi College of Arts and Science</p> <p>² Assistant professor, Nadar Saraswathi College of Arts and Science, \</p> <p>³ Assistant professor, Department of Physics, Annai Violet Arts and Science College, Menambedu, Ambattur, Chennai-600053, Tamilnadu</p>

42	P-42	<p>Synthesis and characterization of pure MgTiO₃ nanoparticles B.Asha princy¹, V. Merlin Rani¹, R.Sasikala³ ¹M.Sc, Department of Physics, Nadar Saraswathi College of Arts and Science, Theni, ²Assistant professor, Nadar Saraswathi College of Arts and Science, Theni, ³Assistant professor, Department of Physics, Annai Violet Arts and Science College, Menambedu, Ambattur, Chennai-600053</p>
43	P-43	<p>Molecular docking analysis of <i>Benincasa hispida</i> fruit extract with FTO Dr. K. Nadhiya^{1*} ^{1*} Assistant Professor, Department of Biochemistry, Annai Violet Arts and Science College</p>
44	P-44	<p>Synthesis, Spectral Investigation and Biological screening of Ni(II), Zn(II), Cd(II) Complexes of Novel Tetradentate Schiff-Base Ligand T. Murugan¹, Rangaswamy Venkatesh^{*1} ¹ PG & Research Department of Chemistry, Muthurangam Government Arts College (Autonomous), Vellore - 632 002, Tamilnadu, India.</p>
45	P-45	<p>Preparation of Almond Based Vegan Cheese Using Lactobacillus Casei Isolated from the Probiotic Drink - Yakult, And Characterization of its Nutritional Values. Glory Angel S¹ and Gomathi N^{2*} 1- PG Student, Department of Microbiology, Valliammal College for Women 2* - Corresponding Author, Assistant Professor, Department of Microbiology, Valliammal College for Women, E – 9, Anna Nagar East, Chennai - 102</p>
46	P-46	<p>Review on Bioremediation Technique of Heavy Metal in Contaminated Groundwater Karthik. G¹& Geetha. K² 1- PG Student, Department of Microbiology, Annai Violet Arts and Science College 2- Assistant Professor, Department of Microbiology, Annai Violet Arts and Science College</p>

47	P-47	Antimicrobial Activity of Ipomoea Plant Species against few Clinically Important organism Karthik. M ¹ 1. PG Student, Department of Microbiology, Annai Violet Arts and Science College
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***Invitro* antioxidant and anti-hyperglycemic activity of aqueous and ethanolic extracts of *Mangifera indica* seed kernel**

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ABSTRACT

Chronic insulin resistance or insufficient insulin production leads to hyperglycaemia, the hallmark of diabetes. Mango by-products are a significant source of bioactive compounds produced by agro-industrial processes. *Mangifera indica* seed kernel are bountiful source of natural compounds. In order to determine their potential use, the aim of the present study is to screen the aqueous and ethanolic extracts of *Mangifera indica* seed kernel for its antihyperglycemic activity. Qualitative and quantitative phytochemical analysis were carried out in aqueous and ethanolic extracts of *Mangifera indica* seed kernel. The antioxidant activity was assessed by nitric oxide radical scavenging ability. The antihyperglycemic potential was assessed by measuring the activities of inhibition of α -amylase and α -glucosidase in aqueous and ethanolic extracts of *Mangifera indica* seed kernel. The result of the present study showed higher antioxidant and hypoglycemic activity in the ethanolic extract of *Mangifera indica* seed kernel when compared to aqueous extract.

Key words: *Mangifera indica*, antihyperglycemic, alpha amylase, alpha glucosidase, antioxidant

Comparative biochemical study on the metabolic profile of early and prolonged PCOS patients with similar BMI

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ABSTRACT

Polycystic ovarian syndrome (PCOS) is a highly inherited complex polygenic multifactorial and prevalent endocrine-metabolic disorder in reproductive-aged women. Currently, there is an alarming increase in the metabolic syndrome among women during their reproductive age. Hence this study aims to compare the comprehensive metabolic profile of early PCOS patients (with PCOS – duration 3 years) aged between 19-24 and prolonged PCOS patients (with PCOS – duration >15 years) aged between 38-43 years with similar BMI (25-30). Blood was collected with a written consent (Ethical Clearance -ARCIIEC / Others / 001/2001). 30 PCOS patients in each group were selected on the basis on the Rotterdam's criteria (2023). The results of the comprehensive metabolic profile observed after the analysis were as follows. Highly significant increase was found in glucose fasting($p<0.001$), glucose pp($p<0.001$), serum insulin fasting($p<0.001$), HbA1C($p<0.001$), average blood glucose($p<0.001$) and in enzyme GGT($p<0.001$) and in ALT($p<0.01$) in prolonged PCOS patients than early PCOS patients. Serum total protein, serum albumin, serum globulin, A/G ratio, and the enzymes ALP, AST, and creatinine showed non significance between early and prolonged PCOS patients.

Key words: PCOS, Rotterdam criteria, Serum Globulin.

Phytochemical screening and antimicrobial activity of *Senna auriculata* (tanner's cassia) against selective pathogens causing urinary tract infection in normal and pregnant women

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ABSTRACT

The present study investigates the potent antimicrobial parcels of dried Tanner's cassia flower, fastening its efficacy in combating bacterial infections within the urinary tract. The dried Tanner's cassia flower is famed for its multifaceted medicinal attributes, including anti-diabetic, hypolipidemic, hepatoprotective, antiperoxidative, antimicrobial, antioxidant, and anti-inflammatory properties. Likewise, excerpts from its flowers and leaves have also displayed antipyretic exertion. Cassia auriculata is also honoured for its efficacy in treating ulcers, leprosy, and liver conditions. The flower excerpt contains saponins, which is a natural antimicrobial emulsion that's used for the treatment of colorful conditions. Fresh flower excerpts fight against microorganisms similar to *Staphylococcus aureus*, *Enterococcus faecalis*, *Salmonella typhi*, *Escherichia coli*, *Vibrio cholera*, and *Shigella dysenteriae*, which are responsible for causing typhoid, cholera, and urinary tract infections. Avaram Senna flowers have properties that help to prevent urinary tract infections, especially in women. It acts as a detoxifying agent and excretes dangerous poisons from the body. UTI affects people of all periods and both genders. All cases of UTI are reported with asymptomatic bacteriuria. Ladies are more susceptible to UTIs compared to males. The infection of the urethra and ureter are appertained to as urethritis and urethritis independently whereas cystitis and pyelonephritis correspond to bladder and order infections. In this present study, the phytochemical ingredients of Tanner's cassia flower excerpts, the insolation of bacterial colonies from urine samples, and the flower's antimicrobial eventuality against urinary tract pathogens are studied.

Key words: Antioxidant, Tanner's cassia, antibiotics test, antimicrobial activity, phytochemicals.

Phytochemical characterization, antimicrobial and wound healing activity of combined mixture of ethanol extract of rhizomes of *Acorus calamus* (sweet flag) and bentonite clay (naamakatti)

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ABSTRACT

Traditional medicinal systems have long been recognized for their significant contribution to the world's health care requirements. *Acorus calamus* also known as "Vasambu" and Bentonite clay called as "Naama katti" possess many medicinal uses. The aim of this present study is to find the effectiveness of the prepared combined mixture of *Acorus calamus* and Bentonite clay. Phytochemical, antioxidant, antimicrobial and wound healing activities were accessed in the combined mixture. The presence of alkaloids, tannins, flavanoids and phenols was revealed by phytochemical examination. The combination of *Acorus calamus* and bentonite clay displayed strong effect on antioxidant activity. In antimicrobial activity, *Acorus calamus* shows greater zone of inhibition against the strains of *Staphylococcus aureus* and *Pseudomonas aeruginosa*. The combined mixture of *Acorus calamus* and Bentonite showed considerable increase in inhibitory activity of wound healing. The current study's outcome indicated effective antioxidant, antimicrobial and wound healing property in combined mixture of *Acorus calamus* and Bentonite clay.

Key words: *Acorus calamus*, Bentonite clay, antioxidant, antimicrobial wound healing

**An *in vivo* experimental approach to reveal the biological impact of
commercially available crisps on koi carp**

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ABSTRACT

Proper nutrition offers one of the most effective and least costly ways to decrease the burden of many diseases and their associated risk factors including coronary heart disease, diabetes and obesity. Adolescents are frequently exposed to harmful fast food options, which can result in dietary patterns that are hard to break. Therefore, the present study aims to reveal the biological impact of commercially available crisps (junk food feeding) on *Cyprinus rubrofuscus* as a model to explore their impact in human population. The study was conducted on a fish model *Cyprinus rubrofuscus* for a period of four weeks. The study was carried out by feeding fish with three feed types which include commercially available fish feed, crisps and healthy feed prepared with mango seed kernel powder and pea nut with skin powder and it was maintained in three separate aquariums. Water analysis (turbidity, colour, pH, Temperature, TDS and Hardness), Physical characteristics (Growth, Survival rate), Histopathological characteristics (Liver & Muscle), Marker enzyme studies in liver, Oxidant and Antioxidant Assay were measured. The results of the present study clearly demonstrate that junk feed alters the physiochemical characteristics of fish tank water and physiological condition of fish, which is clearly portrayed from level of protein, oxidants, antioxidants, liver marker enzyme and histopathological characteristics of liver and muscle. In contrast prepared healthy feed showed the similar characteristics as that of healthy feed, suggesting this may be attributed to the presence of essential as well as nutritive components. Overall, the current study results may aid in finding and exploring a healthy feed as well as acquiring knowledge on the pathogenesis of metabolic disorder in animal in particular human consuming more junk foods.

Key words: *Cyprinus rubrofuscus*, Nutrition, crisp, Mango seed kernel, peanut

**Antimicrobial efficacy and antidiabetic activity of
Ethanolic extract of flowers of *Melia dubia* (malabar neem)**

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ABSTRACT

Melia dubia is one of the largest, rapidly growing deciduous trees which belongs to the family of Meliaceae, is popularly known as Malabar Neem. It is one of the varieties of neem plant. *This extremely multipotent tree is known for its industrial and biological properties.* The bark extract shows up potent antimicrobial activity while the fruit and leaf extract promise excellent antidiabetic activity. There was no evidence report on the antidiabetic activity of the flowers of *Melia dubia*. The aim of the present study is to assess the phytochemical, antioxidant, antimicrobial and antidiabetic activity in the ethanolic extract of flowers of *Melia dubia*. Phytochemical analysis showed the presence of tannins, phenols, flavonoids and diterpenoids. Higher antioxidant potential was witnessed by nitric oxide radical scavenging assay. The prominent zone of inhibition displayed significant antimicrobial activity in strains of *Candida albicans* and *Enterobacter faecalis*. Substantial antidiabetic potential was detected by measuring the activities of α -amylase and α -glucosidase. The present study highlighted that the flower extract of *Melia dubia* has potent antioxidant, antimicrobial and antidiabetic activity.

Key words: *Melia dubia*, phytochemical, antioxidant, antimicrobial, antidiabetic.

Cytotoxicity and DNA fragmentation induced Apoptosis on HeLa cell line by polyherbal concoction Sukkumallikashayam

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ABSTRACT

Cervical cancer is the fourth most prevalent illness in women all over the world, killing around a quarter million people each year. The use of conventional therapy has a risk of metastases, recurrence, and emergence of drug resistance. Thus, there is a demand for medications with high efficacy and minimal side effects. The primary purpose of the present research is to screen the anti-proliferative and anti-apoptotic potential of the polyherbal formulation sukkumallikashayam (SMK) using MTT against the human cervix adenocarcinoma cell line (HeLa), with cisplatin as standard. The study result showed that the percentage of cell viability decreased with an increase in the concentration (12.5 µg/ml - 200 µg/ml) of sukkumallikashayam. The MTT assay reported that sukkumallikashayam had the antiproliferative effect on cervical cancer cells with IC₅₀ of 84.48 µg/ml compared to that of standard cisplatin with IC₅₀ 44.17 µg/ml. Investigation of apoptotic activity induced by sukkumallikashayam and Cisplatin at tested concentrations (50 µg/ml and 100 µg/ml) were visualized as a ladder pattern of 180-200 bp due to DNA fragmentation on agarose gel electrophoresis. The study reported a dosage-dependent increase of apoptotic fragments at the tested doses. The present investigation demonstrated that sukkumallikashayam has potential anticancer capabilities against the HeLa cells; nevertheless, more research is required before recommendation for therapeutic use.

Keywords: Sukkumallikashayam, MTT assay, DNA fragmentation, Apoptosis

A review on therapeutic effects of brown algae *Sargassum* species

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ABSTRACT

Globally, infectious diseases are a leading source of morbidity and mortality. The usage of synthetic medications for infectious disease may lead to negative effects. In order to reduce it, many pharmaceutical industries have been decided to produce drug from substances that come from conventional sources, such as plants, soil, and marine life. Marine plants that are classified as lower cryptograms are called seaweeds. They can be found in estuaries, backwaters, shallow deep, intertidal areas and they never attach to the seafloor. There are three different types of marine macro algae (seaweed) found in different habitat all over the world. Seaweeds are mostly rich in iodine which our body can't produce by its own and also had many vitamins like A, B1, B2, C, E and K. Over 1500 years, still now Japanese and Koreans have been consuming seaweed as food called sushi roll to fulfil their nutritional requirements, due to this a low mortality rate has been demonstrated in Japan (Maneesh et al., 2017). Therapeutically, a particular marine macroalgae has the potential to treat a variety of conditions, including cancer, gastrointestinal tract disorders, hepatic diseases, inflammatory diseases, viral infections (particularly HIV and HPV), obesity, diabetes, and cardiovascular diseases. Hence, this study attempted to investigate an ethanol extract of *Sargassum myriocystum* biological activities (anti-inflammatory, anti-oxidant and anti-diabetic).

Key words: Cryptograms, *Sargassum*, Macroalgae, Therapeutic property, Anti-inflammatory

Assessment of antibacterial activity of squid ink extracts against multidrug resistant food borne pathogens

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ABSTRACT

Food borne illness can result when people consume food or drink that has been contaminated with pathogens, chemicals, or toxins. The severity and symptoms of food poisoning can vary depending on a number of factors, such as age and compromised immune systems. This expanding public health issue has affected healthcare systems, lost productivity, damage to trade and tourism and has created significant socioeconomic impact. Foodborne illnesses has considerably increased the worldwide burden of disease and mortality. It has become a concern that multidrug-resistant (MDR) bacteria are emerging and spreading more frequently. Reports of antibiotic-resistant emerging food borne pathogens that were previously thought to be epidemiologically insignificant or not connected to food contamination-also worry scientists and medical professionals greatly. Squid ink is pharmacologically most interesting source of bioactive metabolites. The study was conducted to access the antibacterial activity of the Squid ink extracts against common food borne pathogens isolated from street food samples such as *Bacillus subtilis*, *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella pneumonia*, *Salmonella typhi* and *Pseudomonas aeruginosa*. All the strains selected for the study were multidrug resistant. The results revealed increased susceptibility of all the gram negative bacteria to both the Methanol and Ethanol extracts. The Gram positive bacteria showed moderate to less susceptibility to both the extracts. Although a little attention is given to sea animals, which can be a potent source of antimicrobials that could be crucial to the development of new antimicrobials that can combat multidrug resistant bacteria. Globally, squid ink has enormous therapeutic potential.

Key words: Food borne Pathogens, Multidrug resistance, Antibacterial activity, Ink Extracts

***Gracilariafollifera* Capped Selenium Nanoparticles: Green synthesis, Characterization and Cytotoxicity Assessment**

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ABSTRACT

Green synthesis of nanoparticles using marine algae are fascinating high research attention nowadays and also gaining centre of attention in biomedical applications. In the light of promising potency of selenium nanoparticles in biomedical applications, this is the first study to report on the biocompatible selenium nanoparticles synthesis using an aqueous extract of marine algae *Gracilariafollifera* as a reducing as well as stabilising agent. Their chemical characterization, cytotoxicity and toxicity by chorioallontoic membrane (CAM) chick embryo assay were reported here. The UV-vis spectra of SeNPs showed the characteristics absorption band at 263nm. The chemical interaction and crystalline nature of the SeNPs were evaluated by FT-IR and XRD studies. The surface morphology and composition of the samples were observed by FESEM, HRTEM and SAED pattern analyses. The stability of the synthesized nanoparticles was analysed by using zeta potential. Besides the cytotoxicity assessment of algae mediated SeNPs was conducted in U87 cells from human glioblastoma by MTT assay followed by AO staining. The synthesised SeNPs considerably reduced the viability of U 87 cells, observed the IC₅₀ value of 81.7µg/ml for 24h. Additionally the CAM assay was used to analyse the antiangiogenic potential of algae capped SeNPs, exhibiting no significant alterations after 72h. Taken together our findings, highlights the design of novel nanocombination of algae mediated SeNPs might be an efficient strategy to destroy tumour cells by inducing apoptotic cell death in human glioblastoma cancer cells.

Keywords: *Gracilariafollifera*, Selenium nanoparticles, Chorioallontoic membrane assay,

U 87 cells, Apoptotic

Molecular targets on insect control of alkaloids derivative insecticide and their impact on insecticide resistance using bioinformatics techniques

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ABSTRACT

Recently, several conventional insecticides have been used in agriculture against harmful insects, which results in insect control and, unfortunately, some adverse effects on untargeted organisms and the environment. Natural insecticides, such as secondary metabolites, are effective and eco-friendly alternatives to conventional insecticides. The aim of the present study is to identify molecular targets for insect control of alkaloids derivative and their impact on insecticide resistance using bioinformatics techniques. Insecticide resistance is naturally developing in conventional insecticide-exposed long-term insects, which results in insect protection against insecticides. The present finding alkaloids derivatives are similarly involved in AChE and GST inhibitory activity ($r = 0.982$), which results in the toxicity of the target insect, which is in response to the non-detoxification of insecticides and the increased toxicity of the alkaloids derivatives in the target insect. Among the Ajmalicine, the highest insecticide activity was observed, compared with Serpentine >Secologanin> Tryptophan and > Tryptamine in both insecticide targets using the Autodock vina and correlation statistic technique. Overall, according to our knowledge, the present bioinformatics and statistical approach revealed natural alkaloids derivatives are controlling insects and also do not stimulate insecticide resistance in long-term insecticide-exposed insect species, with results easily understating the development of effective and anti-insecticide-resistant eco-friendly insecticides that respond to long-term use and control of harmful insects in the agriculture field.

Keywords: Molecular targets, Insecticide resistance, Molecular docking, AChE, GSTs.

Antifungal activity of zoo-mediated cuo nanoparticles using sea urchin test against isolated fungal pathogen from storage grain

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ABSTRCAT

Storage pests have a direct impact on the quantity and quality of grain during postharvest storage, including fungal species, resulting in huge economic losses and ecological problems. Today, nanotechnology has provided innovative modern agrochemicals for improving the application of pest management, including the control of storage fungal pathogens. The present aim is to assess the antifungal activity of synthesized zoo-mediated CuONPs using the sea urchin *Salmacisvirgulata* (L. Agassiz & Desor, 1846) test, against the isolated fungal pathogen *Aspergillus flavus* from storage grain *Vigna radiate*. The present isolated fungal strains were tested for antifungal activity of zoo-extract and Zoo-CuONPs. The results indicated that Zoo-CuONPs and zoo-extract show potential antifungal activities against the isolated fungal pathogens from storage grain *V. radiate*. The *in silico* study supported evidence of the antifungal activity of Zoo-CuONPs and their interaction with Omt-A protein (PDB ID: 5ICC) using the Hex tool. While finding the study of the interaction between the Omt-A protein and Zoo-CuONPs (Energy values -62.67 Kcal/mol), it is hypothesized that sea urchin-mediated CuONPs may be an effective, eco-friendly nano-drug for controlling aflatoxin. Thus, zoo-extract and Zoo-CuONPs can be utilized as broad-spectrum antifungal agents, suggesting a new source of antifungal agents in the sea urchin *Salmacisvirgulata* against storage grain fungal pathogens while finding zoo-extract and Zoo-CuONPs eco-friendly pesticides against fungal species with multiple applications in agriculture fields to control harmful pests.

Keywords: Sea urchin test, Zoo-CuONPs, Nanotechnology, Pest control, Antifungal activity.

Ai based machine learning algorithms

Anti-microbial resistance modelling.

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ABSTRACT

Antimicrobial resistance (AMR) is one of the critical challenges facing worldwide. The widespread use of antibiotics in clinical practice has not only resulted in drug resistance but has also increased the threat of multi-dug resistance(MDR). With no new antibiotics available, the antimicrobial resistance has emerged as a global problem. Artificial intelligence (AI) is a branch of computer science that focuses on the computational understanding of intelligent behaviour. AI's applications in healthcare plays an important role inreducing the time to discover new drugs, improving diagnostics and treatment accuracy, and lowering cost. This presentation briefly reviews usefulness of AI based machine learning algorithms with applications.

Key words: Artificial Intelligence, Antimicrobial Resistance, Algorithms, Antibiotics.

A study on *synapis alba* (yellow mustard seed)-mediated green synthesis of silver nanoparticles and its antimicrobial, anti-inflammatory, and anti-diabetic properties

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ABSTRACT

This research explores the significant potential of silver nanoparticles (AgNPs) synthesized from *Synapis alba* (yellow mustard) in various biomedical applications. The primary objective of this project is to study the phytochemical analysis of *Synapis alba*-derived silver nanoparticles and evaluate their antioxidant, antifungal, antibacterial, and anti-inflammatory properties. The synthesis of silver nanoparticles from *Synapis alba* is a promising approach due to the plant's rich phytochemical content, which contributes to the unique properties of the resulting nanoparticles. This work focuses on understanding the chemical composition of these nanoparticles and their potential biological activities. The assessment of antioxidant capacity aims to determine their ability to neutralize harmful free radicals, while the antifungal and antibacterial analyses investigate their efficacy against common pathogens. Additionally, the anti-inflammatory properties are assessed to explore potential applications in managing inflammatory conditions. The results of the study reveal that silver nanoparticles synthesized from *Synapis alba* exhibit remarkable effectiveness in all evaluated properties—antioxidant, antifungal, antibacterial, and anti-inflammatory. This finding underscores the potential of *Synapis alba*-derived silver nanoparticles in biomedical applications, suggesting their utility in various fields such as medicine and healthcare.

Key

words: Silver nanoparticles, *Synapis alba*, phytochemical analysis, antioxidant, antifungal, antibacterial, anti-inflammatory, biomedical applications.



Sesquiterpene coumarins of Asafoetida mask the functional site of pathogenic proteins of SARS-CoV-2 to combat COVID-19 disease – A pilot study

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ABSTRACT

The rapid spread of the symptoms caused by the novel SARS coronavirus (SARS-CoV-2) set an alarm for the development of drugs to cure the COVID-19 disease. The structural protein, proteases, and RNA polymerases play an important role in the promotion of viral entry, formation, and assembly of virions inside the living host. The present study was aimed to target the mechanism of virus infection in relation to the host cell recognition using a traditional spice, asafoetida. Initial selection of compounds on PASS analysis revealed that the sesquiterpene coumarins of asafoetida namely Foetidin, Umbelliferone, Conferol, and Assafoetidnol showed a highest probability of drug to be active. ADME experiment using SwissADME expressed that all the selected coumarins have the desirable physicochemical potency. The pkCSM data highlighted the compounds were safe for human consumption. Molecular docking analysis using Autodock characterized the binding affinity of selected drugs with SARS-CoV-2 proteins, where the selected compounds showed a stable dock score and increased binding affinity. Hence, it is concluded that the coumarins of asafoetida might selectively interact and modify the pathogenic proteins of SARS-CoV-2 to inhibit the infection mechanism of COVID-19 disease.

Keywords: SARS-CoV-2, COVID-19, Asafoetida, ADMET, Molecular docking

Antimicrobial activity of polyphenols in moringa oliefera against uropathogens

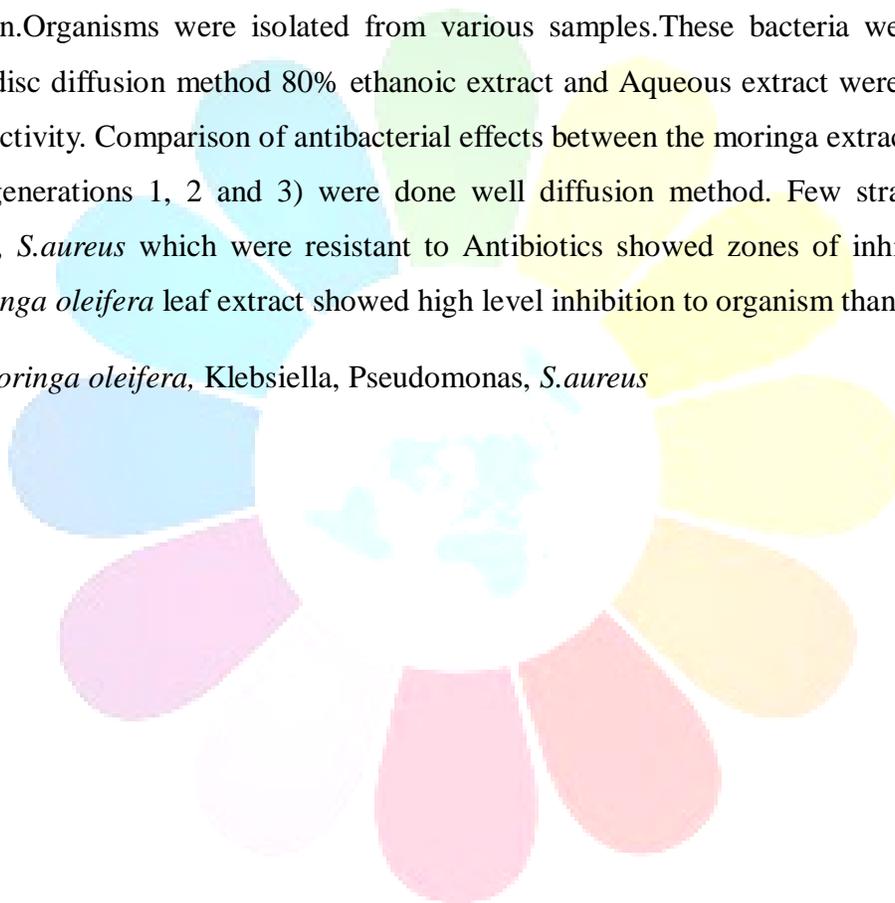
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ABSTRACT

The aim of the study is to evaluate the antibacterial activity of *Moringa oleifera* (seed and leaves extract) against *Klebsiella*, *Pseudomonas*, *S.aureus* which are compared to various generation antibiotics. *Moringa Oleifera* leaf extract showed significant antibacterial effect on the three tested bacterial strain. Organisms were isolated from various samples. These bacteria were initiated by Kirby Bauer disc diffusion method 80% ethanoic extract and Aqueous extract were used to assess antibacterial activity. Comparison of antibacterial effects between the moringa extracts and selected Antibiotics (generations 1, 2 and 3) were done well diffusion method. Few strains *Klebsiella*, *Pseudomonas*, *S.aureus* which were resistant to Antibiotics showed zones of inhibition to plant extracts. *Moringa oleifera* leaf extract showed high level inhibition to organism than seed extract.

Keywords: *Moringa oleifera*, *Klebsiella*, *Pseudomonas*, *S.aureus*



Green chemistry approaches to the synthesis and characterization of gold nanoparticles using Cotton seeds with Tween-20 and efficient application of antibacterial activity

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ABSTRACT

The gold nanoparticles (AuNPs) are synthesized by a green chemical approach using the cotton seed oil isolated from the dried cotton seed. The cotton seed oil-AuNPs are attached on the Tween-20 and characterized by UV-Visible absorption spectroscopy, Powder X-Ray Diffraction (PXRD), Transmission Electron Microscopy (TEM), Selected Area Electron Diffraction (SAED) and Energy Dispersive X-Ray Spectroscopy (EDS). The TEM images confirm the spherical shape of AuNPs. The XRD analysis reveals that the AuNPs exhibit fcc crystal structure with an average crystallite size. The biocompatibilities of the cotton seed oil-AuNPs loaded Tween-20 is examined for the antibacterial activity. The antibacterial activity is found in all the four bacteria namely *S.aureus*, *B.subtilis*, *E.coli*, *P.vulgaris*, synthesized AuNPs-Triton is effective in inhibiting except *B.subtilis* the growth of both gram positive and gram negative bacteria. Its biocidal activity is found to be highest for *S.aureus*.

Keywords: Tween-20, Gold nanoparticles, TEM, SAED, EDS, PXRD.

Synthesis, Characterisation and Biological Activity of Manganese Doped Cadmium Sulphide Nanoparticles

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ABSTRACT

Cadmium sulfide nanoparticles (CdS NPs) have been employed in various fields of nanobiotechnology due to their proven biomedical properties. They are unique in their properties due to their size and shape, and they are popular in the area of biosensors, bioimaging, and antibacterial and anticancer applications. In this paper enlightens the Manganese doped cadmium sulphide semiconductor nanoparticles (CdS:Mn) have been prepared by Co-precipitation method. The manganese doped with particular percentage. CTAB is the capping agent that used to form the nanostructure and prevent the aggregation of the particles. The nanostructure of the synthesized Mn^{2+} ions doped CdS nanoparticles have been analyzed using Powder X-ray diffraction (XRD), UV-Visible spectroscopy, and Antibacterial activity. The structure properties of the obtained nanoparticles have been studied using X-ray diffraction pattern. The energy dispersive X-ray carried out to specify the chemical composition of the prepared nanoparticles. The Crystal size estimated from XRD of the prepared nanoparticles was around $\sim (4 - 8)$ nm with the zinc blende structure.

Keywords: Manganese doped cadmium sulphide, semiconductor, CTAB, XRD, UV-Visible

Anticancer Activity and Molecular Docking Studies of Ni (II), Zn (II), Cd (II) And Hg (II) of Dptpp- Based Pyrazol Pyrimidine Complexes

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ABSTRACT

Cancer (Laryngeal carcinoma) which increased the number of death in the worldwide and the increase of anticancer drugs with high potency and least side effects remains to be a difficulty. Cancer cells often exhibit features that trigger apoptosis in normal cells including tolerance of DNA damage genomic instability and cell psycho checkpoint violations. Bcl-2-target receptors regulate most significant types of cell death process, including autophagy, necrosis, morphogenesis, aging and apoptosis as critical to tissue homeostasis¹ and also apoptosis (type 1) and autophagic (type 2) play a central role in cancer cell death^{2, 3}. Bcl-2 amily receptors genes in cancer are important apoptosis of antiapoptotic and proapoptotic proteins^{4,5}. Bcl-xL and Bcl-2 are currently in the clinical investigation of antiapoptotic cancer cells⁶. Increased expression of BCL-2 is found in a wide variety of hematologic malignancies including chronic lymphocytic leukaemia, acute myeloid leukaemia and follicular lymphoma as well as in several solid tumours. Great attention towards the discovery of small molecules targeting inhibitors receptors as the vital role of anticancer therapeutics has stimulated^{7,8}. The high apoptotic potential of these anticancer cells suggests that BCL-2 is a rational target with the therapeutic intervention^{9,10}. Nowadays synthesis of complexes comprises with active metals are the significant role to interact with DNA nucleus¹¹⁻¹⁴. The most important ring system amongst the heterocyclic compounds is pyrimidine and also integral part of DNA and RNA¹⁵⁻¹⁷. Pharmacological activities Schiff bases having C=N (imine containing compounds) are versatile with a broad spectrum of biological activity, such as pyrimidines^{18,19}, pyrroles²⁰, thiazoles²¹ and pyridines²². Biginelli scaffold complexes exhibit good antibacterial, anti-inflammatory, antitumor, antifungal and anticancer agents^{23,24}.

Objective of this studies is to synthesis a new compound called Dptpp[dptpp is 2E-ethyl 2-(2,3-dihydro-1,5-dimethyl -3-oxo-2- phenyl- 1H- pyrazol-4-ylimino)-1,2,3,4-tetrahydro-6 methyl-4-phenyl pyrimidine-5-carboxylate] and their metal complexes (1-4) and to diagnosis its antimicrobial and anticancer activity. From the MTT assay reveals that the complex Ni(dptpp)₂Cl₂, (IC₅₀=12.09±0.03) exhibit anticancer activity against MCF-7. Complex Zn(dptpp)₂Cl₂, (IC₅₀=14.01±0.04) exhibit anticancer activity against A-549. The docking score found to be - 7.92kcal/mol against BCL-2 (PDB id: Bcl-xl: 2YXJ). From the present study, it can be concluded that the molecular docking studies showed that complex Ni (II) strongly binds with Bcl-2 receptor.

Keywords: Metal (II) Complexes, Anticancer, Antimicrobial, Antifungal, Molecular docking

Synthesis and Characterization of Schiff base from 3,5-Di chloro Salicylaldehyde with ethylene diamine

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ABSTRACT

Schiff bases of salen like compounds have been reported a variety of biological activities. This work illustrates the synthesis of a new Schiff base and studies their biological activities. Firstly 3,5 dichloro salicylaldehyde is treated with ethylenediamine with acetic medium. The synthesized compound was characterized by using FT-IR, UV-Vis, ¹H NMR and ¹³C NMR. The synthesized compound was examined for their in vitro antimicrobial activity using different Gram-positive bacteria, Gram negative bacteria and *Candida albicans* as fungi. The obtained result was compared with standard drugs: Amoxicillin, ciproflocin and fluconazole. The compound shows no antifungal activity at any concentrations used, while most of that show moderate antibacterial activity at concentration 5 mg/mL toward most bacteria except *Klebsiella pneumonia*.

Key words: Schiff base, ethylenediamine, antibacterial.

Transition metal complexes of Bis (Salicylaldehyde) Ortho phenylene diamine Schiff base complexes: Synthesis, characterization and biological activities

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ABSTRACT

Cu(II), Zn(II), Ni(II) and Cd(II) complexes with Schiff base ligand derived from salicylaldehyde and other phenylenediamine have been synthesized and characterized by elemental (C, H and N) analysis, UV-Vis, IR, ¹H and ¹³C NMR, mass spectra, thermal analysis (TG/DTA) and molar conductance measurements. The spectral data suggest that the coordination of metal ion with ligand is only through imine nitrogen (–CH=N–) as bidentate manner. Thermal analysis indicates the presence of lattice and coordinated water molecules in the complexes. Mass spectral data further support the formula mass and structure of the compounds. *In-vitro* antimicrobial activity of compounds was evolved with bacterial and fungal strains. *In-vitro* anticancer activity toward HeLa (human cervical cancer cell) cell line was carried out for compounds Ligand and the metal complexes. The results indicate moderate activity against HeLa cell line.

Keywords: Salicylaldehyde, phenylene diamine, Schiff base, Metal complexes

Synthesis and Characterization of Schiff base from 3,5-Di Iodo Salicylaldehyde with ethylene diamine

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ABSTRACT

Schiff bases of salen like compounds have been reported in a variety of biological activities. This work illustrates the synthesis of a new Schiff base and studies of their biological activities. Firstly 3,5-diiodosalicylaldehyde is treated with ethylenediamine with acetic medium. The synthesized compound was characterized by using FT-IR, UV-Vis, ¹H NMR and ¹³C NMR. The synthesized compound was examined for their in vitro antimicrobial activity using different Gram-positive bacteria, Gram negative bacteria and *Candida albicans* as fungi. The obtained result was compared with standard drugs: Amoxicillin, ciprofloxacin and fluconazole. The compound shows no antifungal activity at any concentrations used, while most of that show moderate antibacterial activity at concentration 5 mg/ml toward most bacteria except *Klebsiella pneumonia*.

Key words: Schiff base, ethylenediamine, antibacterial.

Investigation of the effect of Mg²⁺ doping on the mechanical properties of Bis (hydrogen maleate) magnesium chloride nonlinear crystal

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ABSTRACT

The crystal is prepared from the saturated aqueous solution, by slow solvent evaporation technique, good quality single crystals of Mg⁺² doped Bis (hydrogen maleate) magnesium chloride have been grown and successfully harvested. In an effort to shed light on the mechanical behaviour of the title crystal and to assess its mechanical strength, Vickers micro hardness study has been performed. The hardness study has been done on the crack free crystal using Vicker hardness indenter. The crystal surface using different loads of 25 to 100 g in steps of 25 g increment and the indentation time of 8 s has been used in all trials. The hardness measurements have suggested a reverse indentation size effect (RISE) pattern of the BHMC crystal where hardness number has been found to be linearly increasing with the applied load. As an extension of this study, the RISE pattern has been validated by making use of the theoretical models proposed by Meyer and Hays – Kendall. In addition, the mechanical robustness of the crystal has been authenticated by deducing the appropriate mechanical parameters such as elastic modulus, fracture toughness, yield strength, brittleness constant, corrected hardness and elastic stiffness constant.

Key words: Vicker's micro hardness, RISE pattern, Meyer's law

Physicochemical, Preliminary phytochemical investigation and antimicrobial activity of plant *Trichodesma species*.

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ABSTRACT

Nature has been a source of medicinal agents for thousands of years and an impressive number of modern drugs have been isolated from natural sources, particularly plants. The medicinal knowledge of herbal plants plays a predominant role in finding new sources of drugs in pharmaceuticals. *Trichodesma africanum* and *Trichodesma zeylanicum* (Burm.f.) R.Br. (Asteraceae) are widely distributed in most tropical and subtropical countries. The present study reveals that the preliminary Phytochemical screening and it was shown that Flavanoids, Triterpenes, Tannins and Saponins were present. Flavanoids and Triterpenes were present in alcoholic extract, Tannins and saponins in aqueous extract, steroids and saponins in petroleum ether and chloroform extract. Antimicrobial activity of Chloroform extract were tested against the *Staphylococcus aureus*, *Streptococcus pyogenes*, *Escherichia coli* and *Pseudomonas aeruginosa* human pathogenic bacteria using agar disc diffusion technique. Zone of inhibition of extract were compared with that of ciprofloxacin. The results showed that the remarkable inhibition of the bacterial growth was shown against the tested organisms. Hence, these plants can be used to discover bioactive natural products that may serve as leads in the development of new pharmaceuticals research activities.

Keywords: *Trichodesma africanum* and *Trichodesma zeylanicum*, Antimicrobial activity

Preliminary phytochemical screening and its in-vitro Antibacterial activity of *Capparis Species.*

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ABSTRACT

Human beings have relied on natural products as a resource of drugs for thousands of years. Plant-based drugs have formed the basis of traditional medicine systems that have been used as traditional medicines for their primary health care. Medicinal plants are traditionally used for the treatment of human infections. The present study was undertaken to investigate the methanolic extracts of *Capparis Horrida* and *Capparis zeylanica* for their potential activity against five pathogenic bacteria *Staphylococcus aureus*, *Bacillus subtilis*, *Escherichia coli*, *Proteus vulgaris*, and *Enterobacter aerogenes*. The highest antibacterial potentiality was exhibited by the methanolic leaf extract of *Capparis zeylanica*, followed by the methanol extract of *Capparis Horrida*. These extracts can be considered to be as equally potent as the most effective antibiotics like ciprofloxacin. The preliminary phytochemicals study reveals that the alkaloids, flavonoids, proteins, tannins, steroids and fixed oils present in methanolic extract of *Capparis Horrida* and *Capparis zeylanica*. It was investigated that *Capparis Horrida* and *Capparis zeylanica* showed potential antibacterial activity against human pathogens. Further phytochemical analysis of these plants will be helpful for elucidation of lead molecules.

Keywords: *Capparis Horrida* and *Capparis zeylanica*, Antimicrobial activity

Green Synthesis and Characterization of Zinc Selenide nanoparticles and it's Photocatalytic application

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ABSTRACT

Synthesis of nanomaterials gets huge attention due to its unique physical and chemical properties with wide range of industrial applications. Among the different types nanomaterial like metals, metal oxides, metal sulphides, metal selenides, metal carbides, metal nitrides, mixed metal oxides and doped materials, the metal selenides have unique electrical, optical and magnetic properties, because of its better optical activity. In this paper explains the synthesis the zinc selenide nanoparticles (ZnSe-NPs) and its nonlinear optical applications. In this present study and synthesis was simple, cost effective and reproducible synthesis method for the ZnSe-NPs at ambient temperature. The crystalline ZnSe-NPs have been synthesized through simple addition of the selenide ions in aqueous solution to the aqueous solution of zinc nitrate and ascorbic acid. The synthesized ZnSe – NPs were characterized by Single crystal X- ray analysis, the FT – IR spectral analysis gives the bond nature between the zinc and selenide, band gap of the ZnSe – NPs calculated by DRS UV-Visible spectral techniques, the elemental composition as well as the oxidation state of elements in ZnSe – NPs were confirmed by EDAX technique, sheet like morphology of ZnSe – NPs were confirmed by FE – SEM and HR – TEM. The synthesized ZnSe – NPs were used for the photocatalytic degradation of industrial effluent. The effluents were collected from textile industry. The ZnSe – NPs exhibit good degradation activity towards the effluent.

Key Words: Zinc Selenide, Green process, Crystalline structure, Photocatalytic degradation, industrial effluent.

Preparation and Characterization of Schiff Base Derived from 4-hydroxyacetophenone and ortho phenylenediamine metal complexes: Its Biological Activities

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ABSTRACT

Schiff bases are versatile organic compounds which are widely used and synthesized by condensation reaction of different amino compound with aldehydes or ketones known as imine. Schiff base ligands are considered as privileged ligands as they are simply synthesized by condensation. They show broad range of application in medicine, pharmacy, coordination chemistry, biological activities, industries, food packages, dyes, and polymer. This paper enlightens synthesis, characterization and biological activities of ligand from 4-hydroxyacetophenone and ortho phenylenediamine and its metal complexes. The entire compounds were characterized by elemental analysis, spectroscopic techniques (IR, ^1H NMR, ^{13}C NMR, mass spectra, UV-Visible, EPR, Powder XRD) and thermal analysis. The bidentate coordination of ligand through phenolic oxygen and imine nitrogen (-CH=N-) was confirmed using spectral analysis data. Number of water molecules in coordination sphere of complexes was predicted with the help of thermograms. *In-vitro* antimicrobial activity of compounds was evolved with bacterial and fungal strains.

Keywords 4-hydroxy phenone; ortho phenylenediamine; Schiff base; Metal complexes

Structure, Optical Characteristics, and Electrochemical features of V_2O_5 @ AC Nanoparticles synthesised by the Time-Efficient Microwave Autoclave technique

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ABSTRACT

Vanadium pentoxide (V_2O_5) is an excellent metal oxide for electrodes and was superimposed on extremely porous activated carbon (AC). A time-efficient microwave autoclave approach has produced excellent V_2O_5 @AC nanoparticle (NP) assemblies. In order to illustrate that V_2O_5 @AC is a very exquisite crystalline structure, the size and morphological aspects of V_2O_5 @AC were assessed. This investigation described the unique chemical energy storage capability of the material, along with changes that may take place inside the nanocrystal because of optical permeation. XRD analysis confirmed that the nanostructure is fully orthorhombic in shape. The grain size was calculated to be 33.58 nm, and Scherer's related equations were used to calculate the dislocation density (δ), microstrain (ϵ), and sub-oxide phases. The UV-Vis technique gave the best optical results, such as the energy gap in the Tauc plot, the Urbach tail, and photon absorption-conversion. The complex dielectric constants, optical polarizability-susceptibility, and optical-electrical conductivity were computed using UV-Vis. PL was used to analyse the integrity of the material and assess an interpretation of the recombination rate between energy levels. According to the FTIR vibrational spectrum, the various molecular vibrations and the V-O chemical bonding nature have been confirmed. Scanning electron microscopic analysis (SEM) was used to collect nano-meter-range images. Images of the collected the small, widely dispersed NPs and discussed how their appearance could aid energy harvesting. The cyclic voltammetry electrochemical investigation quantified the maximum specific capacity of the material and confirmed A GCD test confirmed the energy density and power density of the sample. The results obtained by electrochemical impedance spectroscopy provided the unique characterization of V_2O_5 @AC. Hence, the results strongly emphasise that it is suitable for a modern electronic gadget.

Keywords: V_2O_5 , XRD, Activated Carbon, Optical studies, Electrochemical studies.

Investigate the therapeutic potential of *Plectranthusamboinicus* Plant Extracts as a source and their efficacy

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ABSTRACT

The goal of this research is to look into the limitless potential of plant extracts from *Plectranthusamboinicus* (Karpuravalli) as a source of natural medicines. In this study, bioactive components from *Plectranthusamboinicus* leaves were extracted using methanol solvent systems. The phytochemical study revealed the presence of terpenoids, flavonoids, and alkaloids in the plant extract. Following that, these extracts are tested in vitro and in vivo for antibacterial, antioxidant, anti-inflammatory, and anti-arthritic properties. The results demonstrated that the plant extract has potent antibacterial, antioxidant, anti-inflammatory, and anti-arthritic properties. The findings highlight that *Plectranthusamboinicus* extract-based formulations are ideal for ayurvedic and biomedical applications.

Keywords: *Plectranthusamboinicus*; natural medications; antibacterial; antioxidant; anti-inflammatory; anti-arthritic properties.

Efficacy of Seagrass *Syringodiumisoetifolium* on antidiabetic and anticancer activity

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ABSTRACT

Cancer is the second largest cause of mortality worldwide. The fifth most frequent cancer worldwide is liver cancer. Seagrass is a type of marine plant that is entirely submerged in the water and grown in salty settings. *Syringodiumisoetifolium*, one of these seagrasses, has several therapeutic properties. The pharmacological effects of this seagrass are very promising and may include anti-cancer, anti-inflammatory, anti-diarrheal, and anti-haemorrhoidal effects. The observed results clearly confirmed the rich content of active phytoconstituents in the Plant extract. The observed concentration of flavonoids was 59 ± 2 mg/gram of extract respectively. The obtained results of ABTS^{•+} Decolorization potential study given test compound, indicating that the Extract-A having significant ABTS^{•+} Decolorization potency on dose dependent manner. The obtained DPPH radical scavenging results of given test compound (Extract-A) indicated that it's have significant DPPH radical scavenging potency on dose dependent manner. Extract-A showed significant DPPH radical scavenging potency similar to Ascorbic acid on dose dependent manner respectively. Given Test compound, Extract-A showed the IC₅₀ concentration (The Concentration of the compounds have the capacity to show the inhibition of alpha amylase enzyme or alpha glucosidase enzyme activity) of 23 µg/ml and 16.64 µg/ml compared to the std drug, acarbose which showed the IC₅₀ concentration of 1 µM respectively. The MTT assay results suggest us that the given test compound, Extract A was effectively toxic in nature on Human liver cancer with IC₅₀ value of 90 µg/ml respectively and further studies need to be conducted to determine the molecular mechanism behind anti-liver cancer properties of the test compound at invitro level.

Key words: Cancer, *Syngodiumisoetifolium*, Liver cancer, Antidiabetic, anticancer activity, antioxidant

Corrosion inhibition studies of polymethacrylic acid and functionalized polymethacrylic with hydroquinone on pure aluminium in acidic medium

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ABSTRACT

Inhibition efficiency (IE) of polymethacrylic acid (PMAA) and functionalized polymethacrylic acid with hydroquinone PMAA/HQ on pure aluminium in 0.7M HCl has been studied using electrochemical techniques such as Weight loss (WL) and Potentiodynamic polarization (PDP) method and the results were compared. The comparable results show that the inhibition tendencies of the polymer depends on the structure and their concentration. The IE of PMAA and PMAA/HQ increases with increasing their concentration and found to be maximum at 300ppm. The adsorption of PMAA and PMAA/HQ illustrate that the inhibition of aluminium in 0.7M HCl has been influenced by Langmuir adsorption isotherm. The inhibition and adsorption studies show that the IE of PMAA/HQ has greater corrosion inhibition efficiency than PMAA.

Key words: Polymethacrylic acid, Hydroquinone, Corrosion inhibition and adsorption.

Effect of room temperature storage on the physicochemical properties of Thuthuvalai

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ABSTRACT:

In-order to test the impact of storage of room temperature on an antioxidant and physicochemical ownership of oven dried Thuthuvalai (*Solanum trilobatum*) chutney powder, instant chutney powder thuthuvalai (*Solanum trilobatum*) was Prepared with oven-dried Thuthuvalai leaves were examined for 12 days in room temperature (27°C) storage along with a mixture of spices in different ratios and their storage stability and antioxidant activities. Phytochemical analysis, pH, volume and bulk density, color, solubility, swelling power, WHC and OHC capacity were also studied. From the work carried out, it is reported that the oven applied has dried Thuthuvalai leaves firmly increased Moisture, dirt, fat, protein and fiber contents from 0-12 days. On the whole, The Thuthuvalai chutney powder can be used as a chutney and kept at room temperature itself, without any loss of its antioxidant properties.

Keywords: Chutney Powder, Oven Dried Thuthuvalai Leaves, antioxidant properties, physicochemical analysis.

Synthesis, Characterization of Tetradentate Schiff base ligand

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ABSTRACT

Schiff bases and their complexes are versatile compounds synthesized from the condensation of an amino compound with carbonyl compounds and widely used for industrial purposes and exhibit a broad range of biological activities including antifungal and antibacterial properties. The Schiff base ligand was synthesized by condensation of 4-bromo benzene 1,2-diamine with 2-hydroxy-3-nitro benzaldehyde by refluxing method. The synthesized ligand was characterized by UV-Visible, FTIR and ¹H NMR spectral studies.

Keywords: Tetradentate Schiff base ligand.

A Case - Control Study on Incidence of Toll-like receptor 4- TLR4 (Asp299Gly) Polymorphism in Periodontitis by Tetra ARMS PCR

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ABSTRACT

A complicated interaction between the human immune system and the microbial challenge plays a role in the pathogenesis of periodontitis. Individual immunoinflammatory responses have a significant role in the disease's pathophysiology and act as a catalyst for the disease's unique process of bone remodelling. The purpose of this study was to determine the relationship between periodontitis and the TLR4 A896G, TLR4 C1196T, CD14 C-260T, polymorphisms. Periodontitis (N=203) and controls (N=213) over the age of 30 who were free of diabetes mellitus, acute infections, osteoarthritis, and aggressive periodontitis, I.e., stage IV and C degree of periodontitis, as well as any recent periodontal therapy, was carried out. With the help of sequencing and PCRRFLP, genotypes were identified. The chi-square test and logistic regression were used to compare frequency between cases and controls (OpenID and SNPStats software). The risk (OR) was calculated for P 0.05 values. There were no differences in the genotype and allele frequency distributions of TLR4 between patients and controls. However, when gender and smoking habits were considered, some variants were a risk factor for the development of periodontitis. When compared to women, the TLR4 896A / G genotype was a risk factor for periodontitis in males (OR = 2.86), and the TLR4 119C / C genotype was a risk factor nonsmoking males (OR = 1.85). TLR4 variation was not linked to periodontitis, it can be concluded. Males may still be at risk for periodontitis due to TLR4.

Keywords: Immune system, PCRFLP, TLR4, Polymorphism, periodontitis

Mycosynthesis of Silver Nanoparticles and their Incorporation into Sodium Alginate Films for Fruit Preservation

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ABSTRACT

Mycosynthesis of silver nanoparticles (AgNPs) by using edible mushroom extract, *Pleurotus ostreatus*, as a bioreductant. The biosynthetic method developed in this study for producing silver nanoparticles has distinct advantages over chemical methods such as high biosafety and being eco friendly and nontoxic to the environment. Furthermore, these functionalized silver nanoparticles incorporation into Sodium Alginate Films to Fruit Preservation for food industry. In the present study, healthy and young *Pleurotus ostreatus* mushrooms were purchased from supermarket of Pondicherry. Then the sample was packed in a sterilized polythene bag and quickly taken to the laboratory. The bioreduction of aqueous Ag⁺ ions to silver nanoparticles by using extracts of Mushroom (*Pleurotus ostreatus*) has been demonstrated. The formation of silver nanoparticles synthesis was monitored by UV-Visible spectrophotometer. The FTIR results show that reduction of silver ions and stabilization of the silver NPs are thought to occur through the participation of mushroom proteins and metabolites present in the extract of *Pleurotus ostreatus*. Anti-Bacterial Activity by disc diffusion method of mushroom extract derived nanoparticle showed antibacterial activity against different human pathogen. The Sodium Alginate was used to make silver nanoparticle incorporated film preparation for fruit preservation.

Keywords: Mycosynthesis, Mushroom, Preservation, Nanoparticles, *Pleurotus ostreatus*

Studies on Phytochemical analysis, Anticancer activities, Molecular Docking & DNA sequencing of *Phoenix Sylvestris* Extract

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ABSTRACT

The *Phoenix sylvestris* has been considered as having medicinal properties and has been used in the treatment of abdominal complaint, fever, loss of consciousness and heart complaints. The present study was carried on methanol extract of *Phoenix sylvestris* to find out the presence of medicinally important phytochemicals. The methanol extract of *Phoenix sylvestris* has the presence of medicinally important phytochemicals. The methanol extract of *Phoenix sylvestris* has the presence of various phytochemicals such as Alkaloids, Carbohydrates, Saponins, Proteins, Aminoacids, Phenolic compounds and absence of Glycosides, Terpenoids. The green chromogen formed from methanol extract of *Phoenix sylvestris* showed total antioxidant property maximum of 1.861 absorbance at 100 µg/ml concentration. An isolated fraction from methanol leaf extract that has significant phenolic compounds possessing antioxidant activity, antibacterial activity and remarkable cell viability. Our studies also suggested HT29 cell line which promises its immunotherapy responses. Present study concludes that this medicinal plant has diversity of curing properties as well as immune-modulatory activity which is still not investigated and may be helpful for the treatment of various susceptible abnormalities of human being with improved clinical and immunologic outcome.

Keywords: *Phoenix sylvestris*, Phytochemicals, HT29, Cell viability, Terpenoids

Exploring the antiobesity and antioxidant potential of the methanolic extract of *Camellia Sinensis*

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ABSTRACT

To screen the phytochemical compounds of *Camellia Sinensis* and evaluate its antiobesity and antioxidant effects. The methanolic extract of *Camellia Sinensis* was analyzed for its phytochemical screening and assayed for its *in-vitro* activity against pancreatic lipase, its antioxidant potential and quantitative estimation of flavonoids and phenolics were done. Our results suggest natural resources that possess strong antioxidant and pancreatic lipase inhibitory activities with potential applications in the treatment and prevention of 18 Evidence-Based Complementary and Alternative Medicine obesity and overweight problem. Tea extracts of *Camellia sinensis*, *Ceratonia siliqua*, *Curcuma longa*, *Sarcopoterium spinosum*, and *Mentha spicata* have shown possessing strong antioxidants and PPLI potentials. However, future studies are needed for screening in-depth phytochemical, clinical, and possible studies on molecular mechanism of action and identification of the constituents responsible for the antioxidant and PPLI activities. At the same time, efforts should be made to normalize the plant extracts with potent antioxidants and PPLI activities and formulate best alternative herbal products in order to substitute man-made drugs which are presently in use.

Keywords: *Camellia Sinensi*, Phytochemical, methanolic extract, anti-obesity, antioxidant

Green Synthesis of Zinc Oxide Nanoparticle with Ethanolic Extract of *Plumbago Zeylanica* and their Antimicrobial Activity.

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ABSTRACT:

Plumbago zeylanica is one of the plants composed of diverse Phytometabolites used to synthesize nanoparticles. Zinc oxide (ZnO) nanoparticles are ecofriendly and have widespread of application in various research areas. The aim of the present study was to synthesize Zinc oxide nanoparticles using an ethanol extract of *Plumbago zeylanica* (EEPZ) characterized under various techniques such as Particle size analyser, UV- Visible, FT-IR and SEM. The antimicrobial potential of ZnO NPs was examined by using well diffusion method. Our results indicated that ZnO NPs produced from *Plumbago zeylanica* had higher antimicrobial activity against *Staphylococcus saprophyticus* (Gram positive), *Vibrio cholera* (Gram Negative), and *Aspergillus fumigates* (Fungal). It shows the higher Zone of inhibition in Synthesised ZnO Nanoparticle than EEPZ. Therefore, we suggest that EEPZ ZnO NPs can be used as the antimicrobial agent. It can be used both antibacterial and antifungal agent.

KEYWORDS: ZnO NPs, *Plumbago zeylanica*, antimicrobial, UV, SEM.

Design and fabrication of Emergency Braking System in four wheeler

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ABSTRACT

The design and fabrication of an emergency braking system for four-wheelers presents a critical advancement in automotive safety technology. This system aims to mitigate the severity of collisions by providing an additional layer of autonomous braking capability in emergency situations. Through a combination of sensor fusion, machine learning algorithms, and hydraulic control mechanisms, the system detects imminent collisions and triggers rapid braking to reduce vehicle speed and minimize impact forces. The fabrication process involves integrating sensors such as radar, lidar, and cameras into the vehicle's architecture while ensuring seamless communication between components for real-time decision-making and precise braking action. The development of this emergency braking system signifies a significant step forward in enhancing vehicle safety standards and reducing the frequency and severity of accidents on the road. By providing an automated response to emergency situations, the system offers drivers an extra layer of protection and helps prevent collisions in scenarios where human reaction time may be insufficient. Additionally, the integration of advanced braking technologies not only enhances the

safety of occupants but also contributes to the broader goal of achieving sustainable and accident-free transportation systems.

Keywords: Emergency Braking System, Four-Wheeler Safety, Design Optimization, Fabrication Techniques, Vehicle Collision Prevention.

Synthesis and Characterisation of MgO reinforced Polyaniline Composites

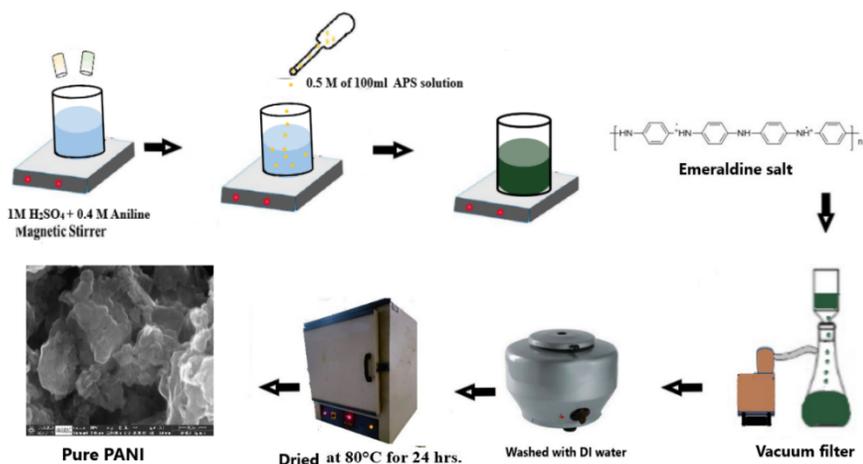
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ABSTRACT

The Magnes Oxide (MgO) nanoparticles were synthesised by the Sol-gel method, and pure Polyaniline (PANI) and Polyaniline with MgO (PANI-MgO) were synthesized at various weight percentages of MgO such as 1%, 10% and 15% by the oxidation polymerization method. The XRD pattern of MgO nanoparticles confirmed the formation cubic structure, and its particle size which was estimated by Scherrer formula as 19 nm. The UV-Visible (UV-Vis) absorption spectra recorded 200-1200 nm wavelength region and the band gap were calculated from Tauc Plot. The morphology of PANI and PANI-MgO composites were observed like non-homogenous and agglomerated by high resolution scanning electron (HRSEM). The FTIR spectra confirm the functional groups of the synthesized materials. The electrochemical properties of cyclic voltammetry (CV), Galvanostatic charge-discharge (GCD) results confirm 5% PANI-MgO have good cyclic stability, then the frequency response behaviour of nanocomposites was confirmed by EIS spectra.



Keywords: MgO, PANI-MgO, Composites, Electrochemical properties.

Synthesis and characterization of pure Ag codoped MgTiO₃ nanoparticles

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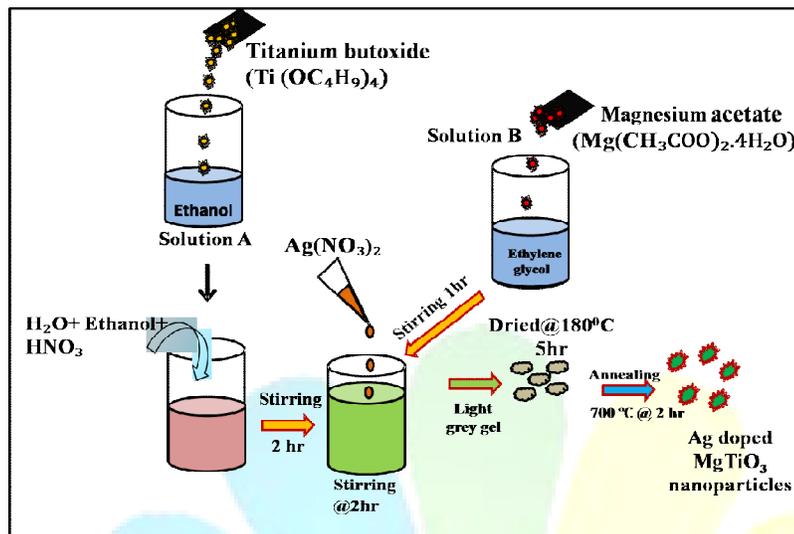
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ABSTRACT

Magnesium titanate (MgTiO₃) and Ag MgTiO₃ has been successfully synthesized by sol-gel method. The synthesized nanoparticles were characterized by optical methods using UV-Vis diffuse reflectance spectroscopy (DRS) and Photoluminescence spectroscopy (PL). The morphology of MgTiO₃ nanoparticles is irregular in shape with serious agglomerations were confirmed through SEM analysis. XRD confirms crystal structure and phase purity of MgTiO₃ nanoparticles calcined at 700 °C for 2 hours. The calculated optical band gap energy of MgTiO₃ nanoparticles has been found to be 3.05

eV. Using the synthesized MgTiO_3 nanoparticles, the photocatalytic activities were evaluated.



Keywords: sol-gel method, Ag- MgTiO_3 , XRD.

Synthesis and characterization of pure MgTiO_3 nanoparticles

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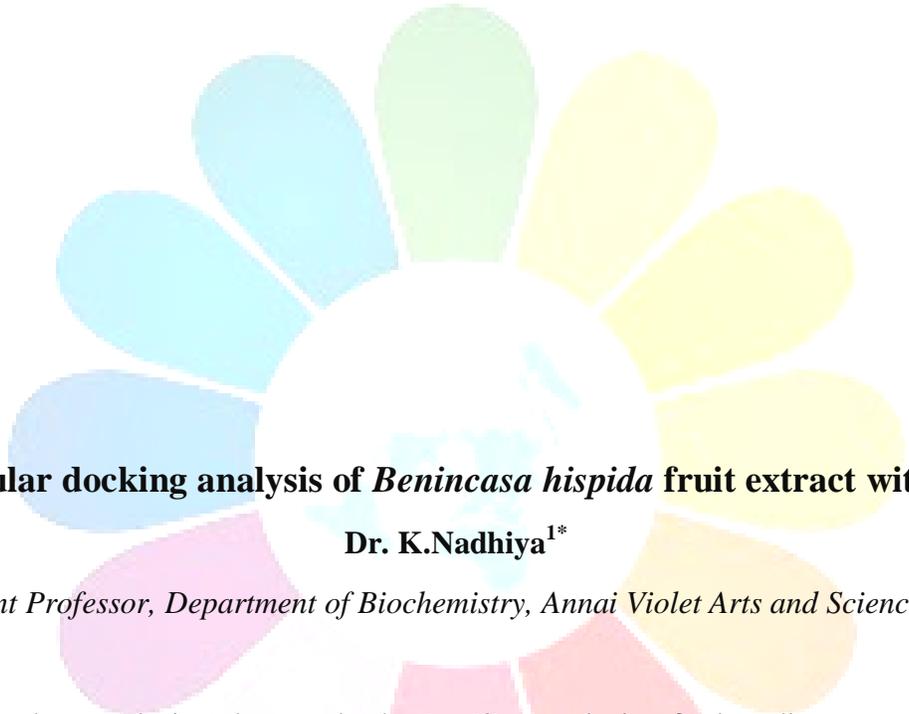
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ABSTRACT

Magnesium titanate (MgTiO_3) has been successfully synthesized using the hydrothermal method. Optical methods such as UV-Vis and Photoluminescence spectroscopy (PL) were used to characterize the synthesized nanoparticles. The morphology of the MgTiO_3 nanoparticles is irregular in shape, and agglomerations were confirmed through SEM analysis. XRD analysis confirmed the crystal structure and phase purity of the MgTiO_3 nanoparticles. Additionally, their photocatalytic activities were evaluated.

Keywords: sol-gel method, MgTiO_3 , XRD.



Molecular docking analysis of *Benincasa hispida* fruit extract with FTO

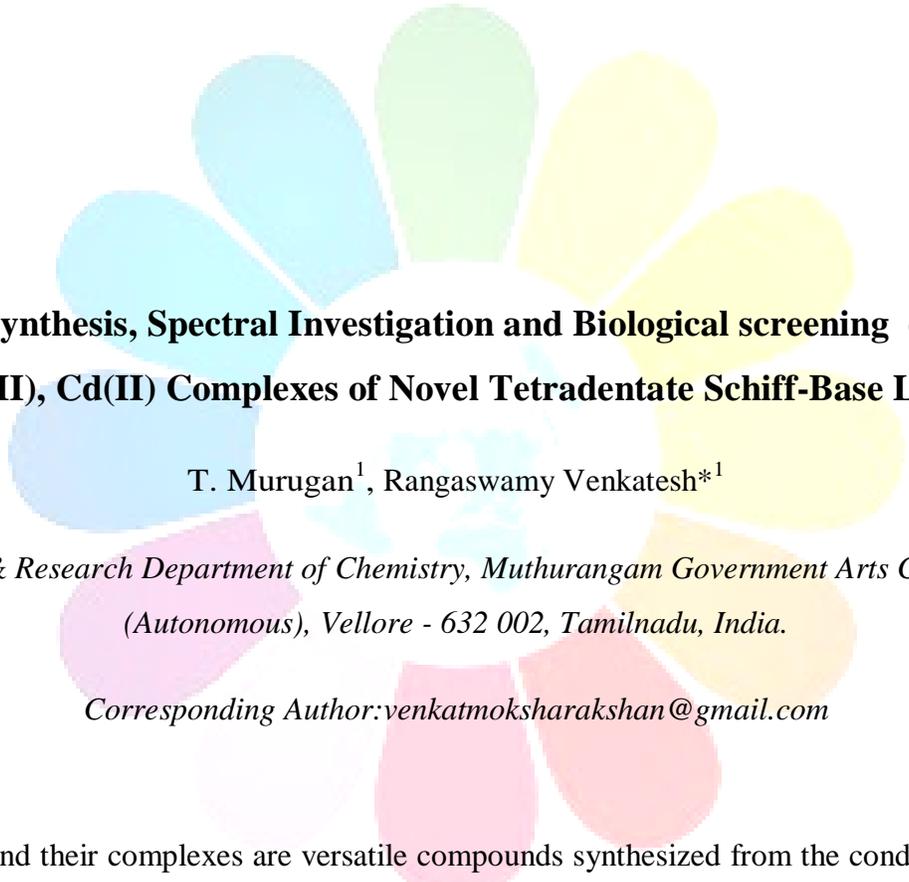
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ABSTRACT

The present study was designed to study the *in-silico* analysis of ethanolic extract of *Benincasa hispida* fruit. The GCMS analysis of ethanolic extract of *Benincasa hispida* fruit extract revealed the presence of compounds namely 1H-1,3 Benzimidazole, 2(methoxymethyl)1-2 propynyl, n-hexadecanoic acid, Hexadecanoic acid ethyl ester, 9,12 Octadecadienoic acid, Linoleic acid, ethyl ester, Phenol,4,4'-1-methyl ethylidene)bis and HPTLC analysis showed that presence of β -Sitosterol. These compounds subjected to the docking analysis. The docking analysis exhibit that high energy range for all these compounds from -14 to -18Kcal/mol. From the result of *in-silico* analysis β sitosterol, linoleic acid and n- Hexadecanoic acid showed that maximum potential against FTO protein.

Key words: *Benincasa hispida*, *in-silico* analysis, fat mass and obesity associated protein(FTO).



Synthesis, Spectral Investigation and Biological screening of Ni(II), Zn(II), Cd(II) Complexes of Novel Tetradentate Schiff-Base Ligand

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ABSTRACT

Schiff bases and their complexes are versatile compounds synthesized from the condensation of an amino compound with carbonyl compounds and widely used for industrial purposes. They also exhibit a broad range of biological properties. Many Schiff base complexes show excellent catalytic activity in various reactions and in the presence of moisture. Over the past few years, there have been many reports on their applications in homogeneous and heterogeneous catalysis. Then, because complexation results in an increase in activity, data on the ligand and metal characteristics can help in the synthesis of materials that consume high activity. The influence of certain metals on the biological activity of these compounds and their intrinsic chemical interest as tetra dentate ligand have prompted a considerable increase in the study of their coordination behavior. Three

different nitro substituted nickel (II), zinc (II), and cadmium (II) complexes were synthesized by the reaction of the corresponding precursor with a tetra dentate Schiff base ligand. The Schiff base ligand 4-(tert-butyl)-o-phenylenediamine, 5-nitro salicylaldehyde, and salicylaldehyde are synthesized by condensation.

The ligand was characterized by UV-visible, FT-IR, XRD and ^1H NMR Spectral studies. The synthesized complexes were characterized by molar conductance, UV-visible, FT-IR spectral studies, ESI-MasS spectral studies, Melting point and antimicrobial studies.

Key words: Nickel (II) complex, Zinc (II) complex, Cadmium (II) complex, Tetra-dentate Schiff base ligand, Antimicrobial activity

Preparation of Almond Based Vegan Cheese Using Lactobacillus Casei Isolated from the Probiotic Drink - Yakult, And Characterization of its Nutritional Values.

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ABSTRACT

Vegan cheese is a category of non-dairy cheese that does not use any animal products. Vegan cheese can be made with components derived from vegetables, such as proteins, fats, and plant milks. It also can be made from seeds, such as sesame, sunflower, nuts (cashew, pine nut, peanuts, almond) and soybeans. Vegan cheese is a safe and healthy alternative for those with allergies or lactose intolerance. In the present study, a vegan cheese was prepared by fermenting the coagulated product of almond milk using the bacterium isolated from the probiotic drink, Yakult. 5 Lactobacillus isolates were obtained from different dairy products like Yakult, Hatsun curd, Heritage curd and Yoghurt. The isolates were tested for antioxidant activity by DPPH assay. The isolate which had shown good antioxidant activity was selected for the preparation of vegan cheese.

The bacterial isolate, *Lactobacillus casei* obtained from the probiotic drink, Yakult had shown good antioxidant activity. To optimize the almond and water ratio for milk extraction, different almond: water ratios were tested (1:3, 1:5, 1:7 and 1:9). The solid content of milk was observed to decrease significantly with an increase in the water content of milk. The almond milk was coagulated using 0.5% Magnesium chloride. The coagulated product of almond milk was fermented using *Lactobacillus casei* for 24 hours at 37°C. The concentration of protein, lipid and carbohydrate were estimated in the unfermented coagulated product, fermented almond based cheese and cheese mixed with beetroot extract. There was a significant decrease in the concentration of protein and carbohydrate in the fermented almond cheese due to the proteolytic activity and fermentation of sugars by *Lactobacillus casei* but there was no significant change in the concentration of lipid.

The carbohydrate concentration was slightly increased after mixing the fermented cheese with beetroot extract and this could be due to the sugar content present in the beetroot extract. When the beetroot extract are mixed with fermented almond cheese, it would increase the nutritional value of the cheese product as it contains carbohydrates, protein, iron, vitamin C, vitamin A, magnesium, potassium and folate. Consequently, further studies are required from many perspectives to widen the range of nutritious end products.

Key words: *Lactobacillus casei*, DPPH assay, almond milk, Vegan cheese.

Review on Bioremediation Technique of Heavy Metal in Contaminated Groundwater

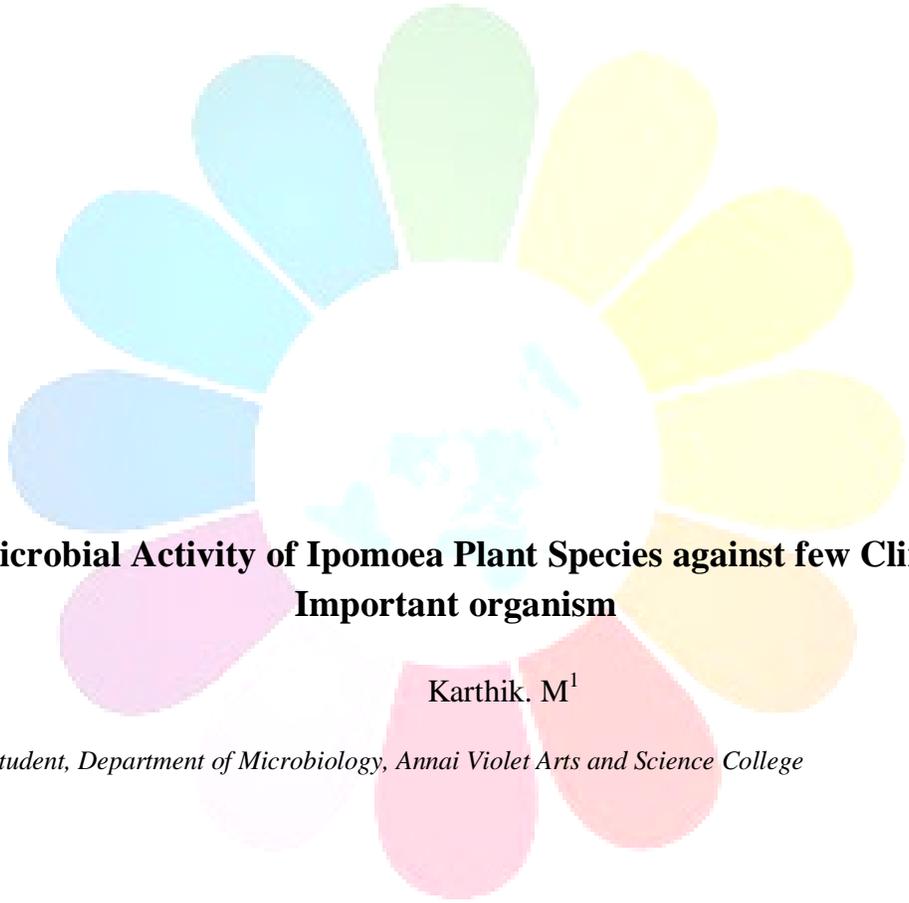
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ABSTRACT

Addressing heavy metal pollution is one of the hot areas of environmental research. Despite natural existence, various anthropogenic activities responsible for the heavy metal contamination of groundwater. Industrial sources including coal washery, steel industry, metallic work, leather tanning are responsible for heavy metal contamination in water. Domestic and agricultural waste is also responsible for hazardous metallic contamination in water. Report stated that the groundwater was found to be significantly contaminated with heavy metal concentrations exceeding the WHO limit for drinking water. Contaminated water with heavy metal ions like Cr (VI), Cd (II), Pb (II), As (V, VIII), Hg (II), Ni (II) and Cu (II) are responsible for health issues like Liver failure, Kidney damage and harmful effects on reproductive system. There are several physiochemical methods available for the removal of heavy metals but these methods are expensive. Biological methods are cost effective and ecofriendly method for the remediation of metallic contaminants from water. In this review, we focused on water contamination with toxic heavy metals and their toxicity and ecofriendly bioremediation approaches.

Key words: Heavy metal, groundwater, contamination, bioremediation, microorganism.



Antimicrobial Activity of Ipomoea Plant Species against few Clinically Important organism

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ABSTRACT

Ipomoea is one of the largest genera in the plant family of Convolvulaceae consisting of around 600 species. It is commonly called as morning glory and possess beautiful fragile trumped shaped flowers. In Tamilnadu the plant is called mukuthiavarai and grows as creepers in the agriculture fields and other marshy lands. Few Species are taken up by village people for its nutritional content and used for treating certain illness. Up to now more literature has been found for the medicinal content of the plant. Hence the present study is focused on exploiting its antimicrobial property. Upon testing against a few microorganisms causing various diseases in humans, the plant extract (Hexane, Chloroform, Alcohol) exhibited good antimicrobial activity against many organisms including salmonella typhi - the causative agent of typhoid. The plant's authenticity, species identification and phytochemical constituents are in progress.

Key words:mukuthiavarai, antimicrobial activity



ABOUT THE COLLEGE

Annai Violet Arts & Science College started by Nesarathinam Educational Trust in the year 1997 with a view to facilitate students with futuristic education to compete in the unforeseen global future. The Management believes that right knowledge is a basic requirement for the pursuit of spiritual aims, righteous conduct, integration of caste & creed, word & deed and the ultimate aim is to "Seek, Strive, Succeed" which is the motto of the college.

ABOUT THE DEPARTMENTS

The Departments of Biochemistry, Chemistry and Microbiology aims to create awareness about the in-depth research in biological sciences. The departments work diligently and faithfully to perform the teaching tasks to provide qualified graduates, practically and scientifically to serve the community.

Events are organized every year to revolutionize students into balanced holistic individuals who can combine academic expertise with creative energies to forge their way forward and get an edge over their peers.

SCOPE OF THE CONFERENCE

Many of the recent advances in biology have been driven by the development of new technologies and instrumentation. Each of these technologies has opened new opportunities to explore both fundamental and applied biological problems. Moreover, these technologies have proven to be synergistic each operating in conjunction with the others to amplify their potentials. It provides researchers with new tools to conduct their research and places a strong emphasis on immediate practical relevance and potential to advance new biological applications.