GOVT. DIGVIJAY AUTONOMOUS P.G. COLLEGE
RAJNANDGAON, CHHATTISGARH, INDIA

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INTERNATIONAL CONFERENCE ON

ROLE OF APPLIED SCIENCES IN SOCIAL IMPLICATIONS

(IC-RASSI-2023)

6th To 8th February, 2023

ORGANIZED BY

FACULTY OF SCIENCE

SPONSORED BY

AUTONOMOUS EXAMINATION CELL ,
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क्रमांक B23/199 दिनांक 02/02/202

संदेश

मुझे यह जानकर हार्दिक प्रसन्नता हुई कि शासकीय दिग्विजय स्वशासी स्नातकोत्तर महाविद्यालय, राजनांदगांव में ''रोल आफ अप्लाइड साइंसेज फॉर सोशल इंप्लीकेशन " विषय पर दो दिवसीय (दिनांक 06 से 08 फरवरी 2023) को राष्ट्रीय सेमीनार का आयोजन किया जा रहा है।

निश्चित ही आयोजन में होने वाले गहन विचार-विमर्श का लाभ शैक्षणिक जगत को अवश्य ही प्राप्त होगा और छात्र-छात्राओं के भविष्य को भी एक नई दिशा प्राप्त होगी।

उक्त कार्यक्रम के सफल आयोजन हेतु, मेरी हार्दिक शुभकामनाएं।

(उमेश पटेल)

जनभागीदारी समिति
शासकीय दिग्विजय स्वशासी स्नातकोत्तर महाविद्यालय
राजनांदगांव (छ.ग.)

रईस अहमद शकील
(B.Sc., M.A., LL.B)
अध्यक्ष

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क्रमांक 1898

दिनांक 1.2.2023

MASSAGE

It is quite gratifying to note that the faculty of science, Govt. Digvijay Autonomous PG College, Rajnandgaon is going to organise the first International Conference on "Role of Applied Sciences in Social Implications" in this beautiful season. The Objective of this Conference is to provide a venue for cross-cultural networking, intellectual stimuli and opportunities for personal growth and creating on environment for the exchange of ideas toward scientific developments. The theme of the conference revolves around the kaleidoscope stream of science encompassing chemical science, physics, mathematics and statistics, computer science, earth, energy and environment and nanotechnology. I convey my warm greetings and felicitations toward the patron, convener and the organizing committee for their relentless hard work and dedication and also extend my gratitude towards the invited speakers and the scholars who are travelling half of the globe to attend and to everyone who will bring this conference to life. I extend by best wishes for the success of the conference.

(Rais Ahmad Shakeel)

निवास : भारत ट्रेवल्स, पुराना बस स्टैण्ड, राजनांदगांव (छ.ग.) दूरभाष 07744 - 281343

शासकीय दिग्विजय स्वशासी स्नातकोत्तर महाविद्यालय

राजनांदगाँव (छ.ग.)

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Principal
Govt. Digvijay Autonomous PG College
Rajnandgaon (Chhattisgarh) India

MESSAGE

It gives me immense pleasure to be a part of this hosting team of "1st International Conference on "Role of Applied Sciences in Social Implications" from 6 to 8 February 2023. The conference intends to bring together scientists, research scholars and students from different disciplines to discuss concerns related to various concept of science and technology.

I take this opportunity to welcome all the delegates of the conference. On behalf of whole IC-RASSI-2023 team, I would like to thank all the participants, sponsors and keynote speakers for their support and co-operation.

I hope that the conference serves as a locus for interdisciplinary, a space for discourse and collaboration. I would like to express my appreciation to the organizing committee for their dedicated efforts to materialize the conference.

I hope all the participants will have a fruitful and beneficial experience.

I wish the conference all the success.

Dr. K. L. Tandekar

Principal

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THEMES OF THE CONFERENCE

- **Anthropology**
- **Biotechnology**
- **Chemical Science**
- **Computer Science**
- **Life Sciences - Plants and Animals**
- **Mathematical Science and statistics**
- **Microbiology**
- **Nanotechnology**
- **Physical Science and Electronics**
- **Earth, Environment and Energy**

ICRASSI – 2023

INTERNATION CONFERENCE ON

ROLE OF APPLIED SCIENCES ON SOCIAL IMPLICATION

ORGANIZED BY

FACULTY OF SCIENCE

GOVERNMENT DIGVIJAY AUTONOMOUS PG COLLEGE, RAJNANDGAON, CHHATTISGARH, INDIA

6th to 8th February, 2023

Welcome Committee

- Dr. Anjana Thakur(Co-Ordinator)
- Dr. Anita Mahishwar
- Dr. Sabnam Khan
- Dr. D. P. Kurrey
- Dr. H. S. Bhatia
- Dr. K. N. Prasad
- Dr. K. L. Damle
- Dr. P. B. Taunk

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- Mr. Vikash Kandey
- Mr. Hirendra Bahadur
- Mr. Sanjay Saptrishi
- Mr. Mahesh Ladekar

Lunch, Dinner & Hi Tea

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- **Dr. Kiran Jain**
- **Mr. Likeshwar Sinha**
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List of Presentations

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Oral Presentation

Day-1

Theme IC-RASSI-A, B and C

(Chemical Science, Environmental Science and Life Science)

SN	Paper title	Name of Author/s	Affiliation	E-mail
		LIFE SCIENCE		
OP1	Identification of protein drug targets for Aspergillosis caused by *A. fumigatus* or *Neosartorya fumigata* using in-silico method - SPA approach	Dr. Anubhuti Jha	Department of Biotechnology. St. Thomas College, Ruabandha Bhilai, CG.	anubhutijhastc@gmail.com
OP2	Evaluation of Bis phenol A degrading microorganism from municipal waste disposal sites	Khageshwar Prasad	Department of Biotechnology, GGV (A Central University) Bilaspur C.G.	khageshwarnavrange@gmail.com
OP3	Evaluation of Pb concentration in *in vitro* grown *Pithecellobium dulce* (Roxb.) Benth. seedling	Satyam Kumar Kumbhakar	Department of Biotechnology, Govt. Veer Surendra Say P.G. College Gariaband, Chhattisgarh,	satyambiotech18@gmail.com
OP4	Post Covid-19 social, medical and economic management by developing simple indigenous medical technology: Covid-19 neutralizing detection kit	Yogita Rajput	Multi Disciplinary Research Unit (MRU), Pt. J.N.M. Medical College Raipur	yogitaryp@gmail.com
OP5	Study of the solid static mediums for *in vitro* influential mycelium growth of *Cordyceps militaris*	Varsha Meshram	School of Studies in Biotechnology, Pt. Ravishankar Shukla University, (Chhattisgarh), Raipur 492 010, India	varshameshram2801@gmail.com
OP6	Possible Association of Hyponatremia, Hypochromia, and Microcytosis in Sickle Cell Patients from Chhattisgarh Could Be The Most Determining Factor For Less	Divya Sudhir Tyagi	Department of Biochemistry, Pt.J.N.M. Medical College, Raipur (C.G)- 492001	sudhirdiv@gmail.com

	Severe Clinical Presentation.			
OP7	Current trends of Microbial pigments: Production, Characteristics and Applications	Dr. Khushboo Bhange	Department of Biochemistry Pandit Jawahar Lal Nehru Memorial Medical College Raiour, Chhattisgarh, INDIA	khushboo27jan@gmail.com
OP8	Protein Oxidation in dehydrating Jamun (*Syzygium cuminii*) Seeds	Jyoti Bakshi	Department of Botany, St. Thomas College, Ruabandha Bhilai , Chhatisgarh, India	jyotistc1244@gmail.com
OP9	Phytochemical Screening and Characterization of Green Synthesized Silver (Ag) Nanoparticles fromBulb Extract of *Urginea indica* (Roxb.) Kunth	Uday	Department of Botany, Govt. V.Y.T. P.G. Autonomous College Durg, Chhattisgarh, India	udaysahu231@gmail.com
OP10	GC-MS Characterization of Phytoconstituents from *Bridelia retusa* and Molecular Docking Interactions of Bioactive Phytoconstituents with Diabetic Target Proteins	Somendra Kumar	Department of Biotechnology, Govt. V.Y.T. PG. Autonomous College, Durg, Chhattisgarh, 491001, India.	anilkumardurg1996@gmail.com
Chemical Science				
OP11	Molecular complexity from aromatics, Cycloaddition of spiroepoxycyclohexa-2,4-dienones and intramolecular Diels-Alder reaction: a stereoselective entry into tetracyclic core of atisanediterpenoids	Bharat Chandra Sahu	Department of Chemistry, VEC Ambikapur, A Constituent College of CSVTU Bhilai, (C.G-497001)	bharatsahuiitb@gmail.com
OP12	An overview of microwave dielectric spectrometry on aqueous medium	Jaya V Gade	Department of Analytical Chemistry, SNDT Women's University, Mumbai 400049, Maharashtra India.	
OP13	Synthesis of some biologically active heterocyclic compounds by mechanical grinding assistance at moderate temperature and evaluation of their biological activities	Sushma Singh	Department of Chemistry, Basic Science, AKS University, Panna road, Sherganj, Satna (M.P.) 485001, India	syshailendra5@gmail.com
OP14	A bionano material made from lignocellulosic biomass :Nano cellulose	Preeti Nandkumar	Associate Professor, Department of Applied Chemistry Christian College of Engg. & Technology, Bhilai. (C. G.)	nandinipreeti@gmail.com

OP15	Assessment of ground water quality in perspectve of selected light and heavy metallic elements in Sarguja district (C.G.) India	Sanjay Jain	Research Scholar, Dept. of Chemistry, Govt .S.P.M. College, Sitapur, Sarguja (C.G.), India, 497111 (Affiliated to SGVV, Ambikapur, Dist. Sarguja, C.G., 497001)	jainsk77@yahoo.com
OP16	Evaluation of Phytochemical constituents, Antioxidant activity and FT-IR analysis of *Delonix regia* Raf. in flower extract	Rohit Kumar Bargah	Assistant Professor & Head, Department of chemistry and Research Centre, Govt. S.P. M. College Sitapur, Surguja, (C.G.) India ,497111	rohitbargah1978@gmail.com
OP17	Comparative assessment of unmodified and chemically modified novel chicken feathers for the biosorptive remediation of noxious hexavalent chromium from synthetic wastewater	Rupa Chakraborty	*Department of Chemistry, Sai College, Sector 6 Bhilai 490006 (Chhattisgarh), India*	ajayaksingh_au@yahoo.co.in
ENVIRONMENTAL SCIENCE				
OP18	Evaluation of physio-chemical parameters of shipra river water, Ujjain, Madhya Pradesh, India	Anjana Chaudhuri	Govt VYT PG Autonomous College Durg Chhattisgarh, India HemChand Yadav University Durg Chhattisgarh, India	anjana.korba@gmail.com
OP19	Current Developments in field of Bioremediation of Heavy Metals in Chhattisgarh	Deepika Dhruve	Govt. Rani Suryamukhi Devi College, Chhuria, Chhattisgarh, India	deepii.rjn@gmail.com
OP20	Assessment of heavy metal toxicity in humans	Purva Mishra	School of Life and Allied Science, ITM University Raipur (CG) India	balramsahu@hotmail.com

Day-2

Oral Presentation

SN	Paper title	Name of Author/s	Affiliation	E-mail
		Life science		
OP21	Endophytic fungal diversity of *Buteamonosperma* (Lam.) Taub. (Red flower) and*Buteamonosperma* var. Lutea (Yellow flower)	Shweta Singh Chauhan	Department of Biotechnology, Govt. Digvijay Autonomous P.G. College, Rajnandgaon, Chhattisgarh,India	osh2810@gmail.com
OP22	Fabrication and characterization of lignin-agar based bioactive porous scaffold for biomedical application	Keshaw Ram Aadil	Department of Botany, Govt. Digvijay Autonomous Post-Graduate College, Rajnandgaon, 491441, Chhattisgarh India.	*kraadil@gdcr.ac.in*
OP23	Study of Avian Faunal Diversity in Cropland of Durg District, India	Ayushee Sao	Department of Zoology, Govt. V.Y.T. PG. Autonomous College, Durg, 491001, Chhattisgarh, India	ayushee.sao@gmail.com
OP24	Diversity of Macrophytes in Selected Sites of Durg, Chhattisgarh	Garima Madhariya	Department of Biotechnology, Govt. Digvijay Autonomous P.G. College Rajnandgaon (C.G.) 491441.	gmadhariya43@gmail.com
OP25	Machine learning and artificial intelligence an opportunity for new drug discovery	Kaushal Kumar Sahu	Postgraduate Department and Research Centre of Biotechnology, Govt. Digvijay Autonomous PG College Rajnandgaon (Chhattisgarh) India 491441	kaushal2683@gmail.com
OP26	Analysis of role of SG2NA in cell cycle progression	Shweta Pandey	Govt VYT PG Autonomous College, Durg.	spandey508@gmail.com
OP27	Histological Analysis Of The Reproductive Structures Of Long Barrel Squid Uroteuthis (Photololigo) Singhalensis (ORTMANN, 1891) (CEPHALOPODA: LOLIGINIDAE)	Dr Neethu Raj Panickar	Assistant professor, St.Thomas College, Ruabanda, Bhilai, Chhattisgarh – 490006	neethurajpstc@gmail.com
OP28	Microhabitat-dependent Cavernicolous Diversity in Phuljhar Cave of Gariyand,	Gokul Prasad	Department of Zoology, School of Science, ISBM University Nawapara (kosami)	gokul.prasad@isbmuniversity.edu.in

	Chhattisgarh, India.		Chhura Dist. Gariyaband C.G	
OP29	Fructooligosaccharides: Prebiotics derived from agro-wastes	Shanthi V Barman Ghosh S	Department of Microbiology, St. Thomas College, Bhilai; Chhattisgarh, India	vshanthistc@gmail.com
OP30	Changes in ROS level during the loss and re-establishment of desiccation tolerance in germinated pea seeds	Dr. Balram Sahu	Govt. Rani Durgawati Wadrafnagar, Dist.-Balrampur (CG) India	balramsahu@hotmail.com
OP31	GC- MS profiling, phytochemical and biological investigation of *Urena lobata* fruit extract	Dinesh Kumar	Govt. V.Y.T. PG. Auto. College, Durg, Chhattisgarh	btbaba31@gmail.com
OP32	Isolation and identification of Actinomycetes in industrial area of Bhilai	Devnarayan Patel	Govt. Nagarjuna PG College Raipur.	devpatel121997@gmail.com
OP33	Butterflies diversity of Sant Guru Ghasidas Government Post Graduate College Campus Kurud, District – Dhamtari, Chhattisgarh, India	H. N. Tandan	ISBM University, Chhura, District - Gariaband, Chhattisgarh S.G.G. Govt. P.G. College, Kurud, Chhattisgarh	tandanhn79@gmail.com
OP34	Bio-active compounds estimation of different solvent system of *Carica papaya*unripened fruit.	Daneshwar Prasad	Govt. V.Y.T.P.G. Autonomous College,Durg(Chhattisgarh) India	dp.dnirml@gmail.com
OP35	Hepatoprotective Renoprotective and Cadioprotective Effects of wheatgrass and its bioactive compounds (Chlorophylline and Rutin) on $HgCl_2$ Induced Oxidative stressed Rats	Renu Tripathi	Department of Home Science, Govt. Kamladevi Rathi Mahila P.G Mahavidyalaya, Rajnandgaon (Chhattisgarh)India	renu.tripathi20010@gmail.com
OP36	Variation in Abnormal Hemoglobins in Durg, District of Chhattisgarh, India: A Cross-Sectional Study	Nikhil Mishra	Department of Biotechnology, Govt. V.Y.T.PG. Autonomous College, Durg, Chhattisgarh, India	nikhil_0331@rediffmail.com
OP37	A Potential Evolutionary Scenario of Voltage Gated Chloride Channel Amongst Eukaryotes	M. Smrithi	Department of Biotechnology, Govt V.Y.T PG Autonomous College, Durg, Chhattisgarh	smrithipillai3@gmail.com
OP38	Impact of Anthropogenic Activities on Cave Biodiversity: A Case Study of Mandhip Khol of Rajnandgaon, Chhattisgarh	Akhilesh Yadav	Department of Zoology, School of Science, ISBM University Nawapara (kosami) Chhura Dist. Gariyaband C.G.	kumarakhileshyadav89@gmail.com
OP39	Soil Protozoa From Agriculture Land Of Durg District: Diversity And Their Ecology	Ewraj Janghel	Govt. V.Y.T. PG Autonomous College, Durg (C.G.) Affiliated to Hemchand Yadav	ewrajjanghel02@gmail.com

			University, Durg	
OP40	A Review on Bioavctive Compounds involved in Diabetic Wound Healing	Jaya Sharma	Govt. VYT PG Autonomus College, Durg	jayat450@gmail.com
OP41	Distribution range of AM Fungi in Rhizosphere of Different Forest Species Grown in Central India Nursery	Poonam Verma	Department of Microbiology and Biotechnology, School of Science, ISBM University Nawapara (kosami) Chhura Dist. Gariyaband C.G	poonamverma8624@gmail.com
OP42	Differentially expressed genes for regulation of fetal haemoglobin induction in beta thalassemia	Khare Soumya	Raipur Institute of Technology, Raipur, India	soumyashrivastava82@gmail.com
OP43	biochemical Changes in roots of Lady's Finger (*Abelmoschus esculentus*) during early response to root knot nematode attack	Reena Sahu	Govt. H. S. School Girhola Dist. Durg	reenasahu4123@gmail.com
OP44	Diversity & extracellular enzyme activity of endophytic fungus associated with *Costus speciosus*	Wasim Akram	Department of Botany, Govt. V.Y.T. PG Autonomous College, Durg (Chhattisgarh)	Wasima388@gmail.com
OP45	Social Behaviour Of Hanuman Langur (*Semnopithecus Entellus*) In Durg District (C.G.)	Upendra Kumar Verma	Govt.V.Y.T.PG, Autonomous College, Durg	nirupendraverma2016@gmail.com
OP46	Biodegradation of Used Engine Oil by *Trichoderma* sp. A 11 MCC 1816	Madhavi Tiwari	school of Sciences, MATS University, Raipur, C.G., Pin code: 492001, India.	madhavitiwari5@gmail.com
OP47	Study of Heavy Metals Toxicity on Cat Fish Clarius Batracus Of Balrampur District of Chhattisgarh	Anjana Toppo	Department of Zoology ,Dr.C.V. Raman University Kargi Road Kota Bilaspur(C.G.) INDIA	anjanarajpur180@gmail.com
OP48	Evaluation of Physio-Chemical Quality of Tap Water in Bilaspur District	Dr.Sarita Chandrawanshi	Department of Zoology,Department of Botany, Pt. Sundarlal Sharma Open University, Chhattisgarh	Sarita.cwanshi@gmail.com
OP49	Evaluation of Physio-Chemical Parameters of Shipra River Water ,Ujjain, Madhya Pradesh, INDIA	Miss Anjana Chaudhuri	Govt VYT PG Autonomous College Durg Chhattisgarh	
OP50	Bioethanol production from rice straw	Dr. Andrea Kolla* Dr. Bharti*	Seth PhoolChand Agrawal Smriti College Nawapara.	bharti15august@gmail.com , annpereira@gmail.com
OP51	Potassium Solubilizing Bacteriaas Biofertilizer	Twinkal Shriwas	Department of Microbiology, St. Thomas College, Bhilai, Chhattisgarh	twinkalshriwas50@gmail.com

OP52	Elevated Temperature Tolerance Mechanism In Rhizobacteria And Their Plant Growth Promotional Studies.	Jayati Shrivastava	Postgraduate Department of Biotechnology and Research Center, Govt. Digvijay Autonomous (P.G) College Rajnandgaon 491441, Chhattisgarh State, India	Jayatishrivastava04@gmail.com
OP53	Diversity of Medicinal Plant on Gariaband District	Omkumari Sahu	Department of Botany, Seth Phool Chand Agrawal Smriti College, Navapara	omisahu15@gmail.com
OP54	Isolation, Screening and Identification of Cellulase Producing Bacteria from Press Mud Waste and Standardization of Process Parameter for Cellulase Production	Taniya sahu	Department of Microbiology, Govt.V.Y.T.PG.Autonomous College Durg	taniyasahu63@gmail.com
OP55	Biodiversity of Algae and Fungi in Rice fields of Durg district	Amit Kumar Sahu	Microbiology, Swami Shri Swaroopanand Saraswati Mahavidyalaya, Hudco, Bhilai, C.G., India.	coolamitkumar826@gmail.com
Chemical Science				
OP56	Dielectric study of Polythiophene/ Polypyrrole and Metal- Oxide based Ternary Nanocomposites	Dharmendra	Department of Chemistry, National Institute of Technology, Raipur, Chhattisgarh, India	tmaharana.chy@nitrr.ac.in
OP57	Radiation grafted chitosan: Bio-waste to an efficient functional adsorbent for removal of Malachite Green (MG)	Sandeep Kumar	Government V.Y.T. PG Autonomous College; Durg, (Chhattisgarh) India	*sandeepjhariya176@gmail.com*
OP58	A review on the determination of heavy metals using different analytical techniques	Swati Chandrawanshi	Laxman Prasad Baidh Govt. Gils College Bemetara (C.G.)-491335	chemistryswati159@gmail.com
OP59	**Study viscometric, Surface tension behaviours of cationic surfactant (CTAB), anionic surfactant (SDS), and nonionic surfactant (Tx-100) at different concentrations.**	Benvikram Barman	Mats School of Science, MATS University, Pagaria Complex, Pandri,Raipur (C.G.), 492004, India	manojbanjare7@gmail.com
OP60	Micellar media as catalysis for hydrolysis of phosphate esters: a review	Likeshwar Sinha	Department of Chemistry, Govt. Digvijay College Rajandgaon, Chhattisgarh, INDIA, 491441	*manmohanchem@gmail.com*
OP61	Synthesis and Characterization of Some Copper(II) Chelates in O_3N Coordination Environment Involving 2-Amino-4-	Ashwani K. Sharma	Department of Chemistry, Govt. Digvijay (Autonomous) Post-Graduate College, Rajnandgaon (C.G.) India	ashwanijjn@gmail.com

	methylphenol and β -Diketoenolates			
OP62	Synthesis and characterization of halloysite mediated composites for the removal of iron	Purnima Mishra	Hemchand Yadav University, Durg, Chhattisgarh, INDIA 491001, Department of Chemistry, Govt. Digvijay Autonomous Postgraduate College Rajnandgaon, Chhattisgarh, INDIA, 491441	*dakeshwarverma@gmail.com*
OP63	Sand as a source of nanostructured silicon in magnesiothermic reactions and as a heat scavenger	Amit Dewangan	Department of Chemistry, Govt. Digvijay Autonomous Postgraduate College Rajnandgaon, Chhattisgarh, INDIA 491441	*dakeshwarverma@gmail.com*
OP64	N-(*p*-ethylphenyl) thiobenzohydroxamic acid as green and sustainable corrosion inhibitor for mild steel in 1M H_2SO_4	Yeestdev Dewangan	Department of Chemistry, Govt. Digvijay Autonomous Postgraduate College Rajnandgaon, Chhattisgarh, INDIA 491441	*dakeshwarverma@gmail.com*
OP65	Surface plasmon resonance based modified gold nanoparticalS as colorimetric sensors for ultrasensitive detection of heavy metals	Sanvedana Shukla[1]	[1*]Govt. Digvijay PG Autonomous College, Rajanandgaon-491441, Chhattishgarh, India.	priyankasingh121@yahoo.com and bhuiashishkumar@gmail.com
OP66	A Novel Technique to Treat Wastewater	Rajeshwar Singh	Pt. Sundar Lal Sharma Open University, koni, bilaspur, Chhattisgarh, India,	drrajeshwar67@gmail.com
OP67	Sodium Ion Batteries (SIBs): An efficient alternative for electrical energy storage	Vandana Mishra	Assistant Professor, Department of Chemistry, Govt. Digvijay College Rajnandgaon, Chhattisgarh, India, 491441	gokulram@gdcr.ac.in
Environmental Science				
OP68	A bionano material made from lignocellulosicbiomass :Nano cellulose	Preeti Nandkumar	Associate Professor, Department of Applied Chemistry Christian College of Engg. & Technology, Bhilai (C. G.)	nandinipreeti@gmail.com
OP69	Potential of fly ash in the acidic soil on chickpea crop	Pratibha Gumasta	HOD, Chemistry Department, Sai Mahavidyalaya, Bhilai, Durg, Chhattisgarh, India	pratibhagumasta5@gmail.com
OP70	Assessment of groundwater quality and fluoride contamination in groundwater of Gariyaband district, Chhattisgarh, India	Jagriti Khichariya	Bhilai Institute of Technology, Durg, C.G., India	yashu.verma@bitdurg.ac.in

OP71	An overview of Environmental protection laws in India	Hemant Nanda Gauri	Assistant Professor (Law) Govt. Digvijay PG Autonomous College Rajnandgaon, Chhattisgarh, India 491441	hemantnandagauri@gdcr.ac.in
OP72	Study of Avian Diversity in Paniyajob area of Dongargarh of Rajnandgaon District, Chhattisgarh, India	Saman Siddiqui	Associate Professor, Department of Zoology, Bharti Vishwavidyalaya, Durg, Chhattisgarh, India	Required
OP73	Government V.Y.T. PG Autonomous College; Durg, (Chhattisgarh) India	Anjali Verma	Synthesis of (*Vinylbenzyl*) trimetylammonium chloride (VBT) grafted Kosa Silk fibers with Antibacterial study against *E. Coli*	*av104660anju@gmail.com*
OP74	Solar Energy in India, Achievements, The Potential Of Solar Energy, and Their Importance	Sahdev	School of Studies in Environmental Science, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh – 492010	sahdevsahurkb@gmail.com
OP75	Bio-diesel-A renewable fuel	Rajeshwar Singh	Pt. Sundarlal Sharma Open University, Bilaspur, Chhattisgarh INDIA	drrajeshwar67@gmail.com
OP76	Microbial Examination of Some Spoiled Fruits for the Post Harvest Diseases From Local Fruit Market of Rajnandgaon District of Chhattisgarh, India	Sonal Mishra	Department of Botany, Govt. Digvijay Autonomous P.G. College, Rajanadgaon, Chhattisgarh, India	Sonalmishra2017@gmail.com
OP77	Spatio-Temporal Analysis of Ambient Air Quality in Siltara Industrial Region, Chhattisgarh	Ashis Kumar Majhi	Guest Lecturer, Department of Geography, Govt. Digvijay Autonomous Postgraduate College Rajnandgaon, C.G.	ashismajhi619@gmail.com
OP78	Impact of pollution on biodiversity	Rajesh Kumar Sahu	Associate Professor, Department of Chemistry, Vishwavidyalaya Engineering College Ambikapur, Dist. Surguja (A constituent college of CSVTU, Bhilai, Distt-Durg (C.G.)	sahurk9374@gmail.com
OP79	Removal of hazardous materials from the air via bio-indicator	Dr. Sunita Gupta	Asst. Prof. , Dept of Chemistry, Govt. Dr. W. W. Patankar Girls PG College, Durg, Chhattisgarh	
OP80	Electrochemical performance of polypyrrole and polythiophene based nanocomposites for	Manikant Manhare	Department of Chemistry, National Institute of Technology, Raipur,	tmaharana.chy@nitrr.ac.in

	supercapacitor application		Chhattisgarh	
OP81	Past and present developments in the suppression of steel corrosion by several families of organic compounds	Reema Sahu	Asst. Prof. , Dept. of Chemistry, Govt. Digvijay Auto. PG College Rajnandgaon	reemasahu1185@gmail.com
OP82	RecentadvancesandtherapeuticjourneyofGoldbasedSchiffbasecomplexesas potentialanticancer agents	RenukaSidhanty	DepartmentofChemistry,NationalInstituteofTechnology,Raipur,Chhattisgarh-492010,India	tmaharana.chy@nitrr.ac.in
OP83	Importance of meditation process and quantum teleportation in social evolution	Chandrashekhar Shrivas	Department of Sanskrit, ISBM University, Chhura Gariaband, Chhattisgarh 493996	csshrivas@gmail.com , nkswamy@isbmuniversity.edu.in

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Poster Presentation

Theme IC-RASSI-A, B and C

(Chemical Science, Environmental Science and Life Science)

A- Chemical Science

S. N.	Name	Affiliation	Paper Title	Email
PP1	Akanksha	Department of Chemistry, Govt. Shivnath Science College Rajnandgoan, (C.G.), India.	Green Synthesis and Characterization of Copper (I) Iodide nanoparticle using *tridax procumbens* leaf extract and its various applications	*akankshathakur1010@gmail.com*
PP2	Alka Rai	Department of Chemistry, Govt. V.Y.T.PG. Autonomous College, Durg, India.	Cyclodextrin based nanocomposite for removal of toxic pollutants	rai24alka@gmail.com
PP3	Vikash Kande	Department of Chemistry, Govt. Digvijay Autonomous PG College Rajandgaon (CG) 491441, India	A Review on Minimize the effect of fluorosis using bioremediation methods	vikaskande@gmail.com
PP4	Barsa Sahu	Department of Chemistry, Govt. V.Y.T. PG Autonomous College Durg, 491001, (C.G.), India.	"Synthesis and Characterization of Metal Organic Framework (MOFs) as ZIF-67, Cd-ZIF-67 and its Potent Application"	ajayaksingh_au@yahoo.co.in)
PP5	Bhupendra Kande	Research Scholar, Department of Chemistry , Shri Shankarcharya professional university Bhilai, Durg, Chhattisgarh, India	Green synthesis of graphene doped zinc molybdate and its Catalytic and anti-bacterial properties	bhupendrakkande@gmail.com
PP6	Bhupendra Singh Banjare	MATS School of Sciences, MATS University, Pagaria Complex, Pandri, Raipur (C.G.), 492004, India	Self-aggregation of 1-methyl-3-octylimidazolium chloride with conventional surfactants: A comparative study	manojbanjare7@gmail.com,bhupendra0889@gmail.com
PP7	Heera Sahu	Research scholar Govt. S.P.M. College –Sitapur, Surguja (C.G.) INDIA 497111	Antidiabetic Activity of Senna surattensis Leaves : An Overview	heeradr11@gmail.com,rohitbargah1978@gmail.com
PP8	Manikant	[1]Department of Chemistry, National Institute of	Electrochemical performance of polypyrrole and polythiophene based	tmaharana.chy@nitrr.ac.in

		Technology, Raipur, Chhattisgarh	nanocomposites for supercapacitor application	
PP9	Nidhi Garhewal	Department of Chemistry, Govt. V. Y. T. PG Autonomous College, Durg, 491001, (Chhattisgarh), India	Modification of natural zeolite and comparison of adsorption capacity between modified and natural zeolite	nidhi290592@gmail.com
PP10	Nidhi Rai	Department of Chemistry, Guru Ghasidas Vishwavidyalaya (Central University), Koni,495006	Graphene oxide and its application as adsorbent to waste water treatment	needhirai786@gmail.comcharuarora150@gmail.com
PP11	Tarun Kumar Patle	[a]Department of Chemistry, Pt. Sundarlal Sharma (Open) University, Chhattisgarh, Bilaspur 495 009, India	Molecular docking investigation of phytochemicals from Indian traditional medicinal plants as a fusion inhibitor of SARS-CoV-2	ravi18bt@gmail.com
PP12	S. K. Pratibha	Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur – 495009 (C.G.), India,	Organic Cage Stabilized Palladium Nanoparticles for Selective Homocoupling of Aryl Halides	bijnaneswarm@gmail.com
PP13	Sandhya Savita	Department of Chemistry, Guru Ghasidas Vishwavidyalaya, Bilaspur – 495009 (C.G.), India,	Theoretical and Experimental Studies On Electron-Rich Fluorophore Upon Functionalized With An Electron-Poor Group	sandhyasavita9793@gmail.com
PP14	Swati Banchhor	Department of Chemistry , Govt. V.Y.T.PG.Autonomous College, Durg, India	Graphene based Biopolymer Nanocomposites for Waste Water Effluents Treatment	swati.banchhor2328@gmail.com
PP15	Thaneshwar Sahu,	Department of Chemistry, Government V.Y.T. PG Autonomous College, Durg, Chhattisgarh, India	Extraction of Cellulose Micro-Whiskers from Rice Husk a Greener Approach	sahut320@gmail.com
PP16	Shahbaz Khan.	Associate professor, Dept. of Chemistry, Anjuman college of Engineering and Technology Nagpur (M.S.)	Toxicity of Vanadium and extraction-spectrophotometric, determination of Vanadium (v) using Novel new organic reagent (N-Hydroxyamidine) in presence of Salicylaldehyde	
PP17	Ankush Kerkatta	Government Kalidas College Pratappur, Dist.- Surajpur (CG) India	The influence of various ball clay concentrations on the fabrication of Poly(3-hydroxybutyrate-co-3-hydroxyvalerate) nanocomposite for bone regeneration	akerketta.phd2016.bt@nitrr.ac.in
PP18	Kanchan Upadhyay	Department of Applied Physics, Bhilai Institute of Technology, Durg (C.G.), India, 491001,	Upconversion nanomaterials :recent advances in bioimaging and disease therapy	Kanchan.chemistry@gmail.com
PP19	Nitesh Kumar	Research Scholar,. Dr. C.V. Raman University Kota, Bilaspur, Chhattisgarh,	Microwave dielectric behaviour and ethno-medicinal plant based soil	drakshrivastava01@gmail.com

		INDIA.		
PP20	Prabha Raj,	Govt. V.P.G.Collage, Manendragarh, Distt.-MCB (CG) India 497442	Ecofriendly Graphene Based Biopolymer Alginate Nanocomposite as a Nanobiosorbents for bioremediation of Environmental pollutants	rohitbargah1978@gmail.com. Prabharaj120@gmail.com
PP22	Dileshwari Sahu	Department of Chemistry, Govt. V.Y.T.PG. Autonomous College Durg (C.G.), Hemchand Yadav University, Durg (C.G.)	Synthesis of Alpha cyclodextrin capped silver nano particles and detection of heavy metal ions in water bodies.	dileshwari264@gmail.com
PP23	Harshita Sharma	[a]Department of chemistry, Government Nagarjuna Post Graduate College of science, Raipur-492010, Raipur (Chhattisgarh)	Spectrophotometric determination of phorate in various environmental samples	harshitasharmachem23@gmail.com ; amishranh3@gmail.com
PP24	KuntiRani Bhagat	Department of Chemistry, Guru Ghasidas Vishwavidyalaya Koni, Bilaspur, Chhattisgarh, India	GeneralStudiesonBiorenewablePolyurethanes	tmaharana.chy@nitrr.ac.in

B-Earth Environment and Energy

S.N.	Name	Affiliations	Title	Email
PP25	Anjana Thakur	Department of Political Science, Govt. Digvijay PG Autonomous College Rajnandgaon, Chhattisgarh, India, 491441	Relevance of Environment Protection Act in present perspective	anjanathakur@gmail.com
PP26	Laxmikant Verma	Department of Physics, Govt. V.Y.T. Autonomous P. G. College Durg (C.G.), Research Center, Hemchand Yadav University Durg (C.G.)	Hydrogen: future aspect in fuel	laxmikantverma8421@gmail.com
PP27	Shraddha agrawal	Govt. V.Y.T. PG Autonomous College, Durg, Chhattisgarh, India	Green Synthesis of Graphene Quantum Dots for the removal of water effluents and its characteristics Analysis.	shraddhaagrawal136@gmail.com
PP28	Khushboo Sahu	Govt. V.Y.T. PG Autonomous College, Durg, Chhattisgarh, India	Spectrophotometric determination of widely used antibiotic in agriculture	khush98989@gmail.com
PP29	Priya Rao	School of Study in Law, Pt. Ravishankar Shukla University, Raipur, Chhattisgarh, India	Laws relating to Environment in India	profpriyarao79@gmail.com
PP30	Dhanraj	Department of Physics, Govt. V.Y.T. P. G. Autonomous College Durg (C.G.) , Research Center, Department of Physics Hemchand Yadav University Durg (C.G.)	On the response of the climate system to solar energy	dsahu2284@gmail.com
PP31	Sabiha Naz	Department of Biotechnology and Microbiology, Bhilai Mahila Mahavidyalaya, Bhilai, C.G., 490009, India.	**Screening of laccase-producing endophytic fungi from various paper mill industrial effluents**	sabihanaz4@gmail.com
PP32	Sarita Chandrawanshi	Pandit Sunderlal Sharma Open University, Bilaspur, Chhattisgarh, India	Evaluation of physio-chemical quality of tap water in Bilaspur district	sarita.cwanshi@gmail.com
PP33	Ashish Kumar Mishra	Deptt. of Chemistry, Govt. Bilasa P.G. College, Bilaspur (C.G.) 495001	Premonsoon Assesment of Arpa River Water Qualities at Bilaspur and Its Joining Areas	ashishkumarmishraasi@gmail.com
PP34	Jhameshwar Prasad Sahu	Govt. Digvijay Autonomous PG College Rajnandgaon (C.G.), 491441	*Calocybe indica* a good Biosorbent for the removal of heavy metal Iron	jhamesh8970@gmail.com
PP35	Rameshar Prasad Nishad	Govt. Shahid kaushal yadav College Gunderdehi, Balod, Research Center, Department of English, Faculty of Arts, IKSV, Khairagrh, Chhattisgarh, India	Impact of climate change on Earth and Environmental sustainability: Current Issues	dridtiks@gmail.com r.p.nishad11@hmail.com

Life Science

S.N.	Name	Affiliations	Title	Email
PP36	Antidandruff Property of Different Formulation: A Comparative Study	Akanksha Jain	Shri Shankarachaya Mahavidyalaya Junwani, Bhilai Chhattisgarh	akankshanakhat@gmail.com
PP37	Morphological Feature and Traditional Camera Lucida drawing of some Endophytic Fungi isolated from *Shorearobusta* and *Terminalia bellirica* located in Achanakmar-Amarkantak Biosphere Reserve (ABR) India	Manoj Kumar Mahish	CM Dubey Post Graduate College Bilaspur (Chhattisgarh) India	Manoj.mahish2016@gmail.com
PP38	Biochemical and Biotechnological study of some microbes isolated from Rice mill and Oil Industry of Rajnandgaon	Pramod Kumar Mahish	Postgraduate Department and Research Centre of Biotechnology, Govt. Digvijay Autonomous PG College Rajnandgaon (Chhattisgarh) India 491441	drpramodkumarmahish@gmail.com
PP39	*In-silico* Molecular Docking of some bioactive compounds of *Costus Speciosus* (Koen ex. Retz.) Sm.	Shubha Diwan, Sanjana Solomon	Department of Biotechnology, St. Thomas College, Bhilai	shubha2315@gmail.com
PP40	Dust Mites Diversity: An Article	Dr. Kiran Lata Damle	Govt Digvijay Autonomous PG College, Rajnandgaon. (C.G.)	majorkld12@gmail.com
PP41	Isolation And Identification Of Endophytic Bacteria And Its Importance In Nitrogen Fixation	BhawanaPandey Avinash Singh	Bhilai Mahila Mahavidyalaya, Bhilai (C.G.) India	bhawanapandey15@gmail.com
PP42	Use of Venn diagrams in Zoology	Dr. Neeru Agrawal	Department of Zoology, Govt. V.Y.T. Auto. P.G. College, Durg (C.G.)	neeru.bhilai@gmail.com
PP43	An Explainable Machine Learning Approach for the Prediction of Pro-inflammatory Peptides	Kajal Bharti	Medical Biotechnology Division, Department of Biochemistry, Pt. J.N.M. Medical College, Raipur (C.G), India-492001	kajalbharti9926@gmail.com
PP44	Impact of Anthropogenic Activities on Cave Biodiversity: A Case Study of Mandhip Khol of Rajnandgaon, Chhattisgarh	Akhilesh Yadav	Department of Zoology, School of Science, ISBM University Nawapara (kosami) Chhura Dist. Gariyaband C.G.	kumarakhileshyadav89@gmail.com
PP45	Leveraging the Power of Ensemble Learning for the Prediction of Anti-inflammatory Peptides	Nikita Manjhi	Medical Biotechnology Division, Department of Biochemistry, Pt. J.N.M. Medical College, Raipur (C.G.), India-492001	nikkimanjhi07@gmail.com

PP46	Prevalence of liver and renal dysfunction in samples examined in the clinical biochemistry lab of tertiary care hospital in Chhattisgarh	Govind Sapre	*Department of Biochemistry, Pt. J.N.M. Medical College, Raipur (C.G.), India-492001*	govindsapre54@gmail.com
PP47	Formation Of Copper Nano-Particle Of Mixture Of Moringa Extract Andbacterialexopolysaccharidean d Its Antibacterial Effect	Shreya Kashyap	Medical Biotechnology Division, Department of Biochemistry, Pt. Jawaharlal Nehru Memorial Medical College, Raipur, Chhattisgarh, India – 492001	shreyakashyap475@gmail.com
PP48	Estimation of antioxidants and anti-diabetic properties of *Swertia chirayita*	Harshita Prajapati	*Medical Biotechnology Division, Department of Biochemistry, Pt. J.N.M. Medical College,* Raipur (C.G.), India-492 001	harshitap699@gmail.com
PP49	Accessing The Ability Of Soil Bacterium Of Pigment Production With Dye Degradation	Tushar Chandrakar	*Medical Biotechnology Division, Department of Biochemistry, Pt. Jawaharlal Nehru Memorial Medical College, Raipur, Chhattisgarh, India - 492001*	tusharchandrakar97@gmail.com
PP50	Biofilm Dispersal Activity Of Biosurfactant Produced By Soil Bacteria Using Coconut Oil Cake.	Rahul	Medical Biotechnology Division, Department of Biochemistry, Pt. Jawaharlal Nehru Memorial Medical College, Raipur, Chhattisgarh, India - 492001.	rahul290620@gmail.com
PP51	Current Developments in field of Bioremediation of Heavy Metals in Chhattisgarh	Deepika Dhruve	Govt. Rani Suryamukhi Devi College, Chhuria (CG)	deepii.rjn@gmail.com
PP52	Microorganisms, Scientific Ethics And Analysis	Dr.Shama A.Baig	Microbiology, Swami Shri Swaroopanand Saraswati Mahavidyalaya, Hudco, Bhilai.	shamaabaig@gmail.com
PP53	One Strain many Compound: new approach and recent trends	Vikash Kumar	Guru Ghasidas Vishwavidyalaya Bilaspur (C.G)	vikashvaishnav0819@gmail.com
PP54	Study of Zooplankton Fauna in Relation to Physico-Chemical & Climatological Characterstics of Ranisagar Tank at Rajnandgaon District Rajnandgaon Chattiasgarh	Sanjay Thiske	Dept. of Zoology govt. Digvijay College Rajnandgaon	

EAbstract

of

Keynote Speaker

Corrosion Inhibition Science: Fundamentals, Recent Trends and Future Perspectives

Prof. Berdimurodov Elyor Tukhliyivich

Faculty of Chemistry, National University of

Uzbekistan, Tashkent, Uzbekistan, 100034

Abstract: Carbon steel is a highly used material in the chemical industry. This is because this material is cost-effective and easily manipulated. The cost of carbon steel corrosion in acidic and aggressive alkaline–saline environments is a major problem in the industry. The corrosion of metal materials poses biological, environmental, economic, and ecological dangers. Therefore, the protection of steel materials from corrosion destruction in acidic and alkaline–saline environments is a very important task in the industry. Carbon steel easily reacts with the surrounding environment to form corrosion deposits. Currently, metals in solution environments are protected from corrosion using organic corrosion inhibitors. In this case, an organic corrosion inhibitor is added to a corrosive environment, and this corrosion inhibitor adsorbs on the metal surface to form a protective thin film. The formed protective film on the metal surface insulates the metal surface from the corrosive solution; as a result, metal corrosion is maximally diminished. Corrosion inhibitors are water-soluble and good adsorbents on metal surfaces in corrosive solutions. Currently, green corrosion inhibitors are used to protect steel from corrosion destruction. Green inhibitors are environmentally friendly, meaning that they are biodegradable and do not poison or influence the environment.

Abstract of Invited Speakers

First International Conference on
ROLE OF APPLIED SCIENCES IN SOCIAL IMPLICATIONS
6 TO 8TH FEBRUARY 2023

Social impact of sustainable and cost-effective production process for food upcycling.

Paz Otero[1, *]

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Abstract

Social impact of applied science is becoming an essential topic of research since it allows to explain science in an approachable way for public and society.Research in Applied Sciences is one of the pillars in the modern society and have many functions for benefit population, releasing novel knowledge, improving education, and increasing quality of our lives.Challenges today stretch across the innovation from research to knowledge development and its application. Applied Science, and innovation must respond to societal needs and global challengesand must boost a more equitable and sustainable development. In this communication, the social impacts ofscientific results derived from Europeanresearch projects are analysed. Specially, the sustainable and cost-effective production process for the upcycling of olive, grape, and nut by-products into 4 natural and healthy ingredients for nutraceutical and cosmetic applications will be highlighting. The aim of this research was to develop new ingredients from plant-based food processing by-products for high-end markets and to maximize the impact of this project, a tailored business plan and dissemination and communication plan is being carried out.

Application of Genomics in Advancing Plant Science for Human Welfare

Dr. Sunil Kumar Sahu, PhD

State Key Laboratory of Agricultural Genomics, BGI-Shenzhen, Shenzhen 518083, China

Abstract

The green plants (Viridiplantae) are an essential kingdom of life, responsible for the majority of global primary production, and directly utilized by humankind for nutrition, animal feed, fuel, clothing, medicine and other purposes. The difficulty of feeding an expanding world population presents a Herculean task for agricultural production. Systems for producing food must deliver more with limited resources of land and water while having the least detrimental impact on the environment. The complexity of the problem is made more difficult by the unpredictable effects of climate change and the resulting changes in the dynamics of pests and pathogens.Technological innovations in Agronomy, including the design of new plant varieties, have driven a remarkable increase in crop productivity during the past several decades, contributing to the production of food, feed, fiber, and fuel to meet the needs of a growing world population.Comparative genomics, transcriptome analysis, genotyping, and molecular marker development offer the chance to learn more and to create useful tools that will help in the selection and breeding of novel plant varieties with improved photosynthetic efficiency, improved biotic stress tolerance, and improved performance under unfavorable abiotic conditions.Agrigenomics is the application of modern genomics tools throughout agriculture. These tools offer food producers and researchers with insights that can increase productivity, reduce losses and improve sustainability. Current progress in agrigenomics will surely have a main role in the creation of this new generation of sustainable crops.

Plant genomics is an increasingly important area of science that has expanded in recent years due to the development of advanced technologies and methods. The understanding of plant genomics is a prerequisite for advanced plant breeding and crop

improvement. An in-depth knowledge of plant genomics helps researchers to enhance production, confer resistance or tolerance to adverse conditions and improve crops. The recent advances in plant genomics and bioinformatics has had a significant impact on plant science and genetics. New methods and technology have led to a greater understanding of both structural genomics and functional genomics. Plant genomics generates opportunities to create crops with improved traits and boost their sustainable production. However, understanding plant evolution and diversity in a phylogenomic context is an enormous challenge, due to limited availability of genome-scale data across phylodiverse species. To fulfill this gap, large-scale genomic researches for plants were initiated, among which the 10KP (10,000 Plants) Genome Sequencing Project was launched to sequence and characterize representative genomes from every major clade of embryophytes, green algae, and protists (excluding fungi). I will cover various topics related to genomic researches on plants, and discuss about the current status and challenges for genomics-based biodiversity researches for their sustainable utilization at the global scale.

Electronic effect vs. Molecular size effect: Effect of Substituents on Corrosion Inhibition Potential of Organic Compounds

Chandrabhan Verma

Interdisciplinary Research Center for Advanced Materials, King Fahd University of Petroleum and Minerals, Dhahran 31261, Saudi Arabia

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Abstract

It is becoming increasingly popular to predict the ability of organic compounds to suppress corrosion using the findings of experimental and computational investigations. Prior to expensive and risky syntheses as well as costly and time-consuming experimental trials, effective inhibitors can be designed with a proper understanding of substituents or the electronic effect. The design of such efficient molecules has recently been the focus of international study in corrosion science, which draws its expertise from previously published papers. The addition of polar substituents to organic compounds' molecular structures increases their hydrophilicity and, thus, the capacity to reduce corrosion. However, some of the substituents, particularly electron withdrawing (EW) substituents, diminish the corrosion inhibition potential despite their ability to increase solubility. Adding polar substituents typically has two different effects: the electronic or substituents effect, which deals with changes in electron density at donor sites, and the molecular size effect, which discusses the impact of molecular size on the capacity to cover metal surfaces. The current discussion aims to explain the circumstances under which the electrical effect and/or molecule size effect will function. This article describes how organic corrosion inhibitors' effects on solubility, orientation, and hydrophilicity/hydrophobicity relate to their ability to suppress corrosion.

Keywords: Electronic effect, Molecular effect, Hammett substituent constant, Corrosion Inhibition and hydrophobicity/ hydrophilicity

HERBAL BIO-ENHANCER ENCAPSULATED NANOPARTICLES FOR EFFECTIVE TREATMENT OF CARCINOMA

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The most preferred targeted nanoparticles, which are synthesized and analyzed herein for bio-efficacy are silver nanoparticles (AgNPs), having active constituent, piperine as bio-enhancer. Silver nanoparticles have received attention due to their physical, chemical, and biological properties that attributed to the catalytic activity and bactericidal effects and found applications in nanobiotechnological research. The present invention particularly relates to a novel method for synthesis of Silver nanoparticles (AgNPs), by using *Piper nigrum*, *Piper longum* and *Zingiber officinalis* (1:1:1) extract; followed by performing conjugation of said prepared silver nanoparticles with folic acid (FA) and thereafter performing anticancer studies on said synthesized formulations towards establishing their targeting efficacy against cancer cells, namely K562 (leukemia cell line), HT29 (colon cancer cell line), MDAMD (breast cancer cell line) and SKOV3 (Ovarian cancer cell line).

Chemistry: A Tool to Make Society More Sustainable

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ABSTRACT

The chemistry is the study about change while society teaches us how to live with changes. Chemistry acts as an important tool in sustainable development of the society. Throughout the history, chemists have to come together to work with other skilled experts to solve major challenges of the society. Chemical processes should be of very high quality and in line with the principles of environmental and societal sustainability. To make a development truly sustainable three areas i.e. the environment, society and economy must to be considered. Each and every scientific solution must be beneficial for the society in terms of economic growth and environmental sustainability without creating more complex problems the health and safety of living beings. By including circular and green chemistry approaches in chemistry and its related practices, the chemistry should be better tool to make society more and more sustainable.

Keywords: Chemistry, Society, Sustainability, Circular Chemistry, Green Chemistry, Economic, Environment,

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Co-infection of white spot syndrome virus (WSSV) and Enterocytozoon hepatopenaei (EHP) in extensive culture ponds of Litopenaeus vannmaei from Guangdong province of China.

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Abstract

Virus infections are quite common in pond cultivated shrimp *Litopenaeus vannamei*. The present investigation reports a rare incidence of white spot syndrome virus (WSSV) and *Enterocytozoon hepatopenaei* in adult *Litopenaeus vannamei*. Collections of diseased shrimps were carried out in sixteen ponds from the farms of Guangdong province of China. All sixteen ponds were found to have infected shrimps by WSSV but interestingly only four ponds had the shrimps infected by WSSV and *Enterocytozoon hepatopenaei*. Shrimp infected only with WSSV exhibited white spot on the carapace. Co-infected shrimps showed symptoms of WSSV as well as *Enterocytozoon hepatopenaei* like growth retardation. Transmission electron microscopic (TEM) examination revealed the presence of both WSSV and *Enterocytozoon hepatopenaei* in the same infected gill of *L. vannamei*. The unusual infections by virus and microsporidian were further confirmed by PCR.

Bioinspired quantum dots: Promising nanosystems for biomedical application

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Abstract

Quantum dots (QDs) are semiconducting nanocrystals exhibiting a unique morphology and morphology-dependent optical, electrical and biological properties. The synthesis, characterization and applications of QDs are extremely active fields of investigation. However, recently biological routes to synthesize quantum dots have gained a lot of attention as they produce highly biocompatible and non-toxic QDs that possess excellent morphologies and tunable properties. Moreover, the green synthesis of QDs eliminates the use of hazardous chemicals and solvents, and therefore, becomes a cost-effective and environment-friendly approach. Owing to these properties, the bioinspired QDs show broad applications in biomedical domains like diagnosis and treating different diseases. Further, this assessment aims to impart a detailed discussion on the biomedical utilities of bioinspired quantum dots by highlighting surface modification techniques and biosafety aspects of quantum dots, making this evaluation one of its kind.

Graphical abstract

Full Length Paper

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IDENTIFICATION OF PROTEIN DRUG TARGETS FOR ASPERGILLOSIS CAUSED BY *A. FUMIGATUS* OR *NEOSARTORYA FUMIGATA* USING IN-SILICO METHOD - SPA APPROACH

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Abstract

Invasive fungal infections caused by *A. fumigatus* or *Neosartorya fumigatahave* been linked to causing severe health problems, especially in immunocompromised patients or those who have undergone any therapy or organ transplantation. *Aspergillus*species cause Aspergillosis, which sometimes may be fatal. The combination of triazoles (Voriconazole, Posaconazole, and Intraconazole) and antifungal drugs (Micafungin, Caspofungin, Amp B, etc.) causes aspergillosis resistance; thus, novel antifungal drugs for the treatment of this disease are needed. Subtractive Proteome Analysis (SPA) approach is an in-silico computational technique for retrieving new targets with databases and software. SPA has been performed with the entire proteome of *Neosartorya fumigata* (strain ATCC MYA-4609/Af293/CBS 101355/FGSC A1100) using several bioinformatics servers and software. The total number of proteins was collected from UniProt and redundant sequences were removed by the CD-HIT technique. The proteins that were non-homologous to humans and bacteria were identified from Kyoto Encyclopedia of Genes and Genomes (KEGG) metabolic pathway analysis after Basic Local Alignment Search Tool (BLAST) and collection of databases of essential genes (DEG). After the retrieval of unique identification pathways, the number of target proteins can be calculated. A druggability analysis was performed with the help of DrugBank. The location of the proteins was detected with the help of the BUSCA (Bologna Unified Subcellular Component Annotator) and PSORT II (Protein Subcellular Localization Prediction Tool) web portals. The SPA technique yielded a list of novel drug targets that can be used in the future for research and in the pharmaceutical industry.

Keywords Invasive fungal infections, *Aspergillus fumigatus*, Aspergillosis, Subtractive Proteome Analysis (SPA), target identification, drug target discovery.

Introduction

Aspergillosis is caused by a fungus known as *Aspergillus* [1] and by some of its species (Fig: 1. A) some of the crucial species of *Aspergillus* [2]. *Aspergillus* is a eukaryotic organism and the first case known was during the mid-French Revolution, i.e., 1789 [3]. A total of 250 (still counting) species are known, [4] out of which only four can cause Aspergillosis, especially to those who have a weak immune system or have gone through any kind of surgery or organ transplantation. It causes breathing problems, respiratory issues, fatigue, fever, cough, and cold, liver damage, kidney failure, and sometimes it may be fatal too. A mixture of triazoles like Voriconazole, Posaconazole, and Itraconazole and antifungal drugs like Caspofungin, Micafungin, and Amphotericin B were used to treat Aspergillosis, refer to Fig: 1. B) Drugs used for medication – Azoles & Antifungal drugs. Later, antifungal drugs and mixtures of azoles became resistant to *Aspergillus* species [5,6,7] Table: 2. Resistivity of Triazoles and antifungal drugs (9) used to treat Aspergillosis. Therefore, there was a need for new potential drugs. *A. fumigatus* or *Neosartorya fumigata* also called black mould, develops from

soil, cheese, leather, even household dust [8].On a daily basis, human beings inhale a lot of spores of *A. fumigatus* from the environment (Table: 1. Comparison between different types of *Aspergillus* species (12) and their Genome size) [9]. An immunocompromised patient suffers from Allergic Bronchopulmonary Aspergillosis (ABPA), Allergic Aspergillus Sinusitis, Aspergilloma (fungus ball), Invasive Pulmonary Aspergillosis (IPA), Cutaneous (skin) Aspergillosis, and Chronic Pulmonary Aspergillosis (CPA).

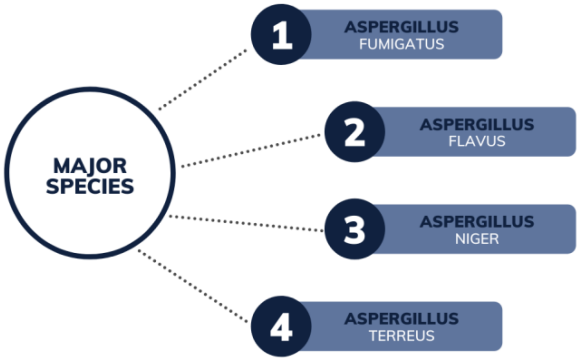


Fig: 1. A) Some of the crucial species of *Aspergillus* (4) are 1 – *A. fumigatus*, 2 – *A. flavus*, 3 – *A. niger* and 4 – *A. terreus*.

An in-silico computational method, the Subtractive Proteome Analysis (SPA) approach, was introduced for the discovery of new protein drug targets for the treatment of specific diseases [10,11,12,13]. As triazoles and antifungal drugs became resistant (superbug) to *Aspergillus* species, [14,15,16] the SPA approach was performed for the species, *A. fumigatus.* The SPA [17,18,19,20] technique yielded a list of novel drug targets that can be used in the future for research and in the pharmaceutical industry. [21,22].

Table: 1. Comparison between different types of *Aspergillus* species (12) and their genome size.

S. NO.	SPECIES	DISEASES	GENOME SIZE
1.	***A. lentulus***	Invasive Aspergillosis	**30.2 Mb**
2.	***A. viridinutans***	Chronic Invasive Aspergillosis	**34.9 Mb**
3.	***A. tubingensis***	Cystic Fibrosis, Chronic Pulmonary Diseases.	**35 Mb**
4.	***A. versicolor***	Onychomycosis, Otomycosis, Cutaneous Disease, Osteomycelitis	**33.1 Mb**

5.	***A. fumigatus***	Allergic Bronchopulmonary Aspergillosis, Chronic Pulmonary Aspergillosis	**29.4 Mb**
6.	***A. flavus***	Chronic Granulomatous Sinusitis, Cutaneous Aspergillosis, Aspergilloma, Osteomyelitis	**37 Mb**
7.	***A. niger***	Pneumonia, Renal Tumor	**34 Mb**
8.	***A. terreus***	Allergic Bronchopulmonary Aspergillosis, Invasive Aspergillosis	**29.3 Mb**
9.	***A. nidulans***	Chronic Granulomatous Disease	**30.2 Mb**
10.	***A. tamanii***	Cutaneous Aspergillosis	**38.5 Mb**
11.	***A. sydowii***	Aspergillosis, Onychomycosis, Keratomycosis	**34.4 Mb**
12.	***A. persii***	Onychomycosis	**38.4 Mb**

Materials and Methods

The SPA technique is an in-silico computational method [23,24,25,26] that helps in identifying new potential drug targets for drugs that have become resistant to earlier used drugs [27,28,29]. It consists of seven steps, where there is a deduction of proteins at every step (Table: 3. Systematic arrangement of Subtractive Proteome Analysis approach steps with bioinformatics tools used and links).

Proteome Retrieval

TheSubtractive Proteome Analysis (SPA) technique's first step is to collect all the protein sequences (proteome) present in the species. For this, the following computational web portals and databases can be used: UniProt (Universal Protein Resources) (https://www.uniprot.org/), NCBI (National Center for Biotechnology Information) (https://www.ncbi.nlm.nih.gov/), GenBank (https://www.ncbi.nlm.nih.gov/genbank/), or Protein Data Bank (PDB) (http://www.wwpdb.org/). For our convenience, we used the UniProt website for the species of *Aspergillus*. *Neosartorya fumigata* (strain ATCC MYA-4609/Af293/CBS 101355/FGSC A1100) (https://www.uniprot.org/proteomes/UP000002530) were saved in FASTA format.

Removal of Redundant or Paralogous Sequences

When the set of proteomes was saved, many non-useful or non-essential proteins were saved in FASTA (Fast Alignment) format. Therefore, a bioinformatics tool, Cluster Database at High Identity with Tolerance (CD-HIT) (http://weizhong-lab.ucsd.edu/cd-hit/), was used for the removal of redundant sequences for the strain chosen. The sequence identity parameter was set at 0.6 (60) cut-off. After CD-HIT was run, the redundant sequences were removed. Only essential sequences were chosen.

Retrieval of Essential Proteins

The third step is the collection of essential proteins. Fungi use enzymes to breakdown living tissues, which causes illness. The essential proteins were extracted from the Database of Essential Genes (DEG - version 15.2) (http://tubic.org/deg/public/index.php). The extracted essential protein sequences are converted into FASTA format using NCBI (National Centre for Biotechnology Information) by the protein database.

Non – Homologous Protein Identification

An official US government website that includes BLAST (https://blast.ncbi.nlm.nih.gov/Blast.cgi) and is linked to the NLM (National Library of Medicine, NCBI). This program compares the similarities between the protein or nucleotide sequences and gives the required data. The essential proteins obtained from DEG are submitted to the BLASTp suite (https://blast.ncbi.nlm.nih.gov/Blast.cgi?PROGRAM=blastp&PAGE_TYPE=BlastSearch&LINK_LOC=blasthome) in FASTA format. The conditions applied to databases were targeted at standard databases (nr, etc.), which were followed by non-redundant protein sequences (nr). The organism was set to *Aspergillus* (taxid:5052) and the algorithm to blastp (protein-protein BLAST). Finally, the BLAST was run.

Metabolic Pathway Identification

The Kyoto Encyclopedia of Genes and Genomes (KEGG) (https://www.genome.jp/kegg/) database or Genome Database (https://www.ncbi.nlm.nih.gov/genome/) gives information about the unique metabolic pathway of the species and *Homo sapiens*. The BLASTp suite result was attached to the KEGG database and only those pathways were selected which were present only in the *A. fumigatus* and not in *Homo sapiens*. This was the final step in the potential protein drug targets.

Subcellular Localization Prediction

BUSCA (http://busca.biocomp.unibo.it/) and PSORT II (https://www.psort.org/) were used for protein localization prediction. The localization is important because it confirms the location of the proteins, which further is required for the targets.

Druggability Scrutiny

The obtained KEGG data of novel proteins was analyzed, specifically their druggability potential, or whether the proteins targeted are druggable or not and FDA approved. The DrugBank (https://go.drugbank.com/) computational tool was used for this analysis.

Table: 3. Systematic arrangement of Subtractive Proteome Analysis approach steps (7) with bioinformatics tools used and links.

SUBTRACTIVE PROTEOME ANALYSIS FOR IDENTIFICATION OF DRUG TARGET		
STEPS	**TOOLS USED**	**REFRENCES**
Step 1 – Proteome Retrieval	**NCBI, UniProt**	[30]
Step 2 – Removal of Paralogous or Redundant Sequences	**CD-HIT**	[31]
Step 3 – Retrieval of Essential Protein	**Geptop 2.0 server, DEG**	[19]
Step 4 – Essential Non – Homologous Protein Identification	**BLASTp**	[32]
Step 5 – Unique Pathway Identification	**KEGG, Genome Database**	[10]
Step 6 – Subcellular Localization Prediction	**BUSCA, PSORT II, CELLO**	[33]
Step 7 – Druggability Analysis	**DrugBank**	[34]

Results and Discussion

The entire study was done to recognize the novel drug targets which cause Aspergillosis in humans. The SPA approach was performed for *A. fumigatus*, which is also known as *Neosartorya fumigata* (strain ATCC MYA-4609/Af293/CBS 101355/FGSC A1100) (Fig: 2. Overview of SPA approach resulted in 55 potential targets).

REF.	STEPS	PROTEINS
1	PROTEOME RETRIVAL	93422
2	PARALOGOUS SEQUENCES	91988
3	BLASTp	1392
4	DEG	86
5	KEGG	68
6	PROTEIN TARGET	55

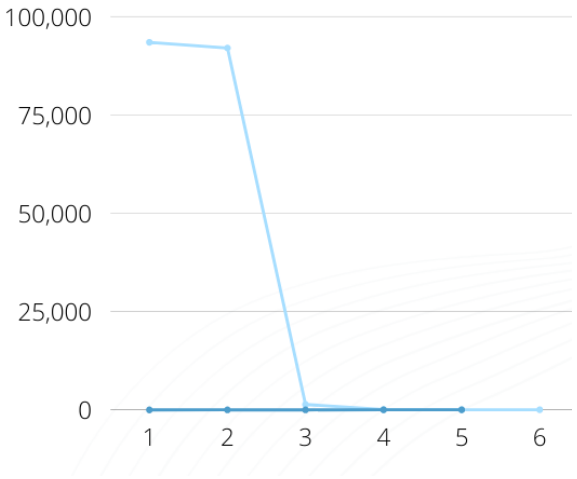


Fig: 1. 55 proteins were concluded as potential drug targets, as the Subtractive Proteome Analysis approach requires subtraction of proteins at every step.

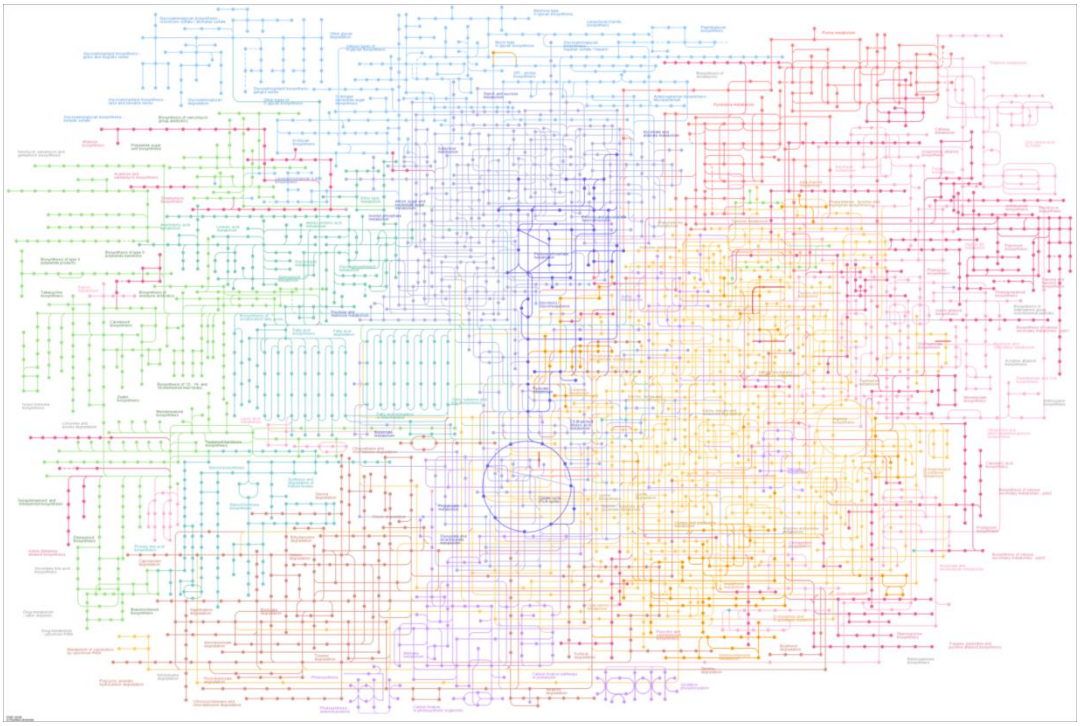


Fig: 4. A) KEGG Pathway Map of *A. fumigatus* and *H. sapiens.*

A total of 18 pathways were recognized out of 55 proteins that were selected as potential drug targets. The distribution of proteins in the pathway was restricted to Carbohydrate metabolism, Lipid metabolism, Nucleotide metabolism, Amino acid metabolism, and Glycan metabolism. There are total 48 major and 15 minor proteins pathways observed for the new drug targets (Table: 5. Major and Minor Pathways collected from KEGG Website).

Table: 5. 48 major and 15 minor pathways, which include carbohydrate, lipid, nucleotide, amino acid and glycan pathways.

Protein Recoupment & Decimation of Redundant Sequences

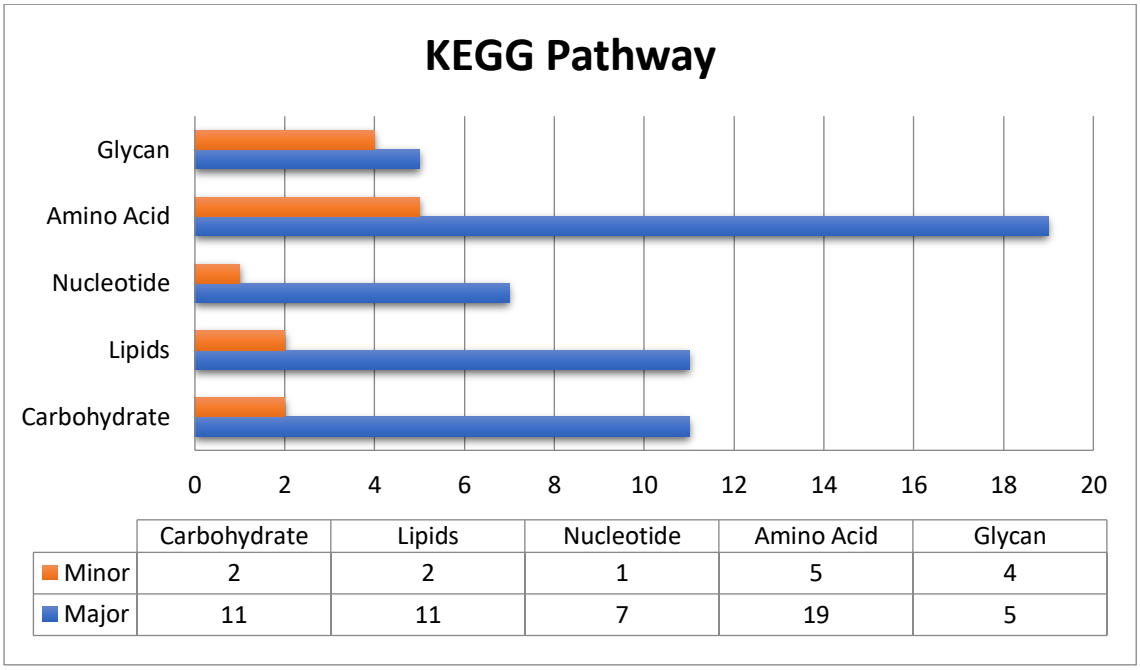
The whole proteome was retrieved from UniProt. The total number of proteins was 93422 for the strain *Neosartorya fumigata* (strain ATCC MYA-4609/Af293/CBS 101355/FGSC A1100). The UniProt results were a set of proteins that were saved in FASTA format. The sequences are present in the supplementary data. These 93422 were reduced to 91988 proteins using the computational tool CD-HIT suite (Fig: 3. Total no. of proteins [Before, UniProt] and Redundant Sequences [After, CD-HIT Suite]. The filter used for running CD-HIT was 60% (0.6) cut-off, sequence identity parameter. The result of CD-HIT suite was also downloaded in FASTA format. Final data of CD-HIT result is shown in supplementary data.

Recovery of Essential Genes & Non-Homologous Matches

The essential genes were collected from DEG (Database of Essential Genes) version 15.2. The gene present must be capable of surviving in the pathogenic host. This helps in targeting the new drugs. The list of essential genes received was converted into FASTA format using NCBI's Protein Database filter. 86 essential genes and 1 conserved protein were recovered (Table: 4. Catalogue of Essential Genes of *A. fumigatus*). BLASTp suite (Protein-Protein BLAST) was performed for non-homologous matches. The BLASTp helps in identifying the similarities between the 86 essential protein sequences (also with 1 conserved protein) and gives the sum of non-homologous sequences. The parameters before running the BLASTp suite process were Standard database (nr, etc.), non-redundant protein sequences (nr), organism (optional) *Aspergillus* (taxid:5052) and program selection at blastp (protein-protein BLAST). The BLASTp results for non-homologous comes out to be 1392 sequences. BLASTp sequences are present in supplementary data.

KEGG (Kyoto Encyclopedia of Gene and Genome) Pathway Identification

Pathway analysis denotes the major and last step in the SPA approach. It reveals the potential drug targets for the species. It describes the unique metabolic pathway between *Aspergillusfumigatus* and *Homo sapiens*. The proteins which were present only in *A.fumigatus* were selected but not in *H. sapiens*. Only *Aspergillus* species proteins are counted because they form the drug targets Fig: 4. A) KEGG Pathway Map of *A. fumigatus*&*H. sapiens.*



	Carbohydrate	Lipids	Nucleotide	Amino Acid	Glycan
Minor	2	2	1	5	4
Major	11	11	7	19	5

i. Carbohydrate Metabolism

Carbohydrate is the major component of the body as it provides energy and plays a vital role in cell-pathogen interactions. KEGG pathway map was downloaded with Carbohydrate metabolism area highlighted from KEGG web portal. Fig: 4. B) KEGG pathway map of *A. fumigatus* and *H. sapiens* with Carbohydrate metabolism area highlighted.

The carbohydrate metabolism includes central carbohydrate and other carbohydrate metabolism. Fig: 4. C) Shows carbohydrate metabolism contributes to - i) Pyruvate Metabolism & Citrate Cycle and ii) Glycosphingolipid Biosynthesis & Glycolysis.

- Central carbohydrate metabolism
  - M00001 Glycolysis (Embden-Meyerhof pathway)
  - M00002 Glycolysis, core module involving three-carbon compounds
  - M00003 Gluconeogenesis
  - M00307 Pyruvate oxidation
  - M00009 Citrate cycle (TCA cycle, Krebs cycle)
  - M00010 Citrate cycle, first carbon oxidation
  - M00011 Citrate cycle, second carbon oxidation
  - M00004 Pentose phosphate pathway (Pentose phosphate cycle)
  - M00006 Pentose phosphate pathway, oxidative phase
  - M00007 Pentose phosphate pathway, non-oxidative phase
  - M00005 PRPP biosynthesis

- Other carbohydrate metabolism
  - M00014 Glucuronate pathway (uronate pathway)
  - M00632 Galactose degradation, Leloir pathway
  - M00854 Glycogen biosynthesis
  - M00855 Glycogen degradation
  - M00549 Nucleotide sugar biosynthesis
  - M00554 Nucleotide sugar biosynthesis
  - M00892 UDP-N-acetyl-D-glucosamine biosynthesis, eukaryotes
  - M00741 Propanoyl-CoA metabolism
  - M00130 Inositol phosphate metabolism
  - M00131 Inositol phosphate metabolism
  - M00132 Inositol phosphate metabolism

ii. Lipid Metabolism

A lipid acts as a host-pathogen interaction and also it is a reservoir for cholesterol and acyl-glycerols for the formation and maintenance of the membrane.Lipids metabolism activity involves fatty acid, sterol biosynthesis and lipid metabolism.

- Fatty acid metabolism
  - M00082 Fatty acid biosynthesis, initiation
  - M00083 Fatty acid biosynthesis, elongation
  - M00873 Fatty acid biosynthesis in mitochondria, animals
  - M00085 Fatty acid elongation in mitochondria
  - M00415 Fatty acid elongation in endoplasmic reticulum
  - M00086 beta-Oxidation, acyl-CoA synthesis
  - M00087 beta-Oxidation
  - M00861 beta-Oxidation, peroxisome, VLCFA
- Sterol biosynthesis
  - M00101 Cholesterol biosynthesis
  - M00103 Cholecalciferol biosynthesis
  - M00104 Bile acid biosynthesis
  - M00106 Conjugated bile acid biosynthesis
  - M00862 beta-Oxidation, peroxisome
  - M00107 Steroid hormone biosynthesis
  - M00108 C21-Steroid hormone biosynthesis
  - M00109 C21-Steroid hormone biosynthesis
  - M00110 C19/C18-Steroid hormone biosynthesis
- Lipid metabolism
  - M00089 Triacylglycerol biosynthesis
  - M00098 Acylglycerol degradation
  - M00090 Phosphatidylcholine (PC) biosynthesis
  - M00091 Phosphatidylcholine (PC) biosynthesis

- M00092 Phosphatidylethanolamine (PE) biosynthesis
- M00094 Ceramide biosynthesis
- M00066 Lactosylceramide biosynthesis
- M00067 Sulfoglycolipids biosynthesis
- M00099 Sphingosine biosynthesis
- M00100 Sphingosine degradation

iii. Nucleotide Metabolism

Nucleotide serves as building blocks of DNA and RNA, source of energy (ATP) etc. They help in controlling intracellular pathogen activity. Fig: 6. A) shows Nucleotide metabolism saved from KEGG pathway website.

The two extensive pathway of Nucleotide metabolism are Purine and Pyrimidine metabolism. Fig: 6. B) Gives a description about Purine metabolism & Pyrimidine metabolism are major pathways of nucleotide metabolism.

- Purine metabolism
  - M00048 Inosine monophosphate biosynthesis
  - M00049 Adenine ribonucleotide biosynthesis
  - M00050 Guanine ribonucleotide biosynthesis
- Pyrimidine metabolism
  - M00051 Uridine monophosphate biosynthesis
  - M00052 Pyrimidine ribonucleotide biosynthesis
  - M00053 Pyrimidine deoxyribonuleotide biosynthesis
  - M00938 Pyrimidine deoxyribonuleotide biosynthesis
  - M00046 Pyrimidine degradation

iv. Amino Acid Metabolism

Amino acids are the building blocks of proteins for *H. sapiens*. Some pathogens make its own amino acids, which makes it resistant to host mechanisms. The list of metabolisms included in amino acid metabolism activity are Serine and threonine, Cysteine and methionine, Branched chain amino acid, Lysine, Arginine and Proline, Polyamine biosynthesis, Histidine, Aromatic amino acid and Other amino acid metabolism. Fig: 7. B) Amino Acid Metabolism Activity of – i) Glycine, Serine, and Threonine Metabolism & Alanine, Aspartate, and Glutamate Metabolism and ii) Arginine and Proline Metabolism & Cysteine and Methionine Metabolism involved in Amino acid metabolism.

- Serine and threonine metabolism
  - M00020 Serine biosynthesis
  - M00555 Betaine biosynthesis
- Cysteine and methionine metabolism
  - M00338 Cysteine biosynthesis
  - M00034 Methionine salvage pathway
  - M00035 Methionine degradation
- Branched-chain amino acid metabolism
  - M00036 Leucine degradation
- Lysine metabolism
  - M00032 Lysine degradation

- Arginine and proline metabolism
  - M00844 Arginine biosynthesis
  - M00029 Urea cycle
  - M00015 Proline biosynthesis
  - M00047 Creatine pathway
- Polyamine biosynthesis
  - M00133 Polyamine biosynthesis
  - M00134 Polyamine biosynthesis
  - M00135 GABA biosynthesis, eukaryotes
- Histidine metabolism
  - M00045 Histidine degradation
- Aromatic amino acid metabolism
  - M00042 Catecholamine biosynthesis
  - M00043 Thyroid hormone biosynthesis
  - M00044 Tyrosine degradation
  - M00037 Melatonin biosynthesis, animals
  - M00038 Tryptophan metabolism
- Other amino acid metabolism
  - M00027 GABA (gamma-Aminobutyrate) shunt
  - M00118 Glutathione biosynthesis

v. Glycan Metabolism

They are present near the exterior surface of the cells and are also known as polysaccharides. Glycan binds to infected cells and pathogens, removes it with the help of white blood cells or neutralize them. Glycan metabolism pathway is described.

The pathway contributes to - Glycan biosynthesis and Glycosaminoglycan metabolism.

- Glycan biosynthesis
  - M00055 N-glycan precursor biosynthesis
  - M00072 N-glycosylation by oligosaccharyltransferase
  - M00073 N-glycan precursor trimming
  - M00075 N-glycan biosynthesis, complex type
  - M00056 O-glycan biosynthesis, mucin type core
  - M00872 O-glycan biosynthesis, mannose type (core M3)
  - M00065 GPI-anchor biosynthesis, core oligosaccharide
  - M00070 Glycosphingolipid biosynthesis, lacto-series
  - M00071 Glycosphingolipid biosynthesis, neolacto-series
  - M00068 Glycosphingolipid biosynthesis, globo-series
  - M00069 Glycosphingolipid biosynthesis, ganglio series
- Glycosaminoglycan metabolism
  - M00057 Glycosaminoglycan biosynthesis, linkage tetrasaccharide
  - M00058 Glycosaminoglycan biosynthesis, chondroitin sulfate backbone

- M00059 Glycosaminoglycan biosynthesis, heparan sulfate backbone
- M00076 Dermatan sulfate degradation
- M00077 Chondroitin sulfate degradation
- M00078 Heparan sulfate degradation
- M00079 Keratan sulfate degradation

SUBCELLULAR LOCALIZATION PREDICTION

The localization identification is determined by BUSCA or PSORT II. The KEGG pathway results are submitted to the search panel of the PSORT II in FASTA format. The PSORT II is for eukaryotic sequence location prediction. The result comes out to be 78.3% of plasma membrane, 8.7% of vascular membrane, 4.3% of nuclear membrane, 4.3% of Golgi membrane and 4.3% of endoplasmic reticulum (Fig: 9. Localization arrangement of proteins extracted from KEGG Pathway Database).

Druggability of Potential Targets Retrieved

A druggability analysis of Aspergillosis caused by *A. fumigatus* targets collected from various web portals and databases was finally identified by DrugBank. This resulted in the detection of 55 *A. fumigatus* proteins. The DrugBank database is a freely obtainable and online database consisting of information on drugs, drug targets, drug interactions, pharmacology, chemical structures, metabolism, and more.

Conclusion

The emergence of *Aspergillus* infections has been causing Aspergillosis. The airborne fungus *Aspergillus fumigatus* gives rise to a serious health problem for *Homo sapiens* by causing countless invasive infections, especially in immunocompromised patients. The current medication against *Aspergillus* has gotten weak due to azole resistance and antifungal resistance (superbug). Hence, there is a need for potential drugs as well as novel targets. Therefore, for the retrieval of new targets, a subtractive proteomics (SPA) approach was implemented, which is an in-silico, computational method. Some of the identified potential drug targets were uncharacterized putative proteins, hypothetical proteins, and unnamed proteins that haven't been explored yet. A SPA approach was performed for *Neosartorya fumigata* (strain ATCC MYA-4609/Af293/CBS 101355/FGSC A1100) *(Aspergillus fumigatus).* At every step of SPA, there is a deletion of proteins. The whole proteome was successfully collected from UniProt. The redundant sequences were retrieved with another computational tool, i.e., CD-HIT. After retrieval of redundant sequences, essential genes were collected from DEG databases. Non-homologous matches were determined with the help of BLASTp. These matches gave us the pathway for *Aspergillus* species with *Homo sapiens* using the KEGG pathway. The proteins left after pathway analysis a druggability test was performed. Druggability analysis is done with the help of DrugBank databases. The location of the proteins was predicted using BUSCA and PSORT applications. We have identified 55 novel proteins for *A. fumigatus*. Therefore, the data of these essential proteins can be used as new drug targets for *A. fumigatus* and can also be used for therapeutics.

Conflicts of Interest

The author declares no conflicts of interest.

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Abstracts of Presenters

Theme A: Chemical Science

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CO 01

Synthesis of some biologically active heterocyclic compounds by mechanical grinding assistance at moderate temperature and evaluation of their biological activities

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Abstract:

In this synthesis work compound I to VI and their derivatives were synthesized by mechanical grinding assistance and as well as by conventional reflux method or by cyclization with H_2SO_4. All the synthesized compounds were characterized by FT-I.R., H^1 NMR, C^{13} NMR and Elemental analysis data. It was concluded that in some cases mechanical grinding assisted reaction exhibited high yield with optimum rpm speed of agate pestle motor at moderate temperature and in presence of less quantity of solvent compared to reflux method. Synthesized compounds were evaluated for antibacterial, insecticidal, antifungal and herbicidal activities. All compounds were showed appreciable biological activities but compound V, VI and their derivatives, especially nitro derivative flaunted greater biological activities than others.

Keywords: mechanical grinding assistance, reflux method, biological activity, moderate temperature.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CO 02

Abionano material made from lignocellulosic biomass :Nano cellulose

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Abstract:

Advances in nanotechnology play crucial role for the paper industry's goal of high quality, efficiency, and market potential. A natural biopolymer composed of lignocellulosic biomass is composed of cellulose fibers embedded in a matrix of lignin and hemicellulose. Nano crystalline cellulose, a renewable, recyclable, and abundant nano material derived from lignocellulosic biomass, is one of the most important nanomaterials for our paper industry. Nanotechnology is currently utilized by the paper industry in two ways: to make new products, improve existing ones, and learn how cellulose fibers can be used in products outside of the industry. The molecular structure of biomass recalcitrance, or the chemically reengineering of lignocellulosic biomass into nanocellulose, is the subject of our discussion in this paper.

Keywords:-Nanocellulose, Lignocellulosic biomass, cellulose, hemicellulose, lignin,

First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code
CO 03

Evaluation of Phytochemical constituents, Antioxidant activity and FT-IR analysis of *Delonix regia* Raf in flower extract

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Abstract:

Delonix regia Raf. (Family Fabaceae) is an ornamental tree widely grown in tropical and subtropical regions. It is also known as the Royal Poinciana or Flamboyant. Antioxidants are biological molecules that prevent oxidation, and with their enormous potency, they are broadly used in food and pharmaceutical industry. Free radicals possess an odd number of electrons that is in turn the primary cause for a variety of human disorders and diseases. Many plants and plant parts act as a good source of antioxidants.The present study aims to evaluate the antioxidant, phytochemical potential, total phenol, total flavonoids and FTIR spectral analysis of flowers of *Delonix regia*. The dried flower was subjected to solvent extraction with ethanol. A broad range of in vitro free radical scavenging and phytochemical assays was performed with the obtained extract.The antioxidant activity was determined by the method of DPPH radical scavenging assay.80% ethanolic extract produced from the flower exhibited significantly ($P < 0.05$) higher antioxidant activity, with high phenolic contents (34.44 mg GAE/100 g), total flavonoid contents (30.45 mg GAE /100 g). The in vitro free radical scavenging assays shows that the ethanolic hot extract of *Delonix regia* flowers is very potential even at low concentrations. Ethanolic extract exhibited the highest activity 172.4±0.82with IC_{50} value of 61.22. The flower ethanolic extract containcarbohydrate,alkaloid, flavonoids, steroids, phenolic compound, cardio glycosides, and Tannins.FTIR analysis of crude ethanolic extract was carried out and the different functional groups were detected like O-H, C-H, -C=C-, C=O, C-N, and N-H suggesting the occurrence of several metabolites in the extract.The result of FTIR confirms the presence of phenolic groups and flavonoid groups. Since the total phenols are abundant than the flavonoids as per the phytochemical assays, the antioxidant potential of the ethanol because of phenolic constituents present in it.The results suggest that the ethanolic extract possesses a significant antioxidant activity and the compounds from *Delonix regia* are found to be ideal candidates for antioxidant therapy.

Keywords: *Delonix regia,*Antioxidant activity, phytochemical potential, total phenol, total flavonoids,ethanolic extract and FTIR spectral analysis.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CO 04

Assessment of ground water quality in perspectve of selected light and heavy metallic elements in Sarguja district (C.G.) India

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ABSTRACT

The development of any nation is depended upon the availability of the safe water sources. Ground water sources are safe and more replenishment sources which is used in the form of open well, hand pump (anthropogenic operated), tube well (power operated). Now this time the ground water sources are use in industrial, agricultural and domestic purpose. We have already been consider for the extensively study of ground water sources of the tribal and rural district; Sarguja in Chhattisgarh state. For this purpose we have selected ten sampling locations (site code no. SD-1 To SD-10) from all the seven blocks of Sarguja district for collection of water samples in the session of post monsoon-2022. The collected water samples are subsequently analyzed by the standard methods for some selected water quality parameters. The obtained results were compared with the standard values prescribed by the water monitoring agency WHO (2011) and BIS (2012). The finding results for sodium is 23.3 mg/L To 134 mg/L, Potassium, 0.32 mg/L To 13.1 mg/L, Iron was seen 0.312 mg/L To 2.95 mg/L while Chromium was reported in the ranges from 0.004 mg/L To 0.027 mg/L. The concentration of Fluoride was found 0.8 mg/L To 15.35 mg/L. The result of some parameters especially P^H value, Fluoride; and the Iron value were found above the permissible limits. The selected ground water sources are highly contaminated by the light and heavy metallic and non metallic elements. People of study area are also suffering from different kinds of fluorosis. Therefore the purification of the water sources by indigenous and cheapest techniques are mandatory before using of water for different human development purpose.

***Keywords*:** Ground Water, Chromium, Fluoride, Sodium, Indigenous, pHvalue.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CO 05

Radiation grafted chitosan: Bio-waste to an efficient functional adsorbent for removal of Malachite Green (MG)

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Abstract:

The p-sodium styrene sulphonate (SSS) grafted- crosslinked chitosan (CRChitosan-g-SSS) using ionizing radiation was investigated for removal of cationic textile dye Malachite Green (MG) from manufactured aqueous solution. The factors affecting the adsorption capacity of CRChitosan-g-SSS such as dye concentration, pH, contact time, temperature were systematically investigated. To understand the equilibrium adsorption of MG on the adsorbent the data was fitted into very well know Langmuir, Freundlich and Temkin adsorption isotherms while adsorption kinetics was examined using pseudo-first order, pseudo-second order and intraparticle diffusion kinetic models. Thermodynamic parameters such as standard enthalpy (ΔH^o), standard entropy (ΔS^o) and standard free energy (ΔG^o) were estimated. The radiation grafted anionic adsorbent showed promising adsorbent properties for removal of MG.

Keywords: Chitosan, radiation grafting, malachite green, adsorption.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CO 06

A review on the determination of heavy metals using different analytical techniques

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Abstract:

Heavy metals are vital and necessary in our daily lives. Furthermore, if the levels of heavy metals in soil, water and air exceed the WHO recommended tolerance levels, they do harmful effects. As a result, it is crucial to monitor and measure the levels of heavy metals, which is challenging. This review study takes into account a large number of studies that have been conducted on the identification and measurement of heavy metals in soil, water, plant and human bodies. Moreover, the effect of toxicity of each heavy metal on human health is analysed. Determination of heavy metals such as Cd, Pb, Hg and As are very important in human body and environmental matrixes. In this review the methods for quantifying heavy metals using atomic absorption spectrometry, inductively coupled plasma-mass spectrometry, atomic fluorescencespectrometry and laser-induced breakdown spectrometry etc. in human bodies, water, plant and soil have been determined.

Keywords: Heavy metals, analytical technique, pollution, environment.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CO 07

Study viscometric, Surface tension behaviours of cationic surfactant (CTAB), anionic surfactant (SDS), and nonionic surfactant (Tx-100) at different concentrations.

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Abstract

This research aims to understand the viscometric and surface tension behaviours of cationic (CTAB), anionic (SDS), and nonionic (Tx-100) surfactants at various concentrations. A surface-active agent is a surfactant. Both the water-loving or hydrophilic area and the water-hating or hydrophobic region are separate regions in the chemical structure of surfactants. The four primary categories of surface-active chemicals are anionic, cationic, zwitterionic (ampholytic), and non-ionic. Anionic surfactants have a negative charge in water whereas nonionic surfactants do not. Positively charged compounds are known as cationic surfactants, whereas zwitterionic (amphoteric) surfactants include both cationic and anionic centres. CMC is a crucial property of surfactants, especially micelles, which are collections of surfactant molecules. Surfactants are among the most important and necessary components found in liquid soaps, cleaning solutions, laundry detergents, dishwashing detergents, and products for cosmetic hair care and personal care. The major goal of the current study is to measure the surface tension of various surfactant types at various concentrations as well as the viscosity of various surfactant solutions at various concentrations. The viscosity of surfactants is measured with the use of a viscometer. The flow via a capillary tube is measured by capillary viscometers. The flow is compared to a reference liquid to determine the relative viscosity. Time measurement is a basic flow technique. The surface tension of the surfactants was determined using drop count techniques in a stalagmometer. The forces of attraction between the particles within the supplied molecules are the fundamental determinants of surface tension. In this study, I found that surface tension consistently decreased with increasing concentrations of surfactants such as cetyltrimethylammonium bromide (CTAB), sodium dodecyl sulphate (SDS), and triton X-100, but relative viscosity and specific viscosity of the solution steadily increased.

Keywords: Surfactants, Viscosity, Surface tension, Critical micelle concentration, Stability.

First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code
CO 08

Micellar media as catalysis for hydrolysis of phosphate esters: a review

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Abstract:

Amphiphilic nature of the surfactant is responsible for the uniqueness and versatility of these compounds. Surfactants can self organize under specific environmental condition in solution to form "Micelles". Micelles have been used as a reaction medium for different types of important organic and inorganic reactions.Kinetic investigation of acidic and alkaline hydrolysis of hydroxamic acids have been studied in absence and presence of micellar media. Reactions of toxic organophosphorus compounds with α-nucleophiles (such as hydroxamate, oximate ion) in cationic micellar media are a convenient approach for deacylation and dephosphorylation reactions.

Keywords: Surfactants, Micelles, Micellarmedia, Hydroxamicacids, Organophosphorus, Hydrolysis.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CO 09

Synthesis and Characterization of Some Copper(II) Chelates in O_3N Coordination Environment Involving 2-Amino-4-methylphenol and β -Diketoenolates

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Abstract:

This work reports the synthesis and characterization of some copper(II) complexes with O_3N coordination environment involving 2-Amino-4-methylphenol and β-Diketoenolates. The physicochemical, spectral, results proposed the molecular formula of the complexes as $[Cu(amp)(L)]\cdot H_2O$ where ampH = 2-amino-4-methylphenol and LH = β-Diketoenolates like acetoacetanilide (aaH) or acetylacetone (acacH). The colored solid mass was grown, washed with ethanol-water, and dried in air. The complexes are soluble in an inorganic solvent like DMF and DMSO and organic solvents like methanol, ethanol, and acetonitrile. Computed geometrical data have determined the molecular structure of the complexes.Furthermore, ligands and complexes were also exposed to Insilco drug-likeness and bioactivity score prediction by Molinspiration software.Finally, the *Insilco* ADME properties were done with SwissADME online server.

Keywords: Copper Complexes, β -Diketoenolates, DMF, DMSO.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CO 10

Synthesis and characterization of halloysite mediated composites for the removal of iron

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Abstract

The main objective of this work is to develop an eco-friendly and effective material for the removal of iron from water. One of the most prevalent pollutants of water bodies is iron, it is detrimental to both human and aquatic life. Development of sorbents is required for the efficient removal of iron from aqueous streams. The current study's objective was to create a composite sorbent for iron absorption from water. In a batch manner, the as-prepared composite sorbent was evaluated for iron sorption in the starting concentration range of 0.5 to 50 mg L^{-1}. Iron was analysed using a spectroscope. When the composite sorbent was used to treat groundwater samples, it showed quantitative removal (> 90%) of iron, proving the sorbent's usefulness in practical settings.

Keyword: Iron, Contaminant, Environment, Detection, Halloysite, Experimental techniques

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CO 11

Sand as a source of nanostructured silicon in magnesiothermic reactions and as a heat scavenger

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Abstract

Through the process of acid leaching, magnesiothermic reduction directly transforms SiO_2 into Si nanostructures. The highly exothermic nature of the method still makes it challenging to successfully synthesise highly nanoporous silicon by Mg, despite recent efforts. As a heat scavenger for magnesiothermic reduction, table salt (NaCl) is used. With the help of table salt (NaCl) acting as a heat scavenger throughout the magnesiothermic reduction process, we demonstrate an effective method for converting SiO_2 into nanoporous Si. The heat generated by the fusion of sodium chloride prevents the silicon domains from consolidating into bigger crystals and prevents the nano-porosity of the by-product silicones from collapsing. Our approach has the potential to be competitive for the real-world manufacture of nanoporous materials based on silicon. With minimal expense, this process produces silicon nanoparticles with a high degree of purity and surface area.

Keywords: Nanomaterials, SiO_2,Magnesiothermic reduction, XRD, TEM and Raman

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CO 12

N-(*p*-ethylphenyl) thiobenzohydroxamic acid as green and sustainable corrosion inhibitor for mild steel in 1M H_2SO_4

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Abstract

In this investigation, N-(*p*-ethylphenyl)thiobenzohydroxamic acid was initially introduced as a successful and environmentally friendly mild steel corrosion inhibitor in a 1 M H_2SO_4 media. The methodologies of surface morphology, weight loss and electrochemical analysis were used to first examine its inhibitory properties. The NTHA is a mixed type inhibitor, and the electrochemical results showed that its maximal inhibition efficacy was over 90% at optimum concentration. The protective film on the metal surface was generated by NTHA, according to the surface morphology.

Keywords: Corrosion inhibition, Acidic medium, Adsorption, Electrochemical Analysis and SED-EDS.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CO 13

Surface plasmon resonance based modified gold nanoparticalS as colorimetric sensors for ultrasensitive detection of heavy metals

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Abstract

Colorimetric sensors exhibit great optical properties due to their easy fabrication, quick detection, high sensitivity and selectivity as well as easy naked-eye sensing. This work is helpful for the design of functionalized novel colorimetric sensors formmonitoring the hazardous heavy metals. These sensors would bebased on the analyte-induced aggregation of gold nanoparticles (Au NPs) with the assistance of a thiol-containing ligand. Stabilized thiol-containing ligand sensor intracts with heavy metal ions leading to their aggregation,thus resulting in color change. The synthesized silver and gold nanoparticles show a strong surface plasmon resonance (SPR) around 520 nm and the SPR intensity decreases with the increasein heavy metal concentration in aqueous solutiondue to the linear relationship between SPR intensity and concentration of heavy metal ions. As-synthesized water-soluble silver and gold nanoparticles can be used for the sensitive and selective detection of different heavy metal ions in environmentalsamples with different linear ranges.

Keyword: Surface plasmon resonance (SPR), gold nanoparticles (AuNps), metal ions.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CO 14

A Novel Technique to Treat Wastewater

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Abstract

Plasma electrolysis (PE) or Contact glow discharge electrolysis (CGDE) is nonconventional electrolysis where plasma is sustained by dc glow discharges between one of the electrodes and the surface of the liquid electrolyte around it, provides a potential reaction medium for obtaining yields several times the Faraday law value[1-7]. Quantitative studies on the chemical effects of CGDE in K_2SO_4 solutions led to the view that there are two reaction zones, the liquid electrolyte near the plasma and the plasma around the glow discharge electrode and that the major reaction zone is the former for anodic CGDE and the latter for cathodic CGDE[3]. Moreover, the body of evidence obtained for anodic CGDE favours strongly the idea that positive gaseous ions emerging from the plasma are energized enough to fragment the solvent molecules in the liquid near it into radicals which trigger off further reactions in the liquid phase leading to non-faradaic yields[1-3,5,6,8].In fact, the potentiality of anodic CGDE for generating radicals in high local concentrations was explored for the synthesis of compounds such as amino acids[9] and N, N-dimethylaminoacetonitrile[10]. The chemical effects of anodic CGDE of aqueous solutions containing simple organic compounds, which could react with H and OH radicals, would obviously be of interest to investigate.

Keywords: Plasma electrolysis or Contact glow discharge electrolysis, wastewater degradation

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CO 15

Sodium Ion Batteries (SIBs): An efficient alternative for electrical energy storage

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Abstract

Of all the problems that exist in the world, energy crisis ranks among the highest ones that need to be addressed as soon as possible and renewable energy resources are an answer to that. In this energy voracious future the area of electrical energy storage technology opens up a fascinating arena of solid state electrochemistry which is ripe for exploration. The concerns over the future cost of lithium and the sustainability of the resources of the resources, there is now a global trend to develop a low cost battery with high energy density that can meet a variety of emerging applications and Sodium-ion-batteries are a promising candidate especially for stationary energy storage which on paper seems very easy but comes with its own challenges and risks especially for its commercialization, the combination and redox behavior of electrodes, separators and electrolytes, fillers, binders and additives and capacitors. This review article encompasses all the aspects of SIBs development and modification as ambient-temperature calls that operate on the basis of intercalation chemistry.

Keywords: Sodium Ion Batteries, electrochemistry, binder, electrolytes, capacitors.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 01

Green Synthesis and Characterization of Copper (I) Iodide nanoparticle using *tridax procumbens* leaf extract and its various applications

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Abstract

Copper (I) iodide is highly versatile material having applications in solar cells, semiconductors, catalysis and anti bactetial and anti-fungal activity. The present study reports a facile, reliable, ecofriendly and cost-effective synthesis of copper-iodide nanoparticles using the aqueous leaf extract of the *tridax procumbens*, that is rich in anthocyanin content. CuI nanoparticle was biosynthesized using the leaf extract of *tridax procumbens*, which not only acted as green reductant, but also as green capping agent. The synthesized copper iodide nanoparticle was characterized using different techniques such as UV-Visible Spectroscopy (UV-Vis), X-ray powder diffraction (XRD), scanning electron microscopy (SEM) and energy dispersive X-ray analysis (EDAX). From UV-Vis XRD, SEM and EDAX observations, CuI was observed to be in the nano range. The application of green synthesized CuI nanoparticle as a catalyst in organic synthesis and antibacterial agent.

Keywords: Copper Iodide, Green capping agent, Biosynthesis, Anthocyanin, Nanoparticles.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 02

Cyclodextrin based nanocomposite for removal of toxic pollutants

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Abstract:
Modern life style, industrialization and increased human activities raised the pollutants load leading to environmental stress. There lease of many toxic substances into the air, water, and soil as a result of industrialisation has already had disastrous impact on both the natural environment and human populations. Furthermore, water contamination has attracted considerable attention due to its potentially devastating consequences on human health and the environment. Therefore, cutting-edge remediation technology development becomes a crucial environmental concern. A wide variety of techniques, such as adsorption, ion exchange, electrolysis, membrane process, reverse osmosis, and coagulation, have been used to remove hazardous heavy metal ions, organic contaminants, and dyes from water. Cyclodextrin-derived nano-composites have been identified as the most promising adsorbents for the removal of contaminants among the different conventional adsorbing materials. This article overviewed recent advances in the synthesis and study of adsorbents based on Cyclodextrin nanocomposite for the remediation of a wide range of contaminants especially heavy metalions, organic pollutants, and dyes. Additionally, recent developments in adsorption research and trials involving Cyclodextrin-based materials are reviewed in relation to their adsorptive potential. Further, wel aboured to present a morein-depth analysis of Cyclodextrin nanocomposite's potential application as an adsorbent in the elimination of environmental toxins. Finally, this overview may serve as aspring board for further study and provide insight in to potential future developments and obstacles concerning Cyclodextrin nanocomposites in the role of adsorbents.

Keywords: Cyclodextrin, Nanocomposites, Pollutants, Heavymetalsions, Adsorption mechanism, Applications.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 03

Synthesis of (*Vinylbenzyl*) trimetylammonium chloride (VBT) grafted Kosa Silk fibers with Antibacterial study against *E. Coli*

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Abstract

Graft copolymerization is one of the most important methods for modifying silk fibers and fabrics through creation of branches of synthetic polymers which impart certain desirable properties to the back bone of the desired materials without altering their basic properties.VBT graft onto Kosa Silk by chemical grafting method using Cerric Ammonium Nitrate (CAN) as a initiator and Nitric Acid as a catalyst. The factors affecting the grafting of VBT such as initiator concentration, catalyst concentration, monomer concentration, reaction time and temperature were systematically investigated. The antibacterial activity of VBT grafted Kosa Silk fiber against Gram-negative bacteria *E. Coli* was investigated and found to possess significant antibacterial activity

Keyword : Kosa Silk, Grafting, VBT, Antibacterial, E. Coli.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 04

"Synthesis and Characterization of Metal Organic Framework (MOFs) as ZIF-67, Cd-ZIF-67 and its Potent Application"

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Abstract

A microporous metal-organic-framework (MOF), as cobalt-based zeolitic imidazole framework (ZIF-67, Cd-ZIF-67) has been prepared via hydrothermal synthesis by the combination of metal-nodes and imidazole derivatives as linkers. Water was used as a solvent to get crystalline organic-inorganic hybrid compounds. The new morphologies of ZIFs were characterized by Ultraviolet-Visible spectroscopy, X-ray diffraction spectroscopy, Fourier-Transform infrared spectroscopy and Scanning electron microscopy. MOF has been investigated as a catalyst to degrade the pollutants in wastewater. The obtained ZIF-67 and Cd-ZIF-67 possess high surface area to adsorb the heavy metal ions by π-π stacking-interaction between the heavy-metal ions. This, resolves the environmental water pollution problem and hence, is beneficial to our society.

Keywords: Metal-organic-framework, zeolitic-imidazole-framework, characterization, adsorption, environmental-remediation.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 05

Molecular complexity from aromatics, Cycloaddition of spiroepoxycyclohexa-2,4-dienones and intramolecular Diels-Alder reaction: a stereoselective entry into tetracyclic core of atisanediterpenoids

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Abstract

Atisane diterpenoids have generated significant interest on account of their complex tetracyclic architecture containing spiro-fused bicyclo[2.2.2]octane ring system and important biological properties exhibited by some members of this family.[1] Though atisane diterpenoids are known for longtime, only a few synthetic routes have been developed. Creation of structural, functional, and stereochemical complexity from simple precursors is an important aspect of design and development of synthetic methodology. Recently, there has been an upsurge of interest in the chemistry of reactive species such as cyclohexa-2,4-dienone generated by oxidative dearomatization of arenols and reactions of these species have proved to be an important tool for efficient creation of molecular complexity. In view of our continuing interest in creation of molecular complexity from simple aromatics employing 6,6-spiroepoxycyclohexa-2,4-dienones[2] and in order to expand the scope of our methodology, we described here in the synthesis of tetracyclic core of atisanes.[3]

Keywords; stereochemical complexity, tetracyclic core, Atisane diterpenoids.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 06

Green synthesis of graphene doped zinc molybdate and its Catalytic and anti-bacterial properties

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Abstract

Azadirachta indica is a plant native to the Indian subcontinent that has a long history of medicinal use. The outstanding biological and physicochemical features of nanoparticles (NPs) draw attention. To undertake large-scale operations with green synthesis is a breeze because the technique is more efficient, easier, and cheaper than traditional chemical processes. Green production of graphene-zine molybdate (GO-ZnMoO) nanocomposite and B-Cyclodextrin enhanced graphene-zinc molybdate (GO-ZnMoO,) nanocomposites have been presented here. All of the nanocomposites were studied using UV-visible spectroscopy for optical studies, Fourier transform infrared (FTIR), X-ray diffraction (XRD), thermogravimetric analysis (TGA-DTA) and photo luminance spectroscopy for optical investigations (PL). The FTIR analysis of GO-ZnMoO, and B- Cyclodextrin-GO-ZnMoO4 nanocomposites revealed the functional groups responsible for their stabilization. These synthesized zinc molybdate nanocomposites were found to be non-toxic and are being studied for potential biological and environmental effects. UV-visible absorption spectra demonstrated their antibacterial activities against E.coli and S.aureus species. Antibacterial activity of nanocomposites GO- ZnMoO, and B-cyclodextrin-GO-ZnMoO, were strong against both bacterial strains. In addition, GO-ZnMoO, and B-Cyclodextrin-GO-ZnMoO, nanocomposites were employed as photocatalytic agents against textile wastewater.

Keywords: GO-ZnMoO, and B-Cyclodextrin-GO-ZnMoO nanocomposites; Azadirachta indica; antibacterial properties; dye remediation

First International Conference on
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6 TO 8TH FEBRUARY 2023

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 07

Self-aggregation of 1-methyl-3-octylimidazolium chloride with conventional surfactants: A comparative study

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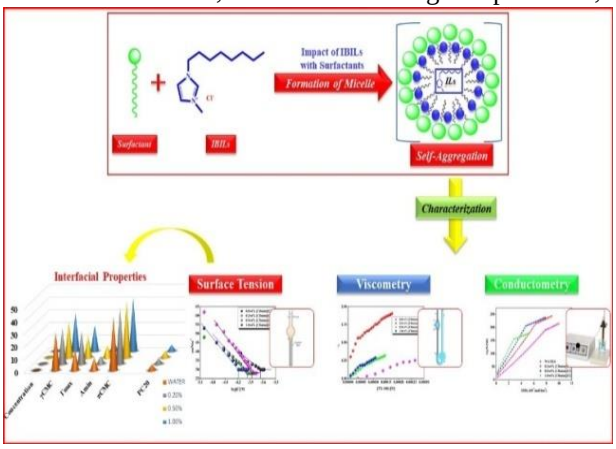
Abstract:

Recent challenges in the current era include reducing dangerous components, plastic waste, and environmental pollutants. It would be more innovative to develop and promote "green products" instead. An imidazolium-based ionic liquid can significantly enhance a value chain's efficiency and environmental friendliness. Numerous applications exist for it, such as in biological processes, agrochemicals, batteries, corrosion protection, and medicine. A comparative self-aggregation study of conventional surfactants, i.e., cetyltrimethylammonium bromide (CTAB), sodium dodecyl sulfate (SDS), and triton X-100 (TX-100), with different concentrations of imidazolium-based ionic liquids, i.e., 1-methyl-3-octylimidazolium chloride [C8mim][Cl] by using surface tension, viscometer, and conductometry methods. We have also studied the effect of [C8mim][Cl] on the micellization process and surface properties like CMC, surface tension (Υ), maximum surface excess concentration (Γ_{max}), minimum surface area per molecule (A_{min}), surface pressure at CMC (π_{CMC}), and the efficiency of adsorption pC_{20}. The relative (η_r) and reduced (η_{red}) viscosity parameters of the system were derived from the viscosity technique. A conductometric approach was used to evaluate changes in micellization behavior and calculate the various thermodynamic parameters such as free energy of the given air/water interface ($G^{(s)}_{min}$), Gibbs free energy of micellization ($\Delta G°_m$), Gibbs free energy of micellization per alkyl tail ($\Delta G°_{m,tail}$), Gibbs energy of transfer ($\Delta G°_{trans}$), and standard free energy of adsorption ($\Delta G°_{ads}$). Therefore all the [C8mim][Cl]-surfactant systems have the critical micelle concentration (CMC) value decreases drastically with an increase in the wt% of [C8mim][Cl], and the relative viscosity increase with decreases reduced viscosity suggests that interacts synergistically in the entire system. This work will apply to various fields including cosmetics, drug delivery, agriculture, material sciences, and pharmaceutical sciences.



Keywords: Ionic Liquid, Surfactant, CMC, Relative Viscosity,Interfacial, and Thermodynamic parameters

First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code CP 08

Antidiabetic Activity of Senna surattensis Leaves : An Overview

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Abstract

Diabetes is a chronic (long –lasting) disease that occurs either when the Pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood glucose. Glucose is an important source of energy for the cells that make up the muscles and tissue .It also the brains main source of fuel. Diabetes can lead to excess sugar in the blood too much sugar in the blood can lead to serious health problem. Diabetes mellitus refers to a group of disease that affect how the body uses blood sugar (Glucose). Diabetes mellitus is a hyperglycemia type of disease. Long term hyperglycemia during diabetes causes glycation of body protein that lead to secondary complication affecting arteries, nerve system, kidney, etc. In 2014 8.5%od adults aged 18 years and older has diabetes. In 2019 diabetes was the direct cause of 1.5million deaths and 48% of all deaths due to diabetes occurred before the age of 70 years. Another 460000 kidney disease deaths were causes by diabetes and raised blood glucose causes around 20% of cardiovascular dearth.Centers for Disease Control and Prevention (CDC) has released the 2022 National diabetes statistics report. According to this report more than 130 Million adults are living with diabetes or prediabetes in the United States. Alloxan is a antidiabetic drug that damage to insulin producing beat call . It has been accepted that alloxan selectively destroys the insulin producing beta cell found in the pancreas hence the demand by Patients is increasing to use natural products as antidiabetic agent. Plants have always been a source of drug for humans since time immemorial. The Indian traditional system of medicine is replete with the use of plants for the management of diabetic condition. According to WHO up to 90% of population in developing countries use plants and its product as traditional medicine for primary health care. The WHO has listed 21000 plants, which are use for medicinal purposes around the world. Among these 2500 species are in india, many plants like Acacia Arabica , aegle marmelose , agrimonia eupatoria, allium cepa, allium sativum, aloe vera ect. Used in herbal preparations in the , management of diabetes plant drugs are considered to be less toxic and free from side effect tan synthetic ones. Senna surattensis (Caesalpiniaceae) is commonly known as Glaucous cassia and distributed throughout India .It is commonly used in folk medicine as antihyperglycemic for the management of diabetes mellitus. Senna surattensis is also use in gonorrhea blennorrhea and jaundice .Bark , aerial parts and leaves of Senna surattensis are useful in for the management of diabetes and gonorrhea. The plant found to contain anthraquinone , flavonol

glycosidic , chrysophanol, physcion, kaempferide and quercetin .The extracts of Senna surattensis have been shown to have antimicrobial , antihyperlipidemic, antioxidant and hepatoprotective activity . The hypoglycemic effect of ethanolic extracts of Senna surattensis using in vitro models of diabetes mellitus. Traditional medicinal plant approaches have been used for many centuries in the treatment of diabetes. In India Senna surattensis leaves are widely used in folk medicine by diabetic patients to attenuate hyperglycemia caused by diabetes mellitus. Senna surattensis flowers and leaves have been studied extensively and the therapeutic properties such as antioxidant , hepatoprotective and antimicrobial have been reported . The phytochemical analysis has shown in the presence of potent phytochemicals such as flavonoids, terepenoids, glycosides, steroids , Saponin and phenols. It has long been used to treat diabetes mellitus and related hyperlipidemia.

Key words : Senna surattensis, Antidiabetes activity, Antioxidant activity , phyochemicals screening, Flavonoids, Steroids , hypoglycemic effect

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 09

An overview of microwave dielectric spectrometry on aqueous medium

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Abstract

The dielectric relaxation research on aqueous solutions is summarised to determine the relative strengths and limits of various solution models. Inorganic and organic electrolytes, as well as low-molecular-weight organic molecules, are among the solutes. It is demonstrated that even relatively simple solutions have a wide range of impacts. The hydration hypothesis appears to be validated due to the preferential orientation of water molecules in the Coulombic field of tiny ions and also in clathrate-like structures around big ions for solutions of such solutes. A hydration model appears to be appropriate for the solution of primarily hydrophobic compounds. Consequently, hydrophilic molecules are included in a hydrogen-bonded network. Many situations make it difficult to differentiate between the contributions of the solute and solvent molecules to the dielectric spectrum. Using such combinations, it is much more difficult to distinguish distinct water locations that have been influenced differently. In this review, we explored dielectric relaxation spectroscopy as a contemporary area of interest in aqueous solution. The dielectric characteristics of liquids at microwave frequencies are summarised, and the underlying molecular mechanisms and techniques are described. The peculiar behaviour of aquatic systems is given special consideration in this review.

Keywords: Dielectric spectroscopy, aqueous solution, spectroscopic techniques.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 10

Electrochemical performance of polypyrrole and polythiophene based nanocomposites for supercapacitor application

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Abstract:
Compared to traditional capacitors or batteries, supercapacitors have a higher power density, a faster charging/discharging rate, and improved cycling stability which made supercapacitors a viable power source and have attracted a lot of attention. In recent years, conducting polymers have been used as advanced materials due to their potential applications as energy storage materials for supercapacitors. Polypyrrole (PPy), polyaniline (PANI), polythiophene (PTh), poly (3,4-ethylenedioxythiophene) (PEDOT), polyacrynitrile (PAN), and other conducting polymers have different conductivities. The most studied conducting polymer is polypyrrole (PPy), which has a high electrical conductivity range of 1-100 S cm^{-1}, water soluble, has a strong redox characteristic, and can be easily oxidized. PTh have also high electrical conductivity with a drawback of poor stability, solubility, and low product yield. However, by combining binary and ternary composites of PPy and PTh with various carbon and metal-based materials, the properties can be enhanced. In the present study, we have discussed the synthesis and utilization of PPy and PTh based electrode materials for supercapacitor applications.

Keywords: Conducting polymer, Polypyrrole, Polythiophene, nanocomposites, supercapacitor, Electrochemical analysis

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 11

Modification of natural zeolite and comparison of adsorption capacity between modified and natural zeolite

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Abstract

Zeolite is one of low cost adsorbent and are mainly two types- Natural and synthetic. Both natural and synthetic zeolites are characterized by same framework of silicon and aluminum oxides bonded with oxygen atoms but in different ways. Modified zeolite can improve the adsorption capacity under certain condition. Modification can be done by physical and chemical methods. In chemical modification the natural zeolite will be subjected to various chemicals like acids, alkalines, salts, and surfactants etc. which will modify the characteristics of the surface and thereby improve the adsorption capacity. It is expected that the modified zeolites will be more effective and efficient adsorbent as compare to natural zeolite and enable in removal of toxic metal ions from aqueous solution more efficiently with much ease and can be carried out in routine laboratories. The structure of modified zeolite is observed and compared by SEM and XRD.

Keywords: Adsorption, Zeolite, Modification of zeolite

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 12

Graphene oxide and its application as adsorbent to waste water treatment

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Abstract

Organic dyes are one of the most carcinogenic pollutants found in effluents from textile, rubber and paper industries and these are the major source of water pollution as these industries release large quantity of wastewater containing toxic dye stuff in water bodies. These dyes have hazardous effect on life of aquatic animals and human being. Thus, it is very important to remove excess dyes from waste water before releasing them into environment. Among numerous approaches available for dye removal, adsorption is simple and effective method. Graphene oxide, mainly as magnetic particle, has been recently used as a suitable adsorbent for wastewater treatment to remove organic dyes from water [1]. Graphene oxide is prepared by modified hammer's method [2]. As graphene oxide acts as a good adsorbent, it is used for adsorption of crystal violet dye from waste water. Crystal violet is a cationic dye belongs to the class of triphenylmethane dyes and is used for various purposes such as dermatological drugs etc [3]. To determine adsorption rate and adsorption efficiency, adsorption isotherm, kinetics and thermodynamics have been demonstrated. Desorption and regeneration studies were also implied. The removal efficiency was found to be depend on various factors includingtemperature, pH, and concentration of substrate [4].Upto 97% dye removal was conquered by increasing dose of adsorbent and temperature. Maximum 99% dye removal was reached after 24h. certain adsorption isotherm such as Langmuir, Freundlich, Temkin-R model have been fitted for adsorption process. It closely fits Freundlich and Temkin adsorption isotherms. On basis of pseudo-first order, pseudo-second-order and intra particle diffusion kinetic equation have been obtained. First order kinetic model is found to be best fitted for adsorption of crystal violet on graphene oxide demonstrating that removal of dye takes dominantly through chemisorption process [5].

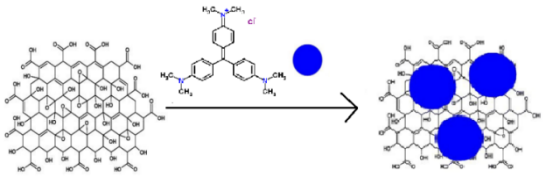

Fig: Schematic representation of adsorption of crystal violet by graphene oxide

Keywords: Adsorption, Grapheneoxide, Chemiosorption, Crystal violet dye

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 13

Molecular docking investigation of phytochemicals from Indian traditional medicinal plants as a fusion inhibitor of SARS-CoV-2

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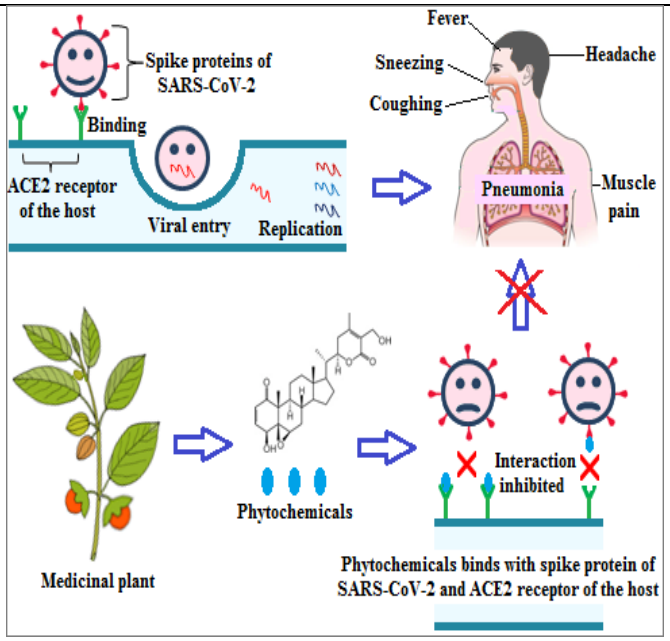
Abstract

Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), novel human coronavirus is one of the most dreadful and pandemic disease spreading all over the world on each successive day. Few years back, Middle-East respiratory syndrome coronavirus (MERS-CoV) and severe acute respiratory syndrome coronavirus (SARS-CoV) were found to be major concerns and showing the similar symptoms as the (SARS-CoV-2). The transmission of SARS-CoV-2 is takes place through physical contact, droplet, and airborne transmission and showing the symptoms like fever, dry cough, headache, malaise, muscle pain, fatigue, etc. Therefore, the scientists and researchers from all over the world are actively engaged in the development of drugs and vaccines for the treatment of SARS-CoV-2 disease. In this circumstance, previously phytochemicals from plants also showed an antiviral activity towards the treatment against SARS-CoV and MERS-CoV. Accordingly, phytochemicals obtained from Indian traditional medicinal plants shown antiviral activity is demonstrated through *in silico* molecular docking analysis with SARS-CoV-2 main protease, spike protein, RNA-dependent RNA polymerase (RdRp), and human receptor; angiotensin-converting enzyme (ACE2). In addition, it provides a new insight into the development of the drug to fight against this virus with proof of molecular docking studies.



Keywords: Coronavirus, SARS-CoV-2, Pathogenicity, Treatment, Antiviral effects, Phytochemicals, Molecular docking

First International Conference on
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Paper Code
CP 14

Comparative assessment of unmodified and chemically modified novel chicken feathers for the biosorptive remediation of noxious hexavalent chromium from synthetic wastewater

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Abstract

The present study reveals the comparative assessment to remove Cr(VI) ions from synthetic wastewater using raw chicken feathers (RCFs), NaOH and ethylene diamine modified chicken feathers (MCFs) and xanthate-modified chicken feathers (XMCFs), treated with both NaOH, ethylene diamine and carbon disulfide. The physico-chemical characteristics of the biosorbents were characterized by attenuated total reflection Fourier transform infrared spectrophotometry (ATR-FTIR), scanning electron microscopy (SEM), energy dispersive X-ray spectroscopy (EDX) and point of zero charge determination. The biosorption of Cr(VI) using MCFs and XMCFs were determined in different parameters such as pH, biosorbent amount and contact time in batch method. A significant increase in the biosorption capacities of MCFs (90.90 mg/g) and XMCFs (100 mg/g) were observed compared to RCFs (52.63 mg/g). The Langmuir isotherm and pseudo-second-order kinetic models were suitable to explain the biosorption behaviour. The thermodynamic parameters indicated the spontaneous and endothermic nature of the Cr(VI) biosorption process on those biosorbents.

Keywords: Biosorption; Hexavalent chromium; Chicken feathers; Chemical modification; Regeneration.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 15

Organic Cage Stabilized Palladium Nanoparticles for Selective Homocoupling of Aryl Halides

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Abstract

Dynamic imine condensation due to its wonderful properties, is proven to be a powerful tool to engineer porous organic cages (POCs) from simple building blocks[1] . Organic cages are in potential demand for explosives sensing[2],catalysis[3] , gas storage[4],etc. In this report, two enantiomerically pure face directed organic cages of tetrahedral nature (namely TC-R & TC-S), are engineered by [4+12] selfcondensation of triphenyl rooted hexa-aldehyde with a chiral di-amines at room temperature. The [4+12]

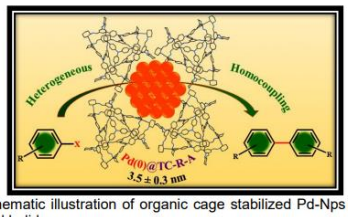

Figure 1: Schematic illustration of organic cage stabilized Pd-Nps in homocoupling reaction of aryl halides.

self-assembled cage has inner pores of ~1250Å3 where the faces of the cage were occupied by hexa-aldehydes and the corners linked to diamine moieties. Several vicinal di-imines available in cages shows good binding site for Pd(II) metal precursors whose reduction results in formation of Pd nanoparticles. Figure 1: Schematic illustration of organic cage stabilized Pd-Nps in homocoupling reaction of aryl halides. Further, the cage anchored Pd nanoparticles [Pd(0)@TC-R-A] displayed an excellent catalytic activity in selective and additive-free C-C homocoupling of aryl and hetero-aryl halides. The best result was supposed when the catalytic reaction was performed using 8 mol% of Pd-catalyst [Pd(0)@TC-R-A] with >99% conversion in DMF:Water (3:1,V/V) solvent under heterogenous conditions. Later, various electron-poor and electron-rich haloarenes employed in this catalytic approach which showed the efficiency of well-dispersed PdNPs. Additionally, this composite showed outstanding high thermal stability even after three catalytic cycles.

Keywords: Organic Cages; Palladium Nanoparticles; Selective Homocoupling.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 16

Theoretical and Experimental Studies On Electron-Rich Fluorophore Upon Functionalized With An Electron-Poor Group

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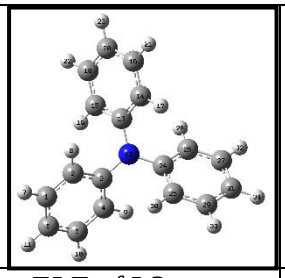
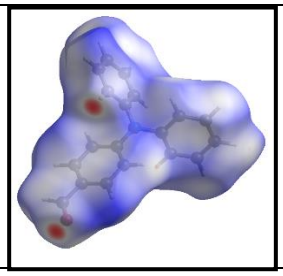
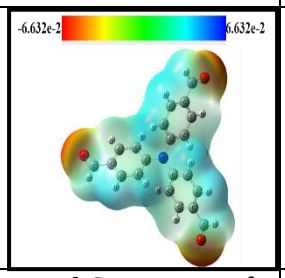
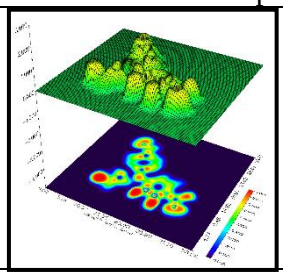
Abstract

A powerful electron donor is available in the form of a propeller-shaped triphenylamine fluorophore[1]. Triphenylamine derivatives with different substituted groups (e.g. aldehyde, formyl, amino, halogen, alkynyl) can easily be modified for further functionalization by simple reactions. The aforementioned molecule has been investigated using experimental spectroscopies including NMR (1H NMR and 13C NMR), FT-Raman, FT-IR, and UV-Visible. Density functional theory (DFT) with the B3LYP method and 6-31+Gbasis set are used for the theoretical analysis, and the DFT approach are used for optimization[2].The experimental bond lengths and bond angle parameters are compared with the calculated bond lengths and angles. Calculated and simulated infrared and Raman vibrational frequencies are correlated with empirical data[3]. Donor-acceptor interconnections are investigated using Natural Bond Orbital (NBO) analysis.The charge distribution in molecules is demonstrated by MEP surface analysis.The ELF diagram is examined to assess the level of relative localization of electrons. The chemical activity of the molecule, such as Ionization Energy, Electron Affinity, and Electronegativity are revealed by the energy difference between HOMO and LUMO. The best ligand-protein interactions were discovered using molecular docking, which was done with distinct protein receptors on a molecule[4]. Additionally, drug-likeness research isconducted using various named molecule derivatives.

	
ELF of L3	Optimized Structures of L1
	
Optimized Structures of L2	MEP of L4
Keywords:DFT, Natural Population Analysis, Molecular Docking	

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 17

Graphene based Biopolymer Nanocomposites for Waste Water Effluents Treatment

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Abstract:
Since last few years, researchers are focusing more on fabricating graphene-basedbiopolymer nanocomposites as it offers biodegradability and biocompatibility. Graphene is a 2D versatile material used to reinforce the properties of biopolymer nanocomposites. There are various methods used for the preparation of graphene-basedbiopolymer nanocomposites. Incorporation of graphene and its derivatives such as graphene oxide (GO),reduced graphene oxide (RGO) , fabricated graphene oxide (FGO)with different polymer can be marvelously applied in the field of agriculture , environmental and energy sectors. High potential for pollutants removal in these Nanoparticles especially with heavy metals, organic compounds, dyes etc. from waste water is due to their good catalytic efficiency, high surface area. This article highlights the different application of graphene-based biopolymer nanocomposites in the field of waste water effluents treatment as cost effective and sustainable methods.

Keywords: Graphene oxide (GO), Nanocomposites, Biopolymer, Pollutant, Adsorption mechanism, Biodegradability, Biocompatibility.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 18

Extraction of Cellulose Micro-Whiskers from Rice Husk a Greener Approach

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Abstract

Herein, we report a greener, total chlorine free, ultrasonic physicochemical process of extraction and purification of cellulose micro-whiskers from rice husk. The initial step involves the treatment of the rice husk with a concentrated aqueous alkali solution for the duration of 6 h at 80°C in round bottom flask in order to completely dissolve lignin and silica. After alkali pretreatment, the product obtained was thoroughly washed with distilled water, filtered and dried. The dried product was subjected to mechanical treatment followed by a bleaching process. A sonolytic technique was applied for the bleaching of rice husk using Na_2O_2/H_2O_2 as a chlorine-free bleaching agent. The detailed mechanism for the ultrasonic physicochemical bleaching of extracted cellulose from rice husk was also proposed. Extracted and bleached cellulose was characterized for morphological, compositional and thermal properties through different characterization techniques.

Keywords: Rice Husk, Cellulose, Extraction, Total Chlorine

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 19

Toxicity of Vanadium and extraction- spectrophotometric, determination of Vanadium (v) using Novel new organic reagent (N-Hydroxyamidine) in presence of Salicylaldehyde

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ABSTRACT

Vanadium is one of the major pollutants of the environment. Bronchitis, Pneumonia, irritation of Mucus membrane, nervous disorders etc are the effect of Vanadium poisoning. Determination of Vanadium is of great importance in body tissues, blood samples and urine samples for the toxicity of Vanadium. N-Hydroxy amidines are new type of organic reagents used for extraction Spectrophotometric determination of vanadium (N-Hydroxy N- (o-chloro) phenyl-N '(3-Methe-phenyl p-tolu amidine hydrochloride reacts with Vanadium (V) form a blue violet Complex in chloroform the absorption spectra has a flat peak at 550-580nm. The Wavelength of this coloured Species shifts to 580nm which is λ_{max}. The molar absorbance is 7100 +50 l $mol^{-1}cm^{-1}$. The-2 Sandell's Sensitivity is 0.00717 mgcm The extraction. is quantitative in the on the range 1.8 To 5.2 pH basis of strong Synergism mixed complexion is formulation a simple rapid and sensitive method has been developed for solvent extraction and spectrophotometric determination of Vanadium (V)The method is free from rigid control of aqueous phase order mixing of reagents , temperature , standing time etc. Most of the common ions like SO_4^{2-}, Cl^-, Cr^{3+}, Ni^{2+} etc. do not interfere in the determination. Interference of Fe (III) and Cu(II) can be eliminated by masking these ions with Sodium phosphate and thiourea respectively. The method has been successfully applied for determination of vanadium to industrial Wastes, biological samples, Steel Samples.

Keywords: Vanadium, Pollutant, Bronchitis Pneumonia, Molar absorbance

First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code
CP 20

The influence of various ball clay concentrations on the fabrication of Poly(3-hydroxybutyrate-co-3-hydroxyvalerate) nanocomposite for bone regeneration

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Abstract

This is the first report on the development of nanocomposite with ball clay with significant improvement in physicochemical, mechanical, thermal, and biological properties in comparison to pure PHBV. SEM analysis of the nanocomposites revealed an efficient dispersion of the 10 wt% ball clays in PHBV matrix, also indicated by the lower theta angles in the XRD diffraction patterns. FT-IR spectra demonstrated that formation of strong hydrogen bond between ball clay and PHBV polymer matrix. TGA analysis showed that increase in Tmax1 and decrease in Tmax2 as increasing ball clay loading in polymer matrix. Beside this, degradation temperature at 10%, 20% and 30% mass loss were also increased with ball clay loading indicating enhancement of thermal stability. DSC study shows that Tg of nanocomposites were higher than neat PHBV demonstrating interaction between ball clay and PHBV matrix. Young's modulus of nanocomposite (L10) was higher than neat PHBV was a proof for true reinforcement achieved with ball clay. Hemocompatibility tests such as protein adsorption, platelet adhesion, thrombus formation (PT and APTT) and complement activation (C3 and C4) showed that nanocomposite (L10) has batter biocompatibility than neat PHBV. Nanocomposite (L10) show significant bioactivity within 3 days after immersion in SBF as it was tested after immersion with XRD, FTIR, and SEM. In summary, nanocomposite with ball clay may suit for bone tissue engineering and could be comparable with conventional bioglass based nanocomposites.

Keywords: PHBV; ball clay; Thermal properties; Nanocomposite; Biodegradability

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 21

Upconversion nanomaterials :recent advances in bioimaging and disease therapy

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Abstract

In the fields of materials science and healthcare applications, multifunctional lanthanide-based upconversion nanoparticles (UCNPs), which effectively convert low-energy photons into high-energy photons, have garnered a lot of interest. UCNPs have been widely used in biomedical applications, such as biosensing, imaging, and theranostics, due to their distinctive photophysical properties, which include light-emitting stability, excellent upconversion luminescence efficiency, low autofluorescence, high detection sensitivity, and high penetration depth in samples. We briefly described the main elements of UCNPs and the luminescence mechanism in this review. Then, we contrasted a number of popular design synthesis techniques and listed their benefits and drawbacks. There were given a number of examples of how UCNPs were functionalized. The biological uses for bioimaging and disease treatment were then covered in detail, with a focus on drug delivery and photodynamic therapy, including antibacterial photodynamic therapy. Finally, the remaining difficulties in applying UCNPs were discussed along with the potential practical applications in the disciplines of materials science and biomedicine. This review offers insightful and practical knowledge that may be applied to the study of the usage of UCNPs in the realm of cancer.

Keywords:Upconversion, PDT, Biomedical applications, Drug delivery, Bioimaging, aPDT

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 22

Microwave dielectric behaviour and ethno-medicinal plant based soil

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ABSTRACT

In this paper an attempt has been made to study ethno-medicinal plant based soil in relation to dielectric impact of soil. Soil Physics is new research area in present scenario. Microwave remote sensing dielectric behaviour of soil helps in agricultural production in the form of cultivation. Soil is very important for human being. Ethno-medicinal plant is the panacea for rural people as well as tribal area. The tribal people depend on forests for their livelihood and most of the rural people still depend on traditional medicine as a primary healthcare source. India is rich in medicinal plant diversity which is distributed in different geographical, environmental conditions and associated tribal and folk knowledge systems. This research is interdisciplinary and covers ethno-botany. Ethno-botany is the organized study of the relationship between plants and human. Plants are related with soil and soil is related with Soil Physics. Remote sensing is the backbone of the space program. Soil is really key part of human being as well as animal. Without Soil it cannot be existence of environment. There are different varieties of Soil in India as well as world. Every state has specific properties of Soil, Soil involvement in production is very important. There are several Properties of Soil such as Physical Properties, Chemical Properties and geographical properties. The available nutrients play important role in Production of food grains and in agriculture. There are a lot of nutrients but eighteen elements enrich the supporting environment. An author has focused on Achanakmar area and illustrated a lot of findings.

Keywords: Soil, ethno-botany, dielectric, microwave, remote-sensing

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 23

Ecofriendly Graphene Based Biopolymer Alginate Nanocomposite as a Nanobiosorbents for bioremediation of Environmental pollutants

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ABSTRACT

Industry development has led to increasing environmental pollution. Increased use of metals and chemicals in process industries and mines has resulted in generation of large quantities of effluent that contain high level of toxic metals heavy metals are released from many industries & mines into water. The adsorption process for the removal of environmental contaminants is considered simple cost friendly natural polymer, Alginates are natural anionic polysaccharide is that can be extracted from different species of Brown Sea Algae and Bacteria . Alginate can be found in different form of salts (sodium, potassium or Ammonium) Alginate are biocompatible, biodegradable and non Toxic, the removal of the Alginate /Graphene-oxide Nanoparticle for heavy metal ion in waste water. Graphene a two dimensional nanomaterial is possesses conjugated carbon sheet, The Carbon – atoms are functionalised with hydroxyl and epoxy group. Graphene-oxide can be easily chemical modified and hence offers Abundant binding sitesfor the Adsorption of metal ion. The structural property of this Adsorbent is characterised using SEM, FTIR & AAS is used to determine concentration of heavy mental ions like - As , Cr ,Pb , ,Hg , Cd , & Ni. At varying pH value, Initial ion concentration and contact time are systematically compared. The Adsorption kinetic and mechanism are analysed using Isotherm kinetic models.

Keyword:- Alginates /Graphene-oxide Nanoparticle , water-treatment ,Heavy metal, Adsorption.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 24

Importance of meditation process and quantum teleportation in social evolution

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Abstract

The research group of the 2022 Physics Nobel laureates demonstrated quantum teleportation, which makes it possible to transfer quantum information from one relativistic particle to another. As a conceptual unit of this, it is necessary to study the Vedic meditation process, in which by refining the physical condition of human beings, consciousness is brought to that energy level where the universe also exists in the form of energy. Since according to the string theory, the whole universe is in the form of energy. Therefore, in the state of meditation, like teleportation, all the information will be received at a quick speed. Meditation is an experiential process and quantum entanglement is an experimental method. The ultimate goal of both is equality but the path of exploration is different. In this context, we will analyze the facts to make communication and communication faster in the coming future by understanding teleportation in meditation process and quantum entanglement theory. Will be able to reveal important facts for social development by proving the similarity between meditation process and quantum teleportation.

Keywords :- Meditation, Quantum entanglement, Teleportation, Social development.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 25

Synthesis of Alpha cyclodextrin capped silver nano particles and detection of heavy metal ions in water bodies.

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Abstract:

Environmental pollution by toxic heavy metals such as Hg (II), Pb (II), As (III), Mn (II), Cr (III) etc. has been a major global issue. The use of Alpha cyclodextrin modified silver Nano particles (α-CD capped AgNPs) is synthesized for the detection of heavy metals. It is a new selective, and sensitive method for remediation of heavy metal ions. This method is based on the measurement of red shift of localized surface Plasmon resonance (LSPR) band of α-CD capped AgNPs in the region of 200-800 nm. The color of α-CD capped AgNPs was changed from yellow (460 nm) to colorless (590 nm) by addition of capping agent Alpha cyclodextrin. This is a novel, facile and low cost method. The morphology, size distribution and optical properties of α-CD capped AgNPs where characterized by transmission electron microscope (TEM), UV-visible spectrophotometry, Fourier transform infrared spectroscopy (FTIR). The advantages of using α-CD capped AgNPs as a chemical sensor in colorimetric assay are being simple low cost and selective for detection of heavy metals from waste water bodies.

Keyword: Heavy metals, silver nanoparticles, aggregation, Alpha cyclodextrin, water bodies.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 26

Spectrophotometric determination of phorate in various environmental samples

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Abstract:
The proposed method is based on flotation –dissolution an easy, impressible, extractive spectrophotometric determination, explained for easy investigation of the organophosphate pesticide phorate (O,O-diethyl S-[ethylthiomethyl] phosphorodithioate) on trace levels. A molybdophospho complex is generated when phorate is treated with ammonium molybdate in acidic medium. As an ion associate complex with methylene blue the complex is present in between water and organic layers which is extracted and then dissolved with acetone. The greenish blue complex produced show absorption maxima at 660 nm. Beer's law range is found to be 0.5 to 16 µg per 10 mL for phorate. The molar absorptivity is 0.989×103 L mol^{-1} cm^{-1} and sandell's sensitivity is 1.00×10^{-5} µg cm^{-2}. Also calculated the standard deviation and relative standard deviation for the above method were 0.006 and 1.95% respectively. The method has been applied and checked for the determination of phorate in water, soil and vegetables.

Keywords: Spectrophotometer, Phorate, Organophosphate pesticide, environmental samples.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 27

Dielectric study of Polythiophene/ Polypyrrole and Metal- Oxide based Ternary Nanocomposites

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Abstract

The chemical oxidative polymerization was used to developed conducting polymer polythiophene (PTh)/polypyrrole (PPy) and NiO hybrid nanocomposites (NCs). In order to make polythiophene/polypyrrole and NiO nanocomposites, different weight percentages of NiO nanoparticles—10%, 20%, 30%, 40%, and 50% were used. X-Ray Diffraction (XRD) and Scanning Electron Microscopy (SEM) technique were used to determine the phase composition and particle size distribution respectively. The functional group was analyzed by using Fourier Transform Infrared (FTIR) spectroscopy. The thermal stability of the prepared nanocomposite was determined by using thermogravimetric analysis (TGA). In the temperature range of 25 to 200 oC, the AC conductivity of the samples was tested, and it was discovered that the addition of NiO nanoparticles increased the conductivity. The conductivity of ternary nanocomposites in 10% at RT 5.95 × 10-6, 20% at 8.95 × 10-6, 30% at 8.95 × 10-5 and 40% at 2.5 × 10-4 S/cm-1 are obtained. Hence this ternary nanocomposite are found to be a promising material for potential applications.

Keywords: Nanocomposite, PPy, PTh, TGA, FTIR.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code CP 26

Spectrophotometric determination of phorate in various environmental samples

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Abstract

The proposed method is based on flotation –dissolution an easy, impressible, extractive spectrophotometric determination, explained for easy investigation of the organophosphate pesticide phorate (O,O-diethyl S-[ethylthiomethyl] phosphorodithioate) on trace levels. A molybdophospho complex is generated when phorate is treated with ammonium molybdate in acidic medium. As an ion associate complex with methylene blue the complex is present in between water and organic layers which is extracted and then dissolved with acetone. The greenish blue complex produced show absorption maxima at 660 nm. Beer's law range is found to be 0.5 to 16 µg per 10 mL for phorate. The molar absorptivity is 0.989×103 L mol^{-1} cm^{-1} and sandell's sensitivity is 1.00×10^{-5} µg cm^{-2}. Also calculated the standard deviation and relative standard deviation for the above method were 0.006 and 1.95% respectively. The method has been applied and checked for the determination of phorate in water, soil and vegetables.

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First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code
CP 27

Dielectric study of Polythiophene/ Polypyrrole and Metal- Oxide based Ternary Nanocomposites

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Abstract:
The chemical oxidative polymerization was used to developed conducting polymer polythiophene (PTh)/polypyrrole (PPy) and NiO hybrid nanocomposites (NCs). In order to make polythiophene/polypyrrole and NiO nanocomposites, different weight percentages of NiO nanoparticles—10%, 20%, 30%, 40%, and 50% were used. X-Ray Diffraction (XRD) and Scanning Electron Microscopy (SEM) technique were used to determine the phase composition and particle size distribution respectively. The functional group was analyzed by using Fourier Transform Infrared (FTIR) spectroscopy. The thermal stability of the prepared nanocomposite was determined by using thermogravimetric analysis (TGA). In the temperature range of 25 to 200 oC, the AC conductivity of the samples was tested, and it was discovered that the addition of NiO nanoparticles increased the conductivity. The conductivity of ternary nanocomposites in 10% at RT 5.95 × 10-6, 20% at 8.95 × 10-6, 30% at 8.95 × 10-5 and 40% at 2.5 × 10-4 S/cm-1 are obtained. Hence this ternary nanocomposite are found to be a promising material for potential applications.

Keywords: Nanocomposite, PPy, PTh, TGA, FTIR.

First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code
CP 28

GeneralStudiesonBiorenewablePolyurethanes

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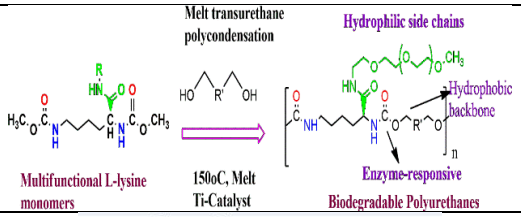
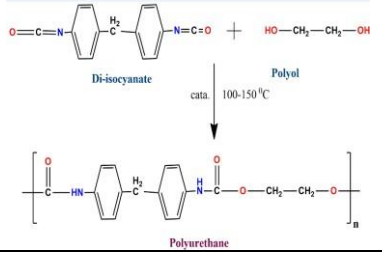
Abstract

Polymers are a very important commodity within modern society that is found in all sectors of a consumer economy, such as form of materials, pharmaceuticals and energy. Typically, they derived from non- renewable sources and make pollutants which is left unchanged in the environment for centuries. Their accumulation can be hazardous and cause various environmental & health problem, like-reduces soil fertility, release toxic chemicals into the environment when they are burn, make water pollution & cardiovascular disease, cancer etc. But at beginning of twenty first century, the search for renewable material and utilizing available renewable feedstock is at all-time high. Because over the last 50 years, humans have generated 6 billion metric tons of plastic waste. Of this only about 9% was recycled, 12% was incinerated and 79% was left to accumulate in landfills or the natural environment. Therefore, its need to developed & use biodegradable polymers or polyurethanes. Generally, biodegradation refers to the physical or chemical changes induced in a material by any environmental factor such as light, moisture, heat or wind along with biological agents such as bacteria or fungi.

Now a days polyurethanes represent a highly demanded class of polymer. Because they are moldable, strong, hydrolytically degradable and extensively used or tested in different biomedical application like-cardiac valves and ocular implants. At present days in both industries and academia focus on development of biodegradable polyurethanes which are derived from isocyanate routes and isocyanate free routes etc. In isocyanate routes, natural polyols are reacted to di-isocyanates by a polycondensation reaction to produce biodegradable PURs, and in isocyanate free routes polyurethanes is developed by melt trans urethane polycondensation reaction like- l- lysine based polyurethane, some vegetable oil-based polyurethane. This type PURs are generally used in drug delivery (doxorubicin). The obtained PURs were characterized by proton nuclear magnetic resonance (H NMR), flourier transformation infrared spectroscopy (FTIR), Atomic force microscopy (AFM), Differential scanning colorimetry (DSC), Gas permeable chromatography (GPC) and Wide-angle x-ray diffraction (WAXD) etc.





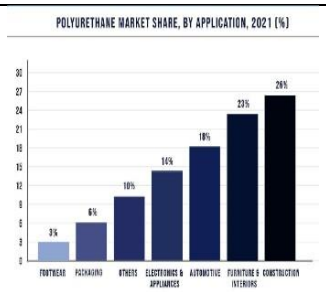


Fig-(a)&(b)SynthesisofBiorenewablePolyurethane

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Keywords: di-isocyanates, polycondensation, doxorubicin, Atomic force microscopy (AFM), Gas permeable chromatography (GPC)

First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code
CP 29

RecentadvancesandtherapeuticjourneyofGoldbasedSchiffbasecomplexesas potentialanticancer agents

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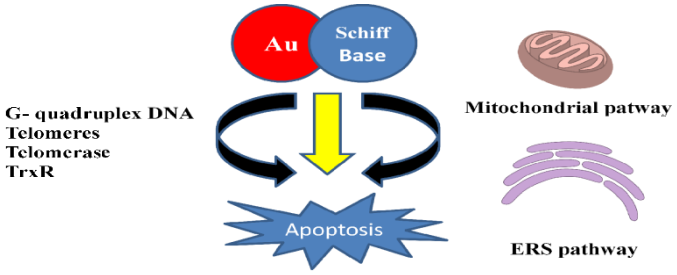
Abstract

The growth and spread of leukemic cells defines cancer, a major global health issue.The mostprevalent and often occurring kind of cancer is hepatocellular carcinoma (HCC).As a result,effective andselective anticancer drug is highly valued intoday's research.Metal compoundshave been utilized extensively in medicine since ancient times, but their mechanisms of actionhasattractedsignificantattentionfromthescientificcommunity,creatingaclearconnectionbetween inorganic and organic chemistry.Inorganic biomedical sciences(basedon As, Sb, Bi,Au, V, Fe, Rd, Ti, Ga and Pt) are dominated by research on the anticancer activity of metalcomplexes.Hugo Schiff of Germany first described the Schiff-base which is a family of stableiminecompoundswiththegeneralformula(-R1–C=N-R2),in1864.

ThepharmacologicaleffectsofSchiff-basecompounds,whichincludeantibacterial,antiviral,immunomodulatoryand anticancercharacteristicsarenotable.Gold,platinum,Platinummetalcomplexeshavebeenused for the anticancer activ ty. Initially researchers believed that Au agents may be effectivesubstitutes for Pt(II).Both in vitro and in vivo tests for anti-tumor efficacy have been performedon number of gold(I) complexes. Due of its anticancer properties, gold have received a lot ofattention. Because of their exceptional biological activity, excellent stability, lipophilicity, andelectroluminescent qualities, Au(III)Schiff-basecomplexes are prospective anticancer agents.Thesecomplexesfunctionthroughanumberofantitumorpathwaysthataredistinctfromthoseof the traditional platinum medicines, offering a workable remedy for reducing the severe sideeffects brought on by metal chemotherapy. Thus, the present article deals with the systematicreview on the synthesis

of various Schiff base metal complexes based on gold and its anticanceractivities.



Keywords: Cancer, Schiffbase,Schiffbasedmetalcomplex,Anticanceractivity,Metalcomplex, Gold.

Abstracts of Presenters

Theme B: Earth, Environment and Energy

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EO 01

Microbial Examination of Some Spoiled Fruits for the Post Harvest Diseases From Local Fruit Market of Rajnandgaon District of Chhattisgarh, India

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Abstract

Fruits become major portion of cunsumption by the people because they are rich in nutriaents. Due to nutritional condition of fruits, they are valnerable to microbial deterioration. Microorganism cause damage to the fruit tissues by contaminating them. High content of water, low pH and presence of natural sugar makes fruits highly prone to attack by microorganism which may play significant role in their spoilage The present study is to design the microbial examination along with some biochemical examination of selected spoiled fruits caused by fungi and bacteria.

Keywords: Microbial examination, biochemical examination, spoiled fruits, fungal species, bacterial species

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EO 02

Spatio-Temporal Analysis of Ambient Air Quality in Siltara Industrial Region, Chhattisgarh

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Abstract:

Industrialization is one of the key indicators of economic development in any country. The Siltara industrial region is an important pocket of Chhattisgarh state located 13 km north from the district headquarter in Raipur, which is rapidly growing. This paper presents the seasonal and temporal variations of PM_{10}, SO_2, and NO_2 concentrations and ambient air quality. The air quality monitoring was carried out from two monitoring locations, representing industrial and residential locations from January 2019 to December 2019. PM_{10} samples were collected by quartz filter paper through a mini volume air dust samplertwice a day (12 hours on an interval basis). UV Fluorescence SO_2 analyzer (Thermo Fischer Scientific Model 43i) and Chemiluminescence NO_2 analyzer (Thermo Fischer Scientific Model 42i) were used for monitoring SO_2 and NO_2.The samples of air pollutants were collected for five days every month and throughout the year 120 samples were collected. The study shows the ambient air quality in the range of moderate to hazardousat an industrial site and moderate to very poor ata residential site. The study reveals thatthe industrial location has the worst air quality comparedtothe residential location and a high concentration of PM_{10}, SO_2, and NO_2 was to be found during the winter season compared to monsoon and post-monsoon season. Industrial emissions, transport, road dust, domestic activities and various metrological parameters influenced the spatial and temporal variations of ambient air quality.The study suggested some tips for reducing ambient air pollution and creating public awareness regarding environmental pollution.

Keywords: Industrialization, PM_{10}, SO_2, NO_2, air quality, concentration, hazardous.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EO 03

Wind energy in India, potential, installed capacity of wind power, and their importance

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Abstract

The kinetic energy of the mass of moving air provides the source of wind power. With the help of a wind energy system, wind kinetic energy can be converted into useful mechanical or electrical energy. Wind turbines are used in wind electricity generation systems to convert wind energy to electricity. Wind farm/park is divided into onshore wind farms and offshore wind farms. Wind energy potential in India According to the most recent assessment, the country has a gross wind energy potential of 302 GW and 695 GW at 100 meters and 120 meters above ground level, respectively. The annualized electricity production from wind energy 2021-22 58127 Generation (MU). India wind projects. India's policies for wind energy National Wind-Solar Hybrid Policy 2018, the National Offshore Wind Energy Policy 2016, and the Policy for Repowering of the Wind Power Projects 2016. Wind energy is very important in India. Wind energy's potential to reduce pollution, High Wind Energy Potential of India, and Depleting non-renewable energy sources. In the medium of this review, the energy generated from wind in India, the rules of the Government of India in this field, and the importance and disadvantages of wind energy have been dealt with well.

Keywords: Wind energy in India, Potential, Installed capacity of wind power, Projects, and Policies in India

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EO 04

Evaluation of physio-chemical parameters of shipra river water, Ujjain, Madhya Pradesh, India

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HemChand Yadav University Durg Chhattisgarh, India
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Abstract:
The Shipra River also known as kshripra is a river of Madhya Pradesh state of central India. It is one of the sacred rivers in Hinduism .The holy city of Ujjain is situated on its east bank. This research article deals with the study of physiochemical quality of Shipra river water sample for the evaluation usefulness for agriculture, irrigation, aquaculture and domestic purposes. Analysis of various physicochemical characters like temperature, colour, odour, turbidity, alkanity,, total hardness, biological oxygen demand, chemical oxygen demand and comparing with the standard provide important criterion for suitability of water .

Keywords: Physio-chemical parameters, electrical conductivity, alkalify, total solid, hardness, Biological oxygen demand.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EO 05

Current Developments in field of Bioremediation of Heavy Metals in Chhattisgarh

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Abstract

Right from the partition of Chhattisgarh state from Madhya Pradesh, it has been working day and night to develop itself. In this struggle, various industries has been evolved in this newly formed state. The process of industrialization boosts economy as well as releases hazardous heavy metals in the environment. Various physical and physio-chemical methods are applied for removal of heavy metals from environment but having byproduct and high cost. In this review, we have discussed about the works being done to mitigate the harmful effect of heavy metals by with bioremediation from effluents. Some of the works have isolated fungi from water as well as soil of affected areas of Chhattisgarh. These fungi like *Aspergillussp* and *Penicilliumsp.*are capable of minimizing perilous heavy metals like Arsenic, Iron, Lead and Manganese. Various indigenous bacteria like *Klebsiella sp., Pseudomonas sp., Bacillus sp*and. *Serratia sp.* have been isolated showing bioremediation capacity against harmful heavy metals. They have been reported to successfully reduce the concentration of Calcium, Zinc, Cadmium, Iron, Copper, and Arsenic. These microbes need to be worked on, for maximum utilization of their competence.

Keywords: Chhattisgarh, Heavy Metals, Bioremediation, Fungi, Bacteria

First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code
EO 06

Scientific Contributions in Biosorption

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Abstract

The present compiled report is related with the renowned researchers in filed of Biosorption. These scientists are actively engaged in the finding of new biosorbents; enhancement of biosorption capacity; development of new strategies for the aqueous removal of heavy metals in better way. The hard works results in form of patents, high quality publication in form of books and research papers which gives a new and alternate way to control heavy metal pollution and the recovery of precious metals.

Keywords: Biosorption; Heavy metals; Microorganisms; Pre-treatment.

First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code
EO 07

Assessment of heavy metal toxicity in humans

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Abstract

Heavy metals have harmful effects on human health and increased anthropogenic, industrial, and agricultural activities as well as modern industrialization are the major causes of heavy metal exposure to the environment. Heavy metal contamination of water and air affects millions of people worldwide as it has negative impacts on human health. Heavy metal pollution in food is a problem for both human and animal health. The accumulation of heavy metals in the body's soft tissues in hazardous proportions is known as heavy metal toxicity. Depending on the amount of metal accumulating, different symptoms and physical findings are linked to heavy metal toxicity. In a low dose, several heavy metals, including zinc, copper, chromium, iron, and manganese, are necessary for physiological function. However, substantial harm might result if these metals accumulate in the body to the point where they become poisonous. Humans are exposed to varieties of heavy metals by various sources like air, water, food materials, *etc*. Heavy metals such as arsenic, lead, cadmium and mercury are most often linked to human toxicity which accumulated in the human's internal system and counteracts various metabolic processes. Free radicals produced by heavy metals contribute to oxidative stress and carcinogenesis by destroying lipids, proteins, and DNA molecules. The focus of this chapter is to report the latest findings and describe the mechanism, toxicity and amelioration of selected heavy metals *viz.* arsenic, mercury and lead, in humans along with their health effects.

Keywords: Heavy metal, Arsenic, Lead, Mercury, toxicity, amelioration

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EO 08

Bio-diesel-A renewable fuel

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Abstract
Biodiesel is a Slightly yellow in color, oily liquid with a slight aromatic odor and a bitter taste**.** It is a cleaner burning diesel replacement fuel, just like petroleum diesel, Biodiesel operates in compression ignition engine blends of up to 30% biodiesel can be used in nearly all diesel equipment & are compatible with most storage & distribution equipment. This low-level blend generally does not require any engine modification. Biodiesel can provide the same payload capacity & as diesel. Using Biodiesel in a conventional diesel engine sub-statically reduces the emission of hydrocarbon, carbon monoxide, sulfates, polycyclic aromatic hydrocarbon, nitrated polycyclic aromatic hydrocarbon, & particulate matter. This reduction increase as the amount of Biodiesel blended into diesel fuel increases. The best emissions reductions are seen with B100.The use of Biodiesel decreases the solid carbon fraction of particulate matter and reduces the sulfate fraction. While the soluble, or hydrocarbon, fraction stays the same or increases. Therefore, Biodiesel works well with new technologies such as diesel oxidation catalysts.

Keywords: Biodiesel-fatty acid alkyl esters

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EO 09

Biodiversity and Physiological Characteristics of some Microbes isolated from Rice mill and Oil Industry of Rajnandgaon

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Abstract

The study of diversity of microorganismsis an exiting filed of life science. In the present work physicochemical characteristics of rice mill and oil industry effluent have been studied and the presence of microorganism was recorded. As the rice mill and oil industry wastewater contains a huge amount of organic matter which provide a beneficial source for the growing of microbes. Some water pollution parameters are found higher than the permissible limit and microbes like *A. niger*, *C. lunata*, *Fusarium* sp., *P. chrysogenum*, *Pestatolopsis sp.* have been noted. The preliminary growth parameters like the necesscity and effect of temperature, pH, media, Uv have been also studied.

Keywords: *Aspergillus niger*, industrial effulent, Rajnandgaon, microbial growth

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EO 10

Solar Energy in India, Achievements, The Potential Of Solar Energy, and Their Importance

Sahdev[1, *], Narendra Kumar Sahu[2], Bharat Lal Sahu[3], Shobhana Ramteke[4], Satendra Kumar Induria[5], and Kaushal Kumar Sahu[6]

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Abstract

Solar energy, which is a great source of energy, is a major component of renewable energy sources. The sun is the most powerful energy source on the planet and also the one that people use the least. The sun is suitable for solar energy. This work is cost-effective and environmentally friendly. This does not cause any harm to the environment and other living beings. Solar power has achieved a solar power capacity of 750 GWp per year from 2017-18 to 2021-22 across all states and union territories of India. The same cumulative capacity was 48087.83 in 2021-22. Karnataka, Rajasthan, Telangana, Tamil Nadu, Andhra Pradesh, Gujarat, Madhya Pradesh, Maharashtra, Uttar Pradesh, and Punjab generate maximum cumulative capacity. Solar energy is very important for the environment and human life. In this review the potential, cumulative capacity of solar power installed, importance, disadvantages, challenges in scaling, initiatives of the government, and policies to promote solar energy in India are thoroughly explained.

Keywords: Solar energy in India, achievements, potential, importance, challenges, initiatives, and policies

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EP 01

An overview of Environmental protection laws in India

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Abstract

India Indian Constitution states that 'Man is both creature and molder of his environment, which gives him physical substance and affords him the opportunity for intellectual, moral, social and spiritual growth'. The Preamble of the United Nations Declaration on Human Environment was adopted in Stockholm in June 1972. India's environmental laws are a direct reflection of what was envisaged in the constitution. The need for protection and conservation of the environment and sustainable use of natural resources is reflected in the constitutional framework of India and also in the international commitments of India. Environment protection is mentioned in the Indian Constitution as part of Directive Principles of State Policy as well as Fundamental Duties. The detailed and developed framework for environmental protection came after the UN conference on Human Environment in Stockholm, in 1972. The government of India has made numerous acts to protect the environment and biodiversity.

Keywords: Environment, constitution, Protection, legal Framework

First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code
EP 02

Study of Avian Diversity in Paniyajob area of Dongargarh of Rajnandgaon District, Chhattisgarh, India

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Abstract

Six months study on the variety of bird species on the Dongargarhof Rajnandgaon was conducted from 5th of august 2022 to 10th January 2023. In all. Bird's species 9 different groups were identified throughout the study area of approximately 15 squarekm. Research location makes about 1% of the whole area of Dongargarh tahsil i.e.1044 km2, The research was split up into several sections including a pond, a forest, a crop field a vegetable field farm etc. The 7 bird species that were seen were all migratory, including Common koel, Greater flamingo, Common pochard etc. The common bird species were house crows, black drongos, blue rock pigeons, spotted owlet, common mynas, and jungle owlet. The abundance of trees in the research region may be a significant effect in the diversity of bird species.

Keywords: bird species, migratory birds, common birds, diversity.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EP 03

A Review on Minimize the effect of fluorosis using bioremediation methods

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Abstract

The high fluoride consumption from tainted water is the primary cause of high incidences of fluorosis. Fluoride levels in the urine serve as a marker for determining the risk of fluorosis. The preventive effects of fluoride in water are largely responsible for the drop in dental caries prevalence in the western world was assessed by dividing up the sources of pollutants using factor analysis. Between 60.4 and 84.3% of the respondents believed dental fluorosis to be a significant issue. By adjusting the pressure for the type of water being treated, drinking water can be produced directly using nanofiltration at a significantly cheaper cost than using reverse osmosis. The water is corrosive and contains significant amounts of dissolved inorganic carbon (DIC), dissolved organic carbon, and F^- (DOC). Between 4.6 and 62 mg/L of F^- were found in both human and animal urine. The effects of fluoride toxicity on fluorosis symptoms in research area humans and animals were looked at.which have caused the emergence of numerous health problems. Recommendations for household defluoridation as well as rationalising the distribution of defluoridated water included making it easier to collect rainwater and protecting available low fluoride surface water from chemical contamination.

Keywords:- fluorosis, nanofiltration, defluoridation, dissolved inorganic carbon, dissolved organic carbon.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EP 04

Ecosystem of India, functions, biogeographic regions and importance

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Abstract
The ecosystem is essential for environmental balance. The ever-increasing population and exploitation of nature affect the ecosystem and affects the environment. Organic compounds include production, consumers, and decomposition, abiotic components include rain, temperature, light, wind, humidity, etc., and edaphic factors include soil, pH, topographic minerals, etc. The functions of an ecosystem are the food chain consisting of producers, consumers - Primary, Secondary, and Tertiary consumers, and decomposers. Likewise the food web. There are two types of ecotourism, terrestrial and aquatic ecology. Terrestrial ecosystems include forests, grasslands, deserts, and tundra ecosystems. Similarly, the aquatic ecosystem has marine and freshwater ecology. There are ten biogeographic resins in India's Trans-Himalayan Region, Himalayas, Indian Desert, Semi-arid areas, Western Ghats, Deccan Peninsula, Gangetic Plains, Northeast India, Coastal Region, Andaman, and Nicobar Islands that are well discussed in this review and in this review, and the importance of the ecosystem and the human impact is thoroughly discussed in this review.

Keywords*:* Ecosystem, biotic and abiotic components, structure, functions, types, biogeographic regions in India

First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code
EP 05

Relevance of Environment Protection Act in present perspective

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Abstract

The problem of environmental protection is one of the most pressing challenges facing the world today. Today the entire human race is grateful to it, not only the entire human race but also the entire environment is distressed by the pollution. The meaning of environmental protection is to preserve the environment around us in which we are born, grow up and live, make it suitable for life. The concept of environmental protection in Indian thought is as old as it is for mankind and Caste History. Nature and natural powers have been justified by Indian sages, by linking fire, sky and earth with reverence and regular activities, environmental protection and enrichment should be maintained. The environmental problem in India was very bad from 1947 to 1995. In order to improve it, the Environmental Protection Act Shivna is playing a role in environmental protection and promotion. In the Indian constitution implemented in 1950, there was no strong provision related to environmental protection, possibly the three environmental problems facing the country were not imagined by the constitution makers, increase industrialization after Srin Tantra, women's population intelligence and the reason for the environment. There was a continuous decrease in the quality. In order to make environmental protection a constitutional, mandate for effective control in this lack of environmental quality, Article 21 considered the right to pollution-free public environment and air as a guaranteed right. A clean environment has been declared a human right by the United Nations. Article 48 (a) of the Constitution: It is the duty of the State to take appropriate steps towards environmental protection and protection of forests and wild animals. Article 51 A (g) It is the duty of every citizen of India to protect and promote the natural environment including forests, lakes, rivers and wildlife and to have compassion for all living beings. From time to time, the Parliament of India has also made rules and regulations, which are as follows for environmental protection: Indian Forest Act, 1927, Water (Prevention and Control of Pollution) Act, 1981 (amended in 1988), Environmental Protection Act, 1988, National Environment Policy, 2004, Forest Rights Act, 2006. And the ban on polythene and single-use plastics. Apart from this, according to the social, economic and political conditions, environmental issues have been brought up by the courts, whether the environmental quality of India is improving, if yes, how much.

Keywords: National Environmental Policy, environmental protection, Environmental Protection Act

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EP 06

Hydrogen: future aspect in fuel

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Abstract

Hydrogen is a next generation resource of powerful fuel, is the most plentiful element in the universe. Future economy source also changes by uses of hydrogen economy. It can produce emission free in transport sector. Energy consumption of hydrogen is almost solved future fuel problem. Hydrogen storage and Transportation is an issue of intense research due to its low density. Stability and cost are the main challenges in commercial market but zero emission could be the most attractive aspect.

Keywords: Hydrogen, Hydrogen economy, Emission free, Future aspect

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EP 07

Green Synthesis of Graphene Quantum Dots for the removal of water effluents and its characteristics Analysis.

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Abstract:

The synthetic dyes, pharmaceutical waste product, sewage and large amount of chemicals discharge from other industries contaminate the water bodies very badly, which affects the aquatic environment as well as human health. The continuous discharge of these effluents make water very toxic. Hence the contaminated water should be effectively treated using Eco-Friendly material to decrease the negative consequences on the environment. The objective of our study is to remove Hazardous chemical effluents from contaminated wastewater. Thus we are introducing an Eco-Friendly material Graphene Quantum Dots (GQDs), which are synthesized by green method and are more promising for wastewater treatment, as they show great efficiency to eliminate water pollutants like dyes, drugs, and other organic effluents by adsorption method.

Keywords: Graphene quantum dots, water effluents, adsorption, pharmaceutical waste, synthetic dyes.

First International Conference on
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Paper Code
EP 08

Assessment of groundwater quality and fluoride contamination in groundwater of Gariyaband district, Chhattisgarh, India

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Abstract:

Groundwater is one of the most valuable natural resources of Chhattisgarh. The quality of groundwater is the most important aspects for sustainable development of social and economic life. Most of the villages of gariyaband districtpopulation rely on groundwater for especially drinking purposes. For this reason,thirty-two groundwater samples were collected, 22 physico-chemical parameters including F- were analysed from various locations of gariyaband district.These parameters have been compared with the standard guideline values as recommended by the WHO for drinking and public health. The abundance of major ions in groundwater is in the following order: Mg^{2+}> Ca^{2+}>Na^{+} = K^{+}>CO_3^{2-} = HCO_3^{-}> SO_4^{2-}> Cl^{-}. The range of fluoride concentration is 0.9–6.2 mg/l and pH of groundwater is from 5.6 to 7.3. The general dominance of cations were in the order of Mg^{2+}> Na^{+}> Ca^{2+}> K^{+}, while dominance of anions were in order of Cl^{-}> HCO_3^{-}> CO_3^{2-}> SO_4^{2-}> F^{-}> NO_3^{-}.Fluoride shows a significant positive correlation with Cl^{-} (r = 0.53), TH(r = 0.67), Mg^{2+}(r = 0.68), Fe^{2+}(r = 0.61).

Keywords: Groundwater chemistry, Fluoride enrichment, Correlation, Gariyaband, Chhattisgarh

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EP 09

Spectrophotometric determination of widely used antibiotic in agriculture

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Abstract

A simple, sensitive spectrophotometric method is proposed for the determination of trace amount of streptomycin. The absorbance was monitored at the maximum wavelength of 430 nm. In the optimized experimental conditions, streptomycin was determined in range of 0.5 – 4.0µgmL^{-1}. Sandal's sensitivity and molar absorptivity were found to be 0.900×10^{-4} µg cm^{-2} and 1.780×10^{6} Lmol^{-1}cm^{-1} respectively. The proposed method was applied satisfactorily for the determination of streptomycin in water and different soil samples. The results were compared with those obtained by reference method and were found to be in agreement.

Keywords – Spectrophotometric, Antibiotics, Streptomycin,

First International Conference on
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Paper Code
EP 10

Laws relating to Environment in India

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Abstract

This paper deals with the laws made by the parliament of India with respect to Environment. The author in this paper also highlights the issues relating to environment and the implementation of law. Presently environment is global serious issue and most of the international organization are making their efforts for the protection of environment and also with the help of conventions, conferences, treaties are signed for the same. In India the legislative body also made various act for the protection of environment. Environmental degradation in India has been caused by a variety of social, economic, institutional and technological factors. Rapidly growing population, urbanization and industrial activities have all resulted in considerable deterioration in the quality and sustainability of the environment. Environmental ethics have also formed an inherent part of Indian religious precepts and philosophy. The author in this paper also deals the role of judiciary for the protection of environment. There are so many institution has been formed by the government for proper implementation of the laws. this paper also include the landmark judgment pronounced by the Hon'ble Supreme Court, High Court and other judicial bodies.

In considering the role of the judiciary in environmental governance, there are two issues that need to be considered. The first is the role the judiciary in the interpretation of environmental law and in law making and the second is the capability of jurists to effectively interpret the increasingly cross-linked issues brought to their attention.

Key words - Environment, Supreme Court, High court, Judiciary, International Organization, Judgment, Environmental ethics.

First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code
EP 11

On the response of the climate system to solar energy

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Abstract

The response of the climate to changes in radioactive forcing depends crucially on climate feedback processes, resulting in similar response patterns of solar and greenhouse gases in the troposphere. This fact greatly complicates the explanation of the causes of climate change. In addition, there is much unforced internal variability in the climate system, and significant fluctuations in climate in many parts of the world are due to internal processes. Such internal regimes significantly influence the variability of the climate system on different time scales and thus compete with external forcing in explaining the occurrence of past climate extremes. This highlights the need for independent solar observations, including long-term coherent observational data of total and spectrally resolved solar radiation. The response of the stratosphere to solar energy is different from its response to greenhouse gases, suggesting that stratospheric observations may be the best target for solar effects on climate.

Keywords: solar energy; climate extremes; stratosphere

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EP 12

Potential of fly ash in the acidic soil on chickpea crop

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Abstract

Chick peas are cold season food, It is a winter season crop. Nature of soil is affected the growth of plants. Production of crops is also depended upon the nature of soil. This work was carried done in the winter season in between the month of November 2020 to March 2020, with the successive addition of fly ash in the acidic soil, It seen that the yielding of chickpea crop is increased due to the alkaline nature of fly ash, pH of acidic soil has increased the addition of fly ash. fly ash provide the micro and macro nutrients to the soil for the growth of chickpea plant, plant hormones are used during the experiment, which are play as important role in the growth of plants.

Keywords: Acidic Soil, Chickpea, Fly ash, Plant Hormones, NPK, Plant Growth.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EP 13

Screening of laccase-producing endophytic fungi from various paper mill industrial effluents

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Abstract
Numerous phenolic and non-phenolic compounds are broken down by the enzyme laccase (p-diphenol oxidoreductase, EC 1.10.3.2). Fungi, higher plants, microbes, and insects all contain laccase enzymes with differing catalytic activities. Laccase is found in Deuteromycetes, Ascomycetes, Basidiomycetes, and numerous white-rot fungi. This study describes the isolation and screening of laccase-producing endophytic fungi from **different plant leaves most frequently observed in paper mill industrial effluents from Raipur and Dongargaon (Chhattisgarh).** Forty-four endophytic fungi were isolated from plant leaves on Potato Dextrose Agar (PDA). The result of screening laccase-producing isolates by the qualitative agar plate method employing Guaiacol showed that of all the endophytes isolated only nine distinct endophytes produced laccase, as indicated by the production of an intense brown colour under and around the fungal colony. The results also showed that out of nine laccase-producing colonies, three produced a maximum zone. Three isolates were identified by conventional and molecular methods (18S rDNA sequencing). Based on the molecular characterization, the maximum laccase producing isolates were identified as endophyte A *(Aspergillus parasiticus*), endophyte C (*Aspergillus turcosus)*, and endophyte B (*Aspergillus oryzae)*. The novel and potent laccase-producing endophytic fungus was successfully isolated, which may be used as a promising laccase-producing source for various industrial purposes. The cost-free treatment of industrial waste is economically appealing. It can also be used to create biosensors for the same purpose.

Keyword: Laccase, Endophytic fungi, Guaiacol, Industrial effluents, Paper Mill.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EP 14

Evaluation of physio-chemical quality of tap water in Bilaspur district

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ABSTRACT:

Present investigations aims to analyse the tap water quality of Bilaspur district by water quality index. Eight physio-chemical parameters such as Calcium, Magnesium, Chlorine, total hardness, pH, Electrical conductivity, TDS, Turbidity and also bacterial contamination. Out of total parameters studies , 80% water samples were bring into being good quality and only 20% of water trials falls under temperately poor category. Therefore, prerequisite treatment of drinking water can be done before usage and also the study area has to be protected from anthropogenic contamination.

Keywords: Physico-chemical, water treatment, tap water, good, quality, contamination.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EP 15

Premonsoon Assesment of Arpa River Water Qualities at Bilaspur and Its Joining Areas

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Abstract

Water is natural gift of the earth planet, 79% of this blue planet is occupied by the Water and remaining 21% is terrestrial areas. Water is occur in liquid form in sea, oceans, river, open ponds, Lagoons and as ground water sources, open well, dug well hand pumps (human operated) tube well (electric current operated). The Arpa river is flow through middle part of Bilaspur city and continue received the domestic sewage, industrial wests, Agricultural runoff and dumping of solid wests .In keeping of this reason, we have taken comprehensive study in prospective of physico- chemical and some selected heavy metallic elements point-view. We have selected 31 water qualities parameters and analyzed the collected water samples in premansoon session (April-May-2022) by using standard methods. The finding results were compared with the standard values prescribed by the water quality monitoring agency BIS (2012) and WHO (2011) .The procured results of the total alkalinity (>250 mgL Nitrate (83.09 mgL1) Fluoride (1.553 mgL"). TDS (560 ppm), Turbidity (> 5NTU), were procured beyond from the upper bound level .There experimental values are indicating the Arpa river water is not safe for pollution point of view. These are need to purification before use, for human development purpose.

Keywords: Pollution, Industrial wests, premansoon, river.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EP 16

A bionano material made from lignocellulosicbiomass :Nano cellulose

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Abstract

Advances in nanotechnology play crucial role for the paper industry's goal of high quality, efficiency, and market potential. A natural biopolymer composed of lignocellulosic biomass is composed of cellulose fibers embedded in a matrix of lignin and hemicellulose. Nano crystalline cellulose, a renewable, recyclable, and abundant nano material derived from lignocellulosic biomass, is one of the most important nanomaterials for our paper industry. Nanotechnology is currently utilized by the paper industry in two ways: to make new products, improve existing ones, and learn how cellulose fibers can be used in products outside of the industry. The molecular structure of biomass recalcitrance, or the chemically reengineering of lignocellulosic biomass into nanocellulose, is the subject of our discussion in this paper.

Keywords: Nanocellulose, Lignocellulosic biomass, cellulose, hemicellulose, lignin

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code EP 17

Calocybe indica a good Biosorbent for the removal of heavy metal Iron

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Abstract

Various health issues are the cause of presence of heavy metals in the drinking water. Lead, Copper, Zinc, Cobalt, Nickel, Chromium, Manganese, Iron, and Aluminium are some heavy metals. Environmental pollution and various human diseases are the drawbacks of these heavy metals. The higher concentration of iron causes the roughness of skin, weakness of teeth and nails , stickiness of hair are the various other side effects. In particular this study evaluates the Biosorption efficiency of the Spent Mushroom Substrate of *Calocybe indica* for removing the heavy metal Iron from some Contaminated Water Samples. To treat heavy metal ions from contaminated water electrochemical treatment, evaporative recovery, oxidation, conventional metal removal, filtration, coagulation, membrane separation technologies can also be used. However these technologies are high cost technologies which can not be used without substantial financial input.

These result shows that the removal of significant amount of heavy metal Iron from contaminated water, SMS of Calocybe indica has proven to be very cost effective alternative. With increasing time exposure heavy metal concentration decreased in the acidic water sample with pH of 5.5, basic water sample with pH of 8.5, and the untreated contaminated water sample with pH of 7.4 with treating 1gm of SMS with various incubation times.

***Keywords**:* heavy metals; bioremediation; Spent Mushroom Substrate; *Calocybe indica*; biosorption

First International Conference on
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Paper Code
EP 18

Impact of climate change on Earth and Environmental sustainability: Current Issues

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Abstract

Nature itself is a **God**, under whose protection we live in the earth. Some of us have very close relationship with the nature and they are great observers of the natural environment due to their ultimate reliance on it. They depend on nature for their economic, cultural and social subsequent ways of life. They worship the trees, serpents and many other species of the plants and the animals on many occasions as their life-saving Gods. But most of us have damaged the nature for our self-interest in the name of development. We are cutting trees in the forest and road-side tress to broaden the roads, converting farming-fields into colonies and industries, digging the hills and mountain for ore materials. Consequently the climate is changing rapidly. Due to this glob is warming, snow of glacier is melting, hills and mountains are falling and it is not only threatening to the native people, it is threatening to the tourists, fishers, hunters as well. Apart from this many parts of the world are facing earthquake, deluge, wildfire, drought and numbers of species of plants and animals have gone extinct due to the climate change i.e. these are the man-made natural disaster and men have made nature and its beauty unshaped. Sinking of Joshimath, which is in Chamoli District in the Indian state of Uttarakhand, is the current example of it. The climate change has become a global concern over the last few decades. Human mistakes have caused great damage to the climate and ecosystem.Now, the time has come for each and every people have to rise and join hands together to save the nature and to undo the things what have been made to it. There is a need to go door to door to make people aware of climate change and its consequences. It's our collective responsibility to save and care after the nature, this is only way that the coming generation could see the beauty of nature and live peacefully in the courtyard of the nature.

Keywords: climate and ecosystem, hills and mountains, snow of glacier, wildfire etc.

Abstracts of Presenters

Theme C: Life Science

First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code LP 01

Antidandruff Property of Different Formulation: A Comparative Study

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Abstract

Dandruff is a common skin disorder characterized by the presence of flaky, white or grey skin on the scalp and in the hair. If the flakes are falling from your head, they will most likely land on your shoulders, where they will be readily apparent. A dry, itchy scalp is another possible side effect. Although dandruff has no health risks, it can be an annoyance and a challenge to treat. Though impossible to completely eradicate, dandruff can be managed with the right approach. Many different anti-fungal compounds included in hair care products are used during the dandruff treatment process. Hair thinning, increased scaling and scratching, pain, nausea, and headaches are only some of the negative reactions to these medications. This essay aims to compare the anti-dandruff properties of commercial shampoos to those of our own herbal compositions.

Keywords: Dandruff, Herbal Anti-dandruff Shampoo,

First International Conference on
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Paper Code LP 02

Possible Association of Hyponatremia, Hypochromia, and Microcytosis in Sickle Cell Patients from Chhattisgarh Could Be The Most Determining Factor For Less Severe Clinical Presentation.

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Abstract

Clinical presentation of sickle cell disease (SCD) in India shows reduced episodes of crisis and severity unlike those reported elsewhere. Sickle hemoglobin (HbS) polymerizes upon deoxygenation, causing RBC dehydration and consequently increasing corpuscular hemoglobin concentration, which in turn accelerates more HbS polymerization precipitating crisis episodes. Any factor affecting reduced hemoglobin synthesis or changes in low serum osmolality may affect disease outcomes by altering cellular hemoglobin concentration. The aim of this study was to elucidate the peculiar disease presentation by evaluating hematological and blood electrolyte alterations in SCD patients from Chhattisgarh, central India.

Methods:- For the present study 100 SCD, 100 traits, and 100 normal were selected from CG, India. Genotypes were determined by Hb variant HPLC. Hematological and biochemical tests were performed using an auto-analyzer.

Results:- Mean MCV and MCHC in the SCD group were significantly lowered compared to the control and trait. A significant level of serum sodium and potassium level (125.6±3.4 and 3.2±0.86 mEq/l respectively) were observed in the SCD group compared to the control and trait (137.4±3.25, 4±0.37 and 134.0±5, 3.7±0.84mEq/l respectively), ($p<0.001$). Patients in stable and crisis states do not show any significant difference in serum sodium and potassium level.

Interpretation and Conclusion:- Hyponatremia in the SCD study group might rehydrate RBC and could be an additional contributing factor along with increasedHbF response and co-existing microcytic anemia for fewer vaso-occlusive episodes in this geographical region.The mechanism and significance of simultaneous Hyponatremia and hypokalaemia as well as hypochromic microcytic anemia, the unusual finding in the SCD study population, need to be elucidated further in the future study.

Keywords

First International Conference on
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Paper Code LP 03

Morphological Characteristics of some fungi isolated from Industrial Waste Environment

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Abstract

The present study reports morphological as well as microscopic characteristics of some fungi isolated from the industrial effluent of some industries located in the Raipur. These industries belong to the irone casting, manufacturing, petrochemicals, etc. The fungi were isolated from the wastewater sample and its characteristics are noted. A number of fungi were isolated and studied, in which species of *Aspergillus* were dominant.

Keywords : Industrial wastewater, Fungal biodiversity, microscopic characteristics, Raipur

First International Conference on
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Paper Code LP 04

Current trends of Microbial pigments: Production, Characteristics and Applications

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Abstract

Microbial pigments are coloured organic and hydrophobic chemicals. Due to their biodegradable and eco-friendly nature they are utilized in various fields such as textile, food, pharmaceuticals, and cosmetics sector. Chromatographic techniques are utilized for their separation and analysis is generally performed by FTIR, Mass spectrometry and NMR method. Chemically they can be carotenoids, melanins, flavins, quinones, monascins, violacein, phycocyanin or indigo. They exhibit stability at acidic to neutral pH and moderate to high temperature. Efforts are made to produce them cost effective by using different agro-industrial wastes such as wheat bran, corn bran and potato pomace etc. They can be extracted using sonication, homogenization, high pressure, supercritical CO2 extraction, enzymatic extraction methods. Due to their ease of blood-brain barrier penetration, microbial pigments are advantageous as therapeutic agents. For instance astaxanthin can be utilized in Alzhimer and Parkinsons disease. Though the microbial pigments are biodegradable and eco-friendly but more research should be carried out in the toxicological studies so that they can be used safely for human consumption.

Keywords: Microbial pigments, low cost production, Applications of microbial pigments.

First International Conference on
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Paper Code LP 06

Endophytic fungal diversity of *Butea monosperma* (Lam.) Taub. (Red flower) and *Butea monosperma* var. Lutea (Yellow flower)

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Abstract

Endophytes are microorganisms that, live within plants without creating any symptoms of illness in the host plant. Even though endophytes have garnered a lot of attention over the past few decades, there are still a lot of questions that need to be answered about the patterns in their biodiversity on sizes ranging from local to global. The present study involves diversity of the endophytic fungal community from two variety of *Butea monosperma* (common Red and rare Yellow) inhabiting in district Durg and Rajnandgaon in winter and summer seasons. Colonization frequency of endophytes was found to be higher in winter seasons. Among all *Alternariatenuissima*, *Phomaglomerata*, *Culuvularialunata* and *Alternaria alternata* genus was found more dominant.

Keywords: Endophytes, Diversity, Colonization, *Butea monosperma.*

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LP 07

Biochemical and Biotechnological study of some microbes isolated from Rice mill and Oil Industry of Rajnandgaon

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Abstract

The present study is a report of biochemical and biotechnological product-based ability of some microbial population present in the rice mill and oil industry effluent. The effluent of both type of industry contains a lot of organic waste favourable for the growth of microbes. The utilization of these organic waste is achieved by some enzymes produced from microbes therefore the microbes are known as potential for production of such enzymes as well as degradation of organic waste. The microbes were isolated from both type of industries and its potency like production of enzymes; alcohols; acids; pigment and tolerance against xenobiotic compounds, heavy metals have been studied. The isolated microbes were found potential and able to produce various biochemical products and found tolerance to pollutants.

Keywords: Amylase; Cellulase; Citric acid; Industrial effluent; Rajnandgaon

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LP 05

Morphological Feature and Traditional Camera Lucida drawing of some Endophytic Fungi isolated from *Shorearobusta* and *Terminalia bellirica* located in Achanakmar-Amarkantak Biosphere Reserve (ABR) India

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Abstract

The present investigation is based on microscopic and growth feature of some endophytic fungi isolated from Sal (*Shoriarobusta*) and Bahera (*Terminalia bellerica*) tree species growing abundantly in ABR. Growth rate, front and back colour have been noted and hand drawing lucida have been prepared.

Keywords: Achanakmar-Amarkantak Biosphere ReserveEndophytic fungi, *Shoriarobusta, Terminalia bellerica.*

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Paper Code LP 08

Fabrication and characterization of lignin-agar based bioactive porous scaffold for biomedical application

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Abstract

In the present research work, lignin-agar based porous scaffolds were fabricated via freeze-drying methods. Lignin was blended with agar in different ratios and cross-linked with calcium chloride. The physicochemical properties of the fabricated agar scaffolds (SA) and Lignin-agar scaffold (LA) were studied. The porosity of LA scaffolds was about 90% and the swelling percentage was ranged from 543 to 1253%. In-vitro biodegradation study in phosphate buffer revealed that SA and LA scaffolds were not displayed any significant weight loss and found quite stable in buffer medium. Scanning electron microscopy study revealed the porous nature of scaffolds with hexagonal shaped pores. Further, FTIR analysis was confirmed that phenolic groups of lignin reacted with the hydroxyl group of agar. The silver nanoparticle was also incorporated with a scaffold to impart antimicrobial property in it. The study suggested that fabricated scaffolds might have the potential for use as a bioactive scaffold in biomedical applications owing to their porous, biodegradable, and good physicochemical properties. Further, its biocompatibility and in-vitro cell growth proliferation and differentiation studies are under progress.

Keywords: Agar; Lignin; Silver nanoparticle; Antimicrobial activity

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LP 09

Evaluation of Physio-Chemical Quality of Tap Water in Bilaspur District

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Abstract

Present investigations aims to analyse the tap water quality of Bilaspur district by water quality index. Eight physio-chemical parameters such as Calcium, Magnesium, Chlorine, total hardness, pH, Electrical conductivity, TDS, Turbidity and also bacterial contamination. Out of total parameters studies , 80% water samples were bring into being good quality and only 20% of water trials falls under temperately poor category. Therefore, prerequisite treatment of drinking water can be done before usage and also the study area has to be protected from anthropogenic contamination.

Keywords: Physico-chemical, water treatment, tap water, good, quality, contamination.

First International Conference on
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Paper Code
LP 10

Evaluation of Physio-Chemical Parameters of Shipra River Water ,Ujjain, Madhya Pradesh, INDIA

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Abstract

The Shipra River also known as kshripra is a river of Madhya Pradesh state of central India. It is one of the sacred rivers in Hinduism .The holy city of Ujjain is situated on its east bank. This research article deals with the study of physiochemical quality of Shipra river water sample for the evaluation usefulness for agriculture, irrigation, aquaculture and domestic purposes. Analysis of various physicochemical characters like temperature, colour, odour, turbidity, alkanity,, total hardness, biological oxygen demand, chemical oxygen demand and comparing with the standard provide important criterion for suitability of water .

Keywords: Physio-chemical parameters, electrical conductivity, alkalify, total solid, hardness, Biological oxygen demand.

First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code LP 11

Study of Avian Faunal Diversity in Cropland of Durg District, India

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Abstract

In Chhattisgarh, most of the agricultural lands are covered with crops and shrubs as compared to other natural lands where trees are found. Birds found in these areas are characteristic of cropland habitat. The present study was conducted for assessing the relationship between the habitat of the cropland area and the species richness of the avifaunal community in the Durg district (21.1904° N, 81.2849° E). The survey was done by the point count method from June 2021 to November 2021. Birds have been classified based on their Residential Status and Abundance. Biodiversity has been measured by the Shannon Diversity Index, Simpson Index, Evenness/Equitability Index, and Species Richness. Through this study a total of 47 species of birds are identified out of which 36 are Resident, 09 are Local Migrants, and 02 are Winter Migrants. According to the abundance study of birds, 15 species are Abundant, 17 species are Common and 15 species are Rare.

Keywords: *Avian fauna diversity, Bird, Dhanora, Durg district, Residential Status, Migrants, Cropland.*

Diversity of Macrophytes in Selected Sites of Durg, Chhattisgarh

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Abstract

The aquatic macrophyte species play a fundamental role in their ecosystems and also regulate biogeochemical cycles. Macrophytes can be used as a phytoremediator. The purpose of the study was to assess and evaluate the composition and diversity of macrophyte species at selected sites in Durg, Chhattisgarh. The sampling sites were located near the industrial area, which is considered to be between 21°14’15.108"N latitude and 81°24’23.94"E longitude, to 21°18’38.1"N latitude and 81°18’24.372"E longitude. In this study, for the determination of the diversity of a specific area, the quadrat sampling method was used. The aquatic vegetation was identified by the Botanical Survey of India. The vegetation at the study location consisted of 22 species of aquatic macrophytes belonging to 16 different families. The most abundant aquatic macrophyte is *Eichornia crassipes, Ludwigia adscendens, Typha latifolia, Polygonum persicaria, Hydrilla verticillata, and Ipomoea aquatica.*

Keywords: Macrophytes, Diversity, Aquatic plant**,** Wetland

First International Conference on
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Paper Code LP 15

Dust Mites Diversity: An Article

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Abstract

Allergens produced by house dust mites are known to induce sensitization in susceptible subjects and sensitization in turn is associated with the development of allergic asthma. In addition, exposure to house dust mite allergens is an established risk factor for allergic asthma flare-ups. Most of the species are found in India. About 30,000 known species of mites are soil dwellers. Further investigation of house dust mites revealed different groups of mites like animal mite, cat mite, rat mite, pig mite, cattle mite, poultry mite, parasitic mites, etc. Mites are the oldest of all terrestrial animals with fossils known from the early Devonian, about 400 million years ago. Some are terrestrial, and some are aquatic, adopting a partially or fully parasitic lifestyle, some being free-living with veterinary importance.

Keywords: Dust Mites, Allergic, Sensitization, Species, Significance.

First International Conference on
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Paper Code LP 14

Protein Oxidation in dehydrating Jamun (*Syzygium cuminii*) Seeds

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Abstract

We investigated the storage behaviour of Jamun (*Syzygium cuminii*) seeds, a very popular tree valued for medicinal uses, seeds are shed from the plant with a relatively high moisture content(49.78%) or water content ($0.93gH_2Og^{-1}$ DM) . The freshly plucked seeds exhibited 100% germination but fast loss of germinability (within a short period of 30 days during storage under ambient conditions) was discernible as the seeds desiccated from 49.78% to 20% MC or $0.93gH_2Og^{-1}$ DM to $0.23gH_2Og^{-1}$ DM WC. The loss of percent germination was strongly correlated with the loss of water content during the period of storage. Dehydration mediated decline in seed viability and vigor was negatively associated with accumulation of reactive oxygen species (ROS, like superoxide radical and hydrogen peroxide). In dehydrating seeds, excess amounts of ROS mediated cellular damage by oxidizing lipids and protein biomolecules.

Keywords: Reactive oxygen species, Carbonylated protein, *Syzygium cuminii*

First International Conference on
Role of Applied Sciences in Social Implications (IC-RASSI-2023)

Paper Code LP 16

Isolation And Identification Of Endophytic Bacteria And Its Importance In Nitrogen Fixation

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Abstract

Generally, most of the rhizobial species are endophytes and colonize intracellularly for root growth promotion (Mus*et al.*, 2016). Rhizobia can promote plant growth by both direct and indirect methods (Gopalakrishnan*et al.*, 2015).Rhizobium plays an important role in agriculture by including nitrogen-fixing nodules on the roots of legume plants. The present study describes the physiological and biochemical characterization of Rhizobium species isolated from root nodules of Pea plant. Microscopic examination of *Rhizhobium sp*. Was done it is rod shaped, gram negative acid and mucous producing. It utilizes starch as sole carbon source. Yellow slants and red butt was obtained showing the utilization of glucose and sucrose in the triple sugar ion agar medium. Rhizobial cells were able to grow on the urease media showing the utilization of urea as source by the Rhizobium sp. It was unable to hydrolysis the gelatinase activity. The effect of Rhizobium inoculums as biofertilizer with manure, chemical fertilizer and charcoal fertilizers. Strains of the Rhizobium genera are the most well-known nitrogen fixing bacteria, which when co-inoculated in soil with manure can improve growth plants.

Keywords: *Rhizobium sp.*, Pea Plant, Characterization, Biofertilizer.

First International Conference on
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Paper Code LP 12

In-silico Molecular Docking of some bioactive compounds of *Costus Speciosus* (Koen ex. Retz.) Sm.

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Abstract

Costus speciosus (Koen ex. Retz.) Sm. is an important medicinal plant widely used in several indigenous systems of medicine for the treatment of various ailments. The present study was attempted to detect potential interaction of phytoconstituents present in *Costus speciosus* (Koen ex. Retz.) Sm. with protein targets involved in Diabetes mellitus and anti-oxidant properties. *C. speciosus* comprises of many potent bioactive compounds, out of which three *viz.*, Costunolide, Diosgenin and Eremanthin were opted for *in-silico* study, to determine their activity as antioxidants and anti-diabetic agents. Molecular docking was carried out against three antioxidant target proteins (GPx, CAT and SOD) and four target proteins involved in Diabetes mellitus (AR, IR, DPP-IV and PTP-beta). The docking interaction between the phytochemicals and their potential protein targets was carried out by using AutoDock Vina software, and for visualization PyMol and Discovery Studio Visualizer 2.0 were used. Out of the three compounds, Diosgenin showed higher binding affinity against target proteins and can thus be considered as a potent agent for drug development.

Keywords: *Costus speciosus*, phytochemicals, Costunolide, Diosgenin, Eremanthin, Molecular docking.

First International Conference on
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Paper Code LP 18

Potassium Solubilizing Bacteriaas Biofertilizer

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Abstract

Potassium solubilizing bacteria (KSB) which have the capacity to solubilize potassium and provide it to plants in available form because plants need potassium for their growth and development, can be used as biofertilizers for efficient effects on crop species. Many Bacteria such as *Bacillus subtilis, Pseudomonas nitroreducens*and*Burkholderiacepacia*, are capable to solubilize the fixed form of mineral potassium into the soil solution called potassium solubilizing bacteria (KSB). There is much research that has been showing the result of KSB as a biofertilizer with different growth-promoting effects on crop species such as root and shoot length, leaf count, chlorophyll content, nutrient uptake, etc.

Keywords: Bacteria, Potassium, Biofertilizer, Crops.

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Paper Code LP 17

Bioethanol production from rice straw

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Abstract

Rice straw is a by-product of rice production and great bioresource. It is one of the most abundant lignocellulosic waste materials in the world. Rice straw predominantly contains cellulose 32–47%, hemicelluloses 19–27%, lignin 5–24% and ashes 18.8%. The pentoses are dominant in hemicelluloses which contains xylose. Xylose is the most important sugar followed by arabinose and hexoses. The carbohydrate of rice straw involves glucose 41–43.4%, xylose 14.8–20.2%, arabinose 2.7–4.5%, mannose 1.8% and galactose 0.4%. Rice is main food in Asian countries and generates huge number of residues (rice straw) in the fields and India is second in rice production after China. Disposal of the residues by burning is no longer an acceptable practice in India. The demand for bioethanol has been growing largely worldwide due to its use as biofuel. Rice straw can potentially produce 205 billion liters of bioethanol per year in the world, which is about 5% of total of consumption. In this present study an attempt has been made for production of bioethanol in the most conventional way without the addition of expensive enzyme, merely by bioconversion of the rice straw residues. The residues were pretreated with 1% sulfuric acid and then subjected to fermentation using Yeast (*Sacchromyces cerevisiae*) for the production of ethanol. The preliminary results of the fermentation product demonstrated the presence of ethanol which was confirmed by the Potassium Dichromate and Acetyl Chloride Test.

Keywords: Rice straw, India, *Saccharomyces cerevisiae*

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Paper Code LP 19

Elevated Temperature Tolerance Mechanism In Rhizobacteria And Their Plant Growth Promotional Studies.

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Abstract

Exopolysaccharides (EPS) and protein production are modified in response to environmental changes and are believed to protect bacteria. In the present study, a thermotolerant plant growth-promoting bacteria was exposed to stress such as temperature to test its ability to tolerate the temperature stress and produce EPS. The isolate could tolerate temperature stress up to 43 °C and produced EPS, which increased with an increase in stress levels. Among all temperature stress conditions (30°C, 37°C, 43°C, 45°C, and 50°C), the production was high under 43°C. Thin layer chromatography was used to detect isolated EPS under stress and non-stress conditions, and HPLC analysis revealed that the sugar composition of EPS under stress might induce thermal tolerance in the bacteria. The sugars in the sample were measured by comparing the HPLC curves for the samples with the standards: trehalose, glucose/dextrose, mannitol, fructose, sucrose, and arabinose (10 mg/ml). Further detection by PCR for the presence of the 16S gene revealed the presence of the 1500 bp gene in the bacteria. Further identification of bacteria has been done through BLAST, which revealed a 100% match with *Barkholderia vietnamiensis* strain BPB-28. Lysis of the isolate for bacterial protein detection under temperature stress and normal conditions shows 34.35 ug/ml and 34.05 ug/ml, respectively. Plant studies with inoculated bacteria show enhanced root and shoot length and dry biomass as well as chlorophyll, RWC, amino acids, and sugar content. The significance of these findings shows that abiotic stresses influence the EPS and protein composition in plant growth-promoting bacteria, which influence the tolerance of the microorganisms that can be employed for improvement.

Keywords: Exopolysaccharide, Thermotolerant, Abiotic stress, Protein, Microorganism, Biomass, Temperature.

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Paper Code LP 20

Diversity of Medicinal Plant on Gariaband District

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Abstract

Gariaband district of Chhattisgarh state in India with 111,614 population.The famous Udanti wildlife sanctuary is also located in Gariaband district . A total area of 1547.93 sq km is covered with dense forest. The type of forest found in the area is tropical decidous . Medicinal plants have played on essential role in the development of human culture for example religious and different ceremonies. Plants are natural industries which provide high quality food and raw material for pharmaceutical, cosmetic and perfumery industries without causing environmental degradation. The main aim of the present study is to understand the diversity of medicinal plants and their conservation. An attempt has been made to study of medicinal plant used by Gariaband district for the treatment of different disease. A study on plant diversity during october-december after studying vegetation Gariaband district vegetation of medicinal plants were listed by botanical name,family,habit and uses. Total number of medicinal plant species 35 belonging to 10 family were recorded that indicate the medicinal diversity in Gariaband district. Trees of medicinal plants showed their maximum diversity in the study area.

Keywords: conservation, medicinal plant, diversity.

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Paper Code LP 22

Isolation, Screening and Identification of Cellulase Producing Bacteria from Press Mud Waste and Standardization of Process Parameter for Cellulase Production

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Abstract

Cellulose are consist of complex hydrolytic enzyme capable of hydrolyzing these material to smaller sign components like glucose unit This enzyme system which shows excellent derivative action towards crude natural cellulosic material is routinely found in most of the bacteria and essentially comprises three main components- exopolysacharide, endopolysacharide and beta glucosidance. A large number of fungi have been isolated by various investigation from self heating material and other sources play an important role in decomposing of municipal solid waste at elevated temperature that usually from microbial bacteria capable of producing extracellular enzyme responsible for degradation of cellulose are known ,some of them being highly cellulytic which include species (Yeoh H.H.and T.and K.E.1996).Bacteria have been studied extensively because their elongated hyphae creates mechanical pressure on the cellulose structure, causing them to produce large amount of cellulose .Bacteria such as *Bacillus, Pseudomonas, Cellulomonas, Tricoderma* etc species are cellulose producers. Enzyme produced by these microorganisms is commercially available for agricultural and industrial product has been the hallmark of all commercial fermentation processes, such improved strains can reduce the cost of the process and some desirable characteristics.

Keywords: Cellulase Enzyme, CMC ,Endopolysacharide, Exopolysacharide DNS.

Use of Venn diagrams in Zoology

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Abstract

Venn diagrams are pictorial representation of all possible logical relationship between collection of sets. These are used to illustrate the similarities, differences, and relationships between concepts, ideas, categories, or groups. These are used in almost every discipline including engineering, business, medical and related health sciences, along with the natural sciences. In present study these are first time used to express laboratory exercises of zoology in a very simple way. Through these diagrams students can express their knowledge regarding (1) Relation of dissected parts with their systems and animals, (2) Relation of different bones with endoskeleton and animals and (3) Relation between two or more specimens or categories (in Taxonomy).

Keywords: Category, laboratory, pictorial, Sets and Venn diagram**.**

First International Conference on
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Paper Code LP 21

Machine learning and artificial intelligence an opportunity for new drug discovery

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Abstract

Artificial intelligence is the term for computer simulations of human intelligence (AI).The procedure entails gathering data, creating rules for using it, coming to approximative or firm conclusions, and self-correction. A variety of industries, including education and business process automation, use AI. The burgeoning notion of incorporating AI into the process of developing drugs has gone from hype to optimism. Every stage of computer-aided medication creation employs these AI and ML techniques, and their combination yields a high success rate for hit molecules. Additionally, this high-dimension data integration of AI and ML and its potent capability have advanced. Predicting the results of clinical trials using AI/ML integrated models has the potential to reduce the cost of those trials while increasing their likelihood of success. In this paper, we explore the challenges and opportunities facing the pharmaceutical sector as it relates to the use of AI and ML technologies supporting computer-aided drug creation.

Keywords: Artificial Intelligence, Deep Learning, Machine Learning, Drug Discovery, Computer Added Drug Designing (CADD).

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Paper Code LP 24

Biodiversity of Algae and Fungi in Rice fields of Durg district

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Abstract

The diversity of microorganism is more in soil than in any other environment. Soil microorganism plays a crucial role in ecosystem of soil as they help in decomposition, nutrient cycling and as biofertilizers. The paddy field ecosystem provide a favorable growth environment for algae and fungi with respect to their requirement for light, water, temperature and nutrition. Soil samples from Rice field of Ahiwara durg district were collected over a period of consecutive 3 months. Physiochemical properties of soil were recorded and fungi isolated. A total of 7 fungi were isolated and 6 Algae were reported from rice fields. The results of work will be discussed.

Keywords : Fungi, Algae, Rice Field, Physiochemical properties

First International Conference on
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Paper Code
LA 01

Histological Analysis Of The Reproductive Structures Of Long Barrel Squid Uroteuthis (Photololigo) Singhalensis (ORTMANN, 1891) (CEPHALOPODA: LOLIGINIDAE)

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Abstract:
U.(P.)singhalensis (Ortmann, 1891) commonly known as “long barrel squid” and locally known as “soochikanava” (in Kerala) is a neritic semipelagic loliginid species occurring at depths from 30m to 220 m. These species show spawning congregations during summer. They exhibit sexual dimorphism as males are bigger than females. Oogenesis, spermatogenesis and associated reproductive structures of the long barrel squid Uroteuthis (Photololigo) singhalensis were assessed. Morphological and histological descriptions of the ovary and testis were made, the various changes observed during maturation were described, and the functional significance was discussed. The female reproductive system consists of the ovary, glandular oviduct, lace-like oviducal funnel, paired nidamental gland, accessory nidamental glands and a seminal receptacle for sperm storage on the ventral side of the buccal cavity. The average size of the cells of the ovary varied from 20.112±2.438µm (Primary oogonia) to 1250.211±139.304µm (Ripe oocyte). Oocyte resorption or the presence of atretic oocytes was observed in some sections. Fecundity of U.(P.) singhalensis ranged from ranged from 423- 6642. The male reproductive system consists of the testis, vas deferens, spermatophoric organ, spermduct, the system of spermatophoric glands (SG), spermatophoric sac (Needham sac) and penis. The spermatogenesis passed through the differentiation of primodial germ cells, primary and secondary spermatogonia, primary and secondary spermatocytes, rounded spermatids, and elongated spermatids to spermatozoa or sperms. The testis is connected to a thin-walled Needham sac by the spermatophoric duct. The testis is made up of numerous seminiferous tubules and is enveloped in an albuginea tunica of connective tissue. The average length and width of the spermatophore were 9.08 ± 1.98 mm and 0.186±0.021 mm.

Keywords: Uroteuthis (Photololigo) singhalensis, histology, reproductive biology, Oocytes, Spermatocytes.

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Paper Code
LA 02

Identification of protein drug targets for Aspergillosis caused by *A. fumigatus* or *Neosartorya fumigata* using in-silico method - SPA approach

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Abstract

Invasive fungal infections caused by *A. fumigatus* or *Neosartorya fumigatahave* been linked to causing severe health problems, especially in immunocompromised patients or those who have undergone any therapy or organ transplantation. *Aspergillus*species cause Aspergillosis, which sometimes may be fatal. The combination of triazoles (Voriconazole, Posaconazole, and Intraconazole) and antifungal drugs (Micafungin, Caspofungin, Amp B, etc.) causes aspergillosis resistance; thus, novel antifungal drugs for the treatment of this disease are needed. Subtractive Proteome Analysis (SPA) approach is an in-silico computational technique for retrieving new targets with databases and software. SPA has been performed with the entire proteome of *Neosartorya fumigata* (strain ATCC MYA-4609/Af293/CBS 101355/FGSC A1100) using several bioinformatics servers and software. The total number of proteins was collected from UniProt and redundant sequences were removed by the CD-HIT technique. The proteins that were non-homologous to humans and bacteria were identified from Kyoto Encyclopedia of Genes and Genomes (KEGG) metabolic pathway analysis after Basic Local Alignment Search Tool (BLAST) and collection of databases of essential genes (DEG). After the retrieval of unique identification pathways, the number of target proteins can be calculated. A druggability analysis was performed with the help of DrugBank. The location of the proteins was detected with the help of the BUSCA (Bologna Unified Subcellular Component Annotator) and PSORT II (Protein Subcellular Localization Prediction Tool) web portals. The SPA technique yielded a list of novel drug targets that can be used in the future for research and in the pharmaceutical industry.

Keywords: Invasive fungal infections, *Aspergillus fumigatus*, Aspergillosis, Subtractive Proteome Analysis (SPA), target identification, drug target discovery

First International Conference on
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Paper Code
LA 03

Microhabitat-dependent Cavernicolous Diversity in Phuljhar Cave of Gariyand, Chhattisgarh, India.

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Abstract

Caves are also found as a natural habitat for various organisms where we can fund such fauna which sometimes altogether differs from their nearest epigean counterparts. Thus, such organisms have been termed cavernicoles which are studied under Biospeleology which means biology of cave science Such alterations in the fauna are due to the caves' typical geophysical and environmental characteristics which operate inside it. In the present study, a cave, that exists in Phuljhar village of Manipur Gariaband, Chhattisgarh (18 Nara hill), has been tabulated. The survey was carried out between March 2021 to November 2022 and covers all the major climatic seasons. All the observed species have been properly identified at least up to the genus level by relevant experts. The occurrences of the species have been tried to correlate with its ambient microhabitats by recording in situ temperature, darkness, and humidity. Annual variations of population dynamics for each species have been tried to trace.

Keywords: Caverninoles, Cave biodiversity, Faunal distribution, Cave ecology, Microhabitat

Evaluation of Bis phenol A degrading microorganism from municipal waste disposal sites

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Abstract

Bis phenol A (BPA) is an important plasticizer for manufacturing of various plastic products like polycarbonate plastics, epoxy resins, flame retardants, electronic products and medical equipments etc. BPA has been reported as an endocrine disruptor that mimics the function of estrogen causing damage to reproductive organs. It also causes numerous health problems such as cancer, diabetes, infertility and obesity. Its extreme uses and inappropriate disposal has led to accumulation of BPA in the environment leading to harmful effects. BPA can leach out due to elevated pH and temperature to contaminate the environment. Several chemical and physical detoxification techniques like ozonation, sodium hypochlorite, UV/H_2O_2/O_3 have been developed to remediate environment from BPA. These techniques so far are considered to be satisfactory. However, the techniques are costly and unfavorable to the environment. Biodegradation has been found to be promising technique to bioremediate BPA providing cost effective and eco-friendly method. The present report discusses the habitats of these microorganisms, their isolation and evaluation of BPA degrading potential.

Keywords: Bioremediation, BPA degradation, BPA pollutant, Endocrine disrupter

Fructooligosaccharides: Prebiotics derived from agro-wastes

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Abstract

People arefacing several health issues like chronic obesity, gastrointestinal disorders, diabetes, coronary diseases, cancer etc. due to sedentary life-styles. Recently peoplehave become more concerned about their health and hence the demand for low-carbohydrate and high-fiber diet has increased. Therefore, people are opting for different value-added prebiotic foods which have numerous health benefits.Prebiotics are short chain oligosaccharidesbeing used in the therapeutics, food industriesand as functional ingredient in beverages.Fructooligosaccharides (FOS) are oneof the most important group of prebiotics which occur naturally in many plants. FOS consistofshort chain of fructose units that are linked by β (2-1) glycosidic bond with terminal glucose unit. Traditionally, FOS are obtained naturally from some plants. However, large-scale production of FOS is done using various microorganisms. Among the different microorganisms, fungi are the most efficient and potent microorganisms for FOS production. *Aspergillus* and *Penicillium* are most prominent fungi used for industrial production of FOS. Different fermentative methods have been proposed for production of FOS, such as solid-state and submerged fermentation.Various substrates can be used for production of FOS including sucrose, honey and several agro industrial wastes.Agricultural wasteslike bagasse and molassesgenerated during processing of crops can be exploited for the production of value-added FOS and hence FOS production from such agro wastes probably would help find solution to pollution issues related to disposing off agricultural wastes.

Keywords: Prebiotics, Fructooligosaccharides, Agricultural wastes.

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Paper Code
LA 07

Changes in ROS level during the loss and re-establishment of desiccation tolerance in germinated pea seeds

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Abstract:
The present work was designed to investigate the changes in the level of reactive oxygen species (ROS) during the loss and re-establishment of desiccation tolerance (DT) in the germinated pea (Pisum sativum) seeds. Germinated pea seeds with 2 mm long radicles (or seedlings) were desiccated/dehydrated with or without polyethylene glycol (PEG) pre-treatment, and the percentage of seedling survival was determined accompanied by ROS, viz., superoxide and hydroxyl radicals. Dehydration of pea seedlings to initial water content (IWC; 0.11 $gH_2O\ g^{-1}$ DM) and below IWC (0.06 $gH_2O\ g^{-1}$ DM) resulted in the reduction of DT to 60 and 20%, respectively. While, upon PEG pre-treatment, DT was re-established to 100 and 70% at IWC and below IWC, respectively. These results indicated that the desiccation sensitivity of seedlings can be rendered tolerant to desiccation by PEG pre-treatment. The level of accumulated ROS was determined in vitro and further confirmed by in situ staining in the radicles. Loss of DT in germinated pea seedlings is positively associated with an increased level of ROS. The re-induction of DT in the PEG-pretreated seedlings was negatively associated with an extensive reduction in ROS levels. The levels of superoxide and H_2O_2 declined respectively by 2.3 and 1.8-folds in PEG-pretreated seedlings. Our results showed that ROS levels mediated the re-establishment of DT inpea seedlings.

Keywords: Desiccation Tolerance ; Reactive Oxygen Species (ROS); Superoxide; Hydroxyl Radical; Pea (*Pisum sativum*)

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 08

GC- MS profiling, phytochemical and biological investigation of *Urena lobata* fruit extract

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Abstract

*Urena lobata*a plant from the family *Malvaceae* has been used as traditional medicine by various community for the treatment of various disease like arthritis, fever etc. Previoly anti-microbial, anti-oxidant, anti-diabetic, anti-inflammatory, anti-depressant, anti-tumour, and wound healing potential of *Urena lobata* had been recognized astraditional property but without proper scientific validation. In present study we identified steroids, terpanoids, and cardiac glycosides, in both methanol and ethyl acetate extract in fruit of Urena lobata. FTIR analysis revealed OH stretching of alcohols and phenols or bending stretching of hydrogen-bonded alcohols and phenols and 48 compounds were indentified through GC-MS analysis. Nonanoic acid, methyl ester; Phenol, 2,4-bis(1,1-dimethylethyl)-; Hexadecanoic acid, methyl ester; 9,12-Octadecadienoic acid (Z,Z)-, methyl ester; 9-Octadecenoic acid (Z)-, methyl ester have been identified by us as first time reporting which are major compounds of pharmacological significance.

Keywords:

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 09

Isolation and identification of Actinomycetes in industrial area of Bhilai.

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Abstract

Actinomycetes are Gram-positive, free-living, saprophytic, non-motile bacteria that are slow growers and show branching filaments. They are filamentous soil microorganisms that produce enzymes, antibiotics, chemotherapeutics, fungicides, immunosuppressants, secondary metabolites, and antioxidants. Their abundance and diversity depend on soil type, geographical location, and organic matter. Streptomyces is the most abundant and highly diverse group among all organisms living today. Actinomycetes grow at temperatures above 40 °C. They play an important role in the decomposition of plants and other materials made of complex and recalcitrant polymers. Streptomyces are bacteria that grow as filaments or as mycelium, chains of conidia formed by spore-bearing aerial hyphae. There are over 500 species with complex colony structures, multinucleate, branching mycelia, vegetative and reproductive colonies, and cell wall structures. For the morphological investigation, different growth media, such as oatmeal agar, were used. Biochemical tests include growth on MacConkey agar the indole test, the methyl red test, citrate utilization, gas production from glucose and the xylose test. Pridham T.G. Rajeswari and M.R. Islam investigated colour grouping method modification and objective colour determination methods.This study aimed to isolate actinomycetes from different samples collected.

Keywords: Actinomycetes, Biodiversity, Streptomyces

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 06

Co-infection of white spot syndrome virus (WSSV) and *Enterocytozoon hepatopenaei* (EHP)in extensive culture ponds of *Litopenaeus vannmaei* from Guangdong province of China.

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Abstract

Virus infections are quite common in pond cultivated shrimp *Litopenaeus vannamei*. The present investigation reports a rare incidence of white spot syndrome virus (WSSV) and *Enterocytozoon hepatopenaei* in adult *Litopenaeus vannamei*. Collections of diseased shrimps were carried out in sixteen ponds from the farms of Guangdong province of China. All sixteen ponds were found to have infected shrimps by WSSV but interestingly only four ponds had the shrimps infected by WSSV and *Enterocytozoon hepatopenaei*. Shrimp infected only with WSSV exhibited white spot on the carapace. Co-infected shrimps showed symptoms of WSSV as well as *Enterocytozoon hepatopenaei* like growth retardation. Transmission electron microscopic (TEM) examination revealed the presence of both WSSV and *Enterocytozoon hepatopenaei* in the same infected gill of *L. vannamei*. The unusual infections by virus and microsporidian were further confirmed by PCR.

Keywords

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 10

Butterflies diversity of Sant Guru Ghasidas Government Post Graduate College Campus Kurud, District – Dhamtari, Chhattisgarh, India

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Abstract

Butterflies are brightly colored and day-flying (Pohl, et. al.2018) insects widely spread all over the world right from the tropical up to the polar region. Worldwide the butterflies were estimated about 19,238 species (Heppner, 1998), and approximately 17,950 species in early 20th century (Copinear, 2008). India has the rich diversity of butterflies with 1,641 species which is about 9.50% of the world's butterflies (Varshney 2006). The Centrally located state of India, Chhattisgarh also has rich diversity of butterfly estimated 176 species in its diverse habitat including campuses and backyards within human colonies (Tandan et al. 2021). Present study also evidences the richness of butterflies in campus which has been observed in Sant Guru Ghasidas Government Post Graduate College campus during 2018 to 2022 and prepared a checklist with 56 species of five families. The campus of the college is spread over about 15 Acre of land located at an altitude of 305m above the sea level, Latitude 20.82728 and Longitude 81.713037, south-east of Kurud city, about 1.5 km away from National Highway 30, &at a distance of 55 km from Raipur, the capital city of Chhattisgarh state. In the present study the family Lycaenidae with 21 species and Nymphalidae with 20 species has been dominated over rest three families as family Pieridae with 06 species, family Hesperiidae with 05 species and family Papilionoidae with only 04 species.We recorded *Freyeria putli* (Kollar, [1844] – Black-spotted Grass Jewelfrom the campus which was first time reported in Chhattisgarh (Tandan et al., 2021).

Keywords: Campus Diversity, Butterfly, Chhattisgarh.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 11

Bio-active compounds estimation of different solvent system of *Carica papaya*unripened fruit.

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Abstract:
The bio-active compound present in the extracts may be responsible for the use of plants in traditional medicine. Plants contain several types of phytoconstituents in different amountsthey are soluble in different solvents in different quantity. Because the polarity of the solvent used for the extraction of different bio-active compounds but sequential extraction is the different way to extraction of bio-active compounds of plant parts. In present study, we aimed used four different solvent n-Hexane, ethyl acetate, methanol and water using for the soxhlet sequentialreextraction of the *Carica papaya* unripened fruit based on their polarity. Screening of phytochemicals with the help of a dried powdered sample of *Carica papaya*unripened fruit extract by successive reextraction of solvent n-Hexane, ethyl acetate, methanol and water extract to be tested byqualitative and quantitative bio-active compounds. The result shows the presence of phytoconstituents (anthocyanins, flavonoids, tannins, saponins, alkaloids, phytosteroids, phenols, protein, amino acids, and carbohydrates of selective solubility in their respective solvents of varying polarity used consecutively. The presence of phytoconstituents of testing results in the successive extract is suggesting that importance of solvent and their solubility factors of *Carica papaya*unripened fruit extract, which is a nutritionally rich dietary supplement of diver's bio-active compounds. These information data of active principle of medicinal prospective is help isolates and characterizing of pharmacological importance andethnomedicinal values of *Carica papaya*unripened fruit.

Keywords: *Carica papaya*, bio-active compounds,unripenedfruit.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 12

An Explainable Machine Learning Approach for the Prediction of Pro-inflammatory Peptides

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Abstract

Pro-inflammatory cytokines are able to heighten inflammatory response and are essential to the body's initial line of defence against invasive invaders. Pro-inflammatory inducing peptides (PIPs) have been employed in immunisation treatments as a vaccine, an antibacterial agent, and an antineoplastic agent. Pro-inflammatory cytokines are released by dendritic cells, macrophages, CD4+ cells, and Th1 cells. We performed a compositional analysis on the training data set. GBM PrePIP fared better during this experiment than the published methods. The bigger benchmarking dataset, SMOTE oversampling, the meticulous optimisation procedure used to pick the final ML parameters, and the decision to adopt the ML method were the primary contributors to the improved performance of GBM PrePIP. The PIP (pro-inflammatory peptide) prediction capability of our suggested technique is quite promising. It will be advantageous to find new contributions that can be combined with the present feature set in future work in order to significantly boost prediction performance.

Keywords:Predictor ofPro-inflammatory peptide (PIP), Machine Learning(ML), Ensemble Learning(EL)

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 13

GC-MS Characterization of phytoconstituents from *Bridelia retusa* and Molecular Docking Interactions of Bioactive Phytoconstituents with Diabetic Target Proteins

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Abstract

Bridelia retusa is the most common Indian species of *Bridelia*, known as Khaja or Kasai distributed throughout the country excluding the Andaman and Nicobar Islands, belonging to the family Euphorbiaceae, reported for their ethnomedicinal applications. In the current study, methanol extract of *B. retusa* bark was analysed byFourier transform infrared spectrometer (FTIR) andgas chromatography-mass spectrometry (GC–MS) to characterize and identify the numerous phytoconstituents. The FTIR spectra revealed the presence of functional characteristic peaks of alkenes, carboxylic acid, α, β-unsaturated ester, conjugated alkene, sulfonate, phenol, sulfoxide and 1,2,3-trisubstitutedgroup from methanol bark extract which are major components of vital secondary metabolites of *B. retusa*. The GC-MS analysis of methanol extracts from bark of *B. retusa* detected the presence of 34 phytochemical constituents. Many identified compounds from bark extract have various pharmacological and therapeutic applications. Subsequently, these 34 identified compounds were analyzed for their antidiabetic activity through in silico molecular docking studies. Result revealed that among the phytochemical compounds identified, friedelin might have maximum antidiabetic properties followed by rhodopin and diisooctyl phthalate. Our finding proposed that friedelin could be an active and potential drug against diabetes. The conclusion of the current study will design the way for the development of herbal medicinal products for several diseases utilizing *B. retusa* plant, which might result in the development of novel drugs.

Keywords: *Bridelia retusa*, phytoconstituents, antioxidants, GC-MS, molecular docking.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 14

Variation in Abnormal Hemoglobins in Durg, District of Chhattisgarh, India: A Cross-Sectional Study

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Abstract

Various abnormal hemoglobins (Hb) and their prevalence in Indiantribal and nontribal population are very well established. Occurrence of Sicklecell hemoglobin (HbS) is mostly concentrated in Central andSouth Indian territories, whereas HbD and Hb E is mostly confined to North, North-West and North, North-East states respectively. HbJ, which is an alpha globin gene variant, is earlier reported in North India whereas its presence in the tribal Chhattisgarh state is not wellunderstood. HbE, a beta-globin gene variant was also earlier reportedin North Eastern states of India. Prevalence of both these abnormalhemoglobins in the Central India specifically in Durg district of Chhattisgarh state is not completely understood. In the present study we attempted to analyze the presence of abnormal hemoglobins during screeningfor sickle cell anemia. Briefly, blood samples (N=44) were analyzedfor sickle cell anemia screening followed by confirmatory examination by solubility tests and cellulose acetate membrane electrophoresis at alkalinepH. Two samples showed an abnormal pattern of separationon cellulose acetate membrane other than HbS. Out of total 44tested samples, five were sickle cell carriers (HbAS), one washeterozygous HbAJ and the another one was homozygous forHbE while remaining other were normal genotypes i.e. HbAA. Inbrief, a case of homozygous Hemoglobin E from Kurmi caste ofother backward community (OBC) and a different heterozygotepattern, i.e. Hb AJ from Brahmin community is reported from Durg,Chhattisgarh, Central India. This study provides possible indicationof variation in different abnormal hemoglobins, other than HbS,present in the tribal state of Chhattisgarh.

Keywords: Abnormal hemoglobins; Hemoglobin E; Hemoglobin J; Sickle cell Anemia; Chhattisgarh; Endemic malaria

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Paper Code LA 15

A Potential Evolutionary Scenario of Voltage Gated Chloride Channel Amongst Eukaryotes

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Abstract

Voltage gated chloride channels are a part of the chloride channel (ClC) family which are ubiquitous and play an important role in many diverse physiological and pathophysiological processes. The ClC family of multifunctional proteins are implicated in numerous vital biological functions such as transepithelial transport, regulation of membrane excitability, extracellular ion homeostasis, endocytosis and lysosomal function. In Spite of playing such a crucial role they have not been very well understood. In the present study, we have tried to analyze the voltage gated chloride channels amongst eukaryotes to find their potential genomic, structural and phylogenetic relationship. First, CIC homologs were identified from 10 different species ranging from simplest eukaryotes (yeast) to metazoan. Multiple sequence alignments, MEME analysis and functional site prediction such as transmembrane region, domains and exon structure were performed which indicates highly conserved structural features among the CIC family. Comparative analysis of ClC gene indicated orthologous relationship among these species.The phylogenetic tree was established which shows that the gene has undergone lineage specific duplication and expansion. At last a most probable potential evolutionary scenario was generated to demarcate the origin and evolution of CIC gene family.

Keywords

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Paper Code LA 16

Analysis of role of SG2NA in cell cycle progression

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Abstract

Striatin family members comprising Striatin, SG2NA and Zinedin, play key roles in vesicular trafficking, cell cycle, signaling, and differentiation. In early studies, SG2NA was shown to be involved in cell cycle regulation while Striatin in signal transduction & vesicular trafficking in dendritic neurons. Zinedin (also known as Striatin 4) has been shown to be involved in cytokinesis. Such disparate functions by the members of the family suggest context specific scaffolding activities. SG2NA has multiple splice variants that are preferentially but not exclusively located in organelles like mitochondria, endoplasmic reticulum, Golgi body; as well as in plasma membrane and cytosol. Most of these isoforms (except 82 kDa) are modulated during the progression of cell cycle and under quiescent condition. Also, in both growing and quiescent cells, isoforms of SG2NA transiently localize to the nucleus. in the present study, we have established permanent cell lines overexpressing isoforms of SG2NA and looked for their interacting partners. It has been shown to interact with the nucleophosmine protein which has been implicated in various functions of cells including cell cycle regulation and centrosome duplication.

Keywords: SG2NA, Cell cycle, Striatin, centrosome.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 17

Impact of Anthropogenic Activities on Cave Biodiversity: A Case Study of Mandhip Khol of Rajnandgaon, Chhattisgarh

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Abstract

Mandhip Khol is indeed a cave complex that has two separate identities. A dry passage is referred to as Mandhip Khol whereas the Shwet Ganga (Python cave) is a wet cave from where around the year a perennial river stream is coming out. This cave has a religious value, as every year a religious festival is organized in and around this cave. During that period the whole cave is washed and reorganized. Thousands of people enter the cave to worship the rock structures located inside the cave. In the present work, we have tried to study the impact of anthropogenic pressure on the cave species during this religious occasion. We carefully counted all the species that abide inside the cave one week before the occasion and repeat the same one week after the occasion. In addition, the temperature, and humidity fluctuations were also recorded. The result will be presented at this conference.

Keywords: Cavernicoles, Biospeleology, Bats, Cave ecology, Cave biodiversity, Faunal distribution, Anthropogenic pressure

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Paper Code
LA 18

Evaluation of Pb concentration in *in vitro* grown *Pithecellobium dulce* (Roxb.) Benth. seedling

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Abstract

Heavy metal (HM) toxicity is one of the major environmental concerns, worldwide. Lead (Pb) is highly persistent and hazardous heavy metal (HM) released in various industrial effluents. It has very less solubility in soils. Bioaccumulation of Pb occurred in plants and vegetables when present in high concentration in soils and subsequently enters the human body via food chain system. Dendroremediation is a promising tool to remediate toxic HM from the soil. *Pithecellobium dulce* (Roxb.) Benth. is a fast-growing, leguminous tree species belonging to the Fabaceae family, is commonly found in central India.

The objective of this investigation is to evaluate the potentials of this candidate tree species for Pb extraction and bioaccumulation by *in vitro* study. Root, stem, and leaf samples from the *P. dulce* seedling were collected in triplets, and acid digestion has been performed. By using Flame Atomic Absorption Spectrophotometer Pb concentration was determined in plant tissues. *In* vitro investigation revealed that *P. dulce* bioaccumulate the higher concentration of Pb in their tissue. Accumulation of Pb was also very high in the roots followed by stem and leaf tissues of the *P. dulce* seedling. Hence, *P. dulce* may prove as a possible candidate for the remediation of Pb contamination.

Keywords: Acid digestion, Heavy metals, Manila tamarind, Dendroremediation

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 19

Post Covid-19 social, medical and economic management by developing simple indigenous medical technology: Covid-19 neutralizing detection kit

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Abstract

The pandemic corona virus disease of 2019 (COVID-19) is caused by the Severe Acute Respiratory Syndrome Corona virus 2 (SARS-CoV-2). Currently, no proven therapy is available for COVID-19. Though several vaccines are already available and permitted for emergency use, their efficacy and protective immune response in different groups of individuals are yet to be evaluated. The protective immune response to SARS-CoV-2 involves the production of anti-spike protein antibodies, but only a subset of these antibodies against specific epitopes in the receptor binding domain (RBD) play a critical role in neutralizing the virus by preventing it from binding to its receptor ACE2 and infecting host cells. Currently, most of the vaccine developments against SARS-CoV-2 infection are to block the interaction of spike protein and ACE2. The immune response to a natural COVID-19 infection or vaccination may not occur with equal efficacy in different individuals, leading to different outcomes of vaccination. As a result, detecting neutralizing antibodies in serum is critical for assessing protective immunity status following natural infection or post COVID-19 vaccination. This will help individualize patient management.A gold standard neutralization assay is carried out using live virus by the standard plaque reduction neutralization test (PRNT), which is laborious, requires a special BSL-3 laboratory, expensive safety measures, and takes at least 4-5 days for completion. Alternatively, a few surrogate neutralization assays have been developed recently using the in vitro interaction of the recombinant receptor binding domain (RBD) of SARS-CoV-2 spike protein with its receptor ACE2, which are very expensive tests that cannot be used for mass scale application for research or clinical purposes.

Recently MRU Pt. J.N.M Medical College, Raipur have developed a low cost, simple virus free surrogate SARS-Cov-2 neutralization assay which is a modified version of RBD-SARS-COV-2 Spike protein- ACE2 binding assay originally described by Erik Procko et al.2020. The assay will be true representative (surrogate) of conventional viral neutralization assay.

The neutralization assay kit will have a lowest manufacturing cost, simple protocol qualifying its mass scale application during the pandemic. This low cost test will be

useful to generate neutralizing antibody titre data of the community at the beginning of a Covid-19 waive to determine critical level of neutralizing antibody titre. Considering new serge covid-19 outside India in China, South East Asia and USA there will be huge international market for this kit. So launching this indigenous product it will be huge impact on national and local economy as well as employment considering the huge job crisis and slow down of economy in the post covid-19 era. So local government should encourage and support this kind of medical technological research which could rescue the socio-economical down fall. Also local government should facilitated public private partnership so that industry could participate in the developmental work in the academic platform to accelerate R&D and commercialized its potential outcome.

Keywords: SARS-CoV-2, ACE2, RBD, neutralization assay, vaccine, PRNT

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 20

Leveraging the Power of Ensemble Learning for the Prediction of Anti-inflammatory Peptides

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Abstract

When infections, damaged cells, irritants, and allergens cause injury or infection, the immune system's typical response is inflammation. But occasionally, immune responses result in chronic inflammationand autoimmune diseases. AIPs are therapeutic or bioactive peptides, used for the treatment of inflammatory and autoimmune diseases. All living things contain AIPs, however, exploration of AIPs through biological experiments is expensive and time consuming. Machine Learning (ML) algorithm is a computational method that can annotate the enormous peptide sequences and can efficiently predict the peptide properties based on sequence profile and expedite the discovery of AIP. Novel in silico predictors are explored to classify putative anti-inflammatory peptides prior to in vitro study. In this case, an accurate predictor called AIP-EL was produced by combining a number of complementary features. We carefully analysed a wide range of features, including primary sequence, evolutionary, and structural data, using a variety of sampling approaches and classifiers. The final PreAIP model outperformed earlier models in terms of performance. These results indicated that the PreAIP is a reliable predictor of the presence of AIPs and supports the advancement of AIP-related biological research and therapies.

Keywords : Anti-Inflammatory Peptides, Inflammation.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 21

Prevalence of liver and renal dysfunction in samples examined in the clinical biochemistry lab of tertiary care hospital in Chhattisgarh

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Abstract

Renal Function Test, or RFT Test, is a set of biochemistry blood tests used to evaluate renal function. Liver function tests are blood tests used to help diagnose and monitor liver disease or damage. The tests measure the levels of certain enzymes and proteins in your blood. The study's design is cross-sectional and observational.RFT and LFT test results from the previous three months were obtained from the Department of Clinical Biochemistry, DR. B.R.A.M. Hospital Raipur, C.G. Permission and approval have been obtained from the institutional ethical committee of Pt. J.N.M. Medical College, Raipur, C.G. Test parameters for RFT are urea, creatinine, and uric acid, and test parameters for LFT are bilirubin total, bilirubin direct, bilirubin indirect, SGOT, SGPT, total protein, albumin, and globulin. The recorded data has been statistically analyzed on the basis of several parameters, such as normal, mildly deranged, and severely deranged. The number and proportion of samples with renal impairment and hepatic impairment will be assessed. The assessment of the prevalence of hepatic and renal impairments in the hospital may be helpful in taking further policy decisions for the benefit of the patients.

Keywords: LFT, RFT, SGOT, SGPT

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 22

Formation Of Copper Nano-Particle Of Mixture Of Moringa Extract Andbacterialexopolysaccharideand Its Antibacterial Effect

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Abstract

Copper nanoparticles(Cu NP) exhibit exceptional effectiveness as antimicrobial and antibacterial agents. To be used in practical applications, NPs are transferred to a variety of substrates and copper is less expensive than other nanometals. it can be used to improve the effectiveness of antibiotics.The physical and chemical process of making Cu NPs has several disadvantages such as, they are expensive, and the possibility of controlling the sizes and shapes of Cu NPs is less.Biological method of making Cu NPs is not only inexpensive but also very safe. In this study, we formed Cu NPs using Moringa leaf extract and bacterial exopolysaccharide(Eps). Moringa leaf extract was made by solvent extraction method, the solvent used here was methanol. The Eps was synthesized from the bacteria isolated from curd. The bacterial Eps was extracted by using the ethanol precipitation method and the extracted Eps was filtered by gel filtration by running it through a Sephadex G-100 column, the collected Eps from the gel filtration was further purified using a dialysis membrane.The filtered solution of moringa extract and extracted Eps was taken in a beaker andCopper chloridesolution was added to it. Then the solution was left to dissolve overnight at room temperature in a shaker incubator. The Cu NPs formed were then stored in brown bottles. The Cu NPs thus formed was analyzed using a UV-Vis spectrometer which gives a characteristic peakat 280nm. Further, the Antibacterial activity of the Cu NPs was observed in two bacterial strains (*E.coli and P.aeruginosa.)*

Keywords: Copper nano-particle, Exopolysaccharide, Moringa extract, Antibacterial.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 23

Estimation of antioxidants and anti-diabetic properties of *Swertia chirayita*

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Abstract

Swertia chirayita, often referred to as "Chirata," is a plant that has been used for centuries to treat a number of ailments, including diabetes, piles, skin disorders, ulcers, and malaria. A wide variety of in vitro and in vivo pharmacological and biological activities, such as anti-diabetic and antioxidant activities, are displayed by the isolated metabolites from *Swertia species*. Fresh leaves of *Swertia chirayita* were collected from different localities in Raipur, Chhattisgarh. Crude extracts of the dried leaves were prepared using organic solvents such as methanol and water. The presence of significant quantities of phytochemicals such as flavonoids, terpenoids, saponins, alkaloids, and carbohydrates was shown. An in vitro antioxidant test was performed by the DPPH (2, 2-diphenylpicrylhydrazyl) method shows good antioxidant activity against different free radicals. Alpha-amylase inhibition assays were used to perform anti-diabetic tests. The methanolic extract shows more anti-diabetic action than any other different solvent. These results indicated that the leaves of *Swertia chirayita* possess strong anti-diabetic and antioxidant potentials, support traditional medicinal use for the treatment of diabetes mellitus, and are a good source of natural antioxidants. The present study provides pharmacological insight into the anti-oxidant and anti-diabetic potential of the selected traditional medicinal plants.

Keywords: Antioxidants, DPPH, Phytochemicals, *Swertia chirayita*,

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Accessing The Ability Of Soil Bacterium Of Pigment Production With Dye Degradation

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Abstract

The chemical dyes such as Malachite Green and Methylene blue in large quantities are toxic to the environment and living creatures. The degradation of such dyes is imperative to save environment. The present study pigment producing bacteria isolated from soil is utilized to degrade these dyes. The bacteria is efficiently able to degrade both the dye upto 200mg/ml concentration. Further, the pigment was also observed to produce during dye degradation. The pigment was red in colour. The UV- Vis spectra exhibit the maximum peak of MG and MB at 665 nm, 620 nm respectively which found to be reduced day by day during bacterial incubation. The appearance of new peak of pigment at 530 nm has also been observed. Moreover, the dye detoxification was analyzed by culture sensitivity test on *E.coli&Streptococcus*. The result demonstrated that the dye became detoxified after degradation. Pigment production during dye degradation is not only ecofriendly but also boost the inexpensive way of pigment production.

Keywords: Dye degradation, Detoxification, Pigment

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Paper Code
LA 25

Biofilm Dispersal Activity Of Biosurfactant Produced By Soil Bacteria Using Coconut Oil Cake.

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Abstract

Biofilms are microorganisms that are associated with one another or to a surface. The complex structure of biofilm is made up of exopolysachharides, lipids, proteins etc. Biofilms are responsible for lowering the efficiency of antibiotics. Therefore its imperative to synthesize compounds which can break the biofilm and enhance the efficiency of antibiotics. The biosurfacts are surface active molecules which are synthesized by microorganisms. In the present study we have synthesized biosurfactants by incubating selected soil bacteria in coconut oil cake. The biosurfactant activity was evaluated by drop collapse assay and emulsification activity. The biosurfactant can emulsify different organic liquid at different extant. The time course study showing the maximum biosurfactant production at 4th day of incubation. The biosurfactant thus produced was utilized for the biofilm dispersal. Biofilm was produced by incubating *E.coli* overnight in LB broth in 96 well plate and biofilm dispersal was evaluated using crystal violet staining method. Our result suggested that the biosurfactant can efficiently be utilized in for the degradation of biofilm dispersal.

Keywords: Biofilm, Biosurfactant, Biofilm Dispersal

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Paper Code
LA 28

Distribution range of AM Fungi in Rhizosphere of Different Forest Species Grown in Central India Nursery

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Abstract

Occurrence ofarbuscular mycorrhiza (AM) fungi was recorded in sapling of forest nursery (Balkund, Banjari, Dhanwahi, Karondi, Mageli, Mandla, SFRI and TFRI) in central India. AM fungi in the rhizosphere were identified and root colonization in tree was determined. Mean value of AM fungi and root colonization percentage of sapling was 138.69 and 50.62% respectively. Presence of spore and root colonization was varying according to area in same plant sapling. Saja (86.67%), Shagon (80%) and Sheeshm (73.33%) had the highest root colonization and maximum spore number observed in Arjun (213), Kala sirus (183) and Sissoo (168). Vesicle, Arbuscules and hyphae was observed only in Amaltas and Shagon.

Keywords: rhizosphere microorganism, symbiosis, sapling

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Paper Code
LA 26

Soil Protozoa From Agriculture Land Of Durg District: Diversity And Their Ecology

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Abstract

Protozoans are usually very numerus in agriculture soil, with numbers in the magnitude up to thousand cells per gram of soils. Protozoa regulate the bacterial population or also called bacterial consumers and these organisms play an important role in regulating the soil food chain. In the present study, the soil samples collected from two different villages of Durg district and analysed protozoan species by non-flooded petri dish method with their physicochemical characteristics. Total 11 protozoa were recorded. Out of which 01 genera of rhizopods, 01 genera of actinopods and 09 genera of ciliates were observed during the study period. The density, % frequency and abundance with important value index has been calculated. The highest species diversity was found for the Rice field of Basni and lowest species diversity was found for the rice field of Hanoda

Keywords: Protozoa, Rhizopods, non-flooded petri dish method, Ciliates, Physico-chemical analysis, food chain.

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Paper Code
LA 27

A Review on Bioavctive Compounds involved in Diabetic Wound Healing

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Abstract:
Wound healing in diabetic foot ulcer is quite obstructed process for recovering process of damaged tissues by replacing dysfunctional injured cellular structures. Natural compounds for wound treatment have been widely used for centuries.

The current studies provide reviews of natural compounds that originated from only plants. In this work, we provide a comprehensive review of natural compounds sourced from plants that target the different bioactivities of healing to promote wound resolution. The compounds were classified into four main groups (i.e., anti-inflammation, anti-oxidant, anti-bacterial, and collagen promotion), and reviewed the trend in using natural compounds for wound healing.

Keywords: Wound, Bioactive, DFU

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 29

Current Developments in field of Bioremediation of Heavy Metals in Chhattisgarh

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Abstract

Right from the partition of Chhattisgarh state from Madhya Pradesh, it has been working day and night to develop itself. In this struggle, various industries has been evolved in this newly formed state. The process of industrialization boosts economy as well as releases hazardous heavy metals in the environment. Various physical and physio-chemical methods are applied for removal of heavy metals from environment but having byproduct and high cost. In this review, we have discussed about the works being done to mitigate the harmful effect of heavy metals by with bioremediation from effluents. Some of the works have isolated fungi from water as well as soil of affected areas of Chhattisgarh. These fungi like *Aspergillussp.*and*Penicilliumsp.*are capable of minimizing perilous heavy metals like Arsenic, Iron, Lead and Manganese. Various indigenous bacteria like *Klebsiella sp., Pseudomonas sp., Bacillus sp*and. *Serratia sp.* have been isolated showing bioremediation capacity against harmful heavy metals. They have been reported to successfully reduce the concentration of Calcium, Zinc, Cadmium, Iron, Copper, and Arsenic. These microbes need to be worked on, for maximum utilization of their competence.

Keywords: Chhattisgarh, Heavy Metals, Bioremediation, Fungi, Bacteria

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Paper Code
LA 30

Differentially expressed genes for regulation of fetal haemoglobin induction in beta thalassemia

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Abstract

Beta Thalassemia is a disorder in which the body is unable to synthesise haemoglobin beta subunit due to deleterious mutations in the β-globin gene that results in underproduction of adult haemoglobin (HbA). Fetal haemoglobin (HbF), which is composed of two α- and two γ -subunits, has been identified as a potential substitute for HbA with great clinical significance in β-thalassaemic patients. However, in the developmental stages, the expression of HbF is gradually minimised and overtaken by HbA. Our research found that role of these DEGs in beta thalassemia progression, and an RNA sequencing study indicated that the β globin gene is downregulated. There are 200 genes that are differently expressed in β thalassemia patients compared to healthy controls, as well as two key genes. KLF1 and MDM2 are two potential target genes for beta thalassemia patients that could be employed as diagnostic indicators. The differentially expressed genes include genes involved in heme biosynthesis, heme binding, erythrocyte homeostasis, iron ion binding, erythrocyte differentiation, gas transport and response to oxygen species metabolic processes, and other cellular processes. However, functional studies are needed to confirm their proposed relevance in beta thalassemia.

Keywords: Differential gene expression, RNA-sequence, β-thalassemia, fetal haemoglobin

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 31

biochemical Changes in roots of Lady's Finger (*Abelmoschus esculentus*) during early response to root knot nematode attack

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Abstract

Lady's finger (*Abelmoschus esculentus*, fam.Malvaceae), an important vegetable crop grown in Chhattisgarh, is highly susceptible to the root-knot nematode, *Meloidogyne incognita* infection. A pot culture experiment was hence conducted under greenhouse conditions to study the effect of *M. incognita* in *A. esculentus*. Seedlings of *A. esculentus* prepared in cocopit were transferred into10 cm diameter earthen pots holding 500 g. sterilized soil and farmyard manure (3:1). Initial larval population (Pi) of 500 freshly hatched second stage juveniles (J2) of *M. incognita* were inoculated per pot into the rhizosphere of 15 day old plants. 3 replicates of each treatment were taken along with control. Hence, pot culture experiments were conducted under greenhouse conditions to understand the biochemical changes taking place during the early response to root-knot nematode attack in*A. esculentus*. Second stage juveniles of the root knot nematodes *M. incognita* were isolated and inoculated and weekly percent changes in protein and sugar content of infected and control plants estimated for 5 weeks.Decline in total water soluble protein in the 1st week of infection then rapid augmentation in following weeks was observed. Likewise, total sugar content was found to be declined in the 1st week of infection then rapid augmentation in following weeks was observed.The study of biochemical changes after nematode inoculation indicates that the changes in the rate of protein synthesis during invasion of nematodes for initiation of early primary resistance mechanism by the plants to combat nematode attack. Augmentation in sugar level coincides with initiation of gall formation in the root tissue by the nematode and indicates greater influx of sugars in the attacked tissue for providing nutrition to the nematodes for their growth and survival.

Keywords: Root-knot nematode, *Meloidogyne incognita*, Protein and Sugar.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 32

Phytochemical Screening and Characterization of Green Synthesized Silver (Ag) Nanoparticles fromBulb Extract of*Urginea indica* (Roxb.) Kunth

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Abstract

Inmodern times we are facing many different problems in which, antimicrobial resistance is a serious issue that is responsible for many new diseases. This problem can be overcome by using plant-based medicines or nanomedicines instead of chemical drugs. This study is focused on phytochemical screening and green synthesis ofsilver(Ag) nanoparticles from *Urginea indica* (Roxb.) Kunth. It is a rare and endangeredIndian medicinal plant that belongs to the Asparagaceae family which is used traditionally to cure various problems like respiratory disorders, skin problems, intestinal worms, arthritis, tumors, male sterility, whooping cough, chronic cough, pulmonary troubles, swellings, and cardiac tonic, etc. since very long. Apart from these, it has also antibacterial, antifungal, anti-cancer, antioxidant, anthelmintic, anti-inflammatory, antidiabetic, bronchodilator, andanalgesic activities. For this study, firstly the bulb of *Urginea indica* was used and extracted with aqueous, methanol, and acetone solvent in all three seasons (rainy, winter, and summer). These extracts were further used to perform phytochemical analysis which revealed that it has saponins, flavonoids, glycosides, phenolics, terpenoids, and steroids. The aqueous extract was further used for green synthesis of silver (Ag) Nanoparticles which was characterized by UV-Vis Spectrophotometer, FTIR, XRD, and TEM.

Keywords: Phytochemical, Nanoparticle, Green synthesis, Antimicrobial, Medicinal plant.

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Paper Code
LA 33

Diversity & extracellular enzyme activity of endophytic fungus associated with *Costus speciosus*

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Abstract

Costus speciosus(Koen ex. Retz.)belongs to family Costaceae. The distribution of this plant have been found from southeast Asia to china, India and Sri lanka.Any of the microorganism living inside of the plant without causing any apparent negative impact that is called as endophyte. Endophyte may be belonging to different group such as bacteria, actino-mycetes and fungus etc. here our study related to fungal endophytes which have been isolated from *Costus* plant. These endophytes are very unique andobliging as they help to produce compound which help plant to cope up with changing environmental and stress condition. They also help to produce the secondary metabolites which perform diverse action like cytotoxic, anti-inflammatory, antibacterial, antiviral, antioxidant etc. fungal endophytes are the source of compound which are necessary for plant survival in stress. For the isolation of fungal endophytes fresh plant sample was collected followed by surface sterlization was done by sodium hypochlorite (5%) and plated on PDA media. Some of the Commonly Fungi like *Colletotrichum*, *Cryptococcus Fusarium*,*Curvularia*, *Rhizoctonia*, *Alternaria*, *Aspergillus*, *Claviceps*, *Rhodotorula*, *Glomus*,*Penicillium* and *Phoma* species are found as endophytes. In this study these endophytes evaluated for their enzymic activities such as amylase, pectinase, cellulase, L-asparaginase.

Keywords: endophytic fungus, fungal endophytes, *Costus speciosus*

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Paper Code
LA 34

Microorganisms, Scientific Ethics And Analysis

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Abstract

Microorganisms comprise viruses, bacteria, fungi, archaea, unicellular eukaryotes, protozoan's, algae etc. The niche of microbial community is considered as micro-biome i.e. specific habitats: air, water, soil and is very complex. Microorganisms are first to evolve as prokaryotes gradually evolving as eukaryotes. They have parallely evolved and have diverse interactions with their hosts i.e. symbiosis, mutualism, commensalism, ammensalism, syntropism, antagonism, parasitism, competition, predation etc. Development of any research field related to humanity, universe, and planet must have an ethical & holistic approach. Ethics of science is also applicable in the study of microorganisms along with the micro-biome relations. The research area comprising of microorganisms and its analysis via ethical approach should be communicative and operational. The major essence of this paper is analysis of use of microorganisms, their scientific ethical relevance in present day scenario.

Keywords: Micro-biome, Microorganisms, Ethics, Research, Interactions.

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 35

Social Behaviour Of Hanuman Langur (*Semnopithecus Entellus*) In Durg District (C.G.)

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Abstract

Langurs are wild creatures, a prominent group of primates. Scientifically identified as Semnopithecus entellus, greyish langurs sometimes are known as Hanuman langurs or entellus langurs. Social Behaviour of Hanuman Langur (*semnopithecus entellus*) were studies from Durg District (C.G.) The study was mainly based on direct field observations from dawn to dusk and data was collected through focal animal sampling in 10-minutes duration. During the study period ten groups of Hanuman langurs were observed in urban and rural habitats. Nine behavioural activities like resting, feeding, grooming, moving, parental care, playing, reproductive, submission and aggression of male were recorded. Adults were engaged to encourage infants, juveniles and sub-adults to play. Significant seasonal variation of grooming was observed between age classes. Strong parental care were observed in females with continuous engagement grooming.

Keywords: Grooming, parental care, aggression, monkeys, langurs, behaviours.

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Biodegradation of Used Engine Oil by *Trichoderma* sp. A 11 MCC 1816

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Abstract

In the current investigation, hydrocarbon-degrading fungi were isolated and screened from oil-contaminated soil at a Raipur (C.G.) auto shop before being identified using ITS sequencing. Later,Fourier transform infrared spectroscopy (FTIR) and scanning electron microscopy (SEM) analysis were used to characterise the oil degradation. Fungal isolate A 11 had the greatest average growth rate in the first screening assay, which was obtained by measuring the growing diameter of mycelia on minimal salt media enriched with 2% used motor oil (v/v). A confirmation test was carried out using the orbital shaking method to identify biodegradation using a spectrophotometric approach at 600 nm, which revealed degradation within 7 days and allowed for the calculation of the percentage of degradation. The percentage of degradation for A 11 was higher and was calculated to be 76.47±0.02 %. With 99% sequence similarity, identification revealed that A 11 was related to *Trichoderma longibrachiatum* (NR 120298.1) in a close manner. Through the use of FTIR, the isolate's chemical characterisation and degradation potential were assessed. The results showed bands forming based on the presence of various functional groups, which indicated the isolate's oxidative breakdown of hydrocarbons. The existence of porosity and fragility of the fungus-degraded oil surface was further revealed by SEM analysis, which allowed researchers to analyse the potential use of micro-fungi found in oil-contaminated soil for mycoremediation investigations.

Keywords: *Trichoderma longibrachiatum*, Mycoremediation, Used engine oil, FTIR, SEM

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One Strain many Compound: new approach and recent trends

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Abstract

The impact of the one strain many compounds (OSMAC) strategy on the elicitation of bioactive natural product, which resulted in either an augmented accumulation of constitutively present compounds or an accumulation of novel natural compounds lacking in axenic control cultures. Triggering the production of these "silent" clusters might result in the identification of novel molecules of medicinal and biotechnological significance by unlocking the chemical diversity they govern, As a result, both genetic and techniques for stimulating the expression of these "silent" genes have been developed. The concepts behind cultivation-based techniques have been conceived under the OSMAC paradigm, which emphasizes how a single strain may create diverse chemicals when cultivated in different environments. Evaluate the impact of changes in growth, isolation, culture parameters, nutritional source, chemical diversity, biological (pathogens, sponge), and growth circumstances on media composition (C/N ratio), and growth conditions (Temperature, pH aeration, shaking, and salinity). Changes in these parameters may result in changes in chemical diversity. They can cause products, enzyme inhibitors, biosynthetic precursors, alternative pathways, and triggered cryptic genes, and it can cause cluster genes to be induced (interact different strain). It is possible to get new fungal secondary metabolite structures. Furthermore, the highlight how modifications in several characteristics that have shown significant outcomes in terrestrial microbes but have seldom been studied in marine or soil microorganisms unfortunately, the empirical character of the OSMAC approach necessitates substantial laboratory testing. Nonetheless, as assume that various computing and experimental methodologies utilized in other fields and discussed here might be successfully leveraged to assist simplify the OSMAC-based approaches. The integrating fundamental microbiological methodologies, computational methods, and technological breakthroughs will considerably enhance natural product discovery in marine and soil microorganisms, therefore helping to unearth much of these microorganisms' latent potential. This evaluation focuses on the OSMAC approach and co culture because it applies to different factors to influenced metabolites, triggered mute gene clusters, natural product discovery in soil/marine microorganisms, and to create for pharmaceutical industries using computational approaches and technique innovation.

Keywords: OSMAC approach, Fungal Secondary Metabolites

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 38

Study of Heavy Metals Toxicity on Cat Fish Clarius Batracus Of Balrampur District of Chhattisgarh

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Abstract

The pollution of ecosystem is a cosmopolitian problem that needs urgent attention and prevention . Since the aquatic environment is the ultimate recipient of pollutants, increasedindustrials, domestic and agricultural activities have resulted in an increasing number of freshwater system being impacted by the polluntants present in waste water release. Due to toxicity long persistence and bioaccumulative and non – biodegradable properties in the natural environment metals constitutes a core group of aquatic pollutants. Heavy metals such as Cu, Pb,and fe are predominantin water and sediment.C. batrachus fish were collected during Dec. 2018 to October 2019. Healthy and disease free fish C. batrachus were collected from collected from local fishermen and brought to the laboratory. The fishes were kept in the glass aquarium to observe any visible pathological symptoms .Before introducing into the aquarium fish were solution to obviate any dermal infection. Then the fishes were acclimatized in laboratory condition for a period of one week.Cuso4 were used for the preparation of various concentration (stock solution)by adoption the diluting Techniques. Six fishes were exposed to sub lethal concentration for 8, 16, and 24 hours under acute studies while chronic studies were also conducted for 45 day . Hematological studies made after 15, 30, 45, days of exposure. In acute and chronic studies feeding was stopped one day before the experiment and under chronic studies refeeding was done after one day of exposure. Large size glass aquaria were chosen to avoid space problem parameters such as water quality parameters such as water temperature, hydrogen ion concentration (pH) , dissolved oxygen, carbon dioxide, total alkalinity, calcium hardness and total hardness were analyzed before sacrifice of fish water quality parameters were analyzed by following the procedure of APHA (2000). Fish behavior was observed and recorded accordingly . Control group were

maintained for all the above experiments after exposure the fish sacrificed for hematological examinatment.The results of the present investigation show that the CUso4 treatment inflicted a drastic reduction in the total count RBCs. The reduction was dosage dependent. Decrease in hemoglobin, RBCs count in fish. The increase in WBC observed in the present study could be attributed to a stimulation of the immune system in response to tissue damage caused by CUSo4. Gill have reported that the stimulation of the immune system causes an increase in lymphocyte by an injury or tissue damage.

Keywords: immune, fish, C.batrachus, Heavy meatals, toxicity

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Paper Code
LA 39

Hepatoprotective Renoprotective and Cadioprotective Effects of wheatgrass and its bioactive compounds (Chlorophylline and Rutin) on $HgCl_2$ Induced Oxidative stressed Rats

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Abstract

The present study was aimed to investigate the hepatoprotective renoprotective and cardioprotective effects of wheatgrass and its bioactive compounds chlorophyllin and rutin on mercuric chloride induced ($HgCl_2$) oxidative stressed rats by measuring the serum alkaline phosphatase (ALP), serum glutamate oxaloacetic transaminase (SGOT) and serum glutamic pyruvate transaminase (SGPT) activity, serum urea and creatinine level and lipid profile test, including total cholesterol, triglyceride, low density lipoprotein (LDL), and very low density lipoprotein (VLDL). Rats were randomly divided into eight groups. Group I: control. Group II: wheatgrass extract 100 mg/kg body weight. Group III: chlorophyllin40 mg/kg body weight. Group IV: rutin30 mg/kg body weight. Group V: Oxidative stressed rats treated with $HgCl_2$ at a dose of 5 mg/kg body weight. Group VI: $HgCl_2$ +wheatgrass extract100 mg/kg body weight. Group VII: $HgCl_2$ + chlorophyllin 40 mg/kg body weight. Group VIII: $HgCl_2$ + rutin 30 mg/kg body weight. Results of the study showed that, oxidative stressed rats had considerably higher levels of the liver enzymes ALP, SGOT, and SGPT, as well as elevated levels of serum urea and creatinine than control rats. By reducing the activity of the ALP, SGOT, and SGPT enzymes as well as serum urea and creatinine levels, wheatgrass extract, chlorophyllin, and rutin supplementation demonstrated hepatoprotective and renoprotective potential in oxidative stressed rats. Furthermore, this research shown that supplementing with wheatgrass extract chlorophyllin and rutin decreased the levels of blood lipid profiles in oxidative stressed rats, which indicates cardioprotective potential of wheatgrass chlorophyllin and rutin. Therefore it may be proved

thatsupplementation of wheatgrass and its bioactive compounds, preventing or delaying the alterations in liver enzymes, lipid profile and renal changes caused by mercury-induced oxidative stress, due to its potent antioxidant potential wheatgrass may also be used as a dietary supplement to prevent ailments caused by oxidative stress.

Keywords: Oxidative stress, wheatgrass, hepatoprotective, cardioprotective, renalprotective

First International Conference on Role of Applied Sciences in Social Implications (IC-RASSI-2023)	Paper Code LA 40

Study of the solid static mediums for *in vitro* influential mycelium growth of *Cordyceps militaris*

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Abstract

The search for an inexhaustible source of bioactive compounds with great functional activities is imperative for potential drug leads in treating various diseases. In this regard, we choose *Cordyceps militaris*, parasitic edible and medicinal fungi. Its derived bioactive compounds have been given much attention due to their multiple actions, including antioxidant, anticancer, antiviral, antidiabetic, antiobesity, antimicrobial, and immunomodulatory effects. The best mycelial growth for various fungal species depends on the presence of culture media. With less homogeneity in the nutrient medium, a variety of media are used for *C. militaris* for recognition, restoration, and *in vitro* culture.Hence, to present study of the growth characteristic of mycelia of *C.militaris*, we examined various media under light and dark conditions. The experiment demonstrated that the mycelium grew faster in diameter in the dark than in the light. It has been observed that the color and shape of colonies varied in different media.*C. militaris* produced a significant amount of mycelia growth on novel media, indicating that these media might be ideal for mycelial growth. Novel medium provides an effective way for increasing the production of bioactive compounds at an industrial scale and the relative ease of cultivation in a short period under laboratory as well as commercial scale.

Keywords: Mycelium growth, Immunomodulatory effects, Novel media, Bioactive compounds.

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