


ABSTRACTS PRESENTED BY STUDENTS IN NATIONAL AND INTERNATIONAL CONFERENCE

Students are also encouraged to present papers in National and International conferences. **One of our students from PG Department of Social work and Sociology presented a paper at the International conference** organized by PG Department of Social Work, KE College, Mannanam. **Two students from the PG Department of General Biotechnology presented their research work at the 30th Swadeshi Science Congress held at National Institute of Technology, Calicut**

Photographs




Dr. NAVEEN MOHAN
PRINCIPAL
GEMS ARTS AND SCIENCE COLLEGE
KADUNGAPURAM (PO), RAMAPURAM
MALAPPURAM DT., KERALA-679 321





30th Swadeshi Science Congress

Organized by: SWADESHI SCIENCE MOVEMENT - KERALA
Sastra Bhavan, B-4, 4th Floor, Mather Square, Town Railway Station Road, Kochi - 682 018

In association with:

National Institute of Technology (NIT), Calicut

National Conference on Holistic Approach for a Sustainable Lifestyle -
Perspectives from Indian Knowledge System

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Certified that Mr./Ms./Dr. / Prof. Ashfina C.

has participated/presented a paper titled,

Optimization of the production of single cell protein from
Cyanosorb by Saccharomyces cerevisiae through submerged
fermentation

in the Swadeshi Science Congress 2023 held at National Institute of Technology
(NIT), Calicut during 25-27 May 2023

Prasad

Dr. Prasad Krishna
Director
NIT, Calicut

Muralidharan

Dr. K. Muralidharan
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Certificate

Certified that Mr./Ms./Dr. / Prof. Safieeda K.

has participated/presented a paper titled,

Preparation of nano fertilizer from Allium cepa and its
application on seed germination

in the Swadeshi Science Congress 2023 held at National Institute of Technology
(NIT), Calicut during 25-27 May 2023

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30th Swadeshi Science Congress

25-27 May 2023

National Conference on Holistic Approach for a Sustainable Lifestyle
Perspectives from Indian Knowledge System at NIT - Calicut



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Focal Theme

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EAT/14 Engineering polymerized whey protein for co-delivery of marine isoprenoid and polyphenolics - *Vidya Mohanan, Pavithra, P.A., Abhirami, N., Tejpal, C.S., Anas, K.K. and Lekshmi R.G.Kumar*

8. Biotechnology and Biomedical Research

BBR/PL/01 Prospects and challenges in medical biotechnology in India - *Biju Dharmapalan*

BBR/01 Development of region-specific Lactic acid bacteria – yeast co-culture for ‘thayir’ fermentation - *Archana Chandran and Beena, A.K.*

BBR/02 Optimization of the production of single cell protein from *Cucumis sativus* by *Saccharomyces cerevisiae* through submerged fermentation - *Ashfena, C. and Nayana, P.*

BBR/03 Vibrational intervention facilitating neurite outgrowth - *Nayana, J., Saranya, S.S., Sreekala, B.P., Manoj Komath, Anantharaman, I., Varma, H.K. and Francis B. Fernandez*

BBR/04 A study on the effect of Quercetin, an auxin inhibitor, in the *in vitro* cultures of *Galium asperifolium* Wall. - *Sruthy S. Nair and Siril, E.A.*

BBR/05 Genetic diversity assessment in Sacred lotus (*Nelumbo nucifera* Gaertn.) accessions with inter simple sequence repeat markers - *Divyashri and Siril, E.A.*

BBR/06 Conditioned bioceramic graft systems: Demonstration in rat calvarial reconstruction - *Manasa, M., Francis B. Fernandez, Dinesh, P.T., Suresh Babu, S., Varma, H.K. and Syam K. Venugopal*

BBR/07 Effect of cytokinins on *in vitro* shoot multiplication of *Hydrocotyle sibthorpioides* Lam. - *Silpa James, Bindu R. Nair and Siril, E.A.*

BBR/08 Optimization of *in vitro* multiple shoot induction and whole plant regeneration of *Persicaria glabra* (Willd.) M. Gomez - *Arsha, K. and Siril, E.A.*

BBR/09 Analysis of genetic diversity in *Nymphaea nouchali* Burman f. accessions from Kerala - *Rinu V. Thomas and Siril, E.A.*

BBR/10 *In vitro* anticancer studies of novel N (di-2-pyridylmethylylene) morpholine-4-thiocarbohydrazide complex of manganese - *Archana, P.K. and Suni Vasudevan*

BBR/11 Background evidence of exploitation of ketamine usage - *Megha, K.B.,*

like acid production, flavour production and exopolysaccharide production. The activity of selected strains of yeast and LAB at different temperature were monitored. Based on these results *Limosilactobacillus fermentum* ADMH 12 and *Pichia kudriavzevii* Y01 were selected for development of LAB-yeast co-culture. Thayir was prepared in cow milk using monocultures and co-cultures of selected combination. Physico-chemical properties, texture profile analysis and sensory evaluation of the products were evaluated. The cultures were then preserved by freeze drying using different cryoprotectants viz., skim milk, trehalose, sucrose, lactose and their combinations. The viability of freeze dried cultures were evaluated during storage up to 90 days. The results of the study showed significant difference in acidity of thayir prepared using different treatments. The LAB-yeast co-culture produced thayir with better textural and sensorial attributes. Shelf life evaluation of lyophilized powder showed that maximum protection to LAB was offered by sucrose and to yeast by trehalose.

BBR/02

Optimization of Single Cell Protein Production from Easily Available Vegetable *Cucumis sativus* by *Saccharomyces cerevisiae* Through Submerged Fermentation

Ashfena, C. and Nayana, P.

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Single cell protein (SCP) is a rich source of protein which can be used as an alternative source of protein replacing the highly expensive protein meal. It is a refined edible protein extracted from pure microbial cultures from dead or dried cell biomass. In the day-to-day scenario people are not getting enough nutrients; hence by the production of the single cell protein it becomes easier for people to get enough protein. The present study focuses on the production of SCP from a cheap and easily available vegetable *Cucumis sativus* by using *Saccharomyces cerevisiae* through fermentation. The method utilizes *C. sativus* as the substrate for the production of single cell protein. Bakers yeast or *S. cerevisiae* is the microorganism used for the process of submerged fermentation in an Erlenmeyer flask. After fermentation, the biomass and protein content were determined. The effect of various factors such as incubation period, temperature, pH,

carbon source, nitrogen source and additives on SCP production were analyzed using one factor at a time (OFAT) approach. The present study focused on SCP production from *C. sativus* using *S. cerevisiae* under submerged fermentation. The production parameters were optimized using one factor at a time (OFAT) approach. The factors considered were incubation period, temperature, pH, carbon source, nitrogen source. The optimization resulted in significant increase in SCP production. The study presents a laboratory feasible method for the production of Single Cell Protein with easily available raw material. The present work can be extended to industrial scale production of SCP, which can be used as a nutritional supplement.

BBR/03

Vibrational Intervention Facilitating Neurite Outgrowth

**Nayana, J., Saranya, S.S., Sreekala, B.P., Manoj Komath,
Anantharaman, I., Varma, H.K. and Francis B. Fernandez**

Division of Bioceramics, Biomedical Technology Wing, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Poojappura, Thiruvananthapuram - 695 012, Kerala

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Vibrational methods have been used from time immemorial as part of exercise or therapy to generate favourable outcomes. Mechanical signals associated with exercise are expressed in the form of low intensity vibrations and could combat the effects of senescence. Demonstrating the effects of such systems have not been dealt with in detail by interventional studies that provide a controlled environment for assessment and calibrating responses as required. *In vitro* cell culture provides a large amount of information on the ability of cells to function in a simulated environment. This allows for the evaluation of their response to various stimuli and predict impact of therapeutic interventions or active molecules. The study aims to close the knowledge gap with respect to application of these low intensity vibrations in a cell culture environment. We have investigated the activity of Neuro 2A (N2a), a mouse neural crest-derived cell line on exposure to a vibrational intervention. The cell line has been extensively used to study neuronal differentiation, axonal growth and signalling pathways. Based on controlled conditions and input of designed vibrational intervention, we were able to observe increased rates of neuronal outgrowth compared to control groups. Neuronal outgrowth is associated with increased cellular metabolism, the developing nervous systems and

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VAF/33 Natural level of phosphorus in commercially important wild caught shrimp species - Priya, E.R., Nelbin Joseph, Laly, S.J., Zynudheen, A.A. and Femeena Hassan

VAF/35 Enzyme profiles, virulence and genetic diversity of *V. parahaemolyticus* isolated from bivalves along south-west coast of India - Remya, B., Krupesha Sharma, S.R., Murugadas Vaiyapuri, Vineeth Rajan and Ardhra Vijayan

VAF/36 Characterization of classic virulence determinants in *Salmonella* serotypes from seafood: Factors embracing pathogenicity - Greeshma, S.S., Vishnu Vinayagam, Toms C. Joseph and Asha, K.K.

VAF/38 Influence of dietary tannic acid on growth performance in *Oreochromis niloticus* fingerlings - Tejpal, C.S., Lekshmi, R.G.K., Sanal, E., Chandrasekar, S., Renuka, V., Anas, K.K. and Anandan, R.

VAF/39 Bio-extraction of chitin from shrimp shell waste by successive co-fermentation using *Bacillus licheniformis* and *Lactobacillus* sp. - Anupama, T.K., Krishnamoorthy, E., Lekshmi R.G. Kumar and Toms C. Joseph

VAF/51 Shrimp processing side stream-based natural foliar formulation for better growth and yield in Red amaranthus (*Amaranthus tricolor* L.) - Angel Maria Selassy and Sabu, S.

6. Health Sciences

HSS/PL/01 Effect of environmental pollutants on human health - Balagopal Unni

HSS/PL/02 The impact and importance of Science Based, Evidence Based Ayurveda (SBEBA) in Indian healthcare - Remya Krishnan

HSS/PL/03 Human-on-a-chip, a next generation approach in pre-clinical studies - Mohanan, P.V.

HSS/01 Effectiveness of yoga therapy: Case studies - Vijayaraghavan, N. and Madhavachandran, K.

HSS/02 Low back pain: A pragmatic plan for Ayurveda intervention for the accomplishment of sustainable development - Amrutha Elamon and Purushothaman, P.

HSS/03 Anatomical and analytical evaluation of a new poly herbal formulation with special reference to skin care - Nayana, K., Indu Chandrabose, Deepthy

Mohan, Priyanka, K.S., Bindu, K.K, Asish, G.R. and Sheela Karalam, B.

HSS/04 Psychological autopsy - *Payal Shrivastava*

HSS/05 Daivavyapashraya chikitsa: The mystic and spiritual healing - *Adarsh Varma, R.*

HSS/06 Healthcare ergonomics in India: A review of current practices and future directions - *Ebin Mathew, Sridharan, R. and Ratna Kumar, K.*

HSS/07 Role of Ayurvedic prescription of menstrual diet recipe in women's reproductive healthcare - *Priyanka, T.K.*

HSS/08 Causes, impact, awareness and management of stress among college students - *Vinaya, V. and Anu George*

HSS/09 Antimicrobial resistance among common clinical isolates from Wayanad district: A retrospective study - *Athira, A. and Deepthy, B.J.*

HSS/10 *In vitro* evaluation of ethanolic extract of *Coriandrum sativum* for anti-urolithaitic activity and phytochemical characterization - *Rinshida, N. and Nayana, P.*

HSS/11 Exploring the benefits of Yoga sessions in gender and technology programs: A feedback -based presentation - *Chitra, M.S.*

HSS/12 Quit behaviour among smokeless tobacco users in India: Evidence from global adult tobacco survey - *Karthika, M.*

HSS/13 Isolation and identification of bacteria from wounds of diabetic patients - *Akshara Ajay, Anamika Chandrababu, Jyothika, S., Nikhitha, M.R., Mary Reena Jacob and Akhila Rajan*

HSS/14 Comparative assessment of conventional Jaipur foot with other prosthetic feet - *Preeti Chauhan, Amit Kumar Singh and Naresh K. Raguwanshi*

HSS/15 Association between lifestyle and health among working women in Kozhikode - *Sooryagayatri, M.K., Rajesh, K., Geethalakshmi, V. and Mathew Sebastin*

7. Engineering and Technology

EAT/PL//01 Conversion of innovation and technology to foster entrepreneurship-

determine the most prevalent and emerging bacterial pathogens among them. A seven month retrospective study of different bacterial isolates from various clinical samples was conducted in a tertiary care hospital in Wayanad district. Clinical samples taken for the study included urine, pus, sputum and blood. The data were stored and processed using WHONET software, and statistically analyzed. Data from 2125 clinical samples were studied, in which 661 were urine samples, 910 were pus samples, 225 were blood samples and 339 were sputum samples. The predominant bacteria identified from urine sample was *E. coli* among which the prevalence of extended spectrum beta lactamase (ESBL) producing *Escherichia coli* was 40.61%, and the metalobetalactamase (MBL) producers 3.45%. *Staphylococcus aureus* was the predominant bacteria in the pus samples, in which Methicillin resistant *S. aureus* (MRSA) was found to be 3.92%. *Acinetobacter* was the most predominant bacteria in the blood samples, in which ESBL producing *Acinetobacter* was noted as 3.57%. *Klebsiella* species were the predominant bacteria in the sputum samples, in which ESBL producing *Klebsiella* was 16.79% and MBL producers were 3.82%. The study helped to identify the most predominant antibiotic resistant strains from each of the clinical samples in a resource- limited setting like Wayanad. Similar studies would help in successfully formulating treatment strategies against bacterial infections, thereby reducing morbidity and mortality in patients.

HSS/10

***In vitro* Evaluation of Ethanolic Extract of *Coriandrum sativum* for Anti-urolithaitic Activity and Phytochemical Characterization**

Rinshida, N. and Nayana, P.

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Urolithiasis are the third most prevalent disease of urinary system. Standard procedures in healthcare cannot provide complete cure, thus leading to infections and high recurrence rate. Hence, people prefer herbal medicines over synthetic medicines. Herbal medicines contain variety of phytoconstituents that exert their effects in a multiple ways to treat urolithiasis. Moreover it can be considered a less expensive method and can

reduce the recurrence rate. The present study focuses on the anti-urolithiatic activity of easily available plant *Coriandrum sativum* by *in vitro* approach. In the present study, aqueous extract and ethanolic extract of *Coriandrum sativum* were subjected to qualitative and quantitative analysis. Antiurolithiatic activity was determined by turbidity method against Calcium oxalate crystal. By analyzing the result ethanolic extract was selected for further studies. Characterization was done by microscopic analysis, and UV-Vis spectrophotometry. Characterization of Calcium oxalate crystal after treatment with the ethanolic extract of *Coriandrum sativum* showed significant reduction in the crystal formation with respect to the control. From the study, it was concluded that *Coriandrum sativum* can be used as an excellent herbal medicine against urolithiasis.

HSS/11

Exploring the Benefits of Yoga Sessions in Gender and Technology Programs: A Feedback-based Presentation

Chitra, M.S.

Secretary and Registrar, International Centre for Free and Open Source Software (ICFOSS), Swatantra, South Pavilion, Sports Hub, Karyavattom, Thiruvananthapuram - 695 581 , Kerala
E Mail: registrar@icfoss.in

Women often face unique challenges related to online privacy and internet usage, as well as a general lack of awareness of web-based issues in Free and Open Source Software. To address this issue, International Centre for Free and Open Source Software (ICFOSS) has taken proactive steps to redress the imbalance. Women-only hackathons, fellowship programs, workshops, winter and summer schools, residential programs, Back to Work Programs etc. have been organized. Yoga session was implanted as a part of Gender and technology programs of ICFOSS and it has resulted in notable improvements in vital capacity among participants. It helped in validating the effectiveness of Yoga and Pranayama in enhancing the vital capacity which was a positive therapeutic outcome that eventually enhanced respiratory function and overall well-being of the participants. The Yoga sessions were conducted by certified Yoga instructors which includes physical postures, breathing exercises, and mindfulness practices. Post completion of the program, participants were asked to provide feedback on their experience with the Yoga sessions through surveys and open-ended questions which was an essentiality

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CMS/05 Murburn concept, a stochastic principle of cellular evolution - Manoj K.M.

CMS/06 Fission fragment mass distribution studies in $^{32}\text{S}+^{197}\text{Au}$ and $^{36}\text{S}+^{197}\text{Au}$ reactions - Shiva Prasad Nayak and Prasad, E.

CMS/07 Surface functionalized silane grafted chitosan/halloysite nanocomposites for the removal of Th(IV) from aqueous media: Its kinetic and equilibrium profile - Pavitha, P.A. and Rijith, S.

CMS/08 Electrochemical detection of adrenaline using magnetic halloysite modified glassy carbon electrode - Renjini, S., Pinky Abraham and Pavitha, P.A.

CMS/09 PANI embedded porous zeolitic imidazolate framework (ZIF) with transition metal dichalcogenides for efficient electrochemical water splitting reactions - Akhila, M., Athira, S. and Rijith, S.

CMS/10 Down-converted phosphors from lead-free organic-inorganic metal halide for white light-emitting diodes - Amarjith V. Dev and Vijayakumar, C.

CMS/11 Co-deposition of thin-layered reduced graphene oxide and poly (Aniline) composite for the voltametric sensing of morphine - Pinky Abraham, Renjini, S. and Pavitha, P.A.

CMS/12 Adsorption behavior of cationic dye Rhodamine 6G from aqueous solutions on mesoporous SBA-15 - Athira, M.P., Sreedevi, T.H. and Suja Haridas

4. Agriculture and Botany

AAB/PL/01 Integrated agri value chain system - Issues and opportunities - Sethumadhavan, T.P.

AAB/01 Pokkali cultivation: A holistic approach to ensure sustainability - Surya Babu, S. and Raju Thomas, K.

AAB/02 Primitive rice boro from eastern Uttar Pradesh that supported life of tribal communities and bridged species of *Oryza* getting extinct - Chaudhary, R.C.

AAB/03 Sensory and chemical evaluation of laboratory-ensiled hybrid Napier grass prepared using *Lactobacillus plantarum* or propionic acid as additives - Akhil Prasad, K.A., Dipu, M.T., Jith John Mathew, Ally, K., Deepak Mathew, D.K. and Rejeesh, R.

- AAB/04** Energy efficiency indicators and economics of a small scale integrated farming system situated in Kerala, West Coast of India - *Nisha, R., Pooja Udayan, Swathi Krishna, K.V., Keerthana, P.S., Teena Elvis, Soorya Gopan, Arun Das, N.H., Shamini, M.S., Dinesh, K., Sreekanth, G.B. and Daisy Joseph*
- AAB/05** Stingless bee resin foraging behaviour and origin of it's propolis - *Abhijith, R.L. and Vijayasree, V.*
- AAB/06** Evaluation of bio-control agents against thrips in onion under field conditions - *Neethu G. Raj and Muthiah, C.*
- AAB/07** Gas chromatography-mass spectroscopy (GC-MS) analysis of resistant and susceptible paddy genotypes against *Sitotroga cerealella* – *Sandra Maria Mathew, Jeyarajan Nelson, S. and Soundararajan, R.P.*
- AAB/08** Development of *Aloe vera* (L.) as a potential biopesticide for brinjal pest management: Assessment of impact of aloe leaf extracts against sucking pests and their natural enemies - *Ajay P. Kumar, Malini Nilamudeen, Anitha, N., Reji Rani, O.P. and Sheena, A.*
- AAB/09** Generation of nano fertilizer from *Allium cepa* and its application on seed germination - *Safeeda, K. and Nayana, P.*
- AAB/10** Phytochemical profiling of primary and secondary metabolites in pest infested *Murraya koenigii* (L.) Spreng - *Karthika, S., Malini Nilamudeen and Gowri Priya*
- AAB/11** Effect of cyanobacterial biostimulant on growth and secondary metabolite production in *Brassica juncea* (L.) Czern - *Archana Pachath and Shamina, M.*
- AAB/12** Climate resilient traditional mango (*Mangifera indica* L.) cultivars of South Kerala: An urgent need for conservation - *Bindu, B.*
- AAB/13** Water regimes, tillage and weed management methods: Effective tool to tackle weed menace under wet land rice ecosystem - *Renjan, B.*
- AAB/14** Identification of whitefly endosymbionts in cassava (*Manihot esculenta* Crantz) using diagnostic PCR and Sanger sequencing - *Harish, E.R.*
- AAB/15** Botanical-chemical pesticide combinations to manage cowpea aphid (*Aphis craccivora* Koch) - *Janu S. Nair and Santhosh Kumar, T.*
- AAB/16** Economic analysis and marketing strategies of *Elaeocarpus serratus* -

AAB/09

Generation of Nano Fertilizer from *Allium cepa* and Its Application on Seed Germination

Safeeda, K. and Nayana, P.

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Green nanotechnology is increasing quickly in sustainable precision agriculture, which has the potential to completely transform the food industry. The ability to customize fertilizer manufacturing with appropriate chemical composition, increase the efficiency of nutrient use in an eco-friendly manner and increase plant yield are made possible by nanotechnology. In the current study nano fertilizer is synthesized from food waste such as onion peel. In the present study, nanoparticles were biosynthesized using onion peel extract. The synthesized nanoparticles were characterized by means of UV-Vis spectrophotometry and Scanning Electron Microscope. The bio fertilizer activity of nanoparticles was assessed by seed germination study. The soil used for seed germination was characterized and the parameters considered were moisture, pH, texture, and organic matter. Characterization of nano fertilizer confirmed the presence of nanoparticle. Application of the synthesized nano fertilizer in seed germination resulted in increased germination rate at varying concentration, compared to the control. Increase in number of leaves, shoot and root length were observed. An increase in fresh and dry weight was also observed in the nano fertilizer applied seedlings. Nano-bio stimulant fertilizer was successfully prepared from onion peel. It can be suggested as an excellent biological promoter for seed germination and seedling growth performance.

AAB/10

Phytochemical Profiling of Primary and Secondary Metabolites in Pest Infested *Murraya koenigii* (L.) Spreng.

Karthika, S., Malini Nilamudeen and Gowri Priya

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May 2023

14.00	At SOM Lecture Hall: SATYENDRA NATH BOSE HALL Special session on 'Co-Creating Sustainable Technological Solutions for Small-Scale Fisheries: An Interdisciplinary Approach'
18.15	At SWAMI VIVEKANANDA AUDITORIUM Swatantrata ka Amrit Mahotsav (SWAM) – Special Session on celebration of 75 th years of Indian Independence by Vijnana Bharati
19.00	At SWAMI VIVEKANANDA AUDITORIUM Heartfulness Meditation – Special Session
20.00	Millet-Dinner to commemorate International Year of Millets
26 May 2023	
9.00	At SOM Lecture Hall: JANAKI AMMAL HALL Session 2: Engineering and Technology Invited Lecture: Dr. K.P. Sudheer, Head, Department of Agricultural Engineering, College of Agriculture, KAU, Thrissur Oral Presentations: 14 Nos.
09.00	At SOM Lecture Hall: SATYENDRA NATH BOSE HALL Session 3: Agriculture and Botany Invited Lecture: Dr. T.P. Sethumadhavan, The University of Trans-Disciplinary Health Science & Technology, Bengaluru Oral Presentations: 33 Nos.
9.00	At SOM Lecture Hall: SALIM ALI HALL Session 4: Veterinary and Animal Sciences Invited Lecture: Dr. N.H. Mohan, Principal Scientist, ICAR-NRC on Pig, Guwahati Oral Presentations: 35 Nos.
9.00	At SOM Lecture Hall: Dr. PALPU HALL Session 5: Health Sciences Invited Lecture: Dr. Balagopal Unni, Director, Academic & Research, GEMS Arts & Science College, Ramapuram, Malappuram Dr. Remya Krishnan, Associate Professor & Head, Department of Dravyaguna, Rajiv Gandhi Ayurveda Medical College, Mahe Dr. P.V. Mohanan, Head, Department of Applied Biology, SCTIMST, Thiruvananthapuram Oral Presentations: 15 Nos.

HSS/PL/01

Effect of Environmental Pollutants on Human Health: Case Studies

Balagopalan Unni

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Occupational and environmental exposures to persistent environmental contaminants, particularly heavy metal emissions are increasingly associated with health risks. Exposure occurs mainly through respiratory and gastrointestinal systems and thus gets ingested and absorbed in the body resulting in serious health problems. About 3500-4000 individuals were covered through survey and consequent filling up of health questionnaires in three industrial study sites viz. oil drilling site, paper and pulp mill site and open-cast coal mine site. Air, water and vegetable samples were collected during the survey from these three sites and control area. Among all the three sites, the coal mine site was found to be most polluted with the highest amount of suspended particulate matter, NO₂ and SO₂ levels. The analysis of vegetables/food samples from these sites showed the presence of toxic contaminants and very low levels of nutritional parameters. The mineral analysis of water samples from these sites have shown high amounts of manganese, lead, arsenic, cadmium and lead. During the survey, interactions with each individual were done through a health questionnaire and all the disease symptoms were recorded and finally blood samples were collected through health camps and studied for biochemical parameters, kidney, liver profiles and hemoglobin content. For lung function, spirometry was done and tested for forced expiratory volume in one second (FEV₁), forced vital capacity (FVC) and FEV₁/FVC. Arsenic contamination was detected in most of the water samples near the paper mill. The major predominant diseases observed were respiratory disorders at the site of the coal mine, neurological disorders at the site of the paper mill, and liver abnormalities at the oil drilling sites. High levels of mercury were found in the blood and food samples collected near the paper mill. Experiments were also conducted to evaluate the coal dust "exposure-response" relationship amongst the people residing very near to the open cast coal mine area and trace out the genetic susceptibility to Chronic Obstructive Pulmonary Disease (COPD) with respect to GSTM1 and GSTT1 genes in the population. The impact of potentially injurious environment and other factors on human health are discussed.



International Conference on Life Sciences

Wednesday

NOV 02, 2022

Virtual Presentations

11:40 - 12:05 Title: Plastic Trash to Monomers and Intermediates – PTMI
Anne M. Gaffney, University of South Carolina, USA

12:05 - 12:25 Title: Enzyme-Sulphide Coupling for Light-Induced Water Splitting and CO₂ Reduction
Jose C. Conesa, Institute of Catalysis and Petroleum Chemistry, CSIC, Spain

12:25 - 12:45 Title: Engineering of Semiconductor for Improved Photocatalysis
Mouni Roy, Banasthali Vidyapith, India

12:45 - 13:05 Title: Recent Advances in Self - Organized TiO₂ Nano Tube Synthesis and Applications
Anca Mazare, Friedrich - Alexander University, Germany

13:05 - 13:25 Title: Synthesis, Structure and Biological Activity of Various Derivatives of Benzofuroxans and Benzofurazans
Irina Galkina, Kazan Federal University, Russia

Lunch Break: 13:30 - 14:30 @ DXB Grill

Sessions: Nanotech for Energy and Environment | NanoFluidics |
Nanomaterials and Nano Particles | Pharmaceutical Nanotechnology |
Drug Delivery | Environmental Risk Factors

Session Chair

Balagopalan Unni, GEMS Arts & Science College, India

14:30 - 14:50 Title: Modified ZnO Eco - Friendly Nan Materials for Multiple Applications
M. Swaminathan, Kalasalingam Academy of Research and Education, India

14:50 - 15:10 Title: Enhancing the Durability of Calcareous Stone Monuments of Ancient Egypt using CaCO₃ Nanoparticles
Mohammad Ateeq Aldosari, King Abdulaziz City for Science and Technology, Saudi Arabia

15:10 - 15:30 Title: Ion Transport in Micro - to - Millimeter Pores through 2D Membrane
Pramoda K. Nayak, Indian Institute of Technology Madras, India

Role of Gene Polymorphism and Environmental Risk Factors in Chronic Obstructive Pulmonary Disease

Balagopalan Unni

Assam downtown University, India

Chronic respiratory diseases have a pre-eminent role in the health conditions of coal miners and exacerbations of COPD are known to result from increased levels of particulate air pollution. One of the risk factors for developing COPD is on account of the environmental triggers in genetically susceptible individuals. Atmospheric pollution from anthropogenic sources such as coal mining, industrial sources is a serious worldwide concern as it is associated with adverse health effects. This research work has been carried out to study the relative prevalence of the disease amongst the people residing in the vicinity of open- cast coal mine areas in Assam, India and also to trace out the genetic susceptibility to the disease in the population. Extensive survey was carried out in the Open- cast coal mine areas in Assam and data were recorded in Questionnaire formats by close interaction with the local people with their consent. Blood samples were collected (random sampling) from a large number of villagers residing very near to the coal mine through health camps conducted in the area; and spirometry was carried out. There was significant air pollution in the study site and pulmonary function decline was observed amongst most of the villagers exposed to the study site. GSTM1 null type was significantly associated with lung function decline and the presence of at least one active allele (either GSTM1 /GSTT1) seemed to have a protective role in the development of COPD. The impact of potentially injurious environmental and other factors such as smoking status, respirable mixed coal dust will be presented and discussed.

Biography

Former Chief Scientist and DADD and Fulbright Fellow retired from CSIR after 38 years of research career at CSIR North East Institute of Science & Technology, Assam. Currently appointed as Adviser Research at Assam downtown University. Back in Kerala, Dr. Unni is appointed as Director Academic & Research at GEMS College of Arts & Science affiliated to University of Calicut. He did his B.sc Biology, M.sc in Biochemistry (Second Rank) and Ph.D in Biochemistry from Allahabad University and PDF in Molecular Biology from Texas A&M University, USA. Dr. Unni is specialized in Biochemistry Molecular Biology, and Biotechnology. Dr. Unni got more than 125 research papers 180 abstracts, 35 papers in proceedings, 4 patents, 1 technology. 18 chapters in books, edited 3 books and 30 students received PhD degree under his guidance and supervision. Dr. Unni visited USA, Germany, Israel, Jordan, France, Morocco, UK, Thailand, Jordan, Singapore and China under various exchange programs.