Book of Abstracts

2018 - 2019

Based on

Paper Presentations

Organised by

Research Promotion Council

St. Xavier's College for Women, Aluva

Email: researchpromotioncouncil@gmail.com

CHAIRPERSON	ABOUT RESEARCH PROMOTION COUNCIL	ABOUT BOOK OF ABSTRACTS
Dr. Sr. Geege Joanamma Xavier Principal **CHIEF EDITOR** **Dr. Anu Anto** Assistant Professor Zoology **ASSOCIATE EDITOR** **Dr. Manjusha K** Assistant Professor English	Research Promotion Council of the college was constituted in the year 2013 to promote and coordinate research activities in the College. Objectives of the research Promotion Council are to create passion among the students for research and innovation, to have periodic interactions with experts in various fields and as a forum for students and faculty members to present their academic findings. The Council also publishes a peer referred biannual interdisciplinary journal- Discourse.It aimstospread information in the field of science and humanities to the members of the academic community. Activities of the Research Promotion Council for the year 2018-19 were inaugurated by Dr. Sangeetha Mohan, Senior Scientist, SciGenom labs Pvt. Ltd. Kakkanad on June 8, 2018.	One of the main objectives of the Research Promotion Council was to conduct paper presentation sessions every month organized by various departments of the College. During this academic year, four paper presentation sessions and two talks by resource persons were conducted. 12 research papers both by the faculty and students were presented. The sessions covered a wide variety of topics like literature, economics, commerce, human rights, higher education, life sciences, physical sciences, chemical sciences, mathematics etc. This Book of Abstracts is based on the paper presentations conducted during the year 2018-19.

Contents

CHALLENGES AND OPPORTUNITIES IN HIGHER EDUCATION

Sangeetha Mohan
SciGenom Labs Pvt Ltd., Kakkanad, Kerala

Motivating students to pursue higher education is the main aim of this talk. An outline about of what research is all about is mentioned. Different competitive exams for getting research fellowship like UGC-JRF are enlisted. A through preparation for clearing the same needs to begin during the Post-graduation days itself and strong knowledge in the basics of one's respective subjects needs to be built. Summer training/ internships at reputed institutes can a go a long way improving one's knowledge and expertise. Hard work and perseverance is required for research. Venues available for research these days are vast; one needs to keep looking out for such opportunities especially on the internet. SciGenom Labs Pvt Ltd, Kakkanad has different departments offering research opportunities is the areas of immunology, diagnosis, molecular biology etc. A skill enhancement programme is being offered by SciGenom for Post Graduates. Students successfully completing this training are usually absorbed by SciGenom Labs or other reputed institutes.

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INNOVATION, INCUBATION AND ENTREPRENEURSHIP

Venu P

Student affairs and Innovation, Incubation and Entrepreneurship Centre
SCMS School of Engineering & Technology, Karukutty, Kerala

Innovation, Startups, Incubation and Entrepreneurship have become an indispensable part of academics these days; as they have become a part evaluation criteria of various National and State level agencies. Faculty members need to familiarize with the terms innovation, incubation and entrepreneurship. One needs to understand the difference between a start-up and a small business venture. Startup always has an innovative element to it. A business incubation facility, is a firm/agency that helps new and startup companies to develop by providing required technical advice, training or office space. A small problem solving idea, when given the ideal support and platform could turn out to be highly successful business venture. The market has to be well studied and proper plan worked out before beginning a startup. A fact to be kept in mind is that 90% of start-ups are failures. Often a team performs better than an individual in a startup venture. Often the funding for a startup is of great concern, but these days the environment is quite ideal to venture into startups with programmes like 'Make in India'. The best way to find funding for student's ideas or startups is to participate in various startup/ innovation contests organized by organizations like Kerala Startup Mission. Various funding agencies or angel investors come to these contests and support innovative and feasible ideas. Women can be very good entrepreneurs. Indian women have made a mark for themselves as successful entrepreneurs not only at the national level but also at the international level; Kiran Mazumdar Shaw the managing director of Biocon Ltd, Indra Nooyi President of PepsiCo to name a few. Coming up with a good idea is the key factor. This idea has to be worked on to come up with a feasible business plan.

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STUDY OF THE VARIATION OF STRUCTURAL AND OPTICAL PROPERTIES OF COBALT FERRITE NANOPARTICLES WITH SINTERING TEMPERATURE

Diniya

Department of Physics, St.Xavier's College for Women, Aluva

Spinel ferrites have attracted the attention of researchers recently because of their potential applications in scientific, technological and biomedical fields. Cobalt ferrites can find applications in magnetic data storage, sensors, microwave devices, magnetic refrigeration, magnetically guided drug delivery, antimicrobial agents etc. In the present study, nanocrystalline spinel Cobalt Ferrites was synthesized by sol-gel technique. The structural characterization of the sample was done using x-ray diffraction (XRD). Spectroscopic characterization has been carried out using UV visible diffuse reflectance spectroscopy and Fourier Transform Infrared Spectroscopy (FTIR).

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BIOTIC POTENTIAL OF MARINE YEASTS

Nefla N
Department of Biosciences, St.Xavier's College for Women, Aluva

Marine yeast are an important category of marine microorganisms that have been isolated from seawater, sediment, plants, algae, animals and other organic matter in the marine habitat. The first marine yeasts were isolated by Bernhard Fischer in 1894 from the Atlantic Ocean, and those were identified as *Torula* sp. and *Mycoderma* sp. They are divided into two groups -Obligate and Facultative. They participate in a range of ecologically significant processes in the sea, such as decomposition of plant substrates, nutrient recycling phenomenon, biodegradation of oil and recalcitrant compounds. Marine yeasts have already been investigated for the production of pharmaceutical and enzymatic products, such as Astaxanthin, Siderophore, Riboflavin, Inulinase and Amylases. Current research, indicates the promising features of the marine yeasts for the potential industrial application and their superiority over the terrestrial ones. However, our knowledge on the biodiversity and economical relevance of the marine yeast is inadequate when compared to the terrestrial organisms. This scenario indicates the need for greater research in this area.

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STUDY ON THE EFFECT OF TEMPERATURE, CONCENTRATION AND CATALYST IN THE PRODUCTION OF OXALIC ACID FROM PADDY AND PADDY HUSK

Sreelakshmi T R and **Airene Jannet Jaikumar**
Department of Chemistry, St. Xavier's College for Women, Aluva

Oxalic acid, $H_2C_2O_4$ is the simplest of the dicarboxylic acids. It is manufactured using cellulosic materials, usually waste products such as sawdust and cocoa seed by the method of nitric acid oxidation. In this project, the important raw materials are paddy husk and paddy. The husk is the outer most layer of paddy grain that is separated during the milling process. Paddy husks are usually dumped at a site as waste material, which constitute nuisance to the environment. This paddy husk, a rich source of carbohydrates, can be converted into oxalic acid which is an important reagent in chemistry. The project, was carried out to ascertain which sample produces a better yield. Nitric acid oxidation of carbohydrates was the method applied in carrying out these analyses. It is found that paddy husk is a good source of oxalic acid while comparing it with paddy. In both cases general trend found was that the yield of oxalic acid increased with temperature and also with an increase in the ratio of nitric acid in the acid mixture used for oxidation. The acid ratio that gave the maximum yield was 80:20(HNO_3: H_2SO_4) and maximum temperature is 75°C. The oxalic acid obtained from paddy and paddy husk was characterized using IR and UV spectroscopy.

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EFFECT OF METAL SUBSTITUTION ON COBALT FERRITE $Co_{0.5}M_{0.5}Fe_2O_4$ (M=Zn,Ni) NANOPARTICLES

[1]Sheena Xavier, [2]Aathira S and **[2]Dyuthi Mildred**
[1]St. Xavier's College for Women, Aluva, [2]St. Albert's College, Ernakulam

Ferrite nanoparticles exhibit unique chemical, structural and mechanical properties and have a variety of promising technological applications in high density recording devices, ferrofluids, high frequency devices and magnetic refrigerators. Cobalt ferrite is well-known hard magnetic material with relatively high coercivity and saturation magnetization. The structural and magnetic properties of cobalt ferrite could be modified by the substitution of other transition metals like Zn and Ni. The ferrites having the general formula $CoFe_2O_4$ and$Co_{0.5}M_{0.5}Fe_2O_4$ (M=Zn, Ni) were synthesized by sol-gel process. The samples were characterized by using X-ray Diffraction (XRD) technique, Transmission Electron Microscopy (TEM) and Fourier Transform Infrared Spectroscopy (FTIR). The results revealed that the spinel structure was modified by the substitute ions. In $Co_{0.5}Zn_{0.5}Fe_2O_4$ sample, Zn^{2+} substitute for Co^{2+}, resulting in an increase in the lattice parameter. The substitution of Co^{2+} ions by Ni^{2+} ions leads to a decrease in lattice parameter in the case of $Co_{0.5}Ni_{0.5}Fe_2O_4$ sample. The single-phase cubic spinel structure of all the three samples were confirmed by XRD. The average crystallite size of the nano crystallites were estimated by determining the full width at half maximum (FWHM) of all the peaks in the XRD pattern. FTIR spectrum confirmed the formation of spinel structure.

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A STUDY ON *IN VITRO* SEED GERMINATION AND PROTOCORM MORPHOGENESIS IN THREE ENDANGERED ENDEMIC ORCHIDS

Athira

Department of Botany, St.Xavier's College for Women, Aluva

In vitro seed germination and protocorm morphogenetic stages were studied in three selected endangered endemic orchids namely *Aerides maculosa* Lindley, *Pecteilis gigantia* (J.E.Sm). Rafin, and *Eria reticosa* Wight, to develop a suitable protocol for the micropropagation of these threatened species. The present study focused on the in vitro seed germination and protocorm morphogenesis of these selected orchids on half strength Murashige and Skoog Basal Medium (MSBM). The protocorm developmental stages were divided into six stages and analysed. The seed germination studies of these orchids proved that half strength MSBM was effective for seed germination. The time period for seed germination and protocorm developmental stages varies among the orchids under study. The highest seed germination is observed on *Aerides maculosa* Lindley and maximum protocorm development was observed on *Pecteilis gigantia* (J.E.Sm). Rafin. The present study provides an efficient protocol for the in vitro seed culture of three selected endemic orchids.

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IS EVOLUTION A FACT?

Aswani Gokul and **Meera C S**
Department of Botany, St.Xavier's College for Women, Aluva

The basic idea of biological evolution is that populations and species of organisms change over time. Darwin also suggested a mechanism for evolution: natural selection, in which heritable traits that help organisms survive and reproduce become more common in a population over time. Richard Lenski says, "Scientific understanding requires both facts and theories that can explain those facts in a coherent manner. Evolution, in this context, is both a fact and a theory. It is an incontrovertible fact that organisms have changed, or evolved, during the history of life on Earth. Darwin didn't know anything about genetics, Pobiner said. "He observed the pattern of evolution, but he didn't really know about the mechanism." That came later, with the discovery of how genes encode different biological or behavioral traits, and how genes are passed down from parents to offspring. The incorporation of genetics and Darwin's theory is known as "modern evolutionary synthesis." Evolution is well supported by many examples of changes in various species leading to the diversity of life seen today. "If someone could really demonstrate a better explanation than evolution and natural selection, would be the new Darwin," Richmond said.

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A REVIEW ON GREEN SYNTHESIS OF SILVER NANOPARTICLES THEIR CHARACTERISTICS AND APPLICATION

Sharminaz C S and **Helna Liston**
Department of Chemistry, St. Xavier's College for Women, Aluva

Nanoparticles have drawn immense attention due to the wideranging applications that they offer, particularly Silver nanoparticles (AgNPs) have gained significant interest in medical applications and also in the industrial field. Nanotechnology not only focuses on the production of particles in the nano size but also on effective methods employed in their synthesis for its low cost, easiness, reduced energy requirements and less pollution. This review is on the green synthesis of silver nanoparticles, their characteristics and applications. The focus is on evaluating the green method and relevance of AgNPs so formed.

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A STUDY ON THE INVESTMENT PATTERN OF EMPLOYEES AT INFOPARK

Rugmini Hariharan

Department of Commerce, St.Xavier's College for women, Aluva

Investment may be defined as "a commitment of funds made in the expectation of some positive rate of return". The essential quality of investment is that it involves waiting for a reward. Investment behavior refers to attitudes, perceptions, and willingness of individuals and institutions in placing their savings in various kinds of physical and financial assets commonly known as investment avenues. The investment behavior and pattern are different for different individuals and it depends upon the demographic attributes, return expectations, risk appetite, financial literacy, time horizon and several other quantitative and qualitative factors. Many studies have already been conducted on saving behavior of households, gender differences in knowledge and perception of investment, Investment risk tolerance, and perception about investment options and so on. This study intends to check the insight of Infopark employees to divert their hard earned money to various investment channels, by throwing light over the various commonly seen attributes that influence the investment decisions, their Investment objectives and the preference of the employees towards different Investment Alternatives. Objectives of the study are to assess the motives and factors influencing the investment decisions of employees at Infopark, to analyse the preference of employees on different investment avenues, to identify the relationship between risk tolerance level and investment motives and to assess the percentage of disposable income invested in each avenue by the employees.

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BEYOND HUMANS: A DISCUSSION ON THE EMERGENCE AND SURVIVAL OF TRANSHUMAN THROUGH PAULO BACIGALUPI'S 'THE WINDUP GIRL'

Donna John
Department of English, St.Xavier's College for Women, Aluva

Transhumanism is a futuristic philosophy and paves the way towards posthuman condition. Although a much later coinage, transhumanism is that which connects the theoretical and practical thoughts of humanism and posthumanism. This paper attempts a transhumanist reading of the novel *The Windup Girl* and also discusses the possibility of the transhuman and human being to survive together. Transhumanism seeks to guide the human kind to the posthuman nature. It also considers the present state of human species as work in progress, which can evolve into something better. But the theory does not probe into the question of survival of the transhumans if they were to exist. Through the perspective of Emiko, the paper discusses this question of what would be the kind of acceptance that the transhumans receive at the hands of the 'self-glorified' humans. Paolo Bacigalupi, the wordsmith of *The Windup Girl*, provides a detailed description of her sufferings and her inability to create a space in the human world. Emiko, a cyborg is ashamed of her own transhuman existence and wonders about what she really is. The theory, although defines the future of the world and mankind in specific, fails to achieve what it preaches. Detailing on the reasons as to why the transhumans may receive hostility when they meet the human race, the paper also does a reality check on the practicality of transhumanism and its queerness.

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KITE (KERALA INFRASTRUCTURE AND TECHNOLOGY EDUCATION) PROJECT-GOVERNMENT OF KERALA

Agnes Baby and **Greeshma C**
Department of Economics, St.Xavier's College for Women, Aluva

KITE (Kerala Infrastructure and Technology for Education) is a Govt of Kerala establishment set up to foster, promote and implement modernisation of educational institutions in the State of Kerala, owned by the State or run under the aid of Government. KITE is registered as a Section 8 Company, by transforming the erstwhile IT@School Project, which revolutionised the education system of the State. Kite has been launched on August 2017 and it has already started the implementation of Hi-Tech school programme of the Education Department, by which 45000 classrooms in 4775 schools are being made Hi-Tech, for which KIIFB has already approved a funding of Rs. 493.50 Crores. As the ambitious hi-tech school project of the state government completes two year of its launch, Kerala is poised to become the first state in the country to achieve total digital education by bringing primary schools also under its ambit well before the start of the 2019-20 academic year.

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EFFECT OF LEAF LITTER ON FRESHWATER PROTOZOAN COMMUNITIES – A MICROCOSM APPROACH USING FOLDSCOPE

Gislin Davis and Baby Divya
Department of Zoology, St. Xavier's College for Women, Aluva, Kerala

Leaf litter provides an excellent source of nutrient for protozoans and they could be sensitive to changes in seasonality, quantity, diversity and quality of litter. The present study investigated the effect of leaf litter on freshwater protozoan communities from water samples collected from Irumbakkulam, a freshwater pond. Microcosms were set up with leaves of six type of plants associated with pond. Protozoan abundance and diversity were observed for six weeks at weekly intervals using foldscope, an ultra-affordable paper microscope. Interestingly, irrespective of seasons, the highest number of protozoa was observed in *Mangifera indica* with a value of 69.46 cells $ml^{-1}$and 1.52 x 10^2 cells ml^{-1}during monsoon and non-monsoon respectively. This was followed by *Alternanthera reineckii* with a value of 33.5 cells ml^{-1}during monsoon and *Gliricidia sepium* with a value of 63 cells ml^{-1} during non-monsoon. The lowest was observed in *Mikania micrantha* in both the seasons with 9.2 cells ml^{-1} and 20.4 cells ml^{-1}respectively in monsoon and non-monsoon. The highest diversity was observed in microcosm with the bryophyte *Bryum* sp. With *Paramecium, Arcella, Vorticella, Colpodium, Euplotes, Cryptodifflugia, Trinema, Quadralulalla, Centropyxis, Coleps* and *Heliozoa*. The relationship between litter quality and protozoan abundance and diversity is discussed.

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പ്രാദേശികസംസ്കൃതിയും ട്രോളുകളും

ആൻസ് ബേബി

മലയാള വിഭാഗം
സെൻറ് സേവിയേഴ്സ് കോളജ് ഫോർ വിമൻ, ആലുവ

പ്രാദേശിക സംസ്കൃതിയെ വീണ്ടെടുക്കുവാനുള്ള ശ്രമങ്ങൾ ആധുനികതയുടെ കാലത്ത് പലഭാഗത്തുനിന്നും ഉണ്ടാകുന്നുണ്ട്. ഉത്തരത്തിൽ പ്രാദേശികതയെ പുനർനിർമ്മിക്കാനുള്ള സങ്കേതങ്ങളിൽ ഒന്നാണ് ട്രോളുകൾ എന്ന് കാണാം. ഒരു പ്രദേശവുമായി ബന്ധപ്പെട്ട ധനാത്മകവും ഋണാത്മകവുമായ എല്ലാ സങ്കൽപ്പങ്ങളെയും സമൂഹത്തിന്റെ മുഖ്യധാരയിൽ എത്തിക്കാനും പ്രാദേശികതയെ ആഘോഷിക്കുവാനും അതുവഴി പ്രതിരോധത്തിന്റെ സ്വരങ്ങൾ ഉയർത്താനുമാണ് ട്രോളുകൾ വഴി ശ്രമിക്കുന്നത്. ദേശീയതയുടെ വ്യവഹാരങ്ങൾക്കുള്ളിൽ മാറ്റിനിർത്തപ്പെട്ട പ്രാദേശീകതയെ കണ്ടെടുക്കുവാനും ട്രോളുകൾ ഉപകരിക്കുന്നു.

എറണാകുളം ജില്ലയുടെ വിവിധ പ്രദേശങ്ങളിലെ വ്യത്യസ്തമായ ഭക്ഷണങ്ങളും മെട്രോ, ലുലു തുടങ്ങിയ ആധുനിക സംവിധാനങ്ങളും വികസനവും ജില്ലയിലെ സാമൂഹികപ്രശ്നങ്ങളും സംസ്കാരങ്ങളുടെ സങ്കലനവും ആചാരങ്ങളും വിശ്വാസങ്ങളും എറണാകുളം ജില്ലയെ അധികരിച്ചുള്ള ട്രോളുകളിൽ കടന്നുവരുന്നു.

പ്രാദേശികതയുടെ അടയാളങ്ങളായ തനതു രുചികളെയും കൊച്ചി നഗരത്തെ മറ്റ് ജില്ലകളിൽ നിന്ന് വ്യത്യസ്തമാക്കുന്ന വികസനസങ്കൽപ്പങ്ങളെയും ഉയർത്തികാട്ടുക വഴി പ്രാദേശിക സ്വത്വത്തെ ആഘോഷിക്കുകയും ഉറപ്പിക്കുകയുമാണ് ഈ ട്രോളുകൾ. അതോടോപ്പം സംസ്കാരത്തിന് നിരക്കാത്തവയെ ഒഴിവാക്കേണ്ടതാണെന്ന ബോധ്യത്തിൽനിന്നുമാണ് ഋണാത്മക ട്രോളുകൾ ഉത്ഭവിക്കുന്നത്. ഇങ്ങനെ പ്രാദേശിക സംസ്കൃതിയെ വീണ്ടെടുക്കുമാനുള്ള ഉപകരണങ്ങളായി ട്രോളുകൾ മാറുന്നു.

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