

Book of Abstracts

2015-2016

Based on

Paper Presentations

Organised by



Research Promotion Council

St. Xavier's College for Women, Aluva

Email: researchpromotioncouncil@gmail.com

<p>CHAIRPERSON</p> <p>Sr. Reethamma V.A Principal</p> <p>CHIEF EDITOR</p> <p>Dr. Anu Anto Assistant Prof. Zoology</p> <p>ASSOCIATE EDITOR</p> <p>Dr. Annie Feby Assistant Prof. Zoology</p>	<p>ABOUT RESEARCH PROMOTION COUNCIL</p> <p>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 aims to spread information in the field of science and humanities to the members of the academic community. Activities of the Research Promotion Council for the year 2015-16 were inaugurated by Dr. Shaju Thomas, Rtd. Professor, P.G. Department of Zoology, Nirmala College, Muvattupuzha on June 19, 2015. A 15 member council was constituted with Dr. Anu Anto, Assistant Professor, Department of Zoology as the coordinator and Dr. Annie Feby, Assistant Professor, Department of Zoology as the Secretary.</p>	<p>ABOUT BOOK OF ABSTRACTS</p> <p>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, ten paper presentation sessions were done and 26 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 2015-16.</p>
---	--	--

Contents

1. **Synthesis and characterization of Gadolinium substituted Co-Zn mixed ferrite nanoparticles** 01
Joby L and Sheena Xavier
2. **Study of diffuse UV radiation using Galex observations in Lockman hole.....** 02
Lakshmi S Bose and N. V Sujatha
3. **Study on finite time control of chaotic cellular neural network** 03
Poornima B Shenoy, Rose P Ignatius and Mary Vinaya
4. **हिन्दी और मलयालम नाटकों की तुलना** 04
Syamil Francis
5. **Magnetic characterization of Gadolinium substituted Co - Zn mixed ferrite nanoparticles.....** 05
Taniya Pearl E R and Sheena Xavier
6. **A study on the ant diversity (Hymenoptera: Formicidae) of Periyar Tiger Reserve in South Western Ghats** 06
Saranya Sivadasan, Anu Anto, Gigi K. Joseph and Shaju Thomas
7. **Determination of cytotoxic effect of Metformin and curative effect of *Averrhoa carambola* on human peripheral lymphocytes** 07
Maya Mathew and Rajesh Ramachandran
8. **Bioprospecting of *Actinomyces* isolated from coastal area of Kerala** 08
Winy Paul Theethai
9. **Study of GALEX observations from Lockman hole** 09
Anusha Rajendran
10. **A study on the quality of work life of employees in Apollo tyres Ltd.** 10
Mary Trazy Karen
11. **Extragalactic survey using GALEX-Spitzer** 11
Lakshmi S Bose
12. **Cryptogams of Iringole Kavu, Perumbavoor** 12
Jithasree Jayaram

13. Antagonistic effect of <i>Trichoderma viride</i> against plant pathogenic fungus <i>Phytophthora capsici</i>.....	13
Sreelakshmi Rajesh	
14. Cancer and diabetes prevention through diets.....	14
Misna Jalal	
15. Mathematics in nature: the magic of golden number	15
Aadya D	
16. Google’s webpage ranking	16
Sruthy D	
17. Checklist of dung beetles (Coleoptera: Scarabaeidae: Scarabaeinae) in a wet evergreen forest of Western Ghats	17
Anu Anto and Sabu K.Thomas	
18. ചവിട്ടുനാടകം	18
ജീജ ജോനമ്മ സേവ്യർ	
19. A study on root nodule bacteria of <i>Pisum sativum</i> and <i>Canavalia gladiata</i>.....	20
Jaya Kuruvilla	
20. ഗ്രബിയേൽഗാർസ്വമാർക്വെസിന്റെചനകളിലെ മാജിക്കൽ റിയ ലിസം ‘ഏകാന്തതയുടെ നൂറ്വർഷങ്ങൾ’ അധികരിച്ച് പഠനം.....	21
ജിസ്മ ബേബി	
21. Molecular typing of bacteria	22
Linda Louis	
22. ‘Sangati’ as the voice of Dalit women	23
Elizabeth Francis	
23. Race and Culture; India under the hidden shades of colourism	24
Mahima Roselin Varghese	

SYNTHESIS AND CHARACTERIZATION OF GADOLINIUM SUBSTITUTED CO-ZN MIXED FERRITE NANOPARTICLES

Joby L. and Sheena Xavier

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

Ferrimagnetic spinel ferrites have attracted much attention in the past decades because of their potential applications in scientific, technological and biomedical fields. Rare earth doped Co-Zn mixed ferrites can find applications in magnetic data storage, sensors, microwave devices, magnetic refrigeration, magnetically guided drug delivery, antimicrobial agents etc. Zinc plays an important role in the microstructure, magnetic and electrical properties of the Co-Zn mixed ferrite. Moreover, the partial substitution of Fe^{3+} by rare earth can also lead to structural distortions and modify its magnetic and electrical properties. In the present study, a series of nanocrystalline spinel ferrites with composition $\text{Co}_{0.9}\text{Zn}_{0.1}\text{Fe}_{2-x}\text{Gd}_x\text{O}_4$ (with $x=0.0, 0.02, 0.04, 0.06, 0.08, 0.1$) were synthesized by sol-gel technique. The structural characterization of the samples was done using X-ray diffraction (XRD). The XRD pattern shows that all the prepared samples exhibit single phase spinel structure. The analysis of XRD data revealed that increase in gadolinium content decreases the crystallite size of the samples. The lattice parameter of the samples increases with increase in the concentration of gadolinium, suggesting the expansion of the unit cell. The crystallite size of the samples lies in the range 8 to 15 nm.

STUDY OF DIFFUSE UV RADIATION USING GALEX OBSERVATIONS IN LOCKMAN HOLE

¹Lakshmi S Bose and ² N. V Sujatha

¹Amrita Vishwavidya Peetham, Amritapuri Campus, Kollam

² Department of Physics, St. Xavier's College for Women, Aluva

We have studied the variation of diffuse Ultraviolet (UV) radiation from the region of Lockman Hole using Deep Imaging Surveys (DIS) of GALEX in the Far-UV and Near-UV. Different components of diffuse UV radiation from the region like Airglow, Zodiacal light, Dust Scattered Emission, Extragalactic contribution were quantified and separated after removing the point sources from each of the fields. We then studied the dependence of individual UV components and Infrared 100 micron intensity, etc., specific to each of the UV components and found anti-correlation between the observed UV background and the IR 100 μm flux. This clearly indicates the presence of extragalactic contribution in UV because of the minimal gas and dust in this region. Using the positional details of Spitzer- SERVS and SWIRE surveys, we found that the contribution of extragalactic light in this region is 192 photons $\text{cm}^{-2}\text{sr}^{-1}\text{s}^{-1}\text{A}^{-1}$ in FUV and 201 photons $\text{cm}^{-2}\text{sr}^{-1}\text{s}^{-1}\text{A}^{-1}$ in NUV.

STUDY ON FINITE TIME CONTROL OF CHAOTIC CELLULAR NEURAL NETWORK

¹Poornima B Shenoy, ²Rose P Ignatius and ²Mary Vinaya

¹Department of Physics, St. Xavier's College for Women, Aluva

²Department of Physics, St. Teresa's College, Ernakulam

Today, we are in the midst of a great revolution brought by the emerging new ideas of chaos. The discovery of chaos had a major impact on many fields of Science, Engineering, and Mathematics. This phenomenon throws new light in explaining the working of earth's weather system, laser, fluids, mechanical structures, earthquakes etc. The control and synchronization problems of chaotic systems have been investigated due to their potential application in various fields such as in secure communication, chemical reaction, and biological systems and so on. Here first consider the cellular neural network cells and study the behaviour of the cells with the parameters. Then we discuss the problem of finite time control of chaotic cellular neural network and the variation of state variables with certain and uncertain parameters. Non-linear control law is designed to ensure achieving the desired state in finite time. Simulation results performed on MATLAB environment shows the effectiveness of proposed control law.

हिन्दी और मलयालम नाटकों की तुलना

शामिल फ्रांसिस
द्वितीय वर्ष
अंग्रेज़ी विभाग

सभी आधुनिक भारतीय भाषाओं में क्षेत्र-विस्तार की दृष्टि से हिन्दी का भू-भाग सबसे बड़ा है और उसके साहित्य की बड़ी प्रगति हुई है। भारत के दक्षिणी प्रांत केरल की भाषा मलयालम में साहित्य का उत्तरोत्तर विकास होता गया। दोनों भाषाओं के विकास में संस्कृत का बड़ा योगदान रहा है। इस लेख में हिन्दी और मलयालम नाटक साहित्य के प्रारंभ से लेकर 1960 तक का आलोचनात्मक अध्ययन एवं तुलनात्मक विवेचन हुआ है। आगे नाटकों के तुलनात्मक विवेचन की सुविधा के लिए दोनों भाषाओं को पौराणिक नाटक, समस्या नाटक, प्रहसन तथा एकांकी नाटक के रूप में विभक्त किया है।

हिन्दी और मलयालम के लोकनाटकों के उद्गम, विकास और शिल्प विधान पर ध्यान से दृष्टिपात करें तो विदित हो जाएगा कि भारत के उत्तर-दक्षिण की कलाओं में पारस्परिक समानता है। लोकनाटकों का विभाजन हम दो भागों में कर सकते हैं – भक्ति प्रधान और मनोरंजन प्रधान। हिन्दी के लोक नाटकों में मुख्य हैं – 'रासलीला' और 'रामलीला' जिनके स्थान पर केरल में 'कृष्णनाटम' और 'रामनाटम' विद्यमान है। 'रामलीला' और 'रामनाटम' में तथा 'रासलीला' और 'कृष्णनाटम' के इतिवृत्त में कोई अंतर नहीं है। वेशभूषा में भी कतिपय समानताएँ हैं। मलयालम के 'कूत्तु' के समान कोई नाट्यरूप हिन्दी में नहीं है। किंतु हिन्दी क्षेत्र की उपभाषा मैथिली के 'क्रीतनिया' नाटकों से इसका साम्य स्थापित किया जा सकता है। उपर्युक्त विवेचन से यह स्पष्ट होता है कि हिन्दी और मलयालम, दोनों के लोकनाट्य रूप भारतीय जनता की समान भावभूमि और विचारधारा का परिचय देते हैं। इनसे भारतीय संस्कृति की भिन्नता में एकता की अनुभूति की विशिष्टता भी व्यक्त हो जाती है। हिन्दी और मलयालम के साहित्यिक नाटकों का उद्गम और विकास भारत के सुदूरवर्ती विभिन्न प्रांतों में हुआ। उनके बीच में आदान-प्रदान की कोई सामान्य कड़ी नहीं ठीक। किंतु दोनों के उद्गम और विकास की प्रेरणा-प्रदायक परिस्थितियाँ एक समान थीं।

तुलनात्मक विवेचन की सुविधा के लिए हमारा हिन्दी और मलयालम के पौराणिक नाटकों को दो भागों में विभक्त कर सकते हैं – प्राचीन ढंग के पौराणिक नाटक तथा आधुनिक ढंग के पौराणिक नाटक। हिन्दी का ऐतिहासिक नाटक साहित्य पर्याप्त संपन्न है। जबकि मलयालम नाटक साहित्य अपेक्षाकृत न्यून है। अंत में इतना कह सकते हैं कि दोनों भाषाओं में नाटक का विकास अवश्य हुआ है।

MAGNETIC CHARACTERIZATION OF GADOLINIUM SUBSTITUTED CO - ZN MIXED FERRITE NANOPARTICLES

Taniya Pearl E R and Sheena Xavier

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

In the present study, a series of nanocrystalline spinel ferrites with composition $\text{Co}_{0.9}\text{Zn}_{0.1}\text{Fe}_{2-x}\text{Gd}_x\text{O}_4$ (with $x=0.0, 0.02, 0.04, 0.06, 0.08, 0.1$) were analyzed using Fourier transform infrared (FTIR) spectrometer. The absorption bands observed in the range $600\text{-}550\text{ cm}^{-1}$ and $450\text{-}400\text{ cm}^{-1}$ are characteristic of the spinel ferrites. The higher frequency band (ν_1) corresponds to intrinsic vibrations of the metal – oxygen bond at the tetrahedral site and the lower frequency band (ν_2) is caused by the metal – oxygen vibration in the octahedral site. The magnetic characterization at room temperature has been carried out using vibrating sample magnetometer (VSM; Lakeshore 7410) with maximum applied field of 15 kOe. The saturation magnetization obtained for $\text{Co}_{0.9}\text{Zn}_{0.1}\text{Fe}_2\text{O}_4$ ferrite is 38.61emu/g and it decreases with gadolinium doping. The decrease of M_s with Gd content is consistent with the results reported for rare earth doped ferrites. The gadolinium doping has decreased the hysteresis loss tremendously. Thus the above results suggest that the magnetic properties of Co-Zn mixed ferrite nano particles can be modulated by the addition of very small amount of gadolinium ions.

A STUDY ON THE ANT DIVERSITY (HYMENOPTERA: FORMICIDAE) OF PERIYAR TIGER RESERVE IN SOUTH WESTERN GHATS

¹Saranya Sivadasan, ¹Anu Anto, ²Gigi K. Joseph and ²Shaju Thomas

¹Department of Zoology, St. Xavier's College for Women, Aluva

²P.G. Department of Zoology, Nirmala College, Muvattupuzha

Ants represent a unique focal group, due to their ability to navigate across all trophic levels, along with their sensitivity to any changes in the environment. The present study aims to determine the species composition of ants across varying vegetation types in Periyar Tiger Reserve of Southern Western Ghats. Thirty one (31) species of ants belonging to 14 genus and 4 subfamilies were collected from different habitats of the reserve. This study emphasizes the dominancy exhibited by the subfamily Formicinae within the ant communities, due to their ability to adapt to different niches. *Harpegnathos saltator*, a species endemic to Western Ghats was collected from the habitat. Out of the total 31 species collected from the five different habitats of the study area, 24 species of ants were found in the semi-evergreen habitat making it the most species rich habitat.

DETERMINATION OF CYTOTOXIC EFFECT OF METFORMIN AND CURATIVE EFFECT OF AVERRHOA CARAMBOLA ON HUMAN PERIPHERAL LYMPHOCYTES

¹Maya Mathew and ²Rajesh Ramachandran

¹ Department of Microbiology, St. Xaviers College for Women, Aluva.

² Biogenix Research Centre, Thiruvananthapuram

Adverse drug reaction is a broad term referring to unwanted, uncomfortable, or dangerous effects that a drug may have. Antidiabetic drugs are medications that work to lower blood glucose concentrations, or the amount of sugar in the blood. There are important way of treating gestational type 1 and type 2 diabetes mellitus. Metformin is a drug in the biguanide class that also acts to increase insulin sensitivity. Most commonly used agent for type 2 diabetes mellitus in children and teenagers and unlike other antidiabetic drugs, tend not to cause weight gain. Metformin is quickly absorbed and fully eliminated in the urine via tubular secretion. Metformin have some reported side effects including stomach upset, vomiting, nausea, bloating, loss of appetite etc. *Averrhoa carambola* is a species of woody plant. It has number common names including Carambola and Starfruit. It is considered as one of the best Indian cooling medicines from ancient days. The study is focused on the cytologic impact of Metformin on Human Peripheral Lymphocytes and the curative effect of *Averrhoa carambola* on the same.

BIOPROSPECTING OF *ACTINOMYCETES* ISOLATED FROM COASTAL AREA OF KERALA

Winy Paul Theethai

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

Actinomycetes are spore forming aerobic gram positive bacteria belonging to order *Actinomycetales* characterized with aerial and substrate mycelium growth. The 3 strains C6, TKR18 & WY27 isolated from coastal area of Kerala. Methods involved are morphological and phenotypic characterization, antibiogram assays, activity of inhibitory principles, isolation of genomic DNA, amplification, sequencing, and finally phylogenetic tree construction. Inhibitory activity against *Mycobacterium smegmatis*, *Escherichia coli*, *Staphylococcus aureus*, Methicillin Resistant *Staphylococcus aureus* and *Pseudomonas aeruginosa* were tested. Among 3 isolates C6 showed very good inhibitory activity against all test strains. Enzyme production capability was tested, WY27 showed good production of cellulase and amylase than others isolated genomic DNA amplified using PCR, PCR product sequenced. Sequences used to create phylogenetic tree to analyze relationship between 16SrRNA gene sequences of neighbouring actinomycete strain 16SrRNA gene sequences revealed their genus *Streptomyces* and were 99% identical to sequences available in NCBI data base. C6 found to be most potent antimicrobial producing isolate & its activity against MRSA invites interest in finding novel antibiotic.

STUDY OF GALEX OBSERVATIONS FROM LOCKMAN HOLE

Anusha Rajendran

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

I present here an analysis of diffuse ultraviolet (UV) radiation and its components in the Far-UV and Near-UV from a region near Lockman Hole in our Galaxy using the observations made by the Galaxy Evolution Explorer (GALEX). We are using Deep Imaging Survey (DIS) mode observations of GALEX for this study in FUV and NUV wavelength regimes, where much of the energy transfer between the stellar radiation field and the interstellar medium occurs.

Different components of diffuse UV radiation from the region like Airglow, Zodiacal light, Dust Scattered Emission, etc. were quantified and separated after removing the point sources from each of the fields. The diffuse background in the region is at a level of about $200 - 600 \text{ ph cm}^{-2} \text{ s}^{-1} \text{ sr}^{-1} \text{ \AA}^{-1}$ with no correlation with the infrared (IR) 100 micron emission even though the optical depth in the region is less. This indicate that only a small part of the diffuse UV background from the Lockman Hole is from the dust-scattered radiation of UV-emitting stars and the source of the substantial fraction of it still remains a mystery might be from Extragalactic Origin.

We are continuing the work to explore the possibility that the majority radiation that we are seeing in the direction is of extragalactic origin. We also noticed that H₂ Fluorescence is absent in the region and the radiation is remarkably uniform in the region, and it increases toward lower Galactic latitudes at all Galactic longitudes.

A STUDY ON THE QUALITY OF WORK LIFE OF EMPLOYEES IN APOLLO TYRES LTD

Mary Trazy Karen

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

Quality of work life refers to the favorableness or unfavorableness of the job environment of an organization for its employees. Quality of work life denotes all the organizational inputs which aim at the employee's satisfaction and enhancing organizational effectiveness. The basic purpose is to develop jobs and working conditions that are excellent for employees as well as economic health of organization. It refers to the level of satisfaction, motivation, commitment and involvement an individual experience with respect to their line at the work.

The term Quality of work life aims at changing the entire organizational climate by humanizing work, individualizing organizations and changing the structural and managerial systems. It takes into consideration the socio-psychological needs of employees. It seeks to create such a culture of work commitment in the organizations which will ensure higher productivity and greater job satisfaction of the employees. Good QWL leads to psychologically and physically healthier employees with positive feelings.

The objective of study is to determine the quality of work life of employees in the organization of Apollo Tyres Ltd, to measure the level of satisfaction towards the quality of work life and suggestions to improve the quality of work life. Study is based on primary data, Convenience sampling method is used to collect data, the sample size is 30. Questionnaire was used to collect the primary data

The findings revealed that the organization is providing good working conditions and the overall job satisfaction was found to be good and overall quality of work life is good and employees are satisfied with the quality of work life.

EXTRAGALACTIC SURVEY USING GALEX-SPITZER

Lakshmi S Bose

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

The number counts of field galaxies as a function of magnitude within an area is used to test theoretical models of galactic evolution. We report here the results of study of extragalactic radiation at high galactic latitudes using number counts of galaxies. For this study, we selected Spitzer Extragalactic Representative Volume Survey (SERVS) region – ELIAS-N1-centered at $16^{\text{h}}10^{\text{m}}01^{\text{s}}$, $+54^{\circ}30'36''$ where the Galactic cirrus emission is exceptionally low (Schlegel 1998) and highest resolution GALEX observations are available in UV. The overlapped regions of two missions cover an area of 2 square degrees in the selected region. By comparing the point source catalogs of GALEX and Spitzer, we found that Spitzer detects more sources within the resolution of GALEX. We then calculated the number counts of galaxies, N Objects/square degree/magnitude, from the region using GALEX and compared it with the existing values in the literature. Our results are in good agreement with that of Xu et al. (2005) up to the level of magnitude less than 22 mag because DIS observations of GALEX have several thousands of second's exposure time and hence the data are 80% complete to NUV magnitude of 23 and FUV magnitude of 23.5, but the source confusion is significant in these observations. The drop out of counts beyond this indicate GALEX is not as sensitive to the galaxies at lower flux levels. From this study we could also establish the presence of unresolved objects in the GALEX field. We further extend our work by introducing a new approach to measure the number counts of galaxies by using Spitzer sources and calculating its intensity in UV using GALEX Deep Imaging Surveys (DIS). We have seen that analysis without considering GALEX catalog derived by SExtractor can avoid the source confusion at the fainter end and can produce better results.

CRYPTOGAMS OF IRINGOLE KAVU, PERUMBAVOOR

Jithasree Jayaram

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

On a rough estimate Kerala has about 1500 sacred groves which are distinct and unique in biological diversity. Most of the sacred groves represent the relics of once gregarious and abundant low lying evergreen forests of the Western Ghats. Only very few are reported from the foothills and the high ranges. The size of the sacred grove in Kerala varies as small as one cent to 20 or more hectares. The available inventory on sacred grove indicates that maximum number of such areas is distributed in the northern districts of the state henceforth called Malabar. The floristic composition is highly influenced by exposure to anthropogenic pressures, cattle grazing, edaphically and climatic variations

Iringole kavu, a miniature forest, is located between Kuruppampady and Perumbavoor on Aluva – Munnar road. The sacred grove also has an ancient temple dedicated to Goddess Durga situated in the middle of the forest. Iringole forest is kept under the control of the Travancore Devaswom board. The climate is hot and humid so that a very rich flora and fauna include valuable herbs and medicinal plants. Apart from conserving biological diversity, this sacred grove that is situated in the middle of the human habitation is responsible for conserving water table of the soil. Features like unique areas, ecologically fragile ecosystems rich in wild and domesticated species, presence of highly endemic, rare and threatened species and those of evolutionary significance has made Iringole kavu to be designated as one among the five Biodiversity Heritage Sites (BHS) in the State.

The cryptogams of Iringole Kavu, has taxonomically analysed and found 9 Pteridophytes belong to 5 families include Sellaginellaceae, Lgodiaceae, Pteridaceae, Thelipteridaceae and Polypodiaceae. Their distribution includes indo-pacific dominated by African and South American elements. In addition to this, two lichens and two bryophytes were also observed.

ANTAGONISTIC EFFECT OF *Trichoderma viride* AGAINST PLANT PATHOGENIC FUNGUS *Phytophthora capsici*

Sreelakshmi Rajesh

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

Biological control is the use of natural enemies (biological control agents) to control a targeted weed, insect or a pathogen. A variety of fungal strains can act as biological control agents. The present study is to study the antagonistic effect of *Trichoderma viride* against *Phytophthora capsici* and to evaluate its antagonistic potential against fungal pathogen by dual culture techniques. *Trichoderma* strains exert biocontrol against fungal phytopathogens either indirectly, by competing for nutrients and space or by modifying the environmental conditions. *Trichoderma viride* is one of the commonest fungus of soil. It is used for seed and soil treatment for suppression of various diseases caused by fungal pathogens. *Phytophthora capsici* is a fungal phytopathogenic organism that affects solanaceous crops and cucurbits.

Trichoderma viride was evaluated against fungal pathogen *Phytophthora capsici* by the dual culture technique. *Trichoderma viride* inhibited mycelia growth of *Phytophthora capsici* which was well stabilized in the experimental plate. In dual culture plate growth of pathogen was normal initially but completely restricted growth of the mycelium in plate in the presence of *Trichoderma viride*. *Trichoderma viride* inhibited mycelial growth, disorganized the host cell contents, lysed hyphae of *Phytophthora capsici* in the culture plates. The current study assures the efficiency of *Trichoderma* as a biocontrol agent against fungal soil pathogens such as *Phytophthora capsici*. It indicates the need of production and development *Trichoderma* based biocontrol agents to serve as a model for environment friendly biocontrol agent. It also act as a virulent opportunistic symbiont. Antagonistic *Trichoderma* enhances resistance against the secondary infection of pathogen in the same plant. *Trichoderma*, a strong and virulent antagonist; can act as a significant biocontrol agent and biofertilizer.

CANCER AND DIABETES PREVENTION THROUGH DIETS

Misna Jalal

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

Now a days, cancer and diabetes have become very common. Even though many factors are responsible for it, our lifestyle plays a major role. People fear cancer and believes that there is little they can do to prevent it. However scientific research shows that this is not the case, and that lifestyle factors such as diet can play a major role in preventing cancer. Control our diet, weight and engage in physical activities at least for half an hour for a healthy life. Plant foods rich in fiber help us protect against cancer. Plant food contains phytochemicals that help protect the body's cells from becoming damaged and help to repair them. Eating at least 3-4 cups of non starchy vegetables and fruits protect against cancer. Increase raw fruits and vegetables rich in fiber to reduce the cancer risk. Drink daily 8 glass of water, it enables detoxification. Certain foods have to be avoided in our daily diet-burnt and fried foods, alcohols, pickled and salty foods. Have food rich in anticancer phytochemicals to prevent cancer - such as curcumin, green tea, berries, grapes etc.

Diabetes has also become very common among the people. A few simple recipes in our homely diet help us from the risk of getting diabetes. Having lady's finger syrup, green cucumber juice, ivy gourd juice helps us to prevent diabetes. Anthocyanin pigments present in the edible plant materials like apple, cherry, grape, red onion etc control diabetes. The dimethoxy ether and the glycoside of leucopelargonidin isolated from the bark of the Indian banyan tree showed significant hypoglycemic action.

MATHEMATICS IN NATURE: THE MAGIC OF GOLDEN NUMBER

Aadya D

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

This paper explores the presence of the Divine proportion Golden ratio and its function in nature. It is seen as a door to a deeper understanding of beauty and spirituality in life. The "golden" number, 1.61803399 unveils an unusually frequent constant of design that applies to so many aspects of life. What makes this so much more than an interesting exercise in mathematics is that this proportion appears throughout creation from human body to foreign currency exchange. This paper discusses how this proportion appears throughout creation and extensively in: the human face and body, in plants and animals. The paper concludes with the notion that this ratio unveils a hidden harmony or connectedness in so much of what we see. Creative discussions were held on this session and everybody is induced with a positive outlook on the use mathematics to humans and in nature.

GOOGLE'S WEBPAGE RANKING

Sruthy D

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

The web searching is an important part in modern lives. Hence understanding the characteristics and properties of the web is most essential in any research area. Here we shall discuss the different characteristics of the web and in particular I will be focusing on the properties the affect the web page ranking.

One of the most well- known and widely used algorithm for the web ranking is the Google's page rank. This algorithm models the network of webpage as a markov chain. By this ranking one can understand that which of our pages are to be visited in their research.

The page rank is a notation used by search engine to reflect a popularity and importance of a page based on its citation ranking. Such ranking was first introduced in 1998 by Google search engine. It is determined entirely by the link structure of World Wide Web. The page rank algorithm is at the heart of the Google search engine. Itis this algorithm than in essence decides how important a specific page is and therefore how high it will show in a search result.

**CHECKLIST OF DUNG BEETLES (COLEOPTERA:
SCARABAEIDAE: SCARABAEINAE) IN A WET EVERGREEN
FOREST OF WESTERN GHATS**

¹Anu Anto and ²Sabu K. Thomas

¹Department of Zoology, St. Xavier's College for Women, Aluva

²P.G and Research Department of Zoology,
St. Joseph's College Devagiri, Calicut

Dung beetles are Coleopterans and are found in the Scarabaeidae and Geotrupidae families. They play important ecological roles related to nutrient cycling. Very little is known about the forest dung beetles in South Asian region especially from the Western Ghats which is a recognized global hot spot of biodiversity with distinct regional variation in topography, rainfall patterns and vegetation types. In this paper a preliminary catalogue of dung beetles based on our 2 year collections using bait surface grid pitfall traps exclusively from one of the best-preserved wet evergreen forest, Periya in the Wayanad region of Nilgiri biosphere in Southern Western Ghats is provided. 29 species of Scarabaeinae, including the 9 endemic species were collected during the study period.

ചവിട്ടുനാടകം

ജീജ ജോനമ്മ സേവ്യർ
മലയാള വിഭാഗം, സെന്റ് സേവ്യേഴ്സ് കോളേജ് ഫോർ വിമൺ, ആലുവ

ഒരേ ദുപ്രകൃതിയിൽ വ്യത്യസ്ത ഉപജീവനമാർഗ്ഗങ്ങൾ സ്വീകരിച്ച്, നൂറ്റാണ്ടുകളിലൂടെ ആചാര, ആഘോഷ, ആരാധനകളിലൂടെ വ്യത്യസ്ത വിശ്വാസങ്ങൾ അനുഷ്ഠിച്ച് ആചരിച്ച ഒരു പൊതുസമൂഹമാണ് കേരളത്തിൽ തീരദേശ കടലോര സമൂഹം. വൈവിധ്യമാർന്ന തീരപ്രദേശങ്ങളിൽ ഓരോന്നിനും അതാതിന്റെ സംസ്കൃതിയുമായി ബന്ധപ്പെട്ട പാരമ്പര്യകലകൾ കാണാം. അവയിൽ പ്രധാനപ്പെട്ടതാണ് കേരളത്തിന്റെ തെക്കേയറ്റം മുതൽ വടക്കേയറ്റം വരെ നീണ്ടുകിടക്കുന്ന തീരദേശസംസ്കൃതിയുടെ ഈടുവെയ്പ്പായ ചവിട്ടുനാടകം എന്ന നൃത്തസംഗീതനാടകം.

മതപ്രചരണവും കച്ചവടവും ലക്ഷ്യമാക്കി കേരളത്തിന്റെ തുറമുഖങ്ങളിലൂടെ തീരദേശത്ത് വാസമുറപ്പിച്ച പോർച്ചുഗീസുകാരിലൂടെയാണ് ചവിട്ടുനാടകം കേരളത്തിൽ രൂപംകൊണ്ടത്. വൈദേശിക സംസ്കൃതിയുടെ ഭാഗമായി രൂപമെടുത്ത ചവിട്ടുനാടകം പൂർണ്ണമായും പാശ്ചാത്യമാണെന്നു പറയാനാവില്ല. തദ്ദേശീയ സംസ്കൃതിയുടെ കലർപ്പോടെ രൂപമെടുത്ത പുതിയ കലാരൂപമാണ് ചവിട്ടുനാടകം. ആദ്യന്തം സംഗീതാത്മകമായി നെയ്തെടുത്തിട്ടുള്ള നൃത്തനാടക (ജയലാളശൈലി രചിച്ച റ്റുമാമ) മാണ് ചവിട്ടുനാടകം. ചവിട്ടുനാടകം വീരരസം പ്രധാനമായുള്ള ഒരു ദൃശ്യകലയാണ്. കളരി കെട്ടിയ ഉടൻ ആശാൻ അഥവാ അണ്ണാവി ആയുധപരിശീലനം ആരംഭിക്കും. ചാടിച്ചവിട്ടി വീഴുന്ന കളരിപ്പയറ്റുമുറകളെ അനുസ്മരിപ്പിക്കുന്നതാണ് ചവിട്ടുനാടകച്ചുവടുകൾ. ചവിട്ടുനാടകലോകത്തെ കേന്ദ്രബിന്ദു പരിശീലനഗുരുവായ ആശാനാണ്. അണ്ണാവി എന്നാണ് ആദ്യകാലങ്ങളിൽ ആശാൻ (ഒമലേലു) അറിയപ്പെട്ടിരുന്നത്. നാടോടി നാടകങ്ങളെ അപേക്ഷിച്ച് ചവിട്ടുനാടകത്തിൽ ചിട്ടപ്പെടുത്തിയ പരിശീലന സമ്പ്രദായങ്ങളാണ് ഉള്ളത്. പരിശീലനത്തിനു അഞ്ചുഘട്ടങ്ങളുണ്ട്. 1. വഴങ്ങൽ 2. ചുവടുകളുടെ പരിശീലനം 3. ചൊല്ലിയാട്ടം 4. അഭിനേതാക്കളുടെ തിരഞ്ഞെടുപ്പ് 5. കളരി അരങ്ങേറ്റം.

ചവിട്ടുനാടകത്തിലെ ചവിട്ട് എന്ന പദം താളലയങ്ങളോടെയുള്ള ചുവടുവെയ്പ്പുകളെയാണ് സൂചിപ്പിക്കുന്നത്. ചവിട്ടുനാടകനൃത്തം താണ്ഡവ പ്രധാനമാണ് ; ജീവൻ ഓളംവെട്ടുന്ന പുരുഷോചിതമായ ചുവടുകൾ. എന്നാൽ സ്ത്രീവേഷക്കാർ ആദിയായ സൗമ്യപ്രകൃതികൾക്ക്

ലാസ്യമട്ടിലുള്ള പതിഞ്ഞ ചുവടുകളും നിർദ്ദേശിച്ചിട്ടുണ്ട്. ശക്തിയോടെയുള്ള ചുവടുവെയ്പ്പിന് (ചവിട്ടിന്) മുഖ്യസ്ഥാനം നൽകിയിരിക്കുന്ന കലാരൂപമാണ് ചവിട്ടുനാടകം. ഈ കലാരൂപത്തിനു ഇങ്ങനെ പേര് ലഭിക്കാൻ കാരണം ഇതിൽ ചവിട്ടിനുള്ള പ്രാധാന്യമാണ്. ചുവടുകൾ ഉറയ്ക്കുന്നതിനു ദീർഘകാല പരിശീലനം അനിവാര്യമാണ്. അടിസ്ഥാനചുവടുകൾ ഇരട്ടിപ്പുകൾ, കലാശങ്ങൾ, കവിത്തങ്ങൾ എന്നിവ അഭ്യസിക്കും. പ്രേക്ഷകരുടെ മുന്നിൽ നാടകം പ്രദർശിപ്പിക്കാൻ ഉപയോഗിക്കുന്ന പ്രത്യേക സ്ഥലമാണ് രംഗവേദി. ഉയർത്തിക്കെട്ടിയ രംഗവേദിയും പാശ്ചാത്യമാതൃകയിലുള്ള അലങ്കാരങ്ങളും നാടോടി നാടകങ്ങളിൽ നിന്നു ചവിട്ടുനാടകത്തെ വ്യതിരിക്തമാക്കുന്നു. രംഗാവതരണ സങ്കേതങ്ങൾ പ്രധാനമായും നാലെണ്ണമാണ്. അഭിനേതാക്കൾ, ചമയം, വാദ്യോപകരണങ്ങൾ, രംഗസാമഗ്രികൾ എന്നിവ. കളിയാശാനു കീഴിൽ ചുവടുകളും താളവും സംഗീതവും അഭ്യസിച്ച് സങ്കേതങ്ങളിലും അഭിനയരീതികളിലും വിരുദ്ധരായിത്തീരുന്നവരാണ് അഭിനേതാക്കൾ. ശ്രദ്ധേയമായ അലങ്കാരങ്ങളോടു കൂടിയതാണ് ചവിട്ടുനാടകത്തിലെ വേഷങ്ങളെല്ലാം. വെൽവെറ്റ്, സിൽക്ക്, കസവ്, മുത്ത്, തക്കടലാസുകൾ, പണവട്ടങ്ങൾ എന്നിവയും മറ്റ് അലങ്കാര സാമഗ്രികളും ഉചിതമായി കലാവിരുതോടെ രൂപകല്പന ചെയ്ത വർണ്ണശബളമായ വേഷങ്ങളാണ് ചവിട്ടുനാടകക്കാർ ഉപയോഗിക്കുന്നത്.

ചവിട്ടുനാടകത്തിന്റെ രൂപശില്പം പാശ്ചാത്യപൗരസ്ത്യ സംസ്കാരങ്ങളുടെ സങ്കരത്വ (വ്യയുശരശ്ല) മാണ് സൂചിപ്പിക്കുന്നത്. തീരദേശ ക്രൈസ്തവ ജനതയുടെ സംസ്കാരിക സ്വത്വത്തിൽ വൈദേശിക സംസ്കാരവും പാരമ്പര്യവും നടത്തുന്ന കൊള്ളക്കൊടുക്കലുകൾ ഈ നൃത്ത കലാരൂപത്തിൽ പ്രകടമായിത്തന്നെ കാണാൻ സാധിക്കും.

A STUDY ON ROOT NODULE BACTERIA OF *PISUM SATIVUM* AND *CANAVALIA GLADIATA*

Jaya Kuruvilla

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

Root nodules occur on the roots of leguminous plants that associate with symbiotic nitrogen-fixing bacteria. Under nitrogen-limiting conditions, capable plants form a symbiotic relationship with a host-specific strain of bacteria known as *Rhizobium*. The bacteria colonize plant cells within root nodules and convert atmospheric nitrogen to ammonia and then provide organic nitrogenous compounds to the plant. The plant in turn provides the bacteria with organic compounds made by photosynthesis. This biological nitrogen fixation represents the major source of nitrogen input in agricultural soils and play a significant role in improving the fertility and productivity of the soil. In the present study root nodule bacteria was isolated from two leguminous plants – *Pisum sativum* (pea) and *Canavalia gladiata* (sword bean). White mucoid colonies appeared on YEMA (Yeast extract mannitol agar) plates containing congo red when they were incubated for 1-2 days. But the bacteria isolated from *Canavalia* showed a grey pigmentation. Both the bacteria appeared as pink coloured rods during gram staining which shows that it is gram negative. The bacteria isolated from *Canavalia* were found to be very active whereas those isolated from *Pisum* was less active during hanging drop method. Various biochemical tests were also carried out to identify the bacteria. For indole test both the bacteria gave negative result. For citrate utilization test, mannitol test, nitrate reduction test and T.S.I (Triple sugar iron) test both the bacteria gave positive results. For methyl red test, voges – proskauer test, glucose test and xylose test the bacteria isolated from *Canavalia* gave a positive result whereas the bacteria isolated from *Pisum* gave a negative result. The above results confirm that the bacteria isolated from *Pisum* and *Canavalia* are two different species of *Rhizobium*.

ഗവണ്മിയേൽഗാർസ്യമാർക്വെസിന്റെരചനകളിലെ മാജിക്കൽ റിയലിസം ‘ഏകാന്തതയുടെ നൂറ് വർഷങ്ങൾ’ അധികരിച്ച് പഠനം

ജിസ്മബേബി

മലയാള വിഭാഗം, സെന്റ് സേവ്യേഴ്സ് കോളേജ് ഫോർ വിമൺ, ആലുവ

വിശ്വപ്രസിദ്ധ സാഹിത്യകാരനും സാഹിത്യത്തിനുള്ള നോബൽ പുരസ്കാരജേതാവുമായ ഗവണ്മിയേൽഗാർസ്യമാർക്വെസിനെ പരിചയപ്പെടുത്തി അദ്ദേഹത്തിന്റെ കൃതികൾ, കാലഘട്ടം മുതലായവ വ്യക്തമാക്കി. അദ്ദേഹത്തിന്റെ രചനകളുടെ പ്രത്യേകതയായ മാജിക്കൽ റിയലിസമെന്ന സാഹിത്യസങ്കേതത്തിന്റെ ഉത്ഭവം, വ്യഖ്യാനം, പ്രയോഗരീതികൾ, പ്രത്യേകതകൾ എന്നിവ വ്യക്തമാക്കി. ജർമ്മൻ കലാവിമർശകനായിരുന്ന ഫ്രാൻസ് റൊഹിന്റെ അഭിപ്രായത്തെ തുടർന്ന് വ്യാഖ്യാനിക്കപ്പെട്ട സംജ്ഞയാണ് മാജിക്കൽ റിയലിസം. മാജിക്കൽ റിയലിസത്തിന്റെ മറ്റ് വക്താക്കൾ കൃതികൾ സ്വഭാവം എന്നിവയും അവതരിപ്പിച്ചു. കൂടാതെ ഈ സങ്കേതം രൂപപ്പെടാൻ കാരണമായ രാഷ്ട്രീയസാമൂഹ്യ പരിതസ്ഥിതികൾ വിശദമാക്കി.

നോവലിലേക്ക്- നോവലിന്റെ തുടക്കം മുതൽ അവസാനം വരെ സഞ്ചരിക്കുന്ന ദ്രമാത്മകമായ നിരവധി ആവിഷ്കാരങ്ങളെ പരിചയപ്പെടുത്തി. കഥാപാത്രങ്ങൾ, ബിംബങ്ങൾ, സംഭവങ്ങൾ, സാങ്കല്പിക നഗരം, വസ്തുക്കൾ അസാധാരണ സംഭവ ഗതികൾ തുടങ്ങിയ, നിരവധി ഘടകങ്ങൾ മാജിക്കൽ റിയലിസത്തിന്റെ കണ്ണിയായ് നോവലിലൂടെ നീളം പ്രത്യക്ഷപ്പെടുന്നവയെ ഉദാഹരണ സഹിതം അവതരിപ്പിച്ചു.

ആറ്തലമുറകളിലൂടെ നൂറ്വർഷം നീളുന്ന കുടുംബത്തിന്റെ ചരിത്രം പറയുന്ന ഈ നോവൽ കേവലം ഒരു കുടുംബ ചരിത്രത്തെ മാത്രമല്ല പ്രതിനിധാനം ചെയ്യുന്നത്. അതു വഴി ലാറ്റിനമേരിക്കൽ രാഷ്ട്രീയ-സാമൂഹ്യ അവസ്ഥകളെ കുടിയാണ് അനാവൃതമാക്കിയത്. രാഷ്ട്രീയ അബോധത്തിൽ കലാകാരന്റെ സ്വാതന്ത്ര്യ സ്വപ്നമാണ് രചനയിൽ ദ്രമാത്മകമാകുന്ന യാഥാർത്ഥ്യമായ് പ്രത്യക്ഷപ്പെട്ടത്.

MOLECULAR TYPING OF BACTERIA

Linda Louis

Department of Microbiology and Biochemistry,
St. Xavier's College for Women, Aluva

Many researchers have employed various DNA fingerprinting or genotyping methods to reveal the epidemiological link among bacteria. Novel PCR based DNA fingerprinting methods like Amplified fragment length polymorphism(AFLP), Random amplified polymorphic DNA (RAPD), Restriction fragment length polymorphism (RFLP), Ribotyping, Repetitive extragenic palindromic (Rep) sequences, Pulsed field gel electrophoresis (PFGE), Enterobacterial repetitive intergenic consensus sequences (ERIC), BOX PCR, Multilocus sequence typing (MLST) and Whole genome sequence typing(WGST) methods which permits both phylogenetic inference and clonal differentiation of individual strains.

ERIC-PCR is a Rep-PCR that employs the enterobacterial repetitive intergenic consensus (ERIC) sequence as the target for PCR. It has been used to identify clonal lineages. ERIC sequences are 126 bp long, highly conserved at the nucleotide level and present in multiple copies in the genome. Molecular typing using BOX elements, a class of multi-copied and conserved repetitive sequences in the genomes of bacteria, using BOX A1R primer amplifying specific genomic regions located between BOX elements (154 bp) and its natural inverted repeats is also equally effective for bacterial typing.

ERIC PCR and BOX PCR along with other fingerprinting methods have been successfully employed in the discrimination of strains of bacteria. In the studies on *V. Cholera* the standard strain O139 and El Tor strain CO336 show a unique pattern in accordance with the reports that ERIC PCR could be used to distinguish between toxigenic O1/O139 and non-toxigenic non O1 *V. cholerae* strains.

'SANGATI' AS THE VOICE OF DALIT WOMEN

Elizabeth Francis

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

This paper deals with the triple segregation faced by Dalit woman in Tamil Nadu. They are treated as secondary citizens. 'Sangati' is an autobiography which gives the historical account of the miserable life of the dalit women. Eventhough they are discriminated in all walks of life, they surprise us with their courage and will to live life to the fullest.

RACE AND CULTURE; INDIA UNDER THE HIDDEN SHADES OF COLOURISM

Mahima Roselin Varghese

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

What is the skin colour of Indians? Brown? Yellow? Wheatish? Pale? Dark? You are apparently mistaken if you choose any one of these for the skin colour of Indians is as variegated as its cultural and religious diversity. Although diverse is the ethnic background of Indians, Colourism is but a subtle reality that which is skin deep but has been rarely a matter of discourse. The article intends to trace the hidden shades of colourism in the religion, mass media including print and television. It also focuses on the advertisements aimed at promoting fairness creams for successful life! Apart from these, the article tries to dig up the inherent favour for light-skin in everyday life. The matrimonial columns, the pale skinned dolls in the market, the so-called "skin-colour" sketch pen that is used in the Indian sub-continent, the would-be mothers devouring Kumkum flower(Saffron) and much more. The fact is this colourist notion is ingrained so deep within the psyche of an average Indian that s/he is hardly aware of it.
