# Proceedings of
# National Online Student Project Presentation
# RICERCA 2020

## Research & Innovation For Young Minds

**18-08-2020 to 24-08-2020**


Editor-in-Chief

**Dr. Bhagya D**


***Organized By***


**Research Committee, St Joseph's College for Women, Alappuzha &**
**Kerala Sasthra Sahithya Parishath**
**Alappuzha, Kerala, India**

# Proceedings of
# National Online Student Project Presentation
# RICERCA 2020

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**18th August to 24th August 2020**

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***&***

***Kerala Sasthra Sahithya Parishath***

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| **Author(s):** | **Dr Bhagya D** |
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**Rev. Dr. Sr. AnnieMathew**

Manager, St Joseph's College ForWomen,
Alappuzha,Kerala,India

## MESSAGE

The world today is witnessing an incredibly fast revolution in the communication front. The swift progress of digital technology is constantly bringing about a rapid evolution with regard to the thought pattern as well as the style and the content of communication. Digital media is influencing changes not only in the means of communication, but also to a great extent, the very thinking of people.

The very title of your webinar "RICERCA" means – search for or pursue something. "Research is to see what everybody else has seen, and to think what nobody else has thought" says Albert Szent Cryorgyi.

We all knew a well said and often repeated proverb „ necessity is the mother of invention". Till a few months ago the word webinar was rarely used or even pronounced by anyone. Now it became familiar and most uttered word. Before few months we could not think of bringing together students from other states to share their knowledge on online platform other than being physically present. Now educators and knowledge seekers have proved that nothing can come on their way of gaining knowledge and growing in creativity. No lockdown has blocked the mind sets of scientists and teachers in reaching out to society.

Great personalities are born in the family, scientists are groomed in the classrooms and great innovations are nurtured in the society. The great scientist Thomas Alva Edison is the best example for this. From the position of a newspaper selling boy in the local trains, who never went to school, he rose to be the most prolific inventor in American History. He amassed a record of 1093 patents, total untouched by any other inventors. Strong determination and a desire to do hardwork only will bring laurels in one's life situations.

I congratulate the students who made use of this opportunity to make this event a successful one. I exhort you to grab all the opportunities that come across your life so as to become a creative and successful person with values and character.

I appreciate the Principal, IQAC Co-ordinator and the Research Committee of the College for fanning the flame of innovation – i.e. invention, research and development in young minds. May your tribe increase.

With every bestwish

**Rev. Dr. Sr. AnnieMathew**

**Dr Rita LathaD'Couto**
Principal, St Joseph's College forWomen,
Alappuzha,Kerala,India

## MESSAGE

It is being increasingly recognized that academic institutions need to take the initiative for building research capacity in students, and encourage them to engage in meaningful and relevant research projects at an early stage in their academic life. With a view to foster the spirit of research in the student community, the Research Committee of our institution launched an innovative venture, RICERCA 2020- a National Online Student Research Project Presentation Competition- for providing a platform for students from higher education institutions all over the country to present their research projects undertaken in various disciplines. The response was overwhelming 227 entries were received covering 12 academic disciplines, out of which 105 research projects were presented after the preliminary screening of 127 project abstracts. A special note of appreciation to the subject experts from various institutions who gave useful guidance to the student researchers for refining their project proposals.

I congratulate the Organizing Team of RICERCA 2020, headed by the Programme Co-ordinator Dr. Bhagya D., for their committed efforts to ensure the success of this venture. It is my belief that RICERCA 2020 has achieved its objective of igniting the spark of research motivation in our young researchers, and strengthened their resolve to embark on the research journey with renewed interest and focus.

**BestWishes**

**Dr. Rita LathaD'Couto**

**Prof Achuthsankar SNair**
Dept of Computational Biology andBioinformatics
University ofKerala,Karyavattom,
Thiruvananthapuram 695581India

## INAUGURAL MESSAGE

I am very happy to have taken part in **RICERCA 2020** both as a speaker and also as a listener. I found that the programme was designed meaningfully to kindle the latent spirit of innovation in young men and women. That the lockdown period did not deter the organizers from conducting the event in a good manner, in collaboration with **Sasthra Sahithya Parishath** is to be lauded. I hope that the event will leave a indelible message that everyone can innovate.

**My Best Wishes….**

**Prof Achuthsankar S Nair**

**Dr V NJayaChandran**
Chairman,
Scientific TemperamentCommittee
Kerala Sasthra Sahithya Parishath DistrictCommittee,
Alappuzha

## MESSAGE

It is heartening to note that the Research Committee, St Joseph's College for Women Alappuzha has successfully held a National Online Student Project Presentation series for enhancing the research capacity of students of various universities in the nation. I am happy also to learn that the committee is bringing out the proceedings of the programme in the form of an E book , so that even those teachers and students, who could not attend the same, can be benefited. The development of civilization and evolution of modern human being are attributable to science or knowledge economy in the coming world. Capacity to produce knowledge is of prime importance. Therefore, successful completion of this programme, aiming the enrichment of young researchers with better methodology and scientific temper is appreciable.

I hearty congratulate the academic community, especially the Research Committee of the college for conducting the programme on virtual platform effectively, thereby tiding over the inconveniences caused by COVID-19 pandemic. I really feel proud of being part of this venture as a representative of Kerala Sasthra Sahithya Parishath (KSSP).

**Dr V N JayaChandran**

**Dr BhagyaD**

Editor in Chief, & ResearchCo-ordinator,

RICERCA2020

Welcome to the Proceedings: Abstract E Book of RICERCA 2020 organized by Research Committee of St Joseph's College for Women, Alappuzha & Kerala Sasthra Sahithya Parishath, Alappuzha, Kerala, India. Ensuring high quality research requires accepting abstracts that pass a rigorous review process. This is for the first time research committee is organizing a National Online Student Project Presentation with the aim of providing a virtual platform to students of undergraduate and postgraduate from all disciplines to show case their multidisciplinary, and transdisciplinary research talents inspite of pandemic upheaval and exchange of research ideas nationally. Among 227 entries from 12 disciplines 127 papers were selected after screening for quality and innovation and 105 student delegates presented their research papers. The online student project presentation was from 18-08-2020 to 27-08-2020 and the abstracts selected were compiled as abstract book. Among undergraduate and postgraduate category of each subject best researcher with best presentation were evaluated by nationally eminent personalities in respective subjects and was awarded "**EXCELSIOR AWARD"**, for encouragement second and third place were also given certificate of merit.

I would like to express our deepest appreciation to the speakers whose technical contributions are also presented in these proceedings. I am indebted to the contributions of associate editors for their excellent co operation and hard work which made it possible to release the proceedings in an excellent manner.

We would like to thank all our keynote speakers who made all the efforts to synthesize the materials and their wide and rich experiences to deliver distinguished talks. We would also like to thank all our subject experts for their great efforts in delivering interactive and excellent tutorials that address the learning needs of all levels, undergraduates, graduates, and professionals. Finally, I hope that the student delegates enjoyed National Online Student Project Presentation RICERCA 2020 and it have been beneficial for them fostering research aptitude integrated with technology.

**Dr Bhagya D**

**Dr DSuresh**
Assistant Professor, Department ofChemistry,
School of Chemical&
Biotechnology,
SASTRA Deemed University, Thanjavur, TamilNadu

## VALEDICTORY MESSAGE

I am really honoured and humbled to be a part of this year online RICERCA 2020, the national level online student's research project presentation competition series across the diverse fields of arts, science and humanities. I have to appreciate the organizing committee for their efforts in conducting national level competition owing to a difficult time of Covid-19 rather than conducting routine webinars. To be honest, I was really excited to hear the total number (227) of entries for this competition across the fields and very happy that young generations are more enthusiastic in research of their own fields. My dear students, you all made a progressive and impressive start for your carrier. The rapid increase in the development of technology provides a better opportunities and the avenues for the young mind to showcase their talents. Don't let this fire to put off, ignite it every day with your thought process for the development of society and the country. I will say this is the best phase of your life where you can decide your future career. Open up your wings and set up a long term goal for your career and make each step forward every day. HARD WORK never fails and there is no substitute for the HARD WORK. I am quoting a Tamil poem Thirukkural(595),

வெள்ளத் தனைய மலர்நீட்டம் மாந்தர்தம்
உள்ளத் தனையது உயர்வு

meaning, the stalks of water-flowers are proportionate to the depth of water; so is human's greatness proportionate to their minds. Enrich your knowledge which not only takes you to a newer heights but also your family and eventually the country. Wishing you all a very successful career and a healthy & happier life ahead.

Thankyou,

**Dr DSuresh**

**Dr Menon MeeraRaman**

AssistantProfessor,
PG DepartmentofZoology,
The CochinCollege.

## RESEARCH AND RESEARCH ETHICS

"Research is to see what everybody else has seen and to think what nobody else hasthought"

- **Albert Szent- Gyorgyi.**

"Ethics is knowing the difference between what you have a right to do and what is right to do"

- **PotterStewart.**

"Research and research ethics" is a topic which is very relevant in today's scientific world. Research is a systematic study and careful collection, presentation, analysis and interpretation of quantitative data whereas Ethics is the study of value concepts like good, bad, right or wrong and the principles that justify applying the concepts. Research has many characteristics, be it practical, logical, analytical or critical. Any researcher should have an intellectual curiosity, healthy criticism, intellectual honesty and creativity. A researcher can go for either a basic or applied research depending on their level of interest. Research is important because it improves quality of life, improves instructions, improves student and teachers achievements. It has deep seated psychological aspects and responds to the economic recovery and austerity measures of the country. Research ethics is equally important as it educates and monitors scientists conducting research to ensure a high ethical standards. Ethical principles of honesty, objectivity, integrity, carefulness, openness, respect for intellectual property, confidentiality, responsible publication and mentoring, respect for colleagues, social responsibility and competence need to be strictly adhered so as to achieve success. Care should be taken not to fabricate, falsify or plagiarize data. Today's researchers are tomorrow's assets. So it is very important that the new researchers are given proper guidance so that they can bring their best for the society.

# INAUGURATION RICERCA 2020

## Research & Innovation for Young Minds

**National Online Student Research Project Presentation Series**

Organized by

**Research Committee, St Joseph's College for Women, Alappuzha 688001, Kerala**

in association with

**Kerala Sasthra Sahithya Parishath**

**PROGRAMME SCHEDULE**

**18-08-2020 Time: 2:00PM**

| | | |
|---|---|---|
| **OpeningRemarks** | **:** | **Ms ManjuThomas**<br>Assistant Professor, Department of English |
| **WelcomeAddress** | **:** | **Dr BhagyaD**<br>Research Co-ordinator |
| **PresidentialAddress:** | | **Dr Rita LathaD'Couto**<br>Principal, St Joseph‟s College for Women, Alappuzha |
| **InauguralAddress** | **:** | **Prof. Achuthsankar SNair**<br>Head, Department of Computational Biology & Informatics<br>University of Kerala, Kariavattom, Thiruvananthapuram |
| **Felicitation** | **:** | **Dr V N Jayachandran**,Chairman,<br>Scientific Temperament Campaign<br>Committee, Kerala Sasthra Sahithya Parishath |
| **Voteof Thanks** | **:** | **Ms Anjali George**<br>Assistant Professor, Department of English |

# SCHEDULE OF RICERCA 2020NATIONALONLINE STUDENT RESEARCH PROJECTPRESENTATION

**(PARALLEL SESSIONS)**

**18-08-2020 to 24-08-2020**

**18-08-2020, Tuesday**

| | | | |
|---|---|---|---|
| Session I | : | **CHEMISTRY** | 3:45PM-6:30PM |
| **Co-ordinators** | : | Dr Kumari Nisha S | |
| | | Dr Ramya K | |
| Session II | : | **ENGLISH** | 2:35PM-6:00PM |
| **Co-ordinators** | : | Ms Manju Thomas | |
| | | Ms Anjali George | |

**19-08-2020, Wednesday**

| | | | |
|---|---|---|---|
| SessionI | : | **MATHEMATICS** | 11:00 PM-1:30PM |
| **Co-ordinators** | : | Ms Namitha Sara Mathew | |
| | | Ms Chithra KS | |

**20-08-2020, Thursday**

| | | | |
|---|---|---|---|
| SessionI | : | **ZOOLOGY** | 2:30PM-4:45PM |
| **Co-ordinator** | : | Ms RemyaJames | |
| Session II | : | **PHYSICS & ELECTRONICS** | 3:00PM-6:00PM |
| **Co-ordinator** | : | Dr Sr Morris Marieli Antoinette | |

**21-08-2020, Friday**

| | | | |
|---|---|---|---|
| SessionI | : | **HOME SCIENCE** | 2:00PM-5:00PM |
| **Co-ordinator** | : | Dr BhagyaD | |
| SESSIONII | : | **BOTANY & ALLIED SCIENCES** | 2:30PM -5:30PM |
| **Co-ordinators** | : | Dr Diana K J | |
| | | Dr R Nisha Nair | |

**22-08-2020, Saturday**

| | | | |
|---|---|---|---|
| SessionI | : | **HISTORY** | 2:00PM-3:10PM |
| Session II | : | **ECONOMICS** | |
| **Co-ordinator** | : | Ms Sandya AK | |

| | | | |
|---|---|---|---|
| Session III | : | **HOME SCIENCE** | 4:00PM- 6:00PM |
| **Co-ordinator** | : | Dr Bhagya D | |
| **24-08-2020, Monday** | | | |
| SessionI | : | **COMMERCE** | 2:00PM – 5:00PM |
| **Co-ordinator** | : | Dr Suleena V S | |
| Session II | : | **PSYCHOLOGY** | 2:30PM -5:15PM |
| Session III | : | **SOCIOLOGY** | |
| **Co-ordinator** | : | Dr Bhagya D | |

| | | |
|---|---|---|
| **Project Presentation Time :** | | **8 minutes** |
| **Discussion** | **:** | **2 minutes** |
| **Platform** | **:** | **Google Meet** |

# RICERCA 2020

## ONLINE RESEARCH PROJECT PRESENTATION COMPETITION

## EXPERT PANEL (Parallel Sessions)

### 18-08-2020 to 24-08-2020

| Day | Date | Time | Subject | Expert Panel |
|---|---|---|---|---|
| Tuesday | 18-08-2020 | 2:00PM-3:30PM | **INAUGURATION** | **Dr Achuthsankar S Nair** Professor, Department of Computational Biology & Informatics, University of Kerala, Thiruvananthapuram |
| Tuesday | 18-08-2020 | 3:45PM-6:30PM | **CHEMISTRY** | **Dr Sunish K S**, Assistant Professor, Department of Chemistry, CMSCollege, Kottayam, Kerala |
| | | | | Dr Sarika Sivakumar, Assistant Professor, Department of Chemistry, St Joseph‟s College for Women, Alappuzha |
| Tuesday | 18-08-2020 | 2:35PM-6:00PM | **ENGLISH** | **Dr S Mohamed Haneef**, Assistant Professor and Head, Research Department of English, Sadakathullah Appa College(Autonomous),Tirunelveli, TamilNadu |
| Wednesday | 19-08-2020 | 11:00 PM- 1:30 PM | **MATHEMATICS** | **Dr Manilal K**, Associate Professor, University College, Thiruvananthapuram |
| Thursday | 20-08-2020 | 2:30 PM-4:45PM<br><br>3:00PM-6:00PM | **ZOOLOGY**<br><br>**PHYSICS** | **Dr Meera Menon**, Assistant Professor, PG Department of Zoology, Cochin College, Ernakulam<br><br>**Dr M Ragam**, Assistant Professor, Research Centre of Physics, Fatima College, Madurai, Tamil Nadu<br><br>**Dr J Emima Jeronsia**, Assistant Professor, Department of Physics, Holy Cross College, Thiruchirapalli, TamilNadu |
| Friday | 21-08-2020 | 2:00PM-5:00PM<br><br>2:30PM-4:00PM | **HOME SCIENCE**<br><br>**BOTANY** | **Dr Sunanda Chande**, Former Principal & Professor, Home Science, SNDT Womens University, Mumbai<br>**Dr Sithara Balan V**, Assistant Professor, Department of Home Science, Government College for Women, Thiruvananthapuram, Kerala<br>**Mrs. Meera D K**, Assistant |

| | | | | |
|---|---|---|---|---|
| | | | | Professor,<br>Department of Home Science, Government College for Women, Thiruvananthapuram, Kerala<br>**Dr Elizabeth Cherian**, Assistant Professor, Department of Botany, CMS College, Kottayam, Kerala |
| Saturday | 22-08-2020<br><br><br><br>22-08-2020 | 2:00PM-3:10PM<br><br><br><br>4:00PM -6:00PM | **HISTORY & ECONOMICS**<br><br><br><br>**HOME SCIENCE** | **Dr Dhanya B Nair**, Assistant Professor, Department of History NSS College, Cherthala, Kerala<br><br>**Dr Sunanda Chande**, Former Principal & Professor, Home Science, SNDT Womens University, Mumbai<br><br>**Dr Sithara Balan V**, Assistant Professor, Department of Home Science, Government College for Women, Thiruvananthapuram, Kerala<br><br>**Mrs. Meera D K**, Assistant Professor,<br>Department of Home Science, Government College for Women, Thiruvananthapuram, Kerala |
| Monday | 24-08-2020 | 2:00PM-5:00PM<br><br>2:30PM-5:15PM | **COMMERCE**<br><br><br>**PSYCHOLOGY**<br><br><br>**SOCIOLOGY** | **Dr Krishnan M,** Assistant Professor, SD College, Alappuzha, Kerala<br><br>**Dr Shabu B Raj**<br>Scientist F, DRDO, New Delhi<br><br>**Dr Nisha Jolly Nelson**, Head, Department of Sociology, Loyola College of Social Sciences, Thiruvananthapuram, Kerala |
| Thursday | 27-08-2020 | 11:00AM 12:00AM | **VALEDICTORY KeynoteAddress** | **Dr D SURESH**<br>Assistant Professor, Department of Chemistry, School of Chemical & Biotechnology, SASTRA Deemed University, Thanjavur, Tamil Nadu |

# RICERCA 2020 SELECTED PRESENTATIONS SUBJECT WISE

| Date | Subject | Number of Presentations Selected | Number of Students Presented |
|---|---|---|---|
| 18-08-2020 | CHEMISTRY | 13 | 12 |
| 18-08-2020 | ENGLISH | 11 | 10 |
| 19-08-2020 | MATHEMATICS | 10 | 10 |
| 20-08-2020 | ZOOLOGY | 10 | 09 |
| 20-08-2020 | PHYSICS | 14 | 12 |
| 21-08-2020 & 22-08-2020 | HOMESCIENCE (5Specializations) | 34 | 21 |
| 21-08-2020 | BOTANY | 14 | 12 |
| 22-08-2020 | COMMERCE | 07 | 07 |
| 22-08-2020 | HISTORY | 05 | 03 |
| 22-08-2020 | ECONOMICS | 02 | 02 |
| 24-08-2020 | PSYCHOLOGY | 06 | 06 |
| 24-08-2020 | SOCIOLOGY | 01 | 01 |
| **TOTAL** | | **127** | **105** |

**Both Undergraduates and Post graduates, Total entries :227*Subjects:12**

***(Chemistry, English, Mathematics, Zoology, Physics, Home Science, Botany, Commerce, History, Economics, Psychology, Sociology)**

# Editorial Board

**Dr Bhagya D**

**Editor in Chief**

Department of Home Science

## Department Co-ordinators & Associate Editors

**Dr Kumari Nisha S**

Department of Chemistry

**Dr Ramya K**

Department of Chemistry

**Ms Anjali George**

Department of English

**Ms Manju Thomas**

Department of English

**Ms Namitha Sara Mathew**

Department of Mathematics

**Ms Remya James**

Department of Zoology

**Dr. Diana KJ**
Department of Botany

**Ms. Sandya A K**
Department of History

**Dr. Suleena V S**
Department of Commerce

**Dr. Sr. Morris Marieli Antoinette**
Department of Physics

## Student Co ordinators

**Fathima Nadeer**
IIPG Home Science

**Anjali Anil**
IIIDC History

**Mery Dincy**
IIIDC History

## Technical Co-ordinators

**Mr Akhil A O**

**Ms Akshara Kozhichira**

**Mr Gireesh Michael**

## Organising Committee

**Dr Bhagya D**, (Research Co-ordinator), Assistant Professor, Department of Home Science

**Dr V N Jayachandran**, Chairman, Scientific Temperament Campaign Committee, Kerala Sasthra Sahithya Parishath

**Dr Suleena V S**, Head, Department of Commerce

**Ms Anjali George**, Assistant Professor, Department of English

**Ms Manju Thomas**, Assistant Professor, Department of English

**Ms Sandya A K**, Head, Department of History

**Ms Remya James**, Head, Department of Zoology

**Dr Diana K J**, Assistant Professor, Department of Botany

**Dr Ramya K**, Assistant Professor, Department of Chemistry

**Dr Kumari Nisha S**, Assistant Professor, Department of Chemistry

**Dr Sr Morris Marieli Antoinette** Assistant Professor, Department ofPhysics

**Ms Namitha Sara Mathew**, Assistant Professor, Department ofMathematics

## National Advisory Committee

**RevDrSrAnnieMathew**,Manager,StJoseph‟sCollegeforWomen,Alappuzha,Kerala **Dr**

**Rita Latha D'Couto**, Principal, St Joseph‟s College for Women, Alappuzha, Kerala **Dr**

**Lawrence John Berchmans**, Consultant Scientist, CECRI, Karaikudi, Tamil Nadu **Dr**

**Shabu B Raj,** Scientist F, DRDO, NewDelhi

**Dr Sunanda Chande**, Former Principal & Professor, Home Science, SNDT Womens University, Mumbai

**Dr D Suresh**, Assistant Professor, Department of Chemistry, School of Chemical &

Biotechnology, SASTRA Deemed University, Thanjavur, Tamil Nadu

**Dr M Ragam**, Assistant Professor, Research Centre of Physics, Fatima College, Madurai, Tamil Nadu

**Dr J Emima Jeronsia**, Assistant Professor, Department of Physics, Holy Cross College,

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**Dr S Mohamed Haneef**, Assistant Professor and Head, Research Department of English, Sadakathullah Appa College (Autonomous), Tirunelveli, Tamil Nadu

# RICERCA 2020

## NATIONAL ONLINE STUDENT RESEARCH PROJECT PRESENTATION

**Organized by**

**Research Committee, St Joseph's College for Women, Alappuzha**

**In association with Kerala Sasthra Sahithya Parishath**

**VALEDICTORY PROGRAMME**

| | | |
|---|---|---|
| OpeningRemarks | : | **Ms AnjaliGeorge**<br>Assistant Professor, Department of English |
| WelcomeAddress | : | **Ms RemyaJames**<br>Head, Department of Zoology |
| Manager‟sAddress | : | **Rev. Dr. Sr. AnnieMathew**<br>Manager, St Joseph‟s College for Women, Alappuzha |
| Principal‟sAddress | : | **Dr Rita Latha D'Couto**<br>Principal, St Joseph‟s College for Women, Alappuzha |
| KeynoteAddress | : | **Dr DSuresh**<br>Assistant Professor,<br>Department of Chemistry<br>School of Chemical & Biotechnology<br>SASTRA Deemed University, Thanjavur |
| **Review fromSubjectExpert** | **:** | **Dr S MohamedHaneef**,<br>Assistant Professor and Head,<br>Research Department of English,<br>SadakathullahAppa<br>College (Autonomous), Tirunelveli,<br>Tamil Nadu |

***Announcementof*** **EXCELSIOR AWARD**

**Feedback from Winners &Presenters**

| | | |
|---|---|---|
| Voteof Thanks | : | **Dr BhagyaD**<br>Research Co Ordinator & Convenor,<br>RICERCA 2020 |

**Date: 27-08-2020** **Time: 11:00AM** **Platform: Google Meet**

***St. Joseph's College for Women, Alappuzha***, affiliated to the University of Kerala is situated at Convent Square. Established in 1954, by the Canossian Daughters of Charity, an international congregation of missionary sisters, the college offers 09 undergraduate and 3 postgraduate courses and opens up various settings for the understudies in curricular and extra-curricular fields in accordance with the vital needs of greatness and worldwide standards. The college has been able to combine the core values of higher education upheld by the Higher Educational Council and NAAC with its own vision and mission which stem from the educational policy evolved by the Canossian Congregation, guided by the precepts of St. Magdalene of Canossa, the founder of the order, thus ensuring value based education that aims at global competencies. The college was accredited by the National Accreditation and Assessment Council (NAAC) without precedent for 2004 with a commendable B++ (82.5%). In 2013, it was re-accredited with an 'A' Grade . In 2015, the College was the recipient of grant from **DST - FIST** for the infrastructural development of Science labs. In **2016**, the College was granted the status of **"College with Potential for Excellence" (CPE)** by **UGC**, the only college to be granted it that year among colleges under the University of Kerala. The college was awarded **B++ Grade**with a CGPA of 2.87 on a scale of four in the third NAAC accreditation process conducted in 2018.

The college has made considerable progress academically and in updating of its infrastructure facilities, while continuing to make its presence felt in the co-curricular and extra-curricular scenario.

The college leaves no stone unturned to foster the spirit of Research and Innovation. The newly emerging Research Block bears testimony to this. The Research Promotion Committee headed by a group of committed faculty disseminates information regarding research related events, call for proposals, availability of grants from various funding sources and organize workshops and seminars of relevance. The review committee examines and evaluates the viability, provides seed money, ethical compliance and probity, and methodological correctness of the research proposals submitted and motivates teachers to undertake minor and major projects and participate and present papers at national and international conferences and focus on innovative research practices.

**Kerala Sasthra Sahithya Parishath (KSSP)**

KSSP played a lead role in making Kerala totally literate. KSSP has established a separate centre to do research and in depth studies in the field of education viz., Education Research Unit (ERU) with three campuses, at Thiruvananthapuram, Thrissur and Kozhikode.

KSSP has been involved in building up models for sustainable and equitable development; campaigning for decentralised planning and local level planning; initiating a large number of field experiments in local level planning; empowering the local communities through volunteer based resource mappings, socio-economic survey, data analysis etc; formulation of people‟s structures like "Neighbourhood groups" and village committees for transparent democracy; analysing the "Kerala Model" of development to arrive at general conclusions and seeking its improvement. With the help of its members and friends, KSSP undertakes regular studies on developmental issues of Kerala and publish papers, monographs and reference books.

KSSP uses several media to communicate; printed word, posters, spoken word, theatre and to a limited extent electronic media. It has organised massive leaflet campaigns on many subjects. KSSP is the India's largest science publisher, having published more than 1,000 titles and producing 30-40 new titles per year. KSSP is also publishing three Science Magazines separately for primary school students, high school students and the general public. KSSP also organises every now and then massive lecture campaigns on a variety of topics and each campaign will result in several thousand lectures, which reaches out to hundreds of thousands of people.

With a strength of several thousand teachers among its members, KSSP organises in-service teachers training to make them enjoy teaching; promotes pedagogic innovations to make learning an enjoyable activity for children; assesses curriculum and text books; organises massive children's science festivals, teacher exchange programmes and talent festivals for children; publishes science journals and books for children and organises mass movement for quality improvement and mass literacy campaigns.

# CONTENTS

## MATHEMATICS

## ZOOLOGY

## BOTANY

## PHYSICS

## HOME SCIENCE

## HISTORY & ECONOMICS



## COMMERCE

## PSYCHOLOGY & SOCIOLOGY

**CHUG001**

**SaiKrishna S**

**Won second Prize**

# Investigation of Corrosion Inhibition Properties of Alcohol Extract of Passiflora Edulis for Mild Steel in Hydrochloric Acid

**Saikrishna S., Aleena Eugin, Blessymol C. B., Fathima Hilal, Arsha P. Joseph, Ramya K.***

Department of Chemistry, St. Joseph's College for Women, Alappuzha, Kerala-688001, India.

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## Abstract

This research work is focused on the investigation of corrosion inhibition properties of alcohol extract of Passiflora Edulis (passion fruit) leaf for mild steel in hydrochloric acid. PEL extract was obtained by refluxing 3g of dried PEL powder in 300 mL of alcohol. Corrosion behaviour of mild steel in 1N HCl was studied in the absence and presence of corrosion inhibitor PEL extract using weight loss method and data obtained at various time intervals (24,48,72 and 96 hours) are recorded. The results indicate corrosion rate of mild steel is reduced in the presence of inhibitor as compared to the blank solution where mild steel corroded drastically. The maximum inhibition efficiency is shown by 8% inhibitor solution at time intervals 24 and 48 hours. But 10% inhibitor solution shows maximum inhibition efficiency at time intervals 72 and 96 hours. It is clear that as time of immersion increases 10% inhibitor solution is moreefficient.

**Key words: Mild Steel, Acid Solution, Corrosion inhibition, Weight Loss**

**CHUG002**

# Solvent Based Synthesis of Activated Charcoal, Characterization and Adsorption Studies of Methylene Blue

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## Abstract

Adsorption properties of activated carbon (AC) encourage researchers to use AC in almost every field of chemistry, basically due to its simplicity of design and operation, selectivity towards certain substances as well as total elimination of pollutants from even dilute solutions. AC can also act as a filter for removal of harmful gases and vapours in the industrial environment. It can be used to treat poisoning and overdoses and is taken as an over the counter drug in many countries. This has resulted in an increasing quest in setting up durable, dependable and selective alternatives towards environmental protection and conservation. This study deals with the "Solvent based synthesis of activated charcoal and its characterization, and adsorption studies on Methylene Blue". Through this venture we tried to prepare charcoal out of easily available source of carbohydrates like honey and made use of solvents like ethylene glycol for yield and con.H2SO4 as dehydrating agent. Its structural and morphological characterization is done by XRD and SEM. Adsorption characteristics are analyzed by spectrophotometer. An attracting feature of our study is that we isolated activated form of charcoal without any surface modifications and hence it is very useful for the low cost production of AC which will be a great boon to this fast moving generation where the production of waste is faster than its eradication apart from that it occupies a relevant position in modern medicine which owes it a lot in our day to day life.

**Key words: Activated Carbon, Adsorption, Methylene blue**

**CHUG003**

**Selja Siraj Aman**

**Won Excelsior Award(First Prize)**

# Polyvinyl Alcohol/Methyl Orange Flexible Film as Reusable pH Indicator

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## Abstract

Methyl orange (MO) is commonly used as pH indicator in food and beverages, laboratory experimentation, agriculture, healthcare and pharmaceuticals. It is reported that MO is a hazardous and mutagenic chemical. MO is very frequently using in laboratory experiments and students will generally pour the solution into sink after the titration. The release of MO into the environment eventually leads to environment pollution. Polymer blending is the process in which two or more polymers blended to give a new material with different properties. Polymer blending has lot of advantages over the synthesis of new polymers because it will improve the properties of commercially available polymer and it will reduce the research and development expense and time consuming for the synthesis of new polymers having same property profile. Polyvinyl alcohol (PVA) is a solution processable biodegradable polymer with high thermal and mechanical properties. It has strong tendency to form hydrogen bond with water molecule due to the presence of -OH group. We prepared a flexible and biodegradable PVA/MO film by the blending of PVA with MO in water solution. The pH indicating properties of this polymer film is studied by dipping it in different acids and bases. It showed red color in acids and orange-yellow color in bases due to the structural change of MO from azo structure to quinoid structure. This reusable film will find application as pH indicator and it will replace most commonly using non-reusable, hazardous and mutagenic pollutant like MO solution in laboratory experiment to reduce environment pollution.

**Keywords: Methyl Orange, Polyvinyl alcohol, pH indicator, Acid-base titration, Polymer film**

**CHUG004**

**Chetana Sara Chacko**

**Won Third Prize**

# Wettability Studies of Poly (L-Lactic Acid) Films Incorporated with Extract of Piper Nigrum

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## Abstract

World has seen astonishing accomplishments in human organ reconstruction based on tissue engineering in the last two decades. Biodegradable polymers have attracted significant interest in the field of tissue engineering, since they are used for the synthesis of scaffolds which act as a supporting material for cell proliferation and growth. Among all the biodegradable polymers, Poly (L-Lactic acid) is quite promising due to its biodegradability, biocompatibility and nontoxic nature. A scaffold should be essentially hydrophilic for cell adhesion and nutrient transport. Wetting property of Poly (L-Lactic Acid) films can be improved by incorporating it with plant extract. The present study highlights the use of Piper Nigrum extract, which also possess many medicinal benefits, for improving the wetting property of Poly (L-Lactic Acid) films. Neat Poly (L-Lactic Acid) films and polymer films incorporated with Piper Nigrum extract at different compositions were fabricated. Wettability of these polymer films were analyzed using Contact Angle Analyzer. Contact angle and surface energy values interpreted from Contact Angle Analyzer reveals that the wettability of polymer films can be improved by increasing concentration of plant extract.

**Keywords: Tissue Engineering, Biodegradable polymer, Scaffolds, Contact Angle**

**CHPG001**

# Exploration of Transition Metals co-doped Nano Carbon Dots as Energy Storage Materials

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## Abstract

Carbon nanodots have currently emerged as a unique and promising material focusing on advanced applications especially in the field of optoelectronic and energy storage devices. The preferential doping of nanocarbon dots will enhance the photoluminescence characteristics and thereby we can fine-tune its photophysical properties. In the present work, we have synthesized a series of first-row transition metal atoms ($Mn^{2+}$, $Fe^{2+}$, $Co^{2+}$, $Ni^{2+}$, $Cu^{2+}$, and $Zn^{2+}$) co-doped with nitrogen and nitrogen- sulphur carbon dots by a greener synthetic strategy. The formation of doped carbon dots was confirmed by its characteristic surface plasmon resonance absorptions using the Ultraviolet-visible spectroscopy. The presence of major functional group identification was done with the aid of FT-IR spectral analysis, the morphology and size were analyzed by high-resolution TEM analysis and photophysical characteristics were investigated from the fluorescence measurements. The photoluminescence studies reveal that by co-doping the transition metals with nitrogen or nitrogen- sulphur carbon dots, the emissions maxima of the nanodots can be tuned. The doped carbon dots were explored for their energy storage application and their super capacitance characteristics. The capacitance values of the carbon dots were found to be increased with the effect of co-doping with the first-row transition elements and the capacitance values were in the range of 2.6 µF/cm2 to 0.5 µF/cm2 and are in tune with the capacitance values for carbon-based materials including graphene and C- dots reported in the literature.

**Key words: Carbon dots, Doping, Supercapacitance, Energy storage**

**CHPG002**

# Nitrogen Rich Zn MOF with Dual Functional Imidazole Linkers: Active Catalyst for $CO_2$ Conversion

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## Abstract

Metal-Organic Frameworks are porous, crystalline, organic-inorganic hybrid advanced catalysts finding applications in the insertion of $CO_2$ into high energy substrates such as epoxides yielding cyclic carbonates. MOFs exhibit high surface areas with tunable functionality, pore size and shape/size selectivity and are able to integrate the merits of homogeneous and heterogeneous catalysts including efficiency and re-usability. Nitrogen rich MOFs play a pivotal role in the efficient conversion of $CO_2$ to value added chemicals due to the presence of Lewis basic nitrogen groups capable of activating $CO_2$. Herein, a novel MOF with enriched nitrogen content is synthesized and its structure-catalytic properties towards $CO_2$-epoxide cycloaddition is investigated. The synthesis of a dual linker Zn based Lewis acid-base bifunctional MOF (ITH-1) with mono coordinated imidazole groups was achieved at ambient conditions, using 1,3,5- benzene tricarboxylic acid (BTC) and 2-methylimidazole (2-MeIm) linkers. ITH-1 possess a 2 D non-planar interdigitated network wherein the neighboring sheets are connected via strong hydrogen bonding (1.947 $A^o$) existing between the N-H of pendant imidazoles and carboxylate oxygen atom. Two types of imidazole moieties were found to co-exist on the framework; half of them provides structural integrity to the framework via engaging in hydrogen bonding, while the other half exists as free imidazoles furnishing catalytic ability to the material. The co-existence of accessible Lewis acid (Zn) –Lewis base (imidazole) moieties rendered ITH-1 the potential to catalyze the cycloaddition of $CO_2$ with propylene oxide under the very mild conditions of room temperature and 1 atm $CO_2$ pressure along with a co-catalyst (tetrabutyl ammonium bromide). Theoretical validation for the ITH-1/TBAB synergistic catalysis is done via DFT calculations and significant lowering in the activation energy is observed. MOF mediated $CO_2$ mitigation is a highly promising strategy towards a sustainable low –carbon future.

**Key words: Metal-Organic Framework, Catalysis, Gas adsorption, Imidazole linkers, TBAB**

**CHPG003**

**Manoharan Vengadesh Krishna**

**Won Third Prize**

# Lithium Ion Conductivity of Triblock Polymer Electrolytes P(VdCl-co-AN-co-MMA)- with LiClO4

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## Abstract

Lithium ion conducting polymer electrolytes based on triblock polymer poly (vinylidene chloride-co-acrylonitrile- co-methyl methacrylate) (or) P(VdCl-co-AN-co-MMA)- LiClO4 were prepared in different composition using solution casting technique (THF as solvent). The conductivity study has been made using impedance technique. The conductivity studies of the polymer electrolyte membrane show that the ionic conductivity of the polymer electrolyte increases with increase in concentration of LiClO4. The highest conductivity of lithium ion is found to be 4.8 x 10-3 Scm-1 at room temperature for the 40m% P(VdCl-coAN-co-MMA)/60 m% LiClO4. This value is found to be greater than that of pure polymer whose conductivity is found to be 1.5 x 10-8 Scm-1. Here the conductivity is increased by order five. Complex formation between the triblock polymer and the salt has been confirmed by FT-IR analysis. The increase in conductivity is due to increase of amorphous nature the triblock polymer. This has been confirmed by powder XRD analysis. Rechargeable Lithium ion battery (coin cell) is constructed by using Lithium Iron Phosphate (LiFePo4) coated on Aluminium sheet as Cathode and Graphite coated on copper sheet as Anode with the prepared polymer electrolyte which act as a separator as well as electrolyte. The open circuit voltage is measured to be 3.14V after charging the coin cell for an hour.

**Key words: Lithium ion battery, Polymer Electrolyte, Block Copolymer**

**CHPG005**

# Phytochemicals Screening and Antibacterial Activity of Leaf, Seed and Sprouted Seed of Trigonella foenum-graecum-A Comparative Study

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## Abstract

Trigonella foenum-graecum, a spice seed is used to enhance the flavour, colour and texture of food. In traditional system, it finds significant role in various medicinal purposes. Trigonella foenum-graecum, commonly known as fenugreek is a plant extensively used as a source of antidiabetic compound. It has been found to lower postprandial glucose levels. The aim of the present work is to screen the phytochemicals and antibacterial activities of water, ethyl alcohol, acetone, chloroform and ethyl acetate extracts of leaf, seed and sprouted seeds of Trigonella foenum-graecum. Standard methods are used for the identification of alkaloids, phenolic compounds, terpenoids, flavonoids, steroids, glycosides, tannins and saponins present in the extracts of leaf, seed and sprouted seeds of fenugreek. A comparative study of phytochemicals screening is carried out. Further the antibacterial activity of the extracts is to be performed by agar well diffusion method.

**Key words: Antibacterial activity, Phytochemicals, Plant extract**

**CHPG006**

# Biodegradable Polymers from Natural Resources: Isolation and Characterization

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## Abstract

Starch as biodegradable polymer becomes reasonable material for the production of bioplastics because of its low cost. It had been used widely for packaging material. Biodegradable plastics are a promising alternative to petroleum plastics and they undergo a composting process to form a stable compound, in the final stage of recycling. This project focuses on the isolation and characterization of starch from renewable resources and starch assisted green synthesis of metal oxide nanoparticles. The main objective of this project work is to synthesis of bioplastics from potato and cassava starch in order to minimize the pollution by motivating the use of eco-friendly plastics (bio-plastics). Moreover, green synthesis of iron oxide nanoparticles can be done using potato and cassava starch.

**Key words: Biodegradable polymer, Green synthesis, Iron oxide nano particles**

**CHPG007**

# Investigations of Terminalia Arjuna Bark Extract for Its Antioxidant Property Experimental and Theoretical Validation

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## Abstract

For centuries human race depends on natural products for sustaining its life. Even though synthetic drugs dominate natural products in fast response over the medical condition, it is their harmful side effects that make them to fail in the race against compounds derived from natural resources. This scenario makes chemists to explore phyto world for biologically active substances for decades through experimental and theoretical mode. In the present work, investigation of the DPPH radical scavenging ability of the bark extract from well-known medicinal plant "Terminaliaarjuna" commonly referred to as Maruthamaram or Guardian of heart are experimentally explored for their antioxidant role and also theoretically investigation and validation of the two suitable compounds (Arjunone and Arjunolone) present in the extracts for their antioxidant property through structural activity analysis. In theoretical work initially structural optimization, frontier molecular orbital (FMO) properties, electrostatic properties (MEP) and molecular descriptive parameters are carried out with the help of well-established quantum chemical method Density Functional Theory (DFT) using triple zeta valence basis set 6-311G(d,p) using the evergreen Becke's functional B3LYP. FMO analysis clearly reveals the electron richness of functional groups present in B-ring which will readily donate electron radical scavenging action. Similarly, MEP and molecular parameters give a detailed description about the basic structural property i.e electron donation with less required dissociation energy for both arjunone and arjunolone making them suitable antioxidants.

**Key words: DPPH, Density functional theory, Terminaliaarjuna, Arjunolone and Arjunone**

**CHPG008**

**Aiswarya Sathian**

**Won Second Prize**

# Nanostructured Edible Coatings for Fruits and VegetablesContaining Hybrid System of Polymer andLipid

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## Abstract

Nanotechnology currently appears to be an effective and important tool for extending food lifespan with the development of edible coating and food films. In this study, a novel hybrid nanosystem is formulated by combining both polysaccharide and lipid, with the intent of getting the combined effect of both their properties. The moisture content barrier characteristics of the coatings can be improved by adding oil to the edible formulation. In the current studies, the hybrid nanosystem edible coatings are obtained from natural polymers and lipids. The work focuses on the fabrication of an edible coating made up of oil, incorporated into polysaccharides and lipids. The incorporation of coconut shell charcoal powder in tender coconut water was tested for antibacterial activity against the bacterial strains. The polymer- lipid hybrid nanosystem was characterized using TEM, FTIR, and cytotoxicity assay. TEM images showed the optimized hybrid nanosystem having a quasi-spherical morphology with an average size of 50 nm. Cell viability of human fibroblast cells were investigated using the MTT assay. All the concentrations were nontoxic and showed a cell proliferation rate of more than 85%. The antimicrobial activity of hybrid nanoparticles was evaluated against E. coli by disc diffusion method. The results showed that the hybrid nanoparticles were resistant towards bacteria. This hybrid nanosystem was then successfully applied on fresh vegetables and fruits by using dip coating method. This can be further utilized for ensuring best coatings for fresh fruits and vegetables to increase their shelf life.

**Keywords: Edible nanocoating, Antibacterial, Hybrid nanosystem, Biocompatibility**

**CHPG009**

**Padmapriya V R**

**Won Excelsior Award (First Prize)**

# Enhanced Activity of PtNi/C & PtFe/C Electrocatalyst for Methanol Electrooxidation

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## Abstract

Fuel cells are getting a topic of intense applied research for portable, stationary and electric vehicle applications. Among the various forms of fuel cells, the Direct Methanol Fuel Cell (DMFC) is found to be an attractive power source because of their distinctive advantages on high energy density, storage safety and environmentally friendly aspects. Despite the considerable technical progress in recent decades, DMFC systems still suffer from their poor electrocatalytic activity for methanol electrooxidation and the short-life durability of Pt catalyst. Generally, in order to obtain the high electrocatalytic performance, efficient approaches including developing the supporting materials as well as controlling the distribution and morphology of noble metal nanoparticles are adopted. In this present study, PtNi/C and PtFe/C electrocatalysts were prepared by modified polyol process using NaBH4 as a reducing agent to enhance the activity of the methanol electrooxidation. The prepared catalysts were characterized by XRD, TEM, EDX, and Electrochemical studies. XRD analysis shows that both the catalysts have fcc structure. The crystallite size was found to be 1.04 and 8.52 nm for PtNi/C and PtFe/C respectively. From TEM, the morphology and dispersion of the catalyst was studied. From EDX spectra, the total metal loading of PtNi/C and PtFe/C was found. From Cyclic Voltammetry studies, the current density of PtFe/C is found to be higher than PtNi/C, which implies that PtFe/C has good catalytic activity when compared with PtNi/C. This is also confirmed by Nyquist plots of EIS spectra, where PtFe/C has small diameter of the primary semicircle, which shows that it has better methanol catalytic activity.

**Keywords: DMFC, Anode catalyst, PtNi/C, PtFe/C, Methanol electrooxidation**

**ENUG001**

**Nileena Sunil**

**Won Second Prize**

# Would Newspeak Work? -Linguistic Relativity in Nineteen Eighty-Four by George Orwell

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## Abstract

Nineteen Eighty-Four by George Orwell has been one of the most influential works of fiction written in the twentieth century. Considering how it is routinely quoted during political discussions even in the present day, it is safe to say that it has withstood the test of time. Terms like “Newspeak”, “BigBrother” Thoughtcrime “Doublethink” have become a part of our vocabulary. Through the classic dystopian work, Orwell had painted a chilling portrait of a totalitarian future-a future which according to some, we are moving closer to. One of the most interesting concepts put forth in the books is the concept of Newspeak. Newspeak is the constructed language that has been created to be the lingua franca of the fictional totalitarian state of Oceania. With a diminishing vocabulary, it has been specifically designed for the purpose of control, not just the control of speech, but also the control of thought. According to Orwell, the exclusive use of Newspeak would ensure that people remain within the bounds of “goodthink” (political orthodoxy) and avoid „thoughtcrime“ (thoughts that go against the state ideology) so far as thought depends on language. That brings forth the question-does thought depend on language? In order to answer that question, we need to examine the concepts of linguistic relativity and linguistic determinism. The theory of linguistic relativity (also known as the Sapir-Whorf hypothesis) claims that language influences thought. A stronger version of this theory, known as linguistic determinism claims that thought is dependent on language. For years, these theories have been intensely debated upon by linguists. This project aims to take those theories and the arguments both supporting and opposing them into consideration while attempting to determine whether or not Newspeak could actually work as it was intended to in Nineteen Eighty-Four.

**Keywords: Totalitarian, Newspeak, Language, Linguistic Relativity, Linguistic Determinism**

**George Mathews**

**Won Excelsior Award(First Prize)**

# Socialist Perspective in Edward Bond's The Bundle: The New Narrow Road To The Deep North

**George Mathews[1], Sunukutty G[1], Agathiya Vayshnav S P[1], Abhijith V L[1], Ardra R Nair[1]**

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## Abstract

One of the profound political and social theories of the modern world, Socialism holds a pride of place among the contemporary socio-political ideas and perspectives. Socialism is a philosophical concept that emphasizes a populist economic and political system which has shared ownership of resources and more equitable society. In Edward Bond's magnum opus play, *The Bundle: The Narrow Road to the Deep North,* the playwright with his insightful wisdom explores the lack of social justice which leads to the proletariat's fretting and fuming, to break free from the shackles and bondage of the then Capitalist English society. We have made an earnest attempt in establishing the play's underlying theme of Socialism which liberates the proletariat from the capitalist exploitation endorsing the democratic principles of liberty, equality and fraternity where they enjoy the humanitarian coexistence and justice. It's evident that the lack of the Socialist tenets is the root cause of all the problems and only humanism and humanitarianism can save humanity from the brink of total extinction. We have employed the Marxian methodology to plumb deep into the subtleties of the play. Its high time to make sure that the voice of the women and the children, linguistic and ethnic minorities, LGBTQ"s etc. are addressed. Even though there is a yawning gap between the goal accomplished and the dream unfulfilled, the very attempt to ameliorate the ills of a capitalist society by methodically transforming it into a Socialist egalitarian society initiates a change for the better. In the contemporary situation in which the unprecedented Coronavirus Pandemic has swept over the whole world, the idealistic approach of Socialism adopted by Bond in *The Bundle* against the ruthless exploitation perpetrated by the capitalists becomes all the more relevant.

**Keywords: Socialism, Marxism, Egalitarian, Marginalized society, Aggro-Effect, Alienation Effect**

**ENUG003**

**Scaria Jose**

**Won Third Prize**

# A Study of the Representations of Disability in Literature: Critiquing John Steinbeck's Of Mice and Men through the Lens of Disability Studies

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## Abstract

Of Mice and Men, is a tragic novella, vivid in its representation featuring characters attributed with traits of disabilities and the labyrinth world around them. Portraying disability as decrepitude, wretchedness and despair, the novella inclines to all the pervert, detrimental and feigned realms of representing disability, furtive rather than reality. Steinbeck - a jack of all trades, via his prolific novels, short stories and controversial writings have much influenced the American literary canon, among which Of Mice and Men has also found a prominent position. Critiquing the novella through the theoretical framework of Disability Studies, brings out the underlying social, cultural and political ramifications of assumptions about those considered "disabled" by the able- bodied majority. Questions are raised concerning authority to decide normalcy, when society itself disables the so-called disabled. Concerns of political correctness in addressing disabilities is also scrutinized. The first chapter, "Disability Studies: An Overview" gives detailed description of the origin, development, application and methodology of Disability Studies not only as a theoretical framework but also as an interdisciplinary notion. It substantiates concerns, enquiring, "how is disability represented and how would readers comprehend it ? It also involves analysis of the "disabled" characters - their hope and fear, surviving amongst differences. The second chapter, "Reading Steinbeck's Of Mice and Men through the Lens of Disability Studies explains the novella as portraying disability in negative light prejudicially, as something underrated and to be sympathized as helplessness. Owing to the period of composing the text, the author circumstantially, described disability as deviation from normalcy. Readers are made aware to walk away from such feigned understanding. The Conclusion substantiates contextually, the afore mentioned findings, converging to a revelation that, the margin between ability and „disability" is very thin. Upon proper introspection, no guarantee proves to exist on taken- for- granted understanding of individuals.

**Key words: Disability, Normalcy, Able- bodied, Representations, Political Correctness**

**ENUG004**

# FROM REVENGE TO SCIENCE FICTION: REVISING MALAYALAM HORROR FILMS

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## Abstract

Horror, in general, is the best thrilling genre for entertainment. With the elements of fear, surprise, suspense, mystery and spoiler, these movies play with the minds of the audiences. Any ardent Malayalam movie fan would unquestionably say that horror movies in Malayalam cinema are something unique and thought-provoking. It is unique in terms of the technology used in Malayalam films which are entirely different from the rest of the movie world. It is thought-provoking as it presents as well as discusses various social issues of grave importance subtly. This dissertation titled" FROM REVENGE TO SCIENCE FICTION: REVISING MALAYALAM HORROR FILMS", aims at highlighting the myths concerning Kerala which might have played a critical role in shaping the concept of Yakshi and Black Magic. In this project, by considering five landmark movies in the history of Malayalam horror cinema such as Bhargavi Nilayam, Manichitratazhu, Devadoothan, Anandabhadram, and Nine, the thematic evolution of sub-genres of Malayalam cinema is studied Be it rape, honour-killing, murder out of jealousy, betrayal, black magic, injustice, Malayalam horror movies have it all. The dissertation concludes with a glimpse of the lack of technical features in horror cinema, as well as about how the Malayalam Cinema has successfully managed to break the stereotype image of saree-clad female ghost to a unisex ghost. It also discusses what is actually horrifying about Malayalam horror movies. It also discusses the impact the trendsetting horror movies have on the viewers and the impressions generated on them.

**Key words: Horror, Science Fiction, Revenge, Ghost, Myth**

**ENPG001**

# Mapping India's 'Bene Israel': Zionism, Migration andDiasporic Memory in Sophie Judah's 'Dropped from Heaven' and Meera Mahadevan's'Shulamith'

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## Abstract

Jews perpetually had a convoluted existence as a consequence of their lived reality as a diaspora. Contrary to their condition in much of the countries where they encountered religious persecution and exile, Indian soil with its absence of anti Semitism facilitated the Jews to occupy a prominent position in this land. Though a minuscule community, they never had a minority status in this land. The relation between Indians and Jews have always been identified by mutual respect and affection and Judaism thus evolved as a part of the Indian religious tradition. The creation of state of Israel- the land of their prayers and longing triggered a mass exodus of the Indian Jews to the Promised Land, despite their peaceful coexistence in this land for centuries. The purpose of this research is to critically analyse this immigration of the Indian Jews, particularly of the Bene Israel Jews, the elements that motivated such an exodus, and their complex diasporic existence, considering Sophie Judah's Dropped from Heaven and MeeraMahadevan"sShulamith.Thefirstchapterfamiliarisesthethreesignificant Jewishcommunitiesin India. The second chapter elaborates upon the characteristics of the diaspora theory. The third chapter analyses the unsettlement of the Bene Israel Jewish community. The study arrives at a conclusion that the religious fervour, better socio economic opportunities, inability in perpetuating their religious practices fostered their exodus and the state of Israel as an entity significantly contributed to the shrinkage of the Jewish population in India.

**Key words: Indian Jewry, Bene Israel Jews, Diaspora, Israel, Immigration**

**ENPG002**

**Anumol Joseph**

**Won Second Prize**

# Mapping the Rhythm and Labyrinths of Time: A Study on Selected Short Fiction of Jorge Luis Borges

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## Abstract

Time is a familiar, but complex concept, which became interesting through its literary representation, shocking and amusing elements. The dissertation titled "Mapping the Rhythm and Labyrinths of Time: A Study on Selected Short Fiction of Jorge Luis Borges" is an analysis of the temporal elements in "The Secret Miracle," "The South," and "Emma Zunz." The present study deals with how the protagonists experience time during the adverse situations in their lives and how they create their own versions of reality. The first chapter, "Time versus Time: The Nature and Significance of Time with Focus on the Theory of Henri Bergson" deals with the notion of time developed by the French Philosopher. Bergson emphasizes how the qualitative experience of time is different from the scientific notion, which is quantitative. He introduced the concept of pure duration and the distinction between clock time and time system in mind, deviating from the linear narrative of past, present and future. The second chapter, "Traversing through the Temporal World of Borges: A Study on Selected Short Fiction" is a deep analysis of the way time is dealt within these stories. Jorge Luis Borges was interested in the representation of the complex nature of dream and reality, along with the nature of time. Hladik in "The Secret Miracle" enjoys a miraculous nature of time, during the moments before his death. In "The South," Dahlmann's journey to "South" is an escape from reality,which is hellish for him. "Emma Zunz" portrays how the title character enjoys her own version of time and timelessness, in order to take revenge. The pressure one experiences due to the limited time and the efforts to escape from the harsh reality. Thus the nature of time, which is complicated like a labyrinth and its rhythm, which is interesting, is also analysed.

**Key Words: Time, Pure Duration, Clock Time, Subjective, Qualitative**

**ENPG003**

**Stephy James**

**Won Third Prize**

# Perception of Death : An Analysis of Ee.Ma.Yau using Existential Psychotherapy

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## Abstract

Man is nothing else but what he makes himself says Sartre. The Human mind is always in search of something or the other. It criticizes evaluates and gain some insights. Existential anxiety is the aspects in which the human mind tent to question the meaning, purpose or value of life. These types of issues that are related to the existence (death, freedom, isolation and meaninglessness) are the major focus of Existential philosophy. This dissertation attempts to analyze personalities with reference to the Malayalam Movie Ee.Ma.Yau under the framework of Existential Psychotherapy. Through several characters, their responses and their representations a psychotherapist reading is done. A process of analysis, through the representation of the human psyche involving the major aspects of the theory Existential psychotherapy in fields of Death, Freedom, Isolation and Meaninglessness; will be traced from various aspects of the movie. The awareness about these concerns which will also create the anxiety but later act as defense mechanism helps in the growth of an individual. The introduction deals with the theory and the film in detail. The first chapter of the thesis introduces the major concern „death‟ through the film in detail and the various perspectives through which the death is viewed through the characters of the film and the ways in which each individual confronts this concern. The second chapter deals with the second major concern: „freedom or responsibility/willingness‟. The third chapter deals with the study of the films based on the other two concerns „Isolation and Meaninglessness‟ and its analysis. The conclusion dealt with the results of the analysis, the limitation and the scope of the theory.

**Key words: Isolation, Death, Psychotherapy, Anxiety**

**ENPG004**

**Anila VS**

**Won Excelsior Award(First Prize)**

# Deconstructing Suburban Spaces: A Spatial Study of Exclusion and Family in Select Anti-suburban Movies

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## Abstract

The dissertation titled "Deconstructing Suburban Spaces: A Spatial Study of Exclusion and Family in Select Anti-suburban Movies" is a spatial enquiry into Antisuburban movies like Edward Scissorhands (1990), The Shape of Water (2017), Revolutionary Road (2008) and American Beauty (1990). Suburbs typified the American dream with the ideas of increased family intimacy and individuality. But these same ideas that the suburbs glorified backfired and created a claustrophobic and suffocating environment for its people. This deconstructive element in the ideology of suburbia can be decoded using spatial studies and we understand that the perceived notions of suburban settlements are void and meaningless. The project is divided into three chapters. Chapter 1 is Literature Review and includes review of some major books, book chapters and a couple of articles that helped me to form a theoretical framework regarding American suburbia, spatial studies, film studies, etc. Chapter 2 is titled "Ostracized Others in Suburbia: Spatializing exclusion in Edward Scissorhands and The Shape of Water" and examines the exclusionary nature of suburbia with respect to the films Edward Scissorhands and The Shape of Water - both of which portray the „Othering" in suburbia in a metaphorical way. Chapter 3 titled "Stumbling Suburban Bonds: Spatializing families in Revolutionary Road and American Beauty" analyses the rupture in suburban families with respect to the films Revolutionary Road and American Beauty. These films are realistic narratives and questions the idea of family togetherness associated with suburbia. Clubbing spatial studies, film studies and studies on the American suburbia, the project checks the congruity between space and its function and tries to understand how this gets portrayed in films. A committed study involving the cinematic geography of suburbia reveals the interconnected nature of space, life, and art, thereby challenging the narrative of modernist planned perfection.

**Keywords: Space, Film, American suburbia, Exclusion and Family**

**ENPG006**

# Psychoanalytic Study of the Characters of Lewis Carroll'sAlice's Adventures inWonderland

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## Abstract

Fantasy characters and their stories has always been an influential and popular genre among children for centuries. These characters and their stories present the world to children with a very optimistic outlook. *Alice's Adventures in Wonderland* (1865) by Lewis Carroll is a notable example of such books. In this novel it can be clearly seen that the main characters suffer from some kind of mental disability and the story deals with how they overcome these disabilities and achieve something in their lives. The mental disorders seen in these books include Impulsivity, Eating disorder, Anxiety, Attention-deficit\ hyperactivity disorder, Insomnia, Obsessive compulsive disorder, Narcissistic personality disorder and Borderline personality disorder to name a few. The paper aims to look at the characters of Alice, The Mad Hatter, The Dormouse, The White Rabbit and The Red Queen from *Alice's Adventures in Wonderland* and study the various mental disorders that each of them represent or possess. It also intends to look at the probable cause of these disorders and how they overcome them. This novel was written at a time when such mental disorders were considered as a taboo. So the paper is aimed at finding out why the author gave his characters such mental disorders. The conclusion reached through this paper is that these characters were given such disorders so that the readers reading this novel would consider people with similar disorders as human beings and treat them with kindness and would not exclude them from the society.

**Key words: Fantasy, Disability, Exclusion, Mental disorder**

**ENPG007**

# A Deconstructive Reading of the Bible through Jose Saramago's Cain and The Gospel According to Jesus Christ

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## Abstract

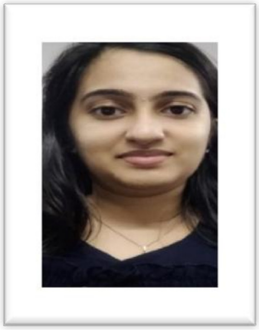
A Deconstructive Reading of the Bible through Jose Saramago's Cain and The Gospel According to Jesus Christ attempts to study selected works of Jose Saramago as counter discourse to biblical narratives. The primary objective of the paper is to do a comparative study of Saramago's Gospel According to Jesus Christ(1991) and Cain (2009) with the Bible to find how it differs from the canonical representations. The paper studies these works of Saramago as a deconstructive counter discourses to biblical narratives. The introductory chapter discusses briefly the life and work of Saramago. The second chapter focuses on deconstruction theory. The third chapter focuses on Cain with an aim to study how the work represents Biblical narrative. The fourth chapter attempts to do the same with The Gospel According to Jesus Christ. In the conclusive chapter both the works by Saramago are compared and contrasted. Through this an attempt is made to understand Saramago's politics of representation.

**Key words: Saramago, Deconstruction, Counter discourse, Biblical narratives, Dichotomy**

**MMPG001**

**Prema Alex**

**Won Excelsior Award(First Prize)**



# Intuitionistic Fuzzy Decision Making

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## Abstract

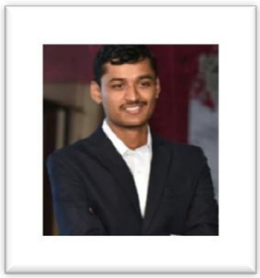
The desire for optimality is inherent in humans. Various optimization techniques and methods have already been successfully applied to solve problems with a well defined structure. Such optimization problems are usually well formulated by specific crisp objective functions and specific system of crisp constraints, and solved by classical mathematical tools. However, real-world situations are often not deterministic or crisp in nature. The use of fuzzy sets provides a basis for a systematic way for the manipulation of vague and imprecise concepts. Intuitionistic fuzzy set is an extension of fuzzy set. Intuitionistic fuzzy set is characterized by a membership function and a non membership function with their sum being less than or equal to one. In this project we discuss intuitionistic fuzzy sets, various intuitionistic fuzzy aggregation operators, score function and accuracy function. The main theme of this paper is that various decision making in intuitionistic fuzzy sets and inter valued intuitionistic fuzzy sets which include multi attribute decision making, multi criteria decision making, multi person decision making and its various application in real life situations.

**Key words: Intuitionistic fuzzy set, Fuzzy aggregation operators, Score function, Accuracy function**

**MMPG003**

**Udayraj M Patare**

**Won Second Prize**



# A Model-Based Analysis Of Covid-19 Big Data: An Advanced Linear Algebraic Approach

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## Abstract

This project deals with Coronavirus disease (COVID-19) who has raised urgent questions about to mitigate and develop suitable analytical strategies to analyse big data which were collected from standardised protocols. It becomes important to immediately assess available data to learn what standard of care approaches are the most effective and evaluate it as fast as possible. Merging and cleaning of data from large multi-centre hospitals is crucial and requires sophisticated data management. Machine learning algorithms cannot work with raw data directly; the data must be converted into numbers, specifically vectors of numbers. For that machine learning model is required. Then to fed the data in a machine learning model which is described by using the notation and operations of linear algebra. This project presents a classic mathematical model which can timely identifies and successfully classifies COVID-19 infected and healthy persons. The proposed focus is global. When dealing with high dimensional data, it is often useful to reduce the dimensionality by projecting the data to a lower dimensional subspace which captures the "essence" of the data. Dimensionality reduction involves reducing the number of input variables or columns in modelling data. The most convenient mathematical language to express data models is Linear Algebra". The main concept used is Singular Value Decomposition (SVD) which automatically performs dimensionality reduction. The (SVD) of a matrix is a central matrix decomposition method in linear algebra. It has been referred to as the "fundamental theorem of linear algebra" (Strang,1993) because it can be applied to all matrices, not only to square matrices, and it always exists.

**Keywords: COVID-19, Singular Value Decomposition (SVD), Eigenvalue Decomposition, Eigenvectors Computation**

**MMPG005**

# Cayley Digraphs Of Groups

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## Abstract

Cayley Digraphs give a way of encoding information about group in a graph. We can form a cayley graph for a group with respect to a finite, generating set. Cayley digraphs are dependent on a specific set of generators. Generally there are several ways to draw the digraph of a group given by a particular generating set. However it is not the appearance of the digraph that is relevant, but the manner in which the vertices are connected. These connections are uniquely determined by generating set. If graph have a path that starts from one vertex, connects all of other vertices, only hits every vertex once, and returns to original vertex, then the graph is Hamiltonian. We concern ourselves with the existence of Hamiltonian circuits and paths in Cayley digraphs. We also have a Hamiltonian path on every Cayley digraph on an abelian group. In this presentation, we explore the relationships between Cayley (di)graphs and their subgraphs and coset graphs with respect to subgroups, focusing in particular homomorphism between them and on relationships between their internode distances and diameters. We provide several applications of these results to well known and useful interconnection network such as hexagonal and honeycomb meshes as well as certain prunedtori.

**Key Words: Cayley Digraphs, Hamiltonian Paths, Hamiltonian Circuits, Abelian Group**

**MMPG007**

# Some Results of *mRJ*-Reachable Trees

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## Abstract

Consider an undirected graph $G$ in which a robot is placed at a vertex, say $u$, and obstacles are placed at all other vertices except at vertex $v$. The vertex without a robot or an obstacle is said to have a hole. We refer to this placement of robot and obstacles as a configuration of G. We say that reachable from by an mRJ move of the robot provided there is a $u$ - $v$ path of length $m + 1$ in $G$. For $m = 0$, an $mRJ$ move is also known as a simple move of the robot. In this project we have obtained necessary condition for a graph to be 0$RJ$-reachable and 1$RJ$-reachable. we have also shown the necessary and sufficient condition for a graph to be complete 2$RJ$-Reachable. Further we have we have defined two trees $\mathbf{T_{4.1}}$and $\mathbf{T_{4.2}}$and have shown that they are complete 4RJ- reachable. We also have obtained the minimal 2$RJ$- reachable tree and have represented it by $\mathbf{T_0}$.

**Keywords: Mrj Reachable Trees, Configuration, Minimal Tree**

**MMPG009**

**Resmi Mohanan**

**Won Third Prize**

# Bimagic Labeling In Graph Theory

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## Abstract

Now a days most of the researchers are doing lots of work in Bimagic Labeling in Graph Theory. A labeling of a graph G is an assignment f of labels to either the vertices or the edges or both subject to certain conditions. Labeled graphs are becoming an increasingly useful family of mathematical models from a broad range of applications. Graph labeling was first introduced in the late 1960's. In 1967, A. Rosa published a pioneering paper on graph labeling problems [36]. Labeled graphs serve as useful models for broad range of applications such as coding theory, X ray crystallography, radar, astronomy, circuit design, communication networks and models for constraint programming over finite domain. All graphs considered are finite, simple and undirected. The purpose of this project is to introduce new labeling called edge magic labeling, vertex magic labeling and is to obtain the existence of this labeling for certain graphs. In most applications labels are +ve integers, though in general real numbers could be used. A (p, q)-graph with p vertices and q edges is called total edge magic if there is a bijection f:VUE→ {1,2,……,p+q} such that there exists a constant k for any edge uv in E with f(u)+f(v)+f(uv)=k. The original concept of total edge-magic graph is due to Kotzig and Rosa. They called it as magic graph. And also a graph with p vertices and q edges has assign the integers starts from 1 to +ve, added value of the vertex label and its incident edge labels must be uniform is known as vertex magic total labeling. In this paper, we investigate and exhibit super edge magic and vertex bimagic labeling for some interesting families of graphs and it's applications.

**Key words: Labeling of Graph, Edge Magic Labeling, Vertex Magic Labeling, Super Edge Bimagic Labeling,Vertex Magic Total Labeling**

**MMUG002**

**Maneesha Manoj**

**Won Second Prize**

# Mathematics In Forensic Science

**[1]Maneesha Manoj, Jesna Jose, Livia Mathew, Naseemabi P.K &[2]Sr. Sonia K Thomas***

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## Abstract

Forensic science is a branch of science used to analyse crime scene evidence for a Court of Law. All science uses math concepts and equations, and forensic scientists are well educated in Mathematical concepts they use to analyse evidence from crime scenes. One of the chapters of this project describes a broad application of graph theory to the problem of evaluating relationships in forensic investigation. We are able to estimate the time at which a crime was committed, identify the suspect's fingerprints and analyse the pattern of blood stains and to estimate the time of death of a person. Use of efficient classification methods is necessary for a fingerprint recognition system. The process takes standard graph theory and identifies entities in the investigation as vertices, with the connections between the various entities as edges. Those entities can be suspects, victims, computer system or any entity relevant to the investigation. This allows the mathematical modelling of the events in question and facilitates analysis of the data. Another tool used in forensic science involves the study and analysis of bloodstains at a time scene in order to recreate the actions that caused the bloodshed. Knowing the time of death is a highly important factor in forensic science, it can exonerate a suspect or focus suspicion on the accused; It can refuse or support witness and suspect statements, and it can be a key factor in either making or breaking a case. To solve this problem, forensic scientists use temperature data to determine and establish an approximate time of death. These temperature estimates are based on Newton's law of cooling, an important law in the world of Science. This project is mainly about some of these most common and simplest examples of the applications of mathematics in the Forensic Science.

**Key words: Forensic Science, Mathematics, Modelling, Finger Print**

**MMUG004**

# Vertex Colouring

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## Abstract

Colouring of graphs or Graph Colouring is considered as an actively progressing field in Graph Theory. The purpose of this project is to study vertex colouring, one of the prominent ways of graph colouring by highlighting its real life applications. Obtaining minimum number of colours with which the vertices of a graph can be coloured such that no two adjacent vertices have the same colour is considered a problem in graph colouring. This problem becomes the basis of some of the central results in Graph Theory. The application of vertex colouring ranges from solving the game of Sudoku puzzle to scheduling problems. From this project we infer that intricate problems can be reduced into simple graphs that can easily provide their solutions. Also the scope of vertex colouring is extended to other fields like Physics, Communication, Operation Research, Computer Programming.

**Key words: Chromatic Partitioning and Chromatic Polynomial Four Colour and Five Colour Theorem, Sudoku, Map Colouring, GSM Networks**

**MMUG006**

**Nirmal S Varghese**

**Won Second Prize**

# A Study On Fuzzy Sets And Fuzzy Operations

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## Abstract

The Fuzzy Modeling has been applied in a wide variety of field from Life Science to Social Aspects to solve several Decision Making Situation which involve Impreciseness, Uncertainty and Vagueness in Data or Information. This paper introduces the Basic Concepts of Fuzzy Sets and Fuzzy Logic and reveals to the novice the Powers of Fuzzy Theory. The Properties and Operations of Fuzzy Set, Applications of Fuzzy were discussed here. Now a days *COVID-19* become major Health Issue which led to a Pandemic. Since there is no specific Treatment Protocol, the initial identification and prevention for *COVID-19* will be crucial to control or to break down the chain of *COVID-19*. For that we have reviewed a Research Article [1] on Fuzzy Inference System to Diagnose the *COVID-19* by taking Five Input Factors like as; Flu, Headache, Cough, Sore Throat, Fever and Output into several categories which denotes the severity level of Infected People.

**Keywords: Fuzzy Set, Decision Making, *Covid-19*, Fuzzy Inference System, Diagnose**

**MMUG008**

**Shiby Joseph**

**Won Excelsior Award(First Prize)**

# Mathematics In Medical Science

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## Abstract

SCIENCE and Math provide a foundation for success in the 21st century. These encourage critical thinking skills and autonomy through experimentation, journalizing, data analysis, and science projects. Medicine has become increasingly reliant on mathematics in recent years. Differential equations and statistics have long played a role, but recent medical advances have involved the use of mathematics in new and exciting ways. The points that I will be covering in my presentation are: Math behind the CAT scans In medicine mathematical modelling can radically improve both drug development and hospital technology. An area in medicine namely, pharmaco kinetics have already been mathematicised. In this modern world where medical science have reached have at it speak ,its really important for everyone to know the surprising and appreciable mathematics behind the great discoveries. Globally cancer is second leading cause of the death. Wouldn't it be great if math can predict how cancer cells evolve? Yes,math can!

**Key Words: Mathematical Modeling, Math Behind CAT Scans, Pharmaco Kinetics**

**MMUG010**

# Page Rank :Applications And Alternatives

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## Abstract

Google is a search engine owned by Google Inc. whose mission is to organise the worlds information and make it universally accessible and useful". The heart of Google's searching software is PageRank , a system developed by Larry Page and Sergey Brin at Stanford University. PageRank is an algorithm used by the Google web search engine to rank websites in their search engine results. PageRank is a way of measuring the importance of website page. According to Google: PageRank works by counting the number and quality of links to a page to determine a rough estimate of how important the website is. The underlying assumption is that more important websites are likely to receive more links from other websites. It is not the only algorithm used by Google to order search engine results, but it is the first algorithm that was used by the company, and it is the most well-known. In this project "***PageRank:Applications and Alternatives***" we intend to have a brief study on PageRank Algorithm. We will begin with idea of introducing PageRank then discuss its algorithms ,its different point of views in calculating PageRank. Then as it is evident from the title we will shed light on some of the "Applications and Alternatives" of PageRank. We will see in this project, PageRank Algorithm, which was initially created as an algorithm which Google used , also marked its importance in the areas outside the realm of internet. How it became an essential component in social media, in Biology etc. We will also see some of the advantages and disadvantages of PageRank. PageRank Algorithm is not the only one of its kind so we would also like to introduce some of the similar algorithms in this project.

**Keywords: Page Rank, Web Page, Applications, Alternatives,Algorithm**

# DNA Barcoding of Cellulolytic Bacteria Isolated From Termite *Odontotermes Obesus* (Holmgren,1912)

**Harsha Rameshkumar[1] Amritha C[1] Anand P Arjun K.S.[1] Basila M[1] Neethu MolM[1] Amritha T[1] Anugraha B[1] Dr. Vidya BalakrishnanP.V.[*]**

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## Abstract

DNA barcoding is a taxonomic method in which a short genetic marker to identify the DNA sample in terms of pre-existing classification. These are done with the help of barcodes which is unique from an organism to species. In the present study, the bacteria are isolated from the termite, *Odontotermes obesus,* and the cellulolytic activity was checked using CMC agar. The morphological characterization was done by gram staining. Genes were isolated from bacteria, amplified using suitable primers in PCR, and sequenced. 16SrRNA gene was used as the barcode. Obtained gene sequences were aligned and analysed using bioinformatics tools. The cellulose-degrading activity in bacteria was confirmed from the clear zones formed in CMC. From the sequence analysis, *Klebsiella aerogenes, Enterobacter cloacae,* and *Bacillus subtilis* were identified as the cellulolytic bacteria present in *Odontotermes obesus.* Gram staining resulted that *Enterobacter cloacae* and *Klebsiella aerogenes* are gram-negative bacteria whereas *Bacillus subtilis* is gram-positive bacteria. The present study gives the primary level insight to the cellulolytic bacterial population found in the common termite other than known symbiotic Protists. Also, this study is expected to give an opening to the molecular level identification of symbiotic microorganisms, their mechanism of action to design commercial products such as cellulase.

**Keywords: Barcoding, Cellulolytic Bacteria, *Odontotermes Obesus***

**ZOUG002**

**Akshara Madhu**

**Won Excelsior Award(First Prize)**

# Study On The Biodiversity Of Odonate Species Of Veliyathunadu, Aluva

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## Abstract

Born on water and taking up to air like a magic, these tiny insects called dragonflies are not an unknown miracle for most humans. These colourful insects come under the Order - "Odonata"; the title which is also shared by much slender and glossy bodied damselflies. Coming under the Phylum Arthropoda, and class Insecta, Odonata is the order that defines them. Anisoptera and Zygoptera are the sub-orders that include dragonflies and damselflies respectively. Odonates have marked their presence even before dinosaurs dominated land and play a major role in the evolutionary history. They are primarily aquatic insects and spend their larval stages inside water, before emerging out for their first flight. Being carnivores in nature, they maintain an ecological balance, along with showing a high level of predation. Along with these, odonates are observed to be ecological indicators, indicating the "well-being" or the pollution level of an environment with its presence. This project titled "Study on the Biodiversity of Odonate species of Veliyathunadu" is a diversity study of odonate species of Veliyathunadu Village, recorded from the study conducted from September 2019 to February 2020. Veliyathunadu is a small village located in Karumalloor Grama Panchayat of Paravur Taluk, near Aluva of Ernakulam district in the state Kerala, receiving significant amount of rainfall. This study reveals the influence of water or rain on the diversity of odonates, and it was found that, the diversity tends to be higher during the monsoon period (September-October-November). Line transect method along with checklist method was used for sampling analysis and data collection. Graphs were plotted from the six-month data and observations were clarified. Along with this, the abundance of dragonfly species – *Pantala flavescens* was also noted, and the significance of the migratory behavior exhibited by the species was explained in this study.

**Key Words: Odonata, Dragonfly, Damselfly, Ecological Indicators, Veliyathunadu, Rainfall**

**ZOUG003**

# Isolation And Identification Of Fungi Associated With Local Fruits And Vegetables From Kochi And Mattancherry Markets

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## Abstract

Fungi comprehend a heterogeneous group of heterotrophic microorganisms. They possess rigid cell walls containing chitin, mannan and other polysaccharides and divide sexually and asexually. Fungi secrete a wide array of enzymes involved in the breakdown of complex polymers. Fungi are eukaryotic organisms classified as a kingdom fungi and the name is derived from "mykos"meaning mushroom. Water, soil and decaying organic debris are natural habitat. Some colonize on animals, plants and other fungi, living at their expense and cause diseases or even death and are called parasites. An investigation was carried to study the fungal diseases of selected local fruits and vegetables in Kochi and Mattancherry area and ten fungal pathogens were isolated which caused spoilage of these fruits and vegetables. The isolation of fungi from different samples was done by sterilization technique and spread plate technique. Samples were plated out on potato dextrose agar (PDA) medium and incubated at 28°C±2°C. Resulting growth was microscopically screened for fungal species. The isolated fungi were identified on the basis of macromorphological and micromorphological characteristics. The following morphological characteristics viz. colony growth, presence or absence of aerial mycelium, colony color, presence of wrinkles and furrows, pigment production etc. was recorded. Ten different fungal strains such as Aspergillus flavus species ,Aspergillus niger species, Curvularia species, Fusarium species, Mucor species , Mucor mucedo species, Pencillium species, Rhizopus species, Rhizomucor species and Syncephalastrum racemosum species were isolated and identified. The ten fungal isolates were screened for extracellular amylase and cellulose but only some possess cellulosic activity. Most of the fungal species possess degrading properties and secrete extracellular enzymes. Enzymes are macromolecular biological catalysts. Microbial enzymes are the biological catalysts for the biochemical reactions leading to microbial growth and respiration. Extracellular enzymes or exoenzymes are synthesized inside the cell and the secreted outside the cell. These enzymes degrade complex organic matter into simple forms. Fungal extracellular enzymes are used for industrial applications. In a commercial sense, the main enzymes showing degradative properties include protease, cellulose, amylase and pectinase. This study confirms that the isolated filamentous fungi from fruit and vegetable samples provide a basic data for investigation on degradative properties produced by extracellular enzymes. This study has provided useful information about the toxigenic fungi associated with local fruits and vegetables which may affect the human health. Spoiled fruits should be sorted and eliminated to avoid toxins usually associated with the growth of fungi.

**Keywords: Fungal Pathogens, Amylase , Cellulase, Syncephalastrum, Fruits And Vegetables**

**ZOUG004**

**Athena Peter**

**Won Second Prize**

# Study On The Effect Of Water Pollution On The Heart Rate Of *Daphnia*

**Athena Peter [1], Liya T Joseph [1], Meha P Parekh [1], Smitha N R[1], Vineeth Kumar TV[1]& Manju VSubramanian[1*]**

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## Abstract

Water pollution is the contamination of water bodies, usually by human activities. Along with the global industrialization, there has been an increase in the water pollution. Pollutants (chemical, physical, radio-active or pathogenic microbial substances) enter natural water bodies such as lakes, rivers, oceans and so on, degrading the quality of water and challenge the existence of several aquatic species. Many attempts have been made to develop monitoring techniques to improve the ability of detecting pollutants in short time and at low concentrations. Biological monitoring or bio monitoring is a valuable assessment tool that receiving increased use in water quality monitoring programs, Daphnia, a freshwater crustacean, has been extensively used as a model organism for toxicity testing of environmental pollutants. Daphnia are excellent organisms to use in bioassays as they are sensitive to changes in water chemistry and are simple and inexpensive to raise in an aquarium. The heart beat of Daphnia is also very evidently visible under compound microscope. The experiment was done by introducing Daphnia into water containing different concentrations (0.5-1.5mL/L) of domestic and industrial pollutants mainly toilet cleaners, detergents and petroleum products. The heart rate was found to be decreasing with the increase in the concentration of all the pollutants. A threefold decrease in heart rate was observed for the toilet cleaner Lysol and Harpic at 1.5mL/L compared to control. Organic toilet cleaner did not show much variation in heart rate. All the tested concentrations of surf excel were found to be cause death. Ariel caused 14-30 fold decrease in heart rate at all tested concentrations. At 1.5 mL/L homemade detergent instigated 15 fold decrease in heart rate. Petroleum products did not affect the rate of heart beat, which might be because they float on the surface rather than mixing with water. They prevent oxygen from dissolving in water, the heart rate might be affected only when the dissolved oxygen is used up by the organism.

**Keywords: Water pollution, Domestic and industrial pollutants, Bioassay, Daphnia, Heart rate**

**ZOUG005**

**Malavika Vijayan**

**Won Third Prize**

# A Preliminary Study On The Insect Diversity Of Jawaharlal Nehru Park, Thrissur, Kerala

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## Abstract

A preliminary study was conducted about the abundance and diversity of the insect species in Jawaharlal Nehru Park, located in Thrissur district, Kerala. This particular area was chosen for study as it was a located amongst a highly polluted city and thus the insects of the area were of high ecological importance. The groups mainly present there are thus thought to be exceptionally adaptive to an artificial environment that represents the current polluted state of nature. The study aimed at an analysis of the major insect orders in the Park and further classification of the obtained insect members into families. The study also focusses on the major environmental factors that contribute to the diversity of insects in the study area. Following this aim, a random sampling was conducted in the study area from July 2019 to December 2019 by dividing the study period to Monsoon and Post Monsoon Period. The study resulted in presence of 73 representative insects that belonged to 8 orders and 24 families. They were, Coloeptera, Dictyoptera, Diptera, Hemiptera, Hymenoptera, Lepidoptera Odonata and Orthoptera. Order Lepidoptera (23%) was found to be the most abundant order, followed by Hymenoptera (15%) and Odonata (14%). The seasonal distribution resulted in Post Monsoon period being more diverse than Monsoon period. During the Monsoon period, the dominant orders were Lepidoptera (20%), Orthoptera and Odonata (16%). During the Post Monsoon period, Hymenopterans were the most active and abundant insects (24%) followed by Hemiptera (22%) and Lepidoptera (20%). The month of September, was observed to be the time when the study area had maximum diversity. The study area was a full-fledged recreational area and thus harbors a wide variety of host plants. This in turn favored the life cycle of insects. Those insects which depend on the included host plants tend to be more diverse and abundant. The rate of reproduction of such insects were also higher. It was also observed that the insect population was restricted to that area of the park where there was less human interaction and they were more active during the time when the park had less visitors. The surviving capacity of insects was boosted by the absence of predators and high chances of camouflage.

**Keywords: Insect Diversity, Abundance, Fitness, Environment, Insect Family**

**ZOUG006**

# Comparative Study on Reaction Time Between Video Game And Non-Video Game Players

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## Abstract

In our everyday life situations, we have to make quick decisions and these fast decisions typically makes more mistakes. Making good decisions quickly will determine the quickness of your reflexes and speed of your brain and multitasking skills. Reaction time is the measure of how quickly an organism can responds to particular stimuli. Playing action-packed video games is highly entertaining and quickly detailed thus it can improves a person's reaction time. The objectives of the study is to understand and compare the reaction time between video game and non video game players. And to compare the reaction time among age groups and gender. A simple tool, Human Benchmark reaction time test is used to measure the reaction time of 51 volunteers. The study reveals that there is a significant difference in reaction time of a video and non-video gamer. Gender is not at all significant and as age goes on reaction time increases. Apart from hypothesis the study reveals that it is hard to find a male non-gamer, and during the lock-down an enormous number of female gamers started to play action-packed games. The action game PUBG is most popular and trendy among peers irrespective of gender. The study reveals that individual in a gamer status would record lower reaction time than non-gamer. It can be assumed that video game players may have improved hand eye-coordination, attention, problem solving skills, brain speed, multitasking skills etc. Therefore it can be presumed that like exercise, playing game for at least 30 minutes a day may improves our reflexes a lot and that it may help in our day to day life activities, in different aspects.

**Key Words : Video Games, Gamer, Reaction Time, Human Benchmark Test, Improved Reflexes**

# Antimicrobial Study of Natural and Artificial Spice extract on various Strains of Bacteria

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## Abstract

The present study was done to compare the antibacterial effects of natural and artificial sources of spices used for flavoring, coloring or preserving food. Five different natural spices like Amchur (Dry mango powder), Dry ginger, Turmeric, Fenugreek, Red chili and artificial spices like Everest Amchur powder, Eastern Dry ginger powder, Eastern Turmeric powder, Eastern Fenugreek powder and Eastern Red chili powder were used. These spices used were tested on five different strains of bacteria of which three were gram positive *(Enterococcus faecalis, Staphylococcus aureus and Bacillus circulans*) and two were gram negative (*Klebsiella pneumoniae and Escherichia coli)*. The method used for the study was Kirby-Bauer disc diffusion method. Natural spices are the ones that are available locally, fresh and dried or grinded into powder-form at homes, whereas artificial spices are the ones that are processed and produced on large scale in factory mills of various spice producing companies. Generally, natural spices produced in our homes are considered healthier than the artificial ones which are most likely to be adulterated by common adulterants such as sand, chalk powder, lead chromate, sawdust etc. Among natural spices, Amchur exhibited the highest zone of inhibition (15mm) and Fenugreek with the least zone of inhibition. Among artificial spices, Everest Amchur powder exhibited the highest zone of inhibition (20mm) and Eastern Fenugreek powder showed no zones of inhibition against all the bacterial strains used. Natural spices were found to be most effective against the bacterial strains than the artificial spices. As a future work, nutrigenomic study of spices should be conducted to find out its effects on human health to provide a molecular understanding of how the chemical and biological components of common spices in our diet can affect health by altering the expression of genes and the structure of the human genome.

**Key Words : Antimicrobial Study, Zone Of Inhibition, Nutrigenomic Study, Kirby-Bauer Disk Diffusion Method, Human Genome**

**ZOUG008**

# A Survey on Consumer Attitude Towards Single Use Plastic Ban in Kerala- January 1, 2020

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## Abstract

The survey was done to estimate the consumer attitude towards the SINGLE USE PLASTIC BAN IN KERALA-2020 in the two places- Kottayam Municipality, Thanneermukkom Grama Panchayat. The sample population were the residents and shopkeepers in these areas. A questionnaire method was used for this study. A total of 150 people were surveyed. In-house survey method was employed. It includes the people from households and the shopkeepers of respective places. A close ended structured questionnaire was prepared and an interrogative survey was also done to know the consumer attitude towards the ban. The result indicated that the larger proportion of the respondents used plastic bags regardless of their age, occupation, economic and educational status than any other products before the ban. Low price (urban-42%, rural-47%), availability (urban-44%, rural-43%) were the main reasons for the increasing trend of plastic before the ban. There is a decreasing trend in the usage of single use plastic bags in these areas post the ban. The major proportion of the respondents were aware about the ban and started using alternatives for plastics. The dumping and disposal were the major problems for them. Among the practices used for the disposal, open dumping (urban- 48%, rural-52%) was the widely used practice. They have considerable knowledge about many of the environmental hazards caused by these plastics and information on human health effects is growing, but many concerns and uncertainties remain. There are solutions, but these can only be achieved through combined actions of the people and the concerned authorities such as organizing awareness classes, providing regular plastic collection service and providing alternatives for plastic products. This survey helped us in identifying whether there was a change in perception of the people after the plastic ban.

**Key Words: Single Use Plastic Ban, Plastic Disposal, Survey, Social Awareness, Kerala**

**ZOPG002**

**Abhirami P S**

**Received Consolation Prize**

# Amplification of tetA gene from the clinical isolate of *Proteus mirabilis* by PCR

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## Abstract

*Proteus mirabilis* is a Gram-negative, facultatively anaerobic, rod-shaped bacterium. It shows swarming motility and urease activity. *P. mirabilis* causes 90% of all *Proteus* infections in humans. It is widely distributed in soil and water. *P. mirabilis* is most frequently associated with infections of the urinary tract, especially in complicated or catheter-associated urinary tract infections (Chen et al., 2012). *P. mirabilis* is generally susceptible to most antibiotics apart from tetracycline and nitrofurantoin(O'Haraet al., 2000) but 10–20% of *P. mirabilis* strains are also resistant to first-generation cephalosporins and ampicillin (Gonzalez et al., 2005). The objective of the present investigation was to study the antibiotic susceptibility profile of clinical strain of *Proteus mirabilis* and to further identify the mechanism of tetracycline resistance The results of gram staining revealed the presence of rod shaped, Gram-negative bacterium. The results of antibiotic susceptibility test indicated that *P. mirabilis* is multi-drug resistant, exhibiting resistance to tetracycline, cefixime and cefotaxime and intermediate resistance to ciprofloxacin. In this context, I was further interested in studying mechanism of tetracycline resistance in *Proteus mirabilis*. I hypothesized that the determining factor for conferring resistance to tetracycline might be drug efflux in *P. mirabilis*. The results of efflux assay, using efflux inhibitor CCCP, indicated that tetracycline resistance in *P. mirabilis* is mediated by efflux mechanism. The results of PCR with tetA gene revealed the presence 190bp amplicon indicating the presence of tetA gene in *P. mirabilis* . I hypothesize that the tetA, coding for efflux pump is responsible for conferring resistance to tetracycline in *P. mirabilis. To best of my knowledge, this is the first report confirming the presence of tetA gene from Proteus mirabilis in India* and results of the present study necessitates continuous surveillance and regular monitoring of emergence of multi-drug resistant isolates.

**Keywords: Proteus mirabilis, Tetracycline, tetA gene, Anibiotic resistance, Efflux pump, Efflux inhibitor**

**Apsara I G**

**Won Excelsior Award (First Prize)**

# Production of Enzymes by Endophytic Bacteria of Medicinal Plants

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## Abstract

The term "endophytes" includes a family of microorganisms that grow intra-and/or intercelullarly in the tissues of higher plants without any symptoms on the plants in which they reside. Endophytic microbes provide an additional resource to the plant due to the presence of beneficial secondary metabolites, enzymes, and nutrients, which help the host to combat diverse arrays of stressful conditions of biotic and abiotic stresses. In this study, five different bacterial strains such as BIO1, BIO2, MAR1, MAR2 and MAR3 were isolated from two medicinal plants. Of which BIO 1 and BIO 2 were isolated from Biophytum sensitivum (L.) DC. and the other three MAR 1, MAR 2 and MAR 3 isolated from Maranta arundinacea L. These endophytic bacteria were screened quantitatively for production of extracellular enzymes such as cellulase, xylanase and protease. Out of the five bacteria screened BIO1 showed highest production of all the three enzymes i.e. maximum CMCase activity of 0.49 U/ml at 24 hours of growth, xylanase activity of 0.98 U/ml at 24 hours and protease activity of 0.41 U/ml after 24 hours growth in liquid culture medium. Enzymatic activities of the endophytic extracts show a potential for agricultural, microbiology and therapeutic applications.

**Key Words: Endophytic Bacteria, Extracellular Enzymes, Medicinal Plants, Culture Medium**

# Mutagenic action on seed germination and growth in Abelmoschus esculentus (L.)

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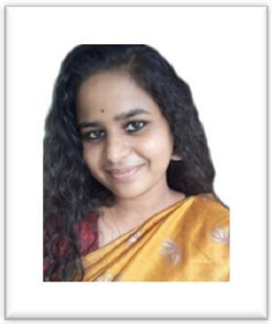
## Abstract

Mutagenesis is an important tool in mutation breeding, by which we can produce varieties having useful traits. In this study, UV light(UV), Sodium Azide(SA), Ethyl Methane Sulfonate(EMS) and Colchicine(col) with three different concentrations like 0.1%, 0.4%, 0.7% and durations(in UV light) like 15, 30 and 60 minutes were used to analyse their effects on seed germination and growth in Abelmoschusesculentus(L.) Moench or Okra. Mutagen treated seeds were sown to raise first mutant (M1) generation. With increase in mutagenic concentration, SA, EMS and Col treated plants showed a decrease in germination capacity. Physical mutagen was found to be effective in okra compared with that of chemical mutagens. UV treated plants were better in germination and survival. Early flowering was noticed in UV-30 plants and hence they were better in yield also. They number of fruits per plant was high compared with all other treatments and control plants. The present study emphasized the importance of physical mutagen in improving the growth and yield of this economically important crop.

**Keywords: Mutagenesis, Abelmoschus Esculentus, Mutagen, Mutant(M1) Generation, Morphology**

**Sadhna Chaganti**

**Won Second Prize**



# Watershed Management Structures

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## Abstract

A Watershed is defined as a Geohydrological unit draining to a common point by a system of drains. There are certain watershed management structures constructed to perform watershed management. The author aims to study the effects of such watershed management structures on soil quality. Author has performed Environmental Impact Assessment during the field visit to village Marigadi and all the watershed structures present in the village were assessed. Soil samples were collected at various places from ridge to valley in village Marigadi. Soil analysis was performed by the author for the collected samples and the results concluded that the soil texture of hilltop soil is sandy loam, agricultural soil is clay loam and checkdam soil is loam. From conductivity test it was concluded that the hill top soil has less salts and checkdam soil has relatively more salts. pH remains the same for all the soil samples. Soil moisture content is high for checkdam soil and low for hilltop soil. Bulk density is high in hilltop soil and low in agricultural soil. Water holding capacity is high in checkdam soil and low in hilltop soil. For the Environmental Impact Assessment performed, the EIA report was drafted, and the report states that in areas where watershed management structures are constructed there is an increase in ground water level, increase in surface water and stream flow, soil erosion reduction, run-off reduction, a change in land use pattern, change in cropping pattern and change in agricultural productivity. The author has done Geore afferencing for two such villages using Geographic Information System. From the assessments performed, author has concluded that the ground water table increased and also the soil fertility has been increased which effectively improved the soil quality.

**Keywords: Watershed, Watershed management system, Watershed management structures, Geographic Information System (GIS), Environmental Impact Assessment (EIA)**

**Thanseela S**

**Won ThirdPrize**

# Isolation, Molecular Characterization andEvaluationof Plant Growth Promoting EfficacyofEndophytic Bacteria from Calotropis Procera (Ait.) R.Br.

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## Abstract

Endophytic bacteria are non-pathogenic partners of plants, which can enhance the plant growth and hasten the development or improve resistance to the pathogen and environmental stress. Reports say that the association increased the nitrogen and potassium economy of crops and thereby reduced the application of fertilizers. The bacterial partner induces the systemic acquired resistance by the de novo synthesis of structural compounds and phytotoxic metabolites. The present study was performed for isolation and identification of endophytes from leaves of Calotropis procera( Ait.)R. Br.The purpose of this study was to verify the presence of endophytic bacteria symbionts with Calotropis procera( Ait.)R. Br., and to evaluate the plant growth-promoting properties of endophytic bacteria in producing IAA, solubilizing phosphate, biological nitrogen fixation and potassium solubilization, hydrolyzing enzymes (amylase, lipase, protease) and antimicrobial activity. All the isolated bacteria were screened for the production of hydrolyzing enzymes and the result of the study revealed that maximum isolates have positive lipase activity. While studying the antibacterial activity of the isolates, it was observed that four isolates showed antibacterial activities against Escherichia coli, Bacillus subtilis, Bacillus cereus & Staphylococcus aureus. Most of them show antibacterial activity against Staphylococcus aureus. The most potent isolate was used for molecular characterization. DNA sequencing and BLAST analysis revealed that the isolated bacterial symbiont is Staphylococcus hominis. Through this investigation, endophytic bacteria isolated from Calotropis procera with plant growth-promoting activities, enzyme activities, and antimicrobial properties were reported, which can be further exploited for sustainable agriculture, with detailed scientific investigation.

**Keywords: Calotropis Procera, Plant Growth Promoting Properties, Antimicrobial Properties, BLAST, Staphylococcus Hominis.**

**BOTPG007**

# A Comparative Micro-Morpho Anatomical Studies of The Genus Lygodium From Kerala

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## Abstract

The genus Lygodium members are climbing ferns which are invasive weeds. These species have ethnomedicinal importance and used in the traditional medicinal system. Studies of Lygodium from India focused on its ethnomedicinal properties and phytochemical characters. The present study focuses on the morpho-anatomical and insilico comparison of Lygodium species from Kerala. In India 10 species of Lygodium sp. are reported by Singh and Panigrahi in 1984. In which only two species that are Lygodium flexuosum (L.) sw. and Lygodium microphyllum (Cav.) R. Br. are reported in Kerala by the Botanical Survey of India (1983) and Kerala Forest Research Institute in 1998.The genus Lygodium is a sole member of the family Lygodiaceae based on PPG 1 (2016) classification. Previously it is placed in the family Schizaeaceae. The morphological characters of the two species are mostly similar. Variation is seen only in the length, width and lobing of the pinnule. The prominent characters of anatomical and palynological features help in differentiating the selected species. The rachis, petiole, rhizome and root anatomy of both the species are analysed. To compare the palynological features SEM analysis of the spore is conducted along with indusium features and sorophore characters are considered. There are no reports of these ferns based on anatomical features. Difference in the pattern of gametophyte is also added in the study. In silico analysis of the study of Lygodium species using the trnL sequence of chloroplast showed inter and intramolecular variations among the species. The study also intended to add more information about these two species collected from various sites of Kerala.

**Keywords: Lygodium, Palynology, Indusium, Gametophyte, Insilico**

**BOTPG008**

# $CO_2$ sequestration studies as a sustainability initiative

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Carbon sequestration is the process by which atmospheric carbon dioxide is taken up by trees, grasses and other plants through photosynthesis and stored as carbon biomass, in branches, foliage and in soil. Sustainable forestry practices can increase the ability of trees to sequester atmospheric carbon. Present study attempted to quantify the amount of carbon dioxide sequestered by campus trees as a sustainability initiative. The primary data were collected by non-destructive methods from a total of 253 individual trees. Tree height and girth at breast height were measured using a clinometer and measuring tape respectively. Wood density of different tree species were obtained by authentic database and parameters viz., AGB (Above Ground Biomass), BGB (Biomass Ground Biomass), total biomass, carbon store and average amount of carbon dioxide sequestered by each tree were calculated. Present study identified Tamarindus indica as the species with highest carbon sequestration capacity among the 52 species analysed. Present study also observed strong positive correlation between total biomass and amount of carbon sequestered.

**Keywords: Carbon Sequestration, Tamarindus Indica**

**BOTPG009**

# Floristic documentation of angiosperm taxa in Kukkiripara

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## Abstract

Identification of flora is generally considered necessary around the globe, as it plays an important role in maintaining the identity of the area. An inventory of the plant species in Kukkiripara, Maranalloor panchayath, Kattakada was made during 2019-2020. A total of 110 plant species belonging to 37 families were recorded. Detailed key for the species were prepared. Plants were classified as per APG IV system and compared with Bentham and Hooker's system. Habit wise classification showed that herbs were dominating with 49 species. The most leading family was Leguminosae with 17 plant species. A sum of 29 ethnomedicinal plant species were documented. During the study 7 endemic species were documented from the region. The study attempted to provide first hand data and checklist of different plant species present in the area. This pioneer floristic information will provide a useful starting point for further ecological and bio-prospective researches and will serve as base line for the future researches.

**Keywords: Flora, Kukkiripara, APG IV System**

**BOTPG010**

# Gliricidia Sepium As A Biological Tool For The Eradication Of Eichhornia

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## Abstract

Drastic spread of Eichhornia/Water Hyacinth is one of the major quandaries facing in several countries. Eichhornia have a negative impact on water bodies, since they affect the natural ecosystem and mundane flora of them. They engender an auspicious condition for the reproduction of snails and several other insects. Aedes aegypti mosquitos, causing Dengue, chikungunia, and Yellow pyrexia are reproduced in them. Eichhornia additionally disrupts the Tourism, Fishing and Conveyance sectors. Our proposal is to utilize Gliricidia sepium as a Biological implement to eradicate Eichhornia. It is economically feasible and facilely available. It is an excellent insect repellent which has nematicidal and anti-microbial activity consequently can be utilized as a potent against Eichhornia. Since Gliricidia sepium is Eco-convivial, the natural Ecosystem can be preserved. Eichhornia pollinate sexually via Insects. If their pollinating agents are low numbered, their reproduction can be minimized. Due to the insect repellent property of Gliricidia sepium, the pollinating agents in Eichhornia and several diseases caused by them can be obviated. Eradication of Eichhornia replenishes the Aqua system, favoring the magnification of fishes and maintaining the natural habitat of the waterbodies. Thus the proposed project is a promising method to build up a Salubrious Society.

**Key Words: Eichhornia, Water Hyacinth, Gliricidia Sepium, Eradication, Biological Tool**

# Documentation of The Diversity of The Gamopetalae Plant Groups in The College Campus St Joseph's College for Women,Alappuzha

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## Abstract

St. Joseph's College for Women is a Catholic ladies college in Alappuzha, Kerala, India, affiliated to the University of Kerala Situated at Convent Square on National Highway 47. The college favours the luxuriant growth of plants and plant groups belonging to various families and taxas. The present study was aimed at determining the flowering plant species richness of the St. Joseph's college for women, Alappuzha. It was primarily concerned in identifying, classifying, naming and describing the plants belonging to the sub class-Gamopetalae in the college. For this the species richness data was obtained by both primary and secondary sources from 2019-2020. College campus is extended over 5 acres of land. The campus area is endowed with many varieties of plants and is representative of climax vegetation and also exhibits the diversity of species such as trees, climbers, and other shrubs and herbs. Botanical garden are the store house of many varieties of shade loving plants, many valuable medicinal and other plants having high economic value. The data from the primary and secondary sources resulted in the documentation of 67 species belonging to genera fewer than 16 families. The species were confirmed with the help of available floristic literature. All the families are arranged according to Bentham and Hooker"s system of classification and all the genera and species under each family have been arranged in alphabetical order. There are 67 plant species belonging to 16 families namely Rubiaceae, Compositae, Plumbaginaceae, Sapotaceae, Ebenaceae, Apocynaceae, Asclepiadaceae, Loganiaceae, Convolvulaceae, Solanaceae, Scrophulariaceae, Gesneriaceae, Bignoniaceae, Acanthaceae, Verbenaceae, Labiatae. Out of the 16 families, the family Apocynaceae is the most dominant followed by Labiatae, Rubiaceae, Compositae, Solanaceae, Acanthaceae and others with gradually lesser number of taxa. Of these, 29 are exotic species and 38 are native plant species. Based on the results, our college is rich with many rare and medicinal plants. The study found that the plants recorded from the campus area are economically very important. Some of them have medicinal value; some are ornamental and few are edible. The documentation of plant is the only way to preserve the fundamental knowledge of the plant resources and it will be useful to the campus students for further research. Considering the rapid changes in the urban land use, much attention should be paid towards the conservation of these green spaces, for which such studies provide baseline data.

**Key Words: St. Joseph's College For Women, Gamopetalae**

**BOTPG012**

**AiswaryaK**

**Won Second Prize**

# Isolation and Characterisation of Novel Bacterial Strains from Soil Sample and Putative Identification Through ABIS Online Microbial Identification Tool

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## Abstract

Soil is an excellent media to identify a wide spectrum of metabolically active microbes which could produce industrially important bioactive compounds. The present study attempted to isolate and characterise the microbial diversity of soil sample collected from a site receiving kitchen waste. The bacterial isolates were obtained via serial dilution and plating method. In over all, four novel bacterial stains namely SS1, SS2, SS3 and SS4 were isolated and were identified via colony morphology, Gram staining and biochemical tests. These isolates were further assessed for various enzyme production tests as well. The bacterial isolate SS4 produced a characteristic red pigment which was characterised by UV-Vis Spectrophotometry. The pigment showed absorbance at 465nm and 533nm which was similar to that of a red pigment Prodigiosin previously reported from Serratia sp. The pigmentation was found to be optimal at an incubation temperature range 20-300C and 1% NaCl concentration. SS4 strain was evaluated for antagonism against other strains, biofilm formation and antibiotic susceptibility. SS4 strain showed resistance towards Amoxicilline but was sensitive towards Gentamycine, tetracycline and ampicillin. The isolates obtained in the study were identified via ABIS online microbial identification tool which assigned the strains SS2, SS3 & SS4 putatively as Paenibacillus sp., Bacillus sp. and Serratia sp. based on the available morphological and biochemical characteristics. The online tool served as a first hand for putative identification of microbes, however strain identification through molecular techniques is warranted. The current results can add up to the knowledge on soil microbiomes and the novel bioactive compounds produced bythem.

**Keywords: Soil Bacteria, Serratia, Prodigiosin, Putative Identification, ABIS Tool**

**BOTUG013**

**Manju Thomas**

**Won Third Prize**

# Tree Diversity and Carbon Sequestration Potential – A Study in Alphonsa College Campus

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## Abstract

The present project is an attempt to identify and document the tree diversity in Alphonsa College Campus, to evaluate the benefits they provide and to analyse their efficiency in sequestering carbon. We identified 315 trees belonging to 22 families, 44 genus and 47 species in the campus through field survey. All plants were identified by botanical name and family with the help of available literature. The economical, ecological and aesthetic benefits of these trees were studied. Tectona grandis is the most abundant tree species having a total of 107 trees and Swietenia mahagoni is the second abundant tree species with 88 trees. In general, the richest families found in the campus were Fabaceae, Euphorbiaceae, Moraceae, Myrtaceae, Arecaceae and Verbenaceae. This observation is a reflection of preference for the tree species that provide economic, environmental and aesthetic benefits. The amount of biomass and $CO_2$ in standing woody biomass of selected trees from wood stock area was calculated using non destructive method. Diameter at Breast Height (DBH) of different trees was measured and their Above Ground Biomass (AGB) was calculated using the allometric equation developed by Udayakumar et al. (2016) for the tropical dry forests. Albizia saman and Delonix regia are found to have the highest $CO_2$sequestration values whereas Nephelium lappaceum is found to have the lowest $CO_2$ sequestration value. To protect the developing world from adverse effects of climate change and global warming, the sustainable management of trees with the objectives of carbon sequestration is the need of thetime.

**Keywords: Tree Diversity, Environmental Benefits, $CO^2$ Storage and Sequestration, Non-Destructive Method**

**BOTUG014**

**AryaSajeev**

**Won Excelsior Award(First Prize)**

# Frugivory and Seed Dispersal of Common Trees in CMS College Area Kottayam

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## Abstract

Frugivory and seed dispersal of trees were studied from December 2019 to February 2020 at CMS College campus area, Kottayam. The whole day was divided into four-time intervals morning (8.00-10.00), midday (10.00-1.00), afternoon (1.00-4.00), evening (4.00-6.00) for data collection. It was recorded that 15 species of birds and animals have been found to feed on fruits in the campus, commonly on *Ficus benghalensis, Caeyota urens, Carica papaya, Artocarpus hisustus* etc. The frugivores are *Psilopogon viridis* (White cheeked barbet), *Dendrocitta vagabunda* (Rufous treepie), *Endynamys scolopaceous* (Asian Koel), *Copsychus saularis* (Oriental magpie-robin), *Oriolus xanthornus* (Black-hooded oriole), *Pycnontus cafer* (Red vented bulbul), *Acridotheres fuscus*(Jungle myna), *Acridotheres tritis* (common myna), *Pycnonotus jocosus* (Red whiskered bulbul), *Pteropus gigateus* (Indian flying fox), *Megalaina haemacephala* (Coppersmith barbet), Monkey (*Macaca radiata*), Squirrel (*Sciuridae*), *Paradoxurus hermaphroditus* (Asian palm civet). In the present study, bird preferred maximum feeding visit during the morning and midday hours and minimum during afternoon hours. Among 15 species of frugivores observed, Bats, Squirrels, Asian koel, Myna and Rufous treepie made their fruit feeding visits in group and with other species and remaining species visited as single as well as with other species. It had been observed that, among animal frugivores bats and squirrel consumed maximum number of fruits and among avian frugivores Rufous treepie and Asian koel consumed maximum number of fruits and appeared to be the major agents of seed dispersal. Also, importance of Ficus trees as major keystone species were studied.

**Key Words: Frugivory, Seed Dispersal**

**PYPG001**

# Hα Spectroscopy of Emission Line Stars

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## Abstract

We present a spectroscopic study of 40 Emission Line Stars using medium resolution spectra in the wavelength range 3800-9000A0, to understand the absorption and emission lines. Various emission line stars that we opted for studies are Classical Be Stars (CBe), Herbig Ae/Be Stars (HAeBe). Both these stars are found to possess circum stellar disks, which produce emission lines over photospheric the spectrum. Classical Be stars are rapidly rotating B- type non super giant main sequence stars that produce equatorial disk which is not related to natal disk that the star had during its accretion disk and Herbig Ae/Be stars are intermediate pre main sequence stars of spectral type of A and B, found to possess a natal accretion disk which is a remnant of star formation. We have collected different peculiarities and studied the nature of these stars, and differentiated between them. One of the main peculiarities of these stars is emission in the Balmer Region, especially Hα emission lines. So we plotted H-alpha line profiles of 20 different CBe and 20 HAeBe stars using python language and studied about each of the stars in them. The data for plotting spectrum is taken from the BeSS (Be Star Spectrum) database. It is a new tool for Be star research.

**Keywords : Hα emission lines, Classical Be Stars, Python**

**PYPG002**

# Synthesis and Characterization of Phosphorus doped Carbon Dot

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## Abstract

Carbon dots are emerging as a powerful alternative to conventional fluorescent nanomaterials due to their biocompatibility and non-toxicity. Heteroatom doping of carbon dots has proven to be an effective way to tune the electrical and optical properties of carbon dots so as to widen the application potential. There are different types of conventional approaches used for the synthesis of carbon dots, like physical and chemical techniques, but they are not eco-friendly. Therefore, interest in the green synthesis of carbon dots has been increased. This work deals with the green synthesis of doped carbon dot by hydrothermal treatment using red phosphorus and sugarcane juice as precursors. The morphological and optical properties of the synthesized carbon dot and phosphorus doped carbon dot were characterized using Transmission electron microscope (TEM)), UV-Vis absorption spectroscopy (UV) and Photoluminescence spectroscopy (PL). TEM images showed that the synthesized dots are uniform in size and the average size was around 7nm and SAED pattern reveals the amorphous nature of synthesized dots. The UV results proved that the synthesized carbon dot and phosphorus doped carbon dot had higher absorbance in the UV region. Tauc plot obtained from absorption spectra of CD and PCD showed that the band gap of about 4.09eVfor CD and 4.02eV for PCD. The PL results confirmed that the sample emitted blue light for the excitation wavelength 380 nm. The application potential of the synthesized carbon dots in the present work for environmental regeneration like dye degradation and toxic metal ion sensing can be studied.

**Keywords : Green synthesis, PCD, Photoluminescence**

**PYPG003**

# The Vibrational Spectral Studies and the Binding of DNA with Anti-Cancer Drug N-(6-Ferrocenyl-2-Naphthoyl) - Gamma-Amino Butyric Acid Ethyl Ester

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## Abstract

Molecular structure is one factor which determines the bioactivity of compounds and drugs. Bonding features accountable for the biological activity of N-(6-ferrocenyl-2- naphthoyl)-gamma-amino butyric acid ethyl ester (FNGABEE), an anti-cancer drug, with DNA is studied in this work. Quantum chemical and experimental studies are used for the investigation of structural properties of new compound. The vibrational analysis is done by the use of FTIR spectrum that is aided by eigen vector distribution, vibrational spectrum, PED and geometry computed by DFT, at B3LYP/6-311++G(d,p) level. The investigation of stretching modes of C-C and C=C bonds reveals the difference between resonance structures of benzene and naphthalene. Binding studies are performed by UV absorption spectroscopy to determine the strength and nature of binding of FNGABEE with DNA.

**Keywords : FTIR, Quantum chemical studies, Binding studies**

**PYPG004**

**Gianny Mariya Mathews**

**Won Excelsior Award (First Prize)**

# Investigation of Microclimate in a College Campus in South India based on ENVI-met model

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## Abstract

This paper investigates the ambient air temperature variation under different underlying surfaces in the campus of Catholicate College, Pathanamthitta in South India during winter and summer season and microclimate simulation was done using ENVI-met. Four locations within the campus were selected with different surface materials like interlocked concrete tile surface exposed to solar insolation, shaded interlocked concrete tile surface with vegetation cover, surface with asphalt and exposed soil surface in open ground. The surface temperature and the ambient air temperature were measured on 13$^{th}$December 2019 and 19$^{th}$ March 2020. The maximum observed surface temperature of asphalt and interlocked tile was 63.5$^{o}$C and 57.0$^{o}$C respectively at 14:00 hours during winter while during summer it was observed to be 67$^{o}$C and 65$^{o}$C respectively. It was observed that the air above asphalt and tile surfaces exposed to solar radiation showed a maximum temperature difference of 2.76$^{o}$C and 2.45$^{o}$C respectively from shaded interlocked tile surface during the winter and the same during summer was 2.13$^{o}$C and 1.22$^{o}$C respectively. However, maximum surface temperature of fully shaded region was 32.4$^{o}$C and 36$^{o}$C during winter and summer and this was remarkably low when compared to all other surfaces. Open area showed higher surface and air temperature compared to shaded region due to high sky view factor. It is also observed that different surfaces showed noticeable variation in the cooling and heating rates. It is also observed that material with low albedo and emittance retain the higher surface temperature when exposed to solar radiation. The next question which cropped up during the course of the project was how to mitigate the effect of construction material on the microclimate of the campus of Catholicate College. A solution was found by incorporating the mesoscale simulation technique. Here ENVI-met V4.4.4 was used and two simulations were done with unmodified building surfaces and with green wall building morphology. The ENVI-met simulations were carried out for 24 hours on the day of observation during winter and summer. The results of simulation for 10:00 am, 2:00 pm and 6:00 pm are taken which represent the entire 24hour period. The analysis of simulated data was done using ENVI-metLeonardo with
4.4 and air temperature variation with the measured data was analysed. From the simulations done with unmodified building surfaces and the green wall building morphology, it was deduced that the green walls have brought forth considerable decrease in temperature. On an average the decrease is about 1-2°C. The next step undertaken was statistical analysis of the obtained data. The error metrics closer to their theoretical ideal values of the different surfaces indicate that the model simulations capture the variability in the day-time temperature fairly well during both seasons. MRE values of all surfaces come closer to their theoretical best irrespective of seasons. Again, the model shows close correlation in summer season compared to winter season and need further study to check the validity of model with seasonal change. Thus it can be concluded that, the introduction of green walls in urban planning can be adopted as an effective measure in mitigating the rise of air temperature due to the effect of construction materials.

**Keywords : Urbanisation, Urban Microclimate, ENVI-met, Green Wall, Statistical Analysis**

**PYPG005**

# The Study of Latitude and Longitude Dependence of Number Counts of Stars and Galaxies within the Solar Neighborhood

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## Abstract

We have studied the dependence of galactic latitude and longitude on the ultraviolet number counts of stars and galaxies using a set of 16 observations from the GALEX GR6/GR7 Deep Image Survey (DIS) of GALEX mission where the selected targets spread over the entire range of galactic latitudes. Using the stellarity index condition, stars and galaxies were separated out and we obtained the UV flux (both FUV and NUV) in magnitude for each matching star and galaxy. We then calculated the number counts of galaxies, N objects/square degree/magnitude, from the region. The present study identified a linear dependence of number counts of NUV stars, FUV stars and a nonlinear dependence of number counts of NUV galaxies and FUV galaxies with the UV magnitude in the latitude dependence whereas the study of longitude dependence of number counts shows a linear dependence with NUV stars and FUV galaxies whereas NUV galaxies and FUV stars shows a nonlinear dependence. The flipping of number counts is also observed in this study of latitude effect in stars and galaxies. Although, various latitudes shows unexpected variations in their total intensities. Further study can be done by comparing this data with the data available from more efficient UV telescopes such as ASTROSAT, HUBBLE etc. Similarly data from IR telescopes can also be made use for the better understanding of the observational logs showing different behavior.

**Keywords : Ultraviolet number counts, Stellarity index, Latitude effect**

**PYPG006**

**Shilpa Prince**

**Won Third Prize**

# Cobalt Ferrite/MWCNT – Polyvinyldene Fluoride Polymer Nanocomposites For Electromagnetic Shielding Applications

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## Abstract

$CoFe_2O_4$ nanoparticles were successfully prepared by sol-gel method. The XRD pattern of CFO nanoparticles showed cubic spinel structure and the average crystal size was found to be 27 nm. Transmission microscopic images of the CFO nanoparticles reveal that particles are almost uniform with spherical shape. The average particle size calculated from the TEM images was found to 31 nm. CFO/MWCNT loaded PVDF-HFP nanocomposite films were initially prepared by solvent cast method. X-ray diffraction pattern of the composite films reveals the presence of nanoparticles in the polymer matrix. In order to evaluate the morphological distribution of the fillers in the polymer matrix FE-SEM analysis were carried out. From the FE-SEM images, it is clear that particles were well distributed in the polymer matrix without any aggregation. The results of the show that the dielectric loss and a.c conductivity were found to be increasing with dielectric studies increase in filler content. Electromagnetic shielding effectiveness of the prepared nanocomposites shows that 7.5 CFO/10 MWCNT-PVDF-HFP nanocomposite film having thickness 160 µm possess a shielding effectiveness around 24 dB (99 % attenuation). These flexible films with 99% of attenuation can be used as EM shields inside electronic devices such as terrestrial communication systems, aerospace communications.

**Keywords: FE-SEM, Dielectric, Electromagnetic shielding**

**PYPG007**

**Srinjana Routh**

**Won Second Prize**

# Quasifission in Heavy Ion Reactions At Near-Barrier Energies

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## Abstract

Superheavy Elements (SHEs) can only be created in the laboratory by the successful fusion of two massive nuclei. The cross section of fusion and/or fusion-fission in heavy ion fusion reactions are significantly suppressed by the presence of quasifission, a process which results in the formation of target-like and projectile-like fission fragments from the re-separation of the Di-Nuclear System (DNS) before it equilibrates to form the Compound Nucleus (CN). The short timescale of Quasifission compared to true fission brings anisotropy to the Mass-Angle Distribution (MAD) of the fragments. This knowledge is used to analyse the Mass-Angle Distributions of different reactions to demarcate the presence of the notorious quasifission in them. Even though the exact nature of quasifission is a mystery, the influence of several entrance channel characteristics like beam energy, Coloumb factor, orientation of the long axis of the deformed nuclei etc. can be made apparent through the study of MADs and the mass distribution curve of the fragments detected. We study the fission mass-angle distributions for the reactions of $^{40}$Ca on $^{186}$W, $^{178}$Hf, $^{176}$Yb nuclei at different beam energies in this work. A clear signature of quasi fission is demonstrated in the reactions studied and fusion probability is extracted from the measurements.

**Keywords: Fusion, Quasi fission, Compound nucleus, Superheavy elements, Accelerators**

**PYPG008**

# Towards the Development of Copper Tin Sulphide Nanoparticles as an Earth Abundant Photovoltaic Absorber

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## Abstract

Copper Tin Sulphide (CTS) nanoparticle has gained extensive attention due to their potential as a less toxic, cost effective and availability of raw materials in abundance for the synthesis of an absorber material for solar cell application. Herein, we present a simple and effective solvothermal method to enhance the grain growth of the material. The synthesized nano materials have been characterized by structural, morphological and optical techniques by using Fourier Transform Infrared Spectroscopy (FTIR), Scanning Electron Microscopy (SEM), UV-Visible spectroscopy and Photoluminescence Spectroscopy (PL) respectively. The FTIR results confirmed the presence of CTS material in the obtained product. The SEM image shows that it is composed of a large number of spheres and these spheres are assembled into a flower-like structure. The obtained SEM result proves that the surface morphology is greatly influenced by reaction temperature and thus as the reaction temperature increases, the morphology of the samples becomes more self-assembled to form a flower-like nano-sphere structure. The UV-Visible analysis clearly gives that copper tin sulphide nanoparticle has higher absorption in the visible region and having very less transmittance in the visible region. The PL results shows that peaks are sharp and narrow which indicate that the synthesized product have larger confinement with less impurities and the band gap of CTS nanoparticles was found to be 1.54 eV. The above mentioned results exhibits that the copper tin sulphide is a good photovoltaicabsorber.

**Keywords: Solvothermal, UV-Visible, Photovoltaic**

**PYUG001**

# Home Automation for Physically Handicapped People

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## Abstract

The main objective of this project is to develop a home automation system which is remotely controlled by RF transmitter and receiver with relay module. This is specially made for disabled people who can‟t control household devices. Present conventional wall switches located in different parts of the house makes it difficult for the user to go near them to operate. It is difficult for the elderly or physically handicapped people to do so. In order to achieve this, a simple circuit using RF transmitter and receiver is used. It is very cheap while considering arduino and Bluetooth controlled remote system. The RF transmitters ends signal to the receiver using sensor attached gloves. When the person fold the figure attached with sensor, the light turns on and again while doing same, the light turns off and when another finger be done like this a fan can be turned on and off. Here there lay module at the receiver is a push on push off latch switching circuit so as to do the work.

**Keywords: Home automation, Arduino, Bluetooth controlled remote system**

**PYUG002**

**Anis Fathima**

**Won Third Prize**

# Holographic Aspect of Panaromic Universe

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## Abstract

This project aims at emphasizing the concept of flat universe where the 3-D spatial lattice is imbibed in 2-D spatial lattice on the aspect of cosmic scale. Hence the universe is continually flat and keeps on expanding in regards with Totality of existence, continually with infinite space lattice or merely no edge where it throws light on the continuous expansion of even the observable Universe. The concept of Sitter and anti de-Sitter space by Scientist Juan Malcedona introduced the concept of hypothetical flat universe. Fermilab's Holometer proves there's a fundamental limit in the amount of information present in space time itself. Further, Euclidean geometry finds itself as an unleashing evidence of flat universe. This area of research in this theoretical manner strongly discusses about the existence of Holographic universe with the evidence of the Visual Handmade Hologram which creates us a 3D illusion, by the projection of 2-D images and practical proof of the nature with reference to the dimensional approach on bizarre Black holes through Black Hole Information Loss Problem, thereby gradually inclining the ideology towards the entire Holographic Universe. Thus an object in a Cosmic Scale, on Dimensional aspect is Apparent Dimension = Actual Dimension ± 1 Dimension relative to the Observer.

**Keywords: Holographic universe, Visual Handmade Hologram, Black holes**

**PYUG003**
**Parvathy S**
**Won Second Prize**

# Automatic Headlight Dimming and Anticolliding Technology in Automobiles

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## Abstract

Accidents are increasing day by day in our country. Drivers don't follow traffic rules properly and are not ready to use the indicator while driving. They do not dim the light properly during night. So our project is to avoid accidents by putting an end to the above problems. This system consists of an automatic headlight dimming and anticolliding system. Light dimming system consists of a circuit which automatically switches the headlight intensities of vehicles arriving from opposite directions in a controlled manner. This prevents the drivers to have proper control of their vehicles and avoid serious accidents. Accidents are caused mostly due to the delay in applying brakes. This work is designed to develop a new system of brakes that can solve this problem where drivers can not apply brakes manually but the vehicles can stop automatically due to obstacles. Using ultrasonic as a ranging sensor, its function is based on ultrasonic waves. After the transmit by the transmitter, the waves can reflect when an obstacle is detected and can be received by receiver. The main aim of this project is that a vehicle can automatically stop due to obstacles when the sensor senses the obstacles by signals. We use ultrasonic sensor to prevent such type of accidents. Headlight dimming uses a light dependent resistor sensor which automatically switched the high beam into low beam, therefore reducing the glare effect by sensing the light intensity value of approaching vehicles. It is then send to the Aurdino uno microcontroller in order to process it and also eliminates the requirement of manual switching by the driver which was not done at all times. Anticolliding system works in the following manner, the transmitter region of the ultrasonic sensor transmit the waves and is received by the receiver region and sent to the Aurdino uno microcontroller in order to progress it. Hence can reduce the rate of accidents to a greatextent.

**Keywords: Ultrasonic sensor, Automatic headlight dimming systems, Anticolliding systems**

**PYUG004**

# Smart Hybrid Renewable Charging Hub: An Innovative Approach towards Sustainable E-mobility

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## Abstract

Power transformation through vehicle-to-grid technologies in the energy sector is of great significant advancement in the field of the power system engineering. Electric mobility has revolutionized the entire automotive sector and emerged as the most suitable alternative as it has been characterized by fuel autonomy, energy efficient operation and finally decarbonization. In addition, it helps in the growth of microgrids which in turn considerably reduces energy distress with better control and stability features. From one nation one grid we have moved further towards worldwide grid interconnection to ensure absolute electric reliability to an entire population, unfortunately, there are several others issues which strictly govern its progress which comprises energy security, policy, regulation, unwanted transient and deficiency of electric power. Distributed energy resources throughout the world along with V2G technologies may significantly allow us to ensure power autonomy and consistency under safe parameters. In this work, author has made an effort to monitor and assess numerous physical characteristics and domineering parameter which certainly reflects the operating status and performance of grid-connected charging infrastructure. Real-time evaluation of the health parameters has been successfully accomplished using a complex mathematical algorithm and optimization tools. Cutting edge technologies and analytical skills have a unique contribution to data storage and information sharing using a dedicated secure network. MATLAB and SCADA based simulation has been done to understand the viability of the proposed scheme under innumerable challenges. The specific outcome under specific slandered test condition from the early stage prototype units has been documented and discussed elaborately.

**Keywords: Electric Vehicle, Grid, Energy, Sustainability, Green, V2G, MATLAB, Mobility**

**PYUG005**

# Radio Frequency Identification (RFID) Based Attendance System

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## Abstract

In India, presently, most of the motorised vehicles normally used for transportation purpose are fuelled by petrol, diesel, and natural gas. These vehicles are considered to be the major source of pollution because of high carbon emission by them. Further, the petroleum products, which are being used in the vehicles, are depleting at a very alarming rate. As per various reports it has been estimated to have petroleum resources available for the next few years only. Therefore, there is a global need to find a suitable alternate to run the motorised vehicles. Recently, the National Electric Mobility Mission Plan 2020 was introduced by the Ministry of Heavy Industries and Public Enterprises, Government of India, to address the environmental challenges due to conventional motor vehicles and to boost efficient electric vehicles (EVs) which are characterized by eco-friendly, reliable and affordable. Recent breakthrough in the electric vehicle (EV) technology and affordable battery storage have shown hope of mass level adoption of EVs. Accordingly, the Government of India has also taken various initiatives, such as FAME (Faster Adoption and Manufacturing of Hybrid & Electric Vehicles) India Scheme to support hybrid/electric vehicles market development and Manufacturing eco-system. However, there are various challenges which may have a negative impression and has large impact over penetration of EVs. Indian electric power distribution system (EPDS) and charging infrastructure needs to modernised and give special focus to move towards green transportation. We have done an extensive analysis to understand technological opportunities and real-time feasible solution. In this novel initiative, a hybrid renewable energy model and multidimensional charging station in a simplified manner. During the time of high demand and peak load condition, there is excessive stress on the conventional grid infrastructure which becomes very tough to continue electric supply for charging station has been introduced. This situation can be overcome using Distributed Energy Resources (DERs), Smart Scheduling and Cutting-edge technologies which helps in strengthening power autonomy. India is among the elite class countries to have the largest growing economy and this can further be strengthened by emphasising energy-efficient green technologies which in turn also helps to maintain a sustainable environment. MATLAB based simulation has been performed to recognize the viability of the proposed scheme under various challenges. Complex mathematical tool and strong algorithm has been used for optimising power scheduling in effective and efficient way. Specific outcome with satisfactory result has been shown and discussed elaborately.

**Keywords: Radio frequency identification, MATLAB, Power scheduling**

**PYUG006**

**Rithul Shaji**

**Won Excelsior Award (First Prize)**

# GSM Based Home Appliance Control

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## Abstract

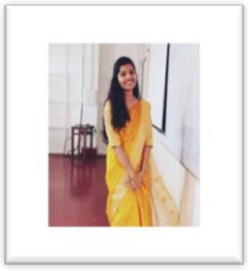
In the present world there is a huge demand for remotely controlling home appliances. The project aims at developing a system to control home based appliances remotely using mobile phone. The system also provides acknowledgements. Our system allows user to operate electrical appliances through SMS, and the status whether the device is switched on or not is also sent to the user via return SMS. This can be used by domestic users and industries, to operate as well as check status of the appliances remotely. It is a very convenient system for users since it allows them to easily control and monitor these appliances from anywhere. The system works in the following manner, the SMS sent by user is received by the GSM receiver and then sent to the Arduino Uno microcontroller in order to process it. The microcontroller then activates the appropriate relay for that appliance and controls it. Once the device is activated and acknowledgement/ SMS is revert back to the user.

**Keywords: GSM, Arduino Uno microcontroller, Electrical appliances**

**HSUGOO1**

**Abirami A K**

**Won Excelsior Award(First Prize)**



# Organoleptic Attributes of Jackfruit Seed Incorporated Diabetic Recipes

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## Abstract

Jackfruit and its seeds have been indicated to possess a good nutrient profile and evident medicinal benefits, despite that it remains largely underutilized. Hence the present study was envisaged with the broad objective of developing some Jack fruit seed powder incorporated recipes. The specific objectives of the study were, development of innovative recipes using jackfruit seed powder that can be incorporated in the diet of a diabetic. The methodology of the study can be divided as- Procurement and processing of jackfruit seeds, Development of tasty and diabetic friendly recipes by incorporating Jackfruit seeds, evaluation of sensory attributes of the developed recipes and data analysis and interpretation. The developed recipes were jackfruit seed incorporated cheera cutlet, whole grain crackers, veg momos, vegetable katti rolls and patravada. The sensory evaluation of the developed recipes was conducted on the nine point hedonic scale. Most of the developed recipes had good acceptability scores in the range of 8.2 to 8.5. The developed recipes were high in several micronutrients and minerals particularly iron. Jackfruit seeds are high in complex carbohydrates, fiber, antioxidants and has great potential in reducing blood glucose levels. Innovative recipes have to be developed in order to popularize jackfruit seed as a delicacy and awareness has to be created amongst the population regarding its nutritional benefits. An effort has been made through this research to develop snack recipes from jackfruit seed that is ideal for diabetic diet.

**Keywords: Diabetic, Jackfruit seed, Nutritional, Innovative, Awareness**

**HSUG002**

# Usage of Electronic Gadgets Among Preschoolers

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## Abstract

Technology has made our preschoolers the most vulnerable group among today's population because of their accessibility and addiction to newer gadgets, which are cheap and easily available. The aim of the study was to assess the use of electronic gadgets among preschoolers, evaluate the play activities and timings by preschoolers, identify the ownership of electronic gadgets among preschoolers and to find out the usage of electronic gadgets during working days and holidays.40 subjects of 2-6 years of age were selected from five places of Alappuzha district as per the inclusion criteria. A questionnaire were used to collect the data and verbal consent was taken from the parents of the sample. Almost 62.5 percent of the samples use Television, 50 percent of the samples use Phones, 10 percent use Tablet, 2.5 percent use Play station and 7.5 percent use Computers.92.5 percent of the samples use electronic gadgets up to 1-2 hours a day and almost 2.5 percent of the samples do not use any electronic gadgets.10percent of the parents have not set any time for usage of electronic gadgets.38 children out of 40 samples use electronic gadgets of their parents.50 percent of the samples spend 1-2 hours for studying and 27.5 percent of the samples do not spend any time of the day for their studies. About 67.5 percent use electronic gadgets on holidays and 32.5 percent use on working days. Some suggestions were given to the parents to help them limit their child's exposure to the gadgets. It is difficult to keep them away from gadgets but we can limit their time. Encouraging child to use it in educational field or study purpose can lead to a drastic change in their lives. It can help them to enhance their skills. Use of gadgets in a constructive way can lead to a healthier and efficient minds.

**Keywords: Electronic gadgets, Preschoolers, Ownership, Health**

**HSUG003**

**Sneha Soni**

**Won Third Prize**

# A Study On Consumer Preference And Quality Analysis Of Selected Branded Milk Available At Chambakulam In Alappuzha District

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## Abstract

In most cases Market milk delivered to consumer is not as per standards and involvement of private sector in field of dairying is increasing and milk adulteration is becoming a serious problem. Hence it is important to have awareness and access to information regarding milk adulteration and qualitative aspects of private milk brands. Area selected for the study was Chambakulam. Five pasteurized milk samples of, Milma,Malanadu,Edanaadu, Ambadiyil and Gokulam were selected. Questionnaire was used to collect information and awareness level of consumers. Milk samples physio- chemical nature,nutritional composition, presence of Adulterants and microbiological quality were analyzed. The physio - chemical analysis proved that, Total solid content of Milma (13.5%), Malanadu (11.8%) and Gokulam (12.2%) are meeting the minimum standard. Specific gravity range (1.028-1.032) and titratable acidity range (0.10-0.26%) as per standard was met by all samples. Edanaadu milk (2%) was not meeting optimum fat content (3.2-4.5) and Ambadiyil milk(7.1) was not meeting the SNF range (8.3-8.5) as per standard. The adulterants like cane sugar, glucose was slightly present in Gokulam and carbonates were observed in Ambadiyil. Microbiological quality of all samples shows negative results to SPC. Coliform bacterial presence was proved in all private milk brands. E coli were present in the private milk samples except Milma. According to standard Ecoli should be absent. Among all the selected samples, Milma is meeting all the standards prescribed by the respective FSSAI. The Private company milk samples were available in the selected areas was not possessing satisfactory qualityespecially in case of microbiological analysis.

**Keywords: Milk, Adulteration, E coli, Neutralizers, FSSAI**

**HSUG004**

# A Study On Psychological Aspects Of Obesity Among Adolescents

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## Abstract

Psychological problems due to obesity among adolescents increases day by day. Obesity may be defined as an enlargement of fat cell size or an increase in fat cell number or combination of both. This study aims at the causes and impact of obesity among adolescents. Questionnaire method was used as the major instrument for data collection from twenty five adolescent girls between the age of 18 - 21 are selected randomly from the whole population. From the collected data it is evident that lack of exercise, overconsumption of junk foods, genetic factors, are the major causes of obesity and they suffer from psychological problems like depression, lower self esteem, anxiety, body dissatisfaction, etc. The treatment of obesity is a long range process and the patient's cooperation and efforts in dietetics discipline are the key factors in its success.

**Keywords: Obesity, Exercise, Psychology, Adolescents, Junk foods**

**HSUG006**

# Pattern of Physical Activity Among Adolescent Girls

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## Abstract

Adolescent girls are more interested to be in their houses than playing out door games. In current scenario, many of them are facing physical as well as mental issues like anxiety, depression, body shaming, which finally leads to suicide in many cases. The objectives of the study is to assess the pattern of physical activity among selected adolescent girls and to assess the habit of doing exercise among selected adolescent girls. Questionnaire and survey method was used to assess the Socio economic profile, general activities at home and college and exercise activities among 18-19 years adolescent girls. From the results it was found that 64% of fathers were working as coolies. 80% mothers were homemakers. 4% of families were having monthly income above 50,000 rupees. 52% of the selected subjects were covering more than 5km everyday to reach college and return. 60% of them were using public transport. 36% of them were doing exercise daily. 57% of the subjects were doing exercise in 1 to 2 hours. 57% of them were doing exercise to maintain their health and also beauty. From the result, it can be concluded that the selected subjects had better physical activity status when compared to today's expected scenario. This may be due to better socio- economic status of the selected subjects.

**Key words: Adolescents, Physical activity, Exercise, Socio economic status, Health status**

**HSUG007**

**Vijaya Lakshmi S**

**Won Second Prize**

# The Relevance of Posture In Health - A Study Based on Sales Women in Textile Industry

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## Abstract

In modern competitive world, women workers employed as salesgirls in textile showrooms are functioning like living automatons. Posture complaints often occur among sales women due to awkward standing during work and these posture is basically the position we hold our bodies while standing, seating and even when lying down. Posture has a huge impact on mental and physical health as well. Good posture is essential as having a healthy diet, sleeping comfortably and exercising. Musculoskeletal disorders are the most common causes of work-related ill-health which was mainly due to ergonomically incorrect working conditions. The purpose of the present study was to find the awareness, health problems and symptoms related to posture among saleswomen. The study was conducted in Kanchipuram district and the respondents selected were 80 saleswomen from textile shop. A structured questionnaire pertaining to the objectives of the study was framed and used, the responses were coded, edited, tabulated, and analyzed. The statistical package SPSS was used for the basic analysis and the statistical tool used was percentage analysis. The study helps to identify the awareness on posture where having a poor posture causes many health problems like leg pain, knee pain, fatigue, spinal cord pain, nerve compression, sleep issue etc. Prolonged standing at work were found to double heart disease risk. The study shows that fifty six percent of the respondents always have pain due to constant standing, majority of them always feel fatigue and it was also found that awareness on posture level is very low among sales women.

**Keywords: Posture, Saleswomen, Awareness, Health, Textile**

**HSUG008**

# Role of Self –Help Groups in Economic Empowerment in Kollam And Alappuzha

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## Abstract

Self -help groups plays a major role in poverty alleviation in rural India. The objectives was to study the socio-economic status among self -help groups, to find the motive and saving habit among self -help groups, to assess the working satisfaction among SHGs in relation to income and to analyze the problem and quality of life among SHG workers. In our study we took 2 districts for the better comparison Kollam and Alappuzha. From these districts total 12 SHGs were selected which comprised of 80 members. Interview schedule was the tool used for the data collection. Our study showed that economic status of members in the groups were improved after joining the SHGs. All the workers made their own working sector with the help of SHG. It gave a financial security and stability in the society. Among half of members (50%) of SHG members, the source of motivation for forming SHG circle were family members (33%), self - motivation and (16.6%) were motivated by friends and relatives. The main problems faced by SHGs were lack of time for domestic work, work pressure, and lack of financial assistance. Communication skills, management skills, confidence level, and over all skills were improved after joining SHGs. Thus the study helped to identify the profitable working strategy among selected SHGs, to understand the problems faced by SHG members. And to state measures to improve quality of life among self hep group members.

**Keywords: Self help group, Skills, Financial security, Motivation**

**HSPG001**

**Aishwarya Mohan**

**Won Second Prize**

# Development of Videos To Empower Young Mothers on Developmental Delay And Early Intervention

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## Abstract

The study on "Development of videos to empower young mothers on Developmental Delay and Early Intervention" was taken up by the investigator with the aim to develop videos in Malayalam for improving the awareness of young mothers on Early Intervention and Developmental Delay. 100 Mothers were interviewed to assess their knowledge level on Developmental Delay and Early intervention before and after the awareness class. In the present study a video was developed on at-risk babies, Developmental milestones and Development Delay, Causes of Developmental Delay and Early Intervention and it was used as an aid to assess the knowledge of the respondents and create awareness on the same. Nine experts working in the field of Child Development evaluated the video. The survey results so obtained were consolidated and analyzed using statistical software, IBM SPSS Statistics and percentages. The percentage analysis was used to assess the knowledge level of the young mother's on the topic before and after providing awareness via visual aid, paired t test was conducted to check the effectiveness of the video and its impact upon the mothers as a whole and independent t test was done to check the awareness of young mothers on the topic staying under Urban and rural population and to know which among them had gained more knowledge on the topic. It was found that the knowledge level of young mothers on Developmental Delay and Early Intervention increased after the awareness class. The study points out that though there is a general concern among mother's regarding their child's development, they are not even aware of developmental milestones, delay and Early Intervention. The video developed by the investigator was sufficient to provide basic information on the topic"DevelopmentalDelayandEarlyIntervention".ItwasfoundusingpairedttestthattherewasÂ a definite positive difference in the knowledge of mother's on the topic after going through the video.

**Keywords: Developmental delay, Video, Intervention, Mothers**

**HSPG002**

# Dietary Pattern And Risk Factors of Patients With Gall Bladder Disease

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Gall bladder is a small pear shaped organ on the right side of abdomen that holds digestive fluid and released into the small intestine. Dysfunction in the physiology of gall bladder will leads to many of the disease conditions. Diseases of gall bladder are most common, highly prevalent and many of them are asymptomatic. A total of 70 respondents above the age of 30 years were selected by purposive sampling method. The nutritional profiles of patients were assessed by anthropometric, biochemical, clinical and dietary assessment (24 hour recall and food frequency questionnaire) techniques using a structured questionnaire. The physical activities of the respondents were assessed with help of International Physical Activity Questionnaire (IPAQ).The age of subjects involved in study group was above 30 years and it was more prevalent in the age group of 60-69 (30%). Anthropometric details showed that majority of the respondents were overweight (56%) and obese (31%), 63% of females and 19 % of males had high waist hip ratio. The statistical test (Pearson"s correlation) indicated that there is significant correlation between BMI and waist hip ratio of the respondents. The biochemical parameters of the respondents showed that mainly alkaline phosphatase (77.14%) and SGPT (71.42%) levels were increased among the respondents. Majority of the respondents (40%) were not having any clinical signs and symptoms, however most reported clinical symptoms were anorexia (29%) and fatigue (17%). Dietary assessment showed that fat intake was higher (47g/day) and fiber intake was lower (4-5g/day) among both males and females. Diets that were high in fat and low in fiber play a role in developing the disease. Physical activity pattern also showed that majority of the respondents were in the sedentary activity pattern (91%). Identifying the risk factors related to gall bladder diseases that can be altered were obesity, sedentary lifestyle, and dietary factors. The unchangeable risk factors are age and gender. The importance of diet and physical activity were not much aware by the respondents. By modifying the risk factors and with proper dietary intake along with regular exercise and lifestyle modifications may improve the conditions along with improvement in the biochemical and clinical signs and symptoms associated with the disease.

**Keywords: Gall Bladder disease, Anthropometry, Dietary, Clinical, Fiber**

**HSPG003**

**Saraswathy S**

**Won Third Prize**

# Designing Indigenous Toys to Inculcate Readiness Skills in Children

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## Abstract

The study on „Designing Indigenous Toys to Inculcate Readiness Skills in Children [3- 6 years]" was taken up by the investigator with the objectives of designing and evaluating toys to inculcate readiness skills in children, to assess the toy awareness of parents, to study the availability of toys in market that is suitable in language development. A market survey was conducted to find out the toys available in the market suitable for language development and 60 mothers were selected to assess the level of awareness about toys among selected mothers. Three eco- friendly toys were also developed to inculcate readiness skills in children. The toys were evaluated by the mothers which was highly appreciated by them. The study concludes that though there are many toys available in the market but only a very few toys are there to develop language skills of children. The toys developed by the Investigator was widely appreciated and acceptable among mothers. From the study, the investigator could find out that the mothers were aware of the toys of their children.

**Keywords: Readiness skills, Indigenous toys, Language, Development, Awareness**

**HSPG004**

# Variations in Nutritional Status Among Selected Tribals

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## Abstract

This study objective was to assess the socio-demographic details, anthropometric measurements, and dietary pattern and food practices of the selected tribals and compare the nutritional status of selected two tribes/ area. Study was conducted in Thodikalam in Kannur district and Madanchery in Kozhikode district. Sample of 100 tribal adult belonging to the age group of 30 to 60 years were selected for the collection of data regarding Anthropometric measurements like height, weight and Body Mass Index was calculated for the selected subjects. Food frequency and 24-hour dietary recall method were used to assess the dietary intake of the subjects, life style pattern and nutritional knowledge was assessed by direct interview and questionnaire method. It was revealed that, from total sample 48percent belonged to underweight category. Of this, 17.39percent were from kurichiyans and 74.07percent were from paniya tribe. Of the total samples 44 percent had normal BMI. The mean intakes of energy for both male tribes were deficient than the recommended value, mean energy intake of paniya and kurichiya is 1952.5 kcal and 2270 kcal respectively. For female samples, the mean energy intake of paniya and kurichiya is 1814.9kcal and 2070.6 kcal respectively and there is no deficit in calorie intake for female kurichiyans but, for paniya tribe 4.47percent deficit than the recommended value. Urban environment influence the overall health in selected tribals. It can be inferred that, in paniya tribes, the nutritional status were significantly lower than in tribes of tribal area (kurichiya).It is observed from the study that, incidences of diseases in paniyans were significantly higher than in kurichiyans and also their socio-demographic status were backward compared to kurichiyans.

**Keywords: Tribals, Food Practices, Socio-demographic, Under weight**

**HSPG005**

# Development And Quality Evaluation of Beetroot Incorporated Pasta

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## Abstract

Pasta is an instant food which is widely consumed and becoming popular worldwide. It is often used as a convenience food due to ease of cooking, low cost as well as due to quick cooking characteristics. The present study was designed to develop pasta by incorporating beetroot at different levels of substitution (30%, 40% and 50%) to wheat flour. Proximate analysis, cooking quality characteristics and shelf life of the beetroot incorporated pasta was determined. The proportion of beetroot incorporated pasta selected by sensory evaluation was wheat-beetroot pasta (70:30) with maximum overall acceptability of 84%. The wheat-beetroot pasta (70:30) comprises of moisture (5.2%), ash (4%), protein (1.7%), fat (0.8%) and fibre (3.9%). Cooking quality characteristics indicated wheat-beetroot pasta had cooking time of 5.18 min, cooking loss of 18.8% and water absorption of 152.2%. Colour analysis showed an increase in parameters like L* (lightness) and b* (yellowness) values ranging from 36.48-42.16 and 9.79-13.15 respectively while a* (redness) value exhibited a decrease of 17.25-14.83 during the storage period of 30 days. The mould count was <10 cfu/g throughout the storage period of 30 days and was within the permissible limit. Thus, the storage study demonstrates that the beetroot incorporated pasta had a shelf life of one month. Therefore, the present study revealed that incorporation of beetroot is an effective approach of developing healthier pasta products.

**Keywords: Pasta, Beetroot, Cooking Quality Characteristics, Shelf Life Study**

**HSPG006**

# A Study on Emotional Intelligence, Stress And Nutritional Status of Working Women

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## Abstract

Both family and employment become equally important in women's life giving way to challenges and causes work-life issues and role conflicts leading to stress that in turn affect nutrition and health status of women. Stress has been considered to have vital effect on nutritional status. Emotional problems are presumed to be the result of stress and play role in affecting one's food intake. Emotional intelligence acts as a facilitator of managing stress and maintaining good dietary practices. Hence the present study entitled "A study on emotional intelligence, stress and nutritional status of working women was carried out. A total of 100 women workers from banking field, teaching field, office based working field and health care field aged 25-40 years were selected by purposive sampling from Kannur. The data regarding general profile and work profile of the samples were collected. The socio-economic status assessed using Kuppuswamy scale, 2017. The nutritional profile of the samples was assessed by anthropometry, biochemical and dietary methods following standard procedures and a structured questionnaire. The Schutte self report inventory (SSRI) was used to assess emotional intelligence and Perceived stress scale (PSS) was used to assess stress among the samples. It was revealed that more than 50% of the samples were moderately stressed. Most of the samples(56%) had average emotional intelligence. Difference in stress level of the samples from various occupations was significant (0.002.)Mean stress of the samples from health care sector was high. The BMI of majority of samples (48%) were found within normal range when compared with standards. No significant difference were found in BMI of the samples according to stress level. The mean intake of energy was slightly less among all categories of stress than recommended value. Samples were deficient in iron and Z inc. Other nutrients intake was normal. Most of the subsamples (75%) had normal level of serum albumin. Negative correlation were found between stress and serum albumin level The findings of the study conclude that even though the women workers are moderately stressed due to their work schedule, most of them maintain a good nutritional status. Working women are emotionally intelligent and emotional intelligence helps in managing stress and thus maintaining good nutritional status. Together with providing nutrition knowledge, improving individual's emotional abilities is needed to better understand and manage their emotions. So that eating may not be driven by emotions under stressful situations.

**Key words: Stress, Working women, Nutritional status, Emotional Intelligence, Iron, Zinc**

**HSPG007**

# Correlates Of Nutritional Status And Quality Of Life Among Cancer Patients On Chemotherapy

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## Abstract

Malnutrition is prevalent among cancer patients, and may be correlated with altered quality of life.
The primary objective of the study was to assess the correlates between the nutritional status and quality of life among cancer patients aged >30 yrs,who had undergone chemotherapy.The clinical based study was carried at tertiary hospitals such as Noorul Islam Institute of Medical –Science, Neyattinkara, Trivandrum, Kerala and Attukal Devi Institute of Medical- Science, Attukal, Trivandrum, Kerala. A total of 100 cancer patients above 30 years of age were selected by judgmental sampling. Assessment of patients nutritional status, quality of life, socio demographic status was conducted using Subjective Global Assessment and the European Organization for Research and Treatment of Cancer Care Quality of Life Questionnaire- (EORTC QLQ – C30). It comprises different scales, including five functional scales (physical, role, emotional, social, and cognitive) three symptoms (fatigue, pain, nausea and vomiting), and 6 single items (dyspnea, insomnia, appetite loss, constipation, diarrhea, financial difficulties) and one global quality of life (global health) scale. The age of subjects involved in study group ranged from 30-70yrs and cancer is more prevalent among the middle age group between 41-50yrs (37%). Most of the(67) respondents were male and had been diagnosed with different types of cancer such as breast (24%), pancreas(18%), lungs(14%) and liver(13%) followed by 9% of the respondents with colon cancer and rectal cancer respectively. Squamous cell carcinoma is a condition caused by an uncontrolled growth of abnormal squamous cells which was reported among 5 percent. Among 67 percent of the male respondents 4% were having prostate cancer and only 2 percent of the female respondents have cervix cancer and ovarian cancer respectively. Majority of the respondents (56%) were categorized under severely malnourished persons and 39% of the respondents were moderately or mildly malnourished and remaining only 5 % were well nourished which is based on Subjective Global Assessment tool. Most of the respondents were having good quality of life in terms of when it is compared with their nutritional status by using Analysis of Variance (ANOVA). Majority of the respondents was having better functional ability and they showed few symptoms related to cancer and they show better quality of life. And also there was a strong statistical association between the Body Mass Index and nutritional status of the respondents and serum albumin level and nutritional status of the respondents. Some of the patients were unaware of dietary practices that they should follow during and after chemotherapy. They don't have much information about the foods that helps to alleviate their condition. So this study gained an insight to impart nutritional awareness to improve the nutritional status of the patients during chemotherapy.

**Key words: Malnutrition, Chemotherapy, Quality of Life, Subjective Global Assessment**

**HSPG008**

**Varsha Clara Varghese**

**Won Third Prize**

# Development Of Paneer Using Coconut Milk And Evaluation Of Its Quality Characteristics

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## Abstract

Coconut is a versatile product and has multiple uses. The present study was undertaken to formulate the development of paneer using coconut milk which is a good alternative for dairy product. Coconut milk is essentially composed of high amount of protein, sugars, fats, vitamins, minerals. Some benefits of coconut milk paneer include, it is a good substitute for people with lactose intolerance and helpful for people suffering from malnutrition and support the immune system. From the present study, it is concluded that an acceptable paneer can be prepared by using soy milk and coconut milk blend. Paneer made with coconut milk had higher protein, calcium and iron as compared to normal paneer. The nutritional quality of coconut milk was increased by addition of soy milk for developing paneer. The developed product consists of 1.27% ash content, 9.43% protein, 12.20% fat, 26.20% moisture and 1.15% sugar. The microbial quality of paneer was also analyzed on total plate count, total coliform count, which is under permissible limit and Escherichia coli, Salmonella and Staphylococcus aureus were also analyzed. All these micro organisms are absent in 25g sample of the developed coconut milk paneer. The quality of coconut milk paneer was also compared with normal paneer in both biochemical and microbial parameters to understand the acceptability of the developed product. It was observed that, the fat content and moisture content in coconut milk paneer is higher than normal paneer in 25g of sample on analysis. But, the protein content, ash and sugar is more in coconut milk paneer. Thus the study concluded that coconut milk paneer which is a value added food developed from coconut can be used for better therapeutic health and is a good protein substitute for people suffering from lactose intolerance. This in turn also increases the wealth of coconut industry.

**Keywords: Coconut milk, Paneer, Product Development**

**HSPG009**

# Formulation And Quality Evaluation Of Hibiscus (Hibiscus Rosa *Sinensis*) Incorporated Plum (Prunus *Domestica*) Jams

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## Abstract

Bio-colorants are coloring agents, which are obtained from the biological sources. They are mainly derived from pigments like anthocyanins, carotenoids etc. Bio-colorants are less toxic, less polluting, and non-carcinogenic and also provide harmonizing color. Artificial colorants used in food processing sectors cause health hazards, which makes them undesirable for human consumption. The hibiscus flowers are rich sources of anthocyanin pigments and possess various nutritional and health benefits, hence it was used as the source of bio-colorant in this study. The objective of the study was to formulate the plum jam incorporated with hibiscus petal pulp and to evaluate the physico-chemical and storage stability of the formulated jam over a period of 30 days. Two control jam samples viz., plum jam with peel (Control1), plum jam without peel (Control2) and four different variation of jam samples were prepared with incorporation of hibiscus and subjected to acceptability studies. The total ash, ascorbic acid, total anthocyanin, total phenolic content were increased significantly in experimental jam samples than control samples. Result showed no significant difference in moisture, ash, TSS and total sugars regardless the storage period of 30 days whereas, a significant decrease was observed in pH, TSS/Acid ratio, ascorbic acid, pectin, non-reducing sugars, anthocyanin and phenolic content of the jam samples and a significant increase in reducing sugars and acidity was observed. The incorporation of hibiscus pulp in jam formulation was acceptable and the presence of bio active compound anthocyanin enhances the color as well as the health benefits of the experimental jam samples.

**Keywords: Anthocyanin, Bio-colorant, Hibiscus *rosa sinensis*, Plumjam, Storage studies**

**HSPG010**

# Assessment Of Language And Communication Skills of 2-5Years Old Children in Rural Areas of Ernakulam District

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## Abstract

The study on Assessment of language and communication skills of 2- 5 years old children in rural areas of Ernakulam district" was taken up by the investigator with the objectives to assess the language and communication skills of selected children, to identify the number of children having delay among the selected sample, to develop a booklet on activities that would help stimulate language and communication skills in children. 100 children were selected to assess the Language and Communication Skills. A booklet was developed on activities that would help stimulate language and communication skills in children. It was interesting to note that none of the children in the two year old age group had any delay. In the three year old category, out of 12 girls, three had missed milestones, while boys (4) had missed a few milestones. In the four year old category, out of 67 children assessed, four girls and two boys had missed a few milestones. It was soothing to note that all the seven children studied in the 5 year old category did not have any delay in the milestones tested.

**Keywords: Language, Communication, Booklet, Rural, Milestones**

**HSPG 011**

# Effect of Inclusion of Dry Kale Leaf Powder As Natural Preservative in Pickles

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## Abstract

Kale *(B. oleraceae* var. *sabellica L.*) is a good source of vitamin A, vitamin C, vitamin K, antioxidants and phenolic compounds. In this study the preservative effect of kale in amla and tomato pickles (at concentration 5g and 10g) has been investigated and compared with sodium benzoate added amla and tomato pickles. The dry Kale leaf powder (5g and 10g) were analyzed for antibacterial activity, total phenolic content and antioxidant activity (DPPH).Shelf life analyses in terms of chemical and microbial analyses of the prepared dry kale leaf powder added pickles (variations) were conducted over a period of 15 days at every 5 day interval. The results showed that 10g dry kale leaf powder had a higher antibacterial and antioxidant activity. There was a significant difference in pH and titratable acidity of standard and experimental samples ($p < 0.05$) but there was no significant difference between dry kale leaf powder added pickles and sodium benzoate added pickles ($p > 0.05$). The total plate count and yeast and mould count was observed to be lowered with higher concentration of dry kale leaf powder (10g). Observation on colour and appearance showed less change in dry kale leaf powder added pickles and sodium benzoate added pickles when compared to standard pickles. This proved that kale leaf, as a natural preservative could be effective replacer for chemical preservative.

**Key words: Kale, Natural Preservative, Pickle, Chemical Preservative, Shelf life Study**

**HSPG012**

# Mental Health Status of The Aged Population In The Flood Affected Areas of Alappuzha

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## Abstract

The ageing population of the world presents major challenges for society and for health services. Mental health issues are extremely important, as mental disorders, notably dementia and depression, are common in old age. Mental ill health can profoundly affect the quality of people's old age and has a significant impact upon the use of health and social services. The present study on "Mental health status of the aged population in the flood affected areas of Alappuzha" explores to understand the level of mental health of the aged people. Hundred samples were taken for the present study. Equal consideration was given to both the gender. The study was carried out to assess the socio- economic status of the samples, level of mental health and level of stress among them. A well - prepared set of Interview schedule was used to collect the data by interview method. A Mental Health Scale (MHS) by Dr. Jagadish and Dr.Srivastava (1983) was used to assess the mental health. In order to knew the level of stress a Perceived Stress Scale by Sheldon Cohen (1988) was adapted. From the study it was concluded that majority of the samples possess a medium level of mental health and also majority of the samples possess medium level of stress. There also existed significant differences in the level of mental health between the genders.

**Key words: Mental health, Aged population, Flood**

**HSPG013**

# Development of A Coffee Powder Alternative Using Date Seed Powder

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## Abstract

Date, the fruit of date palm, can be considered as an ideal food that provides a wide range of essential nutrients with many potential health benefits. Traditional medicine, the date seed powder is considered to be the best medicine for diabetic patients. Date seeds are usually discarded as materials with no use or value. These seeds considered as waste from date palm fruit. The present study focused on the development of date seed coffee powder using seed part of dates. The ultimate objective is to develop a healthy coffee powder alternative for commercial caffeinated coffee powders. Date seeds contain good source of macronutrients and micronutrients. Date seeds has several health benefits and amazing medicinal properties like prevention of DNA damage, useful in treating blood sugar problems, act as antiviral agents, prevent kidney and liver damage, rich in antioxidants, skin benefits, creates a healthy scalp environment, thickens hair, fights free radicals, anti-tumor effect, anti-microbial effect, anti-diabetic effect, nephro-protective effect, delivery and labor relaxation and effective in infertility problems. The date seed coffee powder was prepared by soaking, roasting and grinding of date seed. The organoleptic qualities of developed date seed coffee powder and coffee recipes were analyzed by panelist using 5 point hedonic scale and multiple sample difference test. The proximate analysis study of date seed coffee powder was done. A comparison study regarding proximate principal was conducted between developed date seed coffee powder and commercial coffee powders from the market. Various date seed coffee recipes were formulated. The shelf life study of date seed coffee powder was also undertaken. A recipe booklet was formulated for popularization of date seed coffee recipes. An awareness class was given to these selected subjects about the role on the health benefits of dateseed coffee powder.

**Keywords: Date seed, Organoleptic, Proximate, Coffee Recipes, Shelf life**

**HSPG014**

# Development of Breakfast Cereal Using Banana Blossom Bracts And Determination of Its Nutritive Value And Acceptability

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## Abstract

Banana flower, also known as banana blossom or heart or bud, is the splendid looking male, sterile flower of the banana plant. In this study, the outer bracts of the banana flower was incorporated to prepare a breakfast cereal. A Standard breakfast cereal (A1) was prepared using whole wheat flour. Banana blossom bracts incorporated breakfast cereal had two variation, A2 – 60g and A3 – 80g of banana blossom bracts paste. Proximate composition such as moisture, ash, carbohydrates, protein, dietary fiber, calcium and iron were analyzed. As banana blossom bracts are a good source of antioxidants, they were analyzed for its antioxidant activity, vitamin A and vitamin C for all the three samples. Sensory analysis was conducted by 25 trained and 25 semi- trained panelists who represented the common consumers for all the samples by analyzing the parameters such as color, appearance, flavor, texture, taste and overall acceptability. Both the variations A2 and A3 were found to be rich in dietary fiber (41.2% & 63.7%, respectively), antioxidant activity (14.7% & 20.6%, respectively) and Anthocyanin content (14.01% & 18.01%, respectively) along with other chemical compositions including proximate and minerals. The results revealed that the variations A3 followed by A2 was rich in dietary fiber and antioxidant activity and can be used as a functional ingredient to formulate different products to achieve low- calorie and high fiber products. The banana blossom bracts are rich in anthocyanin content and can be used to extract natural color dyes commercially in large scale industries.

**Key words: Banana Flower, Antioxidant Activity, Breakfast Cereal, Outer Bracts, Dietary Fibre**

**HSPG015**

# Satisfaction Level Of The Mothers/Guardians Regarding Services Rendered In The Child Malnutrition Treatment Centre (CMTCs) Of Vadodara District, Gujarat 2019-20

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## Abstract

According to World Health Organisation (WHO), health is a fundamental human right. To meet this human basic right requirements, Indian healthcare delivery system is categorized into two major components - public and private. Public Healthcare system run by Government of India comprises of primary, secondary and tertiary care institutions focusing on providing basic healthcare facilities in rural peripheries and key city areas, whereas the private health care sector provides majority of secondary and tertiary care institutions with a major concentration in metros and urban areas. Today, health systems have change the way of thinking and delivering care and patient became the center of the overall process. National Quality Assurance Standards in India is primarily meant for service providers of public health institutes. Hence, present study is an attempt to understand the satisfaction level of the mothers/ guardian regarding services rendered in the Child Malnutrition Treatment Centre (CMTCs) of Vadodara district of Gujarat was carried out by the investigator. Purposive sampling method was used. Data were collected using questionnaire from all blocks of Vadodara district comprising samples size of 7 CMTCs and 95 mother /guardians of the SAM child admitted in CMTCs of Vadodara district of Gujarat. The study has been conducted by collecting detailed profile of all CMTCs of Vadodara district wherein data pertaining to CMTCs aspects viz, infrastructure, instruments, equipment and supplies availed from the concerned government CHC"s head to understand availability (as per government norms) and functionality of each. Satisfaction level of the mother/ guardian of SAM child admitted in CMTCs of Vadodara district of Gujarat in the same Infrastructure aspect and its availability and functionality aspect was assessed using perception scale. Interesting major findings of the research study revealed that, Vadodara district CMTCs which are run by the state are well established and functioning according to state government guidelines and also found well equipped in terms of its human and non-human resources. Descriptive statistics using percentages and "t" test were applied to understand perception of mother/guardians towards different aspect of the study viz infrastructure, facility based clinical services and facility based non-clinical services of CMTCs. Major findings revealed that mother/guardians were satisfied with reference to infrastructure aspect however mother/guardians expressed partial satisfaction for the aspects of facility based clinical services and facility based non-clinical services of CMTCs of Vadodara district of Gujarat. In nutshell, study implies that, though much has been done by the government to improve nutritional services in the CMTCs in Gujarat, still long way to go to address this issue with due consideration of user's perspectives in further health related plans for the state and nation.

**Key Words: Public Health Institute, Nutrition, Child Malnutrition Treatment Centre, Health Services, Quality of Care in Health**

**HSPG016**

# Development And Quality Evaluation Of Passion Fruit Rind Products

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## Abstract

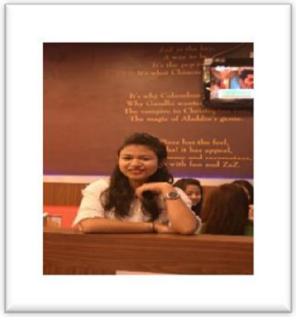
Passion fruit peels, which constitute about 52 per cent of the total fruit weight is an excellent source of fiber, mainly pectin, and essential minerals, such as potassium and calcium. Thus, it has become essential to give emphasis to evolve technologies for the development of value added products from passion fruit peel. It will also ensure stability to the fruit based economy. In this study, three fruit based products, jam, leather and candy had been developed from passion fruit rind. For the preparation of jam and leather the rind were cooked to soft and utilized. For the candied passion fruit rind, the rind were cut and used. Standardized quantities of ingredients were used by following standard procedure for the development of the three products. Five treatments of each product were done and one from each product based on organoleptic evaluation was selected for further studies. Textural, chemical and nutritional properties were examined. Vitamin C content of jam, leather and candy were found to be 191.12 mg, 293.46 mg and 251.6 mg respectively per 100 g of the products. Organoleptic and microbial evaluations were done before and after storage of the products. It has been found that the products showed properties similar to that of other comparable products. There were no microbial growth at the end of storage and were highly appreciated and accepted by the consumers. The cost of the products was found to be very less than that of the similar commercially available products.

**Key words: Passion fruit peel, Jam, Leather, Candy, Microbial growth**

**HSPG017**

**DaisyDas**

**Won Excelsior Award(First Prize)**



# Dietary Diversity Among Tribal Mothers of Children (6-23 Months): Insights From Aspirational District of Gujarat

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## Abstract

It is well documented that tribal woman are more vulnerable to poor nutritional status, and low dietary diversity is one of the key factor for malnutrition. The objective was to assess the dietary practices of mothers of children (6-23 months).A community-based mixed-method study was conducted among 250 tribal mothers of children (6-23 months) during the year 2019-20, using pre-tested semi-structured questionnaires in one of the blocks of Aspirational district of Gujarat. 24-hour recall as well as Food Frequency Questionnaires was used to collect information. The Dietary Diversity Score was analyzed based on USAID FANTA (2016) guidelines. The Minimum Dietary Diversity was found only among 26.8% of the mothers and the average Dietary Diversity Score (DDS) of mothers was found to be 4.032±0.8. Analysis of 24- hour recall showed that only 40% of the mothers consumed three meals a day and 73.2%ofthemothers had less than five food groups on their previous day (not meeting their minimum dietary diversity). Only 39.6% owned livestock and out of which 26.3% of the households owning cattle used milk for consumption, and only 5.1% of them consumed the products from poultry(either egg or meat). Among the 47.6% of non-vegetarian mothers, 6% consumed meat, fish and chicken, and only 1.6% had eggs on their previous day. Considering the poor dietary diversity of mothers, it can be recommended that promotion of Home-Based Mixed Farming approach comprising of nutri-kitchen garden a livestock rearing through community engagement strategy might help to improve dietary diversity at the household level.

**Keywords: Dietary Diversity, Community Engagement Strategy, Tribal mothers, HBMF**

**HSPG019**

# Minimum Acceptable Diet Of Tribal Children (6-23 M) Of Aspirationaldistrict Of Gujarat: Need For Comprehensive Nutrient Gap Analysis And Strengthening Community Based Events

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## Abstract

Optimal Complementary feeding practices helps in improving nutritional status of young children. Region-specific dietary diversity data on the young children is scarce. To assess Minimum Dietary Diversity (MDD), Minimum Meal Frequency (MMF) and Minimum Acceptable Diet (MAD) of children (6-23m).A community-based study was conducted in one of the blocks of aspirational district of Gujarat. Total of 23 AWCs were enrolled from the randomly selected six villages. Dietary practices were elicited from mothers of 253 children from selected AWCs using one-day 24-hour dietary recall. MDD was calculated as children (6–23 months) who obtained foods from ≥ 4 food groups (out of 7 food groups) during the previous day based on USAID- FANTA guidelines. MDD was found only in 38% of the children. MAD was noticed in 30.6%. There were zero non-breastfed children, so the overall MMF was calculated for breastfed children which were observed for 68% children. The MMF for 6-8 months (2 times meal) was 65%, and for 9-23 months (3 times meal) was 86 %.Consumption of MAD by the young children is a cause of concern and comprehensive nutrient gap analysis (CONGA) should be done. From the data, it can be suggested that strengthening Community Based Events like Annaprashana diwas a promotion of Nutri- Kitchen garden for improving dietary diversity can serve as novel approach at community level to create Jan Andolan for achieving targets of Poshan Abhiyaan by2022.

**Key words: Nutri-kitchen garden, Dietary diversity, Community Based Events, Complementary Feeding**

**HSPG020**

# Incidence And Determinants Of Gastrointestinal Diseases In Relation To Dietary Factors Among Adults

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## Abstract

The study on the topic Incidence and Determinants of Gastrointestinal Diseases in Relation to Dietary Factors among Adults came up with the objective to draw the most prevalent type of GID among adults of age 20 and above. The study also aim to examine the relation between GIDs to dietary and lifestyle factors, common symptoms associated with GIDs and various dietary patterns to be followed in GIDs. The area selected for the study was Gastro Centre Clinic at Murinjapalam, Trivandrum based on the availability of samples. 100 adults both men and women above age 20 years were selected by purposive sampling technique using inclusion criteria. Samples with liver and gallbladder diseases were excluded from study. For the conduct of study, data based on anthropometry, biochemical, clinical and dietary data were collected from the respondents using Interview schedule. From statistical analysis, it was proved that the dietary habits corresponding to erratic dietary pattern such as skipping of meals($p= 0.01$, $p<0.05$) and over consumption of spicy foods ($p=0.04$, $p<0.05$) leads to the development of GIDs and it was also statistically analyzed that development of GIDs is not associated with obesity ($p=1.9$, $p>0.05$) using Chi square at 5% level. Of the selected 100 samples, (55%) females had high risk of GIDs and it was common among age group between 30 and 35years. The prevalent type of GID was IBS (39%) .From the results, it shows that the disease was prevalent in obese-1 patients (34%). Heart burn (67%) followed by indigestion (50%) and bloating (42%) were the common symptoms associated with GIDs. Variations in levels of SGOT and SGPT were seen among GI patients. From the study, we can conclude that abdominal pain (23%) was the marked clinical symptom found with GI patients. Erratic dietary habit like skipping of meals, over consumption of spicy foods and increased amount of calorie and fat consumption will lead to development of GIDs. Therefore from the study we can conclude that the most prevalent GID is IBS among middle aged females which is due to erratic dietary patterns like skipping of meals, spicy food consumption and high calorie and fat consumption. Diet was found to be a strong determinant of GIDs and following healthy dietary pattern and nutrition education was seen beneficial.

**Key words: Dietary factors, Gastro Intestinal Disease, Health, Life style, Malabsorption**

**HSPG021**

# Ameliorating The Learning Skills of Scholastically Backward Students

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## Abstract

As Gandhiji stated that the education should bring in an all-round development of the child by drawing out of the best in child's – body, mind and spirit regardless of the child's ability of being excellent, moderate or average in their capacities of learning. Education is turned as one of the basic need and right of an individual. Within the Indian states, Kerala has the highest literacy rate of 93.91%.However the state that prides itself on having one of the best educational systems in the country falls back in providing quality education giving priority to the needs of the students, this is because the state does not put forward an educational system that provides equal attention to all its students even though the curriculum specifies some. The scholastically backward students are neglected considering them as mentally retarded. Hence the objectives of the study are to identify the scholastically backward students (pre-test),assemble the socio-economic status of the students, assess the psychological status of the students, enhance the learning skill (writing &reading) through teaching learning technique. The sample selected for the study is fifty three higher secondary students of Government Tribal Higher Secondary School, Sholayoor, Palakkad. The samples were selected on a multistage basis by conducting pre-test in order to identify the slow learners. The data is collected from the students through a structured questionnaire. The results of the study indicated that they like to come to the frontier areas of society however family, parents, teachers and peers attitude hinder them from the same A detailed explanation of their state socially, economically, educationally and psychologically are being discussed in the thesis.

**Keywords: Scholastically Backward Students, Literacy rate, Psychological Status**

**HSPG022**

# Effect Of Nutritional Support On Energybalance And Its Clinical Outcome In ICU [Intenisve Care Unit] Patients

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## Abstract

Critical illness is a life-threatening process which results in morbidity and mortality. Nutrition support is used as a supportive care for critically ill patients in intensive care units. A total of hundred samples were selected from two Tertiary care Hospitals of Trivandrum District exclusively on those who stayed a minimum of five days in ICU. APACHE II scoring system, nDay World Wide's ICU Questionnaire and Glasgow Coma Scale were adopted to collect data such as demographic data, bio-physical & bio- chemical parameters, feeding time & techniques and nutritional requirements. It was found that complications such as abdominal pain[21%],vomiting[17%] and constipation[19%] was more in the patients who were fed with commercial plus kitchen feed, diarrhea was more in commercial formula fed patients [12%]. APACHE II scoring system showed that on discharge day 61% patients came under normal health state[50% mortality], Only 7%were critically rated[80% mortality]. For commercial formula fed patients, the mean intake of calorie of neurology patients was 1923kcal, nephrology patients was 1413kcal, respiratory patients was 2018kcal and infectious patients was 2023kcal. The mean energy deficit of patients who were fed with exclusive commercial feed was found to be 546kcal. For kitchen feed patients, the mean intake of energy of neurology patients was 1812kcal, nephrology patients was 1621kcal, respiratory disease patients was 2021kcal and infectious patients was 2027kcal. The mean energy deficit of patients who were fed with Kitchen plus commercial feed was found to be 419kcal. Time of feed is an important factor to be considered, 2% of patients were under late feeding. The findings of the study conclude that enteral nutritional support plays a crucial role in ICU. Close monitoring and proper feeding go hand-in-hand. There is no evidence that commercial feed is better than kitchen plus commercial feed or vice versa.

**Key words: Energy Balance, Critical Care, Clinical Outcome, Nutritional Support**

**HSPG023**

# Hydroponics As A Future Greening Scope

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## Abstract

With the advent of civilization,open-field/soil-basedagriculturefacesseveralbigchallenges. Availability of capita land for agriculture is of major challenging issue. Due to rapid urbanization and industrialization as well as melting of the icebergs (as an obvious effect of global warming), the arable land under cultivation will decline further. Soil productivity again has reached a saturation point, and productivity does not increase further with increased application of fertilizer. Additionally, Low soil fertility in some of the cultivable areas, less chance of building up natural soil fertility by microbes due to continuous development, Cultivation, regular drought and unpredictability of climate and weather patterns, rising temperatures, pollution of the rivers, Bad water management and the diversion of large quantities of water, diminishing groundwater levels, etc. threaten the production of food. Hydroponics becomes more important in the present situation, tackling these problems. Hydroponics means plants are fed with nutrient rich solution and are grown in soilless medium. Hydroponics has shown some promising results worldwide. Also the hydroponic technology introduces more inventions which makes it possible for a future greening. Hydroponics is farming technology from future. This soilless growing system uses minimal pesticides, and water conservation is more when compared to traditional farming. Therefore hydroponics is sustainable crop production commercially as well as for home groups. As the future vision for hydroponics is promising and sustainable the study aims in promoting the hydroponics as the future of architecture. When hydroponics is bought in architecture it will create in more sustainablesolutionsalsotheideologyofreducingthejourneyoffoodfromfarmtoconsumer,i.e. food is produced at the place where people consume makes the hydroponics to grow as a vision of sustainable architecture which can be set up in hotels, restaurants and homes in more aesthetic manner. Through the design of interiors of commercial and residential space using 3D software which includes the hydroponic technology as an aesthetic element gives the people a common idea of bringing the green inside using hydroponic technology. The case study of hydroponic projects around the area of selection says that people practice hydroponics in greater scale as business. Therefore, handbook and video on introducing the hydroponics at homes was developed for the promotion of hydroponics at home.

**Key words: Hydroponics, Soilless, Future greening, Sustainable, Urbanisation**

**HSPG024**

# A Study on The Impact Of Social Media on The Dietarybehaviour And Health Status of College Students of Trivandrum District

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## Abstract

Social media has been widely adopted by youth mainly college students which they look for dietary choices. The selection of this age group is because young aged are the one who use smartphones, engaged with internet and always active in social media. The present study entitled "A study on the impact of social media on the dietary behaviour and health status of college students of Trivandrum district" was carried out to assess the impact of these social media on dietary behaviour and health status of respondents. The study was conducted at two colleges of Trivandrum district.100 samples were selected with 50 boys and 50 girls. Anthropometric data were collected from 100 samples. A questionnaire was prepared and given. Eventhough most of them suggest homemade foods, all the new easy availability of foods, increase of meal skipping tend them to eat fast foods. All the respondents had the internet access and it was interestingly noted that 98% of boys and 96% of girls use social media for food choices mainly through food delivery apps. There is an association between the income and frequent selection of food from medias. It was found that those who skip meal due to lack of time or unfavourable food at hostel order food through online Advertisement also play role in selection of foods as 60% of boys and 50% of girls try news foods which shown on advertisements. 70% of boys and 66% of girls do not check nutritional value when they purchase food through apps but they look for the offer. Thus saving money is more importance than health. It was found that there is association between frequency of ordering food and self evaluation of there is change in eating habits**.** Majority of them had good health status after consumption of food which select from apps. Few of them had headaches, abdominal discomforts and food poisoning. Boys undergone vomiting and girls with irregular menstruation. Other abdominal discomforts were found to be diarrhoea, constipation and gas problem. It was found that the type of food they order and eat has positive effect on weight gain of respondents. So it can be concluded that there is an impact of social media on the dietary behaviour and not much impact on health status. It is suggested to educate the youth about healthy food choice as they are responsible for making a change in the society, producing healthy individuals in future and can become healthy adulthood with absence of many chronic diseases.

**Key words: Social Media, Dietary Behaviour, Health Status, Food Choice**

**HSPG025**

# Dietary Risk Factors Associated With Urolithiasis

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## Abstract

Dietary factor including fluid intake plays a major role in the incidence of Urolithiasis . The present study was therefore undertaken to identify the dietary risk factors associated with urolithiasis. We revealed that that a majority of the participants from both the groups were working as employees in various companies and therefore had a sedentary life style. That combined with a low fluid intake than the recommended (> 2 litres/day) . Participants reported various complains such as haematuria , burning micturition , pus in urine , difficulty in passing urine also majority of participants were using various home remedies . Blood and serum parameters were slightly on higher side . Presence of albumin, pus cells, epithelial cells and precipitation of crystals, cast was higher All the urinary parameters were within the reference range except urinary pH and urinary potassium. Majority of the subjects from experimental and control group consumed Treated (Ro) water. A higher percentage of participants were non – vegetarians. Higher intake of sodium, potassium , protein , phosphorus ,calcium , and oxalate was found among participants of experimental group. High sodium, oxalate and animal protein intake are associated with increased risk of Urolithiasis. Majority of the participants from experimental group had positive LAKE SCORE which is predictive of increased risk of Urolithiasis. Thus results from the present investigation indicate that dietary factors (high sodium, oxalate and protein of animal origin) coupled with, low fluid intake, family history and obesity were associated with incidence of urolithiasis. From the data on dietary, urinary and blood biochemical parameters it can be concluded that the participants from the current study are most likely to have uric acid stones. Both increased uric acid excretion and lower urine pH increase the risk of uric acid crystal formation.

**Key words: Urolithiasis, Dietary Factors, Uric acid, Biochemical,Obesity**

**HSPG026**

# Notions And Experiences Of Social Inclusion Among Young Adults With Visual Impairment

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## Abstract

The study caters to unheard voices, understanding and perceptions of social inclusion and a socially inclusive milieu and challenges YAVI face in getting socially included, considering lack of literature covering multiple aspects of social inclusion.20 (male and female) YAVI in the age range of 18 to 35 years selected through purposive and snowball sampling participated in the interviews and checklists purposefully made. Day-to-day activities were observed to identify challenges. The data was analysed by identifying common themes. A socially inclusive milieu for YAVI(Young Adults with Visual Impairment) include- inclusive institutional arrangements, availability of assistive devices, visually impaired friendly commute, rights and reservations and opportunities in a more attainable way, decreased neglect and more connect with others, changing attitudes, more employment opportunities and to be considered as contributors to the society. Major challenges they face- negative and judgmental attitudes, discriminatory practices, parental worries, general apathy, educational barriers like unavailability of learning materials and technological devices, special educators, lack of full and active participation, less promotion in employment sector, infrastructural and architectural barriers. Social inclusion must focus on improving the "social context" of an individual so that they are integrated and unified, stressing upon an urgent need to spread more awareness.

**Keywords: Visual impairment, Social inclusion, Young adults, Lived experiences, Challenges**

**HY UG 001**

**Lakshmi Priya J S**

**Won Third Prize**

# Symmetry Between Kerala Jews And Syrian Christians Of Kerala- A Comparative Study

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## Abstract

Jews and Syrian Christians of Kerala are two communities supposed to have settled in Kerala way back in the past. Often, the influence of Hindu conceptions and beliefs upon these two communities have been recognized and studied; however, the interrelationship of these two ethnic minorities has often been overlooked. The aim of this study is to analyze their historical past in Kerala and observe the similarities between these two communities. The methodology used for this research involves theoretical readings authored by various scholars. Our research findings indicate a strong resemblance between Kerala Jews and Syrian Christians. It is evident in their similar legends relating to biblical accounts; similar historical background in which both Joseph Rabban and Mar Sapir Iso receives copper plates relating to trading privileges; songs like "vazhvu pattu" and "ponnanintheedum" which are popular in both cultures; architectural similarities of Synagogue and Syrian Christian church evident in the bimah, red curtains and hanging lamps; wedding ceremonies involving similar practices like crowning of both bride and bridegroom and bridegroom being carried in sedan chair; similar customs which includes burial of dead facing Jerusalem; common cuisine like 'palappams'and "pesahappam" ;similar attires like chatta, mundu and kunukku. Our study revealed that there exist a very strong symmetry between Kerala Jews and Syrian Christians, despite being non- indigenous communities to India.

**Key Words: Jews, Syrian Christian s, Symmetry**

**HYUG002**

**Sowrag S Nair**

**Won Second Prize**

# The Implication of US Troops Withdrawal from Afghanistan

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## Abstract

Afghanistan is a nation that has been torn apart by wars and conflicts which is going on since many decades. From the Soviet invasion (1979-89) to the US troop's deployment after 9/11 attacks and the subsequent declaration of Global War on Terrorism, Afghanistan continues to gain attention and world's centre piece. During the presidency of Obama, plans were initiated to withdraw troops, which was then followed by the Trump administration. According to sources, a complete withdrawal is being planned by the US government and this dissertation entitled „The Implication of US Troops Withdrawal from Afghanistan" aims to analyse the consequences of a precipitous US withdrawal. Scholars claim that failure of a very appropriately negotiated peace deal might be disastrous to Afghanistan and may unleash innumerous incessant consequences. However, its implication is not just limited to Afghanistan, but also to other parts of the world. Final stage of peace talks (6+2+1) has recently concluded in Doha, Qatar. It became obvious that Taliban will be a part of Afghanisthan's future dispensation and if so, the people of Afghanistan will fall back to the repression of it's rule. The current law and order system of the country, depends on the financial and technical support of US to a great degree. If US leaves Afghanistan, the country will fall back into chaos. Together with large scale refugee crisis, ensuing ethnic tension and civil war, economic impacts to the most serious issue of radicalization of youths are a few of the main implications which should be seriously considered. Since Afghanistan occupy a strategic position in Asia, the withdrawal without a properly negotiated peace deal will have a serious repercussion to the world and most importantly to India being a neighboring country. So the research work tries to analyze the impending situation in three broad subheadings: Implications in Afghanistan, India and the world at large.

**Keywords: Global War on Terrorism, US Troops, Taliban, Peace Talks**

**HYUG003**

**Santhra Maria Kuriakose**

**Won Excelsior Award (First Prize)**

# History Of The Port City Of Alappuzha: A Study Based On Its Town Planning And Urbanization

**Santhra Maria Kuriakose[1] Anusree A[1] Libiya Thomas[1]Abhirami S Kumar[1] Ameena Salim [1]Aswathy Anil[1] Athira S Lal[1]& Aishwarya V H[*]**

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## Abstract

Alappuzha is a district in the Kerala that has great historical, cultural and social expression. This dissertation examines the history of the port city of the Alappuzha and discusses the history and Social-Cultural aspects of the region. Historical setting of the port-city as well as Town Planning has been examined through the period from the Raja Kesava Dasan till contemporary times. The aim of the dissertation is to locate the development of Alappuzha as a port –City and it changes over times. The dissertation also discusses how the emergence of Cochin port influenced Alappuzha Port and the impact the latter had to bear. The repercussions thus made on the town also forms the premise of this study. The Study progressed through analytical and descriptive course using various primary and secondary sources like gazetteers, manuals, reports, articles, journal materials apart from books and the results of which has been concluded at the end. This dissertation briefly describes about understanding the history of Alappuzha special mention of Socio-culture, role of Raja Kesava Dasan on the construction of Alappuzha as a City and his contributions such as trade and commerce, construction of fort, roads and include the present status of Alappuzha special mention on trade and commerce, agriculture, coir industry, transportation, education and tourism.

**Key words : Port City, Raja Kesava Das,Trade**

**ECPG001**

**Meenukutty P**

**Won Excelsior Award (First Prize)**

# Women Entrepreneurs in Kerala: A Case Study of Changanachery Muncipality

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## Abstract

Entrepreneurs play a significant role in development of Indian economy. Women entrepreneurship means a process through which a women organize all the factors of production, undertake risks, and provide employment to others. A women entrepreneur is one who owns an enterprise having a share of capital not less than 51%. They are the main fuel of economic growth and development. Because they contribute to employment generation, income generation, poverty reduction, as well as women empowerment. Various schemes and measures are being introduced by the state and central government. to promote them to sustain good working conditions for women enterprises. But the number of women entrepreneurs is still low in Kerala. If the Government takes necessary promotional measures, the number will rise indefinitely in future and they can contribute much for the entrepreneurial growth of Kerala. When compared to men women are less motivated to start business due to unwanted fear and lack of motivation. The principal aim of the study is to identify the major problems faced by women entrepreneurs in Changanacherry municipality. For the purpose of study, primary data were collected from 50 women entrepreneurs in Changanacherry municipality and simple statistical tools were used for data analysis. The study focuses on socio economic conditions of women entrepreneurs, problems faced by them such as the major problems faced by women entrepreneurs in the municipality such as financial constraint, Inadequate Institutional support, Problems in Marketing, Social Attitude, Non-availability of good workers/employees etc. and also suggest solutions for overcoming these problems.

**Key words: Women Entrepreneurs, Changanacherry, Kerala, Government, Motivation**

**ECPG002**

**Aswani PS**

**Won Second Prize**

# Economic, Social And Psychological Impact Of Flood 2018: A Study Based On Kuttanad Taluk

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## Abstract

2018 remains a dark chapter in the history of Kerala. The massive flood in 2018 affected 80per cent (1,259) villages and 54 lakh people directly in the State. The flood displaced 14 lakh people, and 433 people lost their lives (Economic Review, 2019). The present study makes an attempt to look into economic, social and psychological impact of flood in Kuttanad Taluk which is geographically a unique zone. Primary data has been collected through interview schedule. Out of the 14 villages, 4 low lying villages were selected randomly. 20 samples from each village were selected at random through lottery method. Economic impact has been assessed in terms of annual Income, savings and asset formation before and after flood, problems associated with employment after flood, loss suffered, debt /loan taken after flood, debt repayment, major source of financial aid after flood, financial aid by the government as part of rebuilt operation, Individual's own spending on reconstruction of houses, problems faced due to lack of financial aid in proper time etc. Social impact has been examined in terms of social bonding, cooperation with other members, social security, gender equality after flood. Psychological impact has been assessed in terms of anxiety, loss of confidence, lack of sense of financial security, feeling of insecurity after flood. The high cost of relief and recovery adversely affect the development activities in the area so measures should be taken to control flood in order to have a sustained growth and development in Kuttanad region. In this context the study also makes some suggestions like diverting the flood waters into the sea before they entered the region, proper implement the recommendation of Vaidyanathan commission, proper action plan to preserve wetlands and d ponds, a relook on Swaminathan recommendations in tackling such situations.

**Keywords: Natural Disaster, Flood, Sustained Growth, Vaidyanathan Commission, Rebuilt Operations**

**COPG1**

# Goods And Services Tax In India

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## Abstract

Goods and services tax is an indirect tax which was introduced by Prime minister Narendra Modi on 1st July 2017.The objective of FAT is to subsume most indirect taxes like a value added tax services tax, entertainment tax and established a concept of one Nation one tax. Some of the advantages of GST are removal of cascading effect of tax on tax levied by central and state govt, help to build a transparent and corruption free tax administration, reducing the complication in tax administration etc. Some of its disadvantages are as in increase in service tax from 15%to18% , an increase in price of petroleum, real estate market etc. Some of the impact of GST are increase in export, greater tax regime, increases competition. GST is the major tax reforms in India. It will give more benefits in the long term. GST creates one tax for the whole nation.

**Key words: GST, Tax, Reforms, Advantages, Disadvantages**

**COPG2**

**Sissy Babu**

**Won Second Prize**

# A Study On The Influence Of In-Store Factors On Impulse Buying Behaviour Of Consumers With Reference To Kottayam District

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## Abstract

Impulse buying is an unplanned decision to buy a product or service, made just before a purchase. It disrupts the normal decision making models in consumer's brains. Impulse buying behaviour is described as purchase made by consumer that was not planned in advance. It is a widely recognized phenomenon occurs in the mind set of consumers during purchase. A need for proper understanding of impulse purchase in retail environment is growing quickly. Retail managers are at cross road to choose right methods to keep customer coming and purchase from their stores. The informational need of retail manager is to be fulfilled so that they could run their business effectively and efficiently. Impulsive desires to buy may not always emerge themselves and develop into the concrete expressions of impulsive purchasing; apparently there are a number of factors that could influence these urges, many of them are specific to retail environment. The present study investigates the assumption that impulse purchase tendency is influenced by in-store factors. The study is conducted to understand consumer's impulse purchase behaviour in evolving, systematic, professionally managed and self-service retail environment notionally called as „Organized Retailing". Organized retail stores are found to be the places which represent large percentage of impulse purchases. The study was carried out among the consumers within the geographical boundaries of Kottayam district. The study aims to explore the influence of in-store characteristics on consumer impulsive buying behaviour. Precisely this paper investigated the impact of window display, promotional schemes, store layout, staff attitude, shelf positioning, shop crowding, self-service etc. on consumer impulse buying behaviour. Study also tries to understand the satisfaction derived by the consumers after making an impulse purchase. The present study is useful and will highlight some of its findings which will be useful to marketer or retailers to understand various factors influencing for impulsive buying behaviours. And based on that they can develop marketing strategies which will help them to increase the sales and footfalls.

**Key words: Impulse Buying Behaviour, In-store Factors, Organised Retail Stores, Window Display, PromotionalSchemes**

**COPG3**

# Green Banking A Comparative Study On Customer Awareness In Public And Private Sector Banks

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## Abstract

Banking sector is one of the premier sectors in our country. It plays a very important role in the growth of Indian economy. Like other sectors, banking sector also has its responsibility to protect environment. To fulfil this responsibility, the banking sector has adopted the concept of Green Banking. The concept of Green banking is relatively a new concept. It is paperless banking, which not only reduces the cost of banking activities, but also helps in environment sustainability. It helps in reducing the use of paper, power and energy. The Go Green concept is not only limited to the banking industry, but its scope of operation is much wider. The other industries are also adopting this technique to contribute a positive change in environment. Thus, it is clearly identified that the Go Green concept is not only related with making progress in the banking sector alone, but, its influence is seen in every sector of the Indian economy as well. With the time every sector of the economy has started concentrating its efforts on the concept of going green. This research study focuses on the concept of going green in the banking industry. The focus of the research is to provide insight of Green Banking in Ernakulam District mainly in two Municipalities. The research is conducted in both public and private banks which include State Bank of India (SBI), Union Bank, The Federal Bank, and South Indian Bank. Therefore, the study is focused to evaluate the awareness and perception of bank customers of selected Public and Private Sector Banks and to Comparatively Study on Benefits and Risks regarding Green Banking in afore mentioned banks.

**Keywords: Green Banking, Green Initiatives, Customer awareness, Benefits and Risks, Customer Satisfaction**

**COPG4**
**Muhsina Abdul Nasser**

**Won Third Prize**

# The Effects of Workplace Fun On Work Engagement Among College Teachers

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## Abstract

Thepurposeofthisstudyistoexploretheeffectsofworkplacefunonworkengagementamongcollege teachers and to identify the contributing factors to workplace fun, work engagement, cognitive, physical, emotional and social factors. An empirical study conducted among the 200 college teachers in Thrissur District. Purposive sampling method under non probability sampling technique was adopted for selecting samples for this study. Questionnaire survey was conducted for data collection. The major findings were workplace fun have both positive and negative impact on the work engagement of college teachers. Socialising with co-workers and Personal freedom at work have positive impact on factors like cognitive, emotional and social work engagement while celebration at work have positive impact on emotional work engagement and negative impact on cognitive and social work engagement of teachers. Time was major limitation of this study. Due to time constraints, a detailed study was not possible. The study adopted non probability sampling method for data collection. So it may leads to biased result. Authorities of colleges are major beneficiary of findings of this study. They will get a clear picture about the current pulse of workers regarding the effects of workplace fun on work engagement experienced by the college teachers.

**Keywords: Workplace Fun, Work Engagement, Cognitive,Physical,Social**

**COPG5**
**Nesreen**

**Won Excelsior Award (First Prize)**

# The Effects Of Workplace Incivility On Organisational Commitment,Job Satisfaction And Turnover Intention Of Female Self Financing College Teachers

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## Abstract

The purpose of this study is to explore the effects of workplace incivility against female self-financing college teachers of SF colleges in Thrissur District on their organisational commitment, job satisfaction, and turnover intention. And to identify the contributing factors to workplace incivility and organizational commitment, job satisfaction and turnover intention. An explanatory study conducted among the 200 female self financing college teachers in Thrissur District. Purposive sampling method under non probability sampling technique was adopted for selecting samples for this study. Questionnaire survey was conducted for data collection. The major findings were colleague incivility and superior incivility have negative effects on organisational commitment. Instigated incivility and superior incivility have negative effects on Job Satisfaction and Colleague incivility, superior incivility and Instigated incivility have positive effects on turnover Intention of SF college lady teachers. On the basis of second objective isolation and personal rivalries from colleagues are higher level contributing factors to colleague incivility. The most influencing factors to superior incivility are lack of work related help from superiors, poor morality and workplace stress are higher level instigated incivility suffered. Emotional attachment and family feel at college are higher level influencing factors of organizational commitment. No opportunity to bring best potential and no equal fair treatment are higher level factors effecting job satisfaction and thought of leaving college and no close relationships at college are higher level factors for turnover intention by the self-financing college teachers. The study adopted non probability sampling method for data collection. So it may leads to biased result.

**Keywords: Workplace Incivility, Instigated Incivility, Job Satisfaction, Turnover Intention**

**COUG1**
**Gayathri G Biju**

**Won Second Prize**

# A Study On The Problems And Prospects Of Homestays Of Alappuzha With Special Reference To Mararikulam Panchayat

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## Abstract

Tourism is one of the fastest growing industries today with its potential to develop communities in terms of economic and cultural diversities. Among the various components of tourism, accommodation is crucial. Homestay is an accommodation system as well as an economic activity in the tourism industry which is familiar with the tourists who want to interact with local culture, lifestyle, social system, and people. The most important components of homestay programme are entertainment, education, food, accommodation, and hospitality. Thus, 'homestay' refers to an accommodation - oriented tourism product. The purpose of this paper is to analyze the potential of homestays as an emerging alternative for tourists accommodation. This paper explores the current situation of homestay tourism in Alappuzha district with special reference to Mararikulam panchayat. This paper aims to study the role of homestays in tourism development of Alappuzha district, to understand homestay business from the perspective of homestay owners, and to identify the problems and threats faced by the industry. This paper is based on an exploratory study that sought to collect factual data about the present scenario of homestay industry. The study is both analytical and descriptive in nature and uses both primary and secondary data. Primary data were collected from the homestay operators of the district. A structured interview schedule is framed and used for primary data collection. Various studies have been conducted on the various aspects of tourism but no study has tried to identify the problems and threats faced by the homestay sector in Alappuzha. The study concentrates on the homestay business in the district, strategies adopted by home stays in attracting tourists, and the challenges and threats before them. It is clear that different homestay operators participate differently in providing services to their customers. Thus, the study enumerates the problems of different homestay owners and suggests probable solutions.

**Keywords: Tourism, Accommodation, Homestay, Threats**

## COUG2

## Maria Johnson

**Won Excelsior Award (First Prize)**

# A Study On Passenger Satisfaction Of Indian Railway: Evidence From Alappuzha District

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## Abstract

We are conducted the study of "Passenger satisfaction of Indian railway: evidence from Alappuzha district. In the competitive scenario, transport play a vital role in catering the needs of the people. Indian railway is considered as the biggest mode of transportation, so that most of the peoples are depending on it. The ultimate success of railway depends upon the satisfaction of passengers. The objectives of the study are examine the level of passenger satisfaction, study the problems faced by the passengers, examine the security mechanism of female passengers. The analysis and interpretation of the study were made by the primary data collected from the passengers. The contribution of this study is the identification of the factors that determines the passenger satisfaction with services offered by the rail system. after conducting the study it able to understand that the passenger are not fully satisfied in the factors like basic amenities, drinking water arrangements, cleanliness of platforms, safety and security waiting rooms and strongly dissatisfied with the modern amenities like ATM, WI-FI facilities, touch screen, television, audio system, and punctuality of trains. at the same we find that the passengers are dissatisfied with stray dog menace at platforms, and shortage of trains from Trivandrum and Kollam from Alappuzha. Even though repeated attempt made by the railway to improve the quality of services the result would not satisfied the passenger. This reveals continues comprehensive performance and attempts are essential to solve these problems. This project gives some insights to develop and improve the quality of services to satisfy the passengers in train. it hoped that the result of this study beneficial to passengers, employees, railway authorities and administration.

**Key words : Passenger Satisfaction, Basic Amenities, Punctuality of Trains, Stray Dog Menace at Platform**

**PYUG001**
**Elsa Elsabeth Wilson**

**Won Second Prize**

# Emotional Intelligence And Impulsiveness Among Rural And Urban Adolescents

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## Abstract

The purpose of this study was to investigate the Emotional Intelligence (EI) and Impulsiveness in rural and urban adolescents. Emotional Intelligences were measured using Emotional Intelligence Scale (EI) developed by Schutte et al., in 1998 and is a self- report 5-point scale having 60 items containing 5 subscales - self-awareness, self- regulation, motivation, social awareness and social skill. Impulsiveness was measured using the Barratt Impulsiveness Scale developed by Ernest Barratt in 1995. The scale is a 4-point Likert scale having 30 items and 3 subscales - attention, motor and planning. The participants for the study were high school students enrolled in 2 public schools in urban and rural areas respectively. A sample of 30 students (15 males and 15 females) from rural school - Govt. Higher Secondary School, Konni and 30 students (15 males and 15 females) from urban school - St. John's Model Higher Secondary School, Malanchira, Thiruvananthapuram were selected for the present study, a cross sectional study was done. The sample consists of 60 students aged 13 to 18 years old. A comprehensive statistical analysis was done using t- test. Result concluded that there is a significant difference in emotional intelligence and impulsivity among rural and urban students except for the subscale motivation and total EI is found to be higher in rural students than in urban students while impulsivity is higher in urban students than rural students.

**Key Words: Emotional Intelligence, Impulsiveness, Urban, Rural Adolescents**

**PYUG002**
**Teena Benny**

**Won Excelsior Award(First Prize)**

# Externalizing Internalizing Behavioural Problems And Prosocial Behaviour Among Single Children And Children With Sibling

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## Abstract

"The only child syndrome" used to describe a spoilt, odd and lonely child has remained a myth for decades. The present study attempts to explore this myth. Single children are used to being the centre of their parent's universe and this often leads to toddlers being spoilt. Objective of the study is to find out whether there is any significant difference in externalizing **-** internalizing behaviour problems and prosocial behaviour among single children and children with sibling. The target population of the research was single children and children with sibling of early adolescent category within the age group of 11-15years. The sample of the study consisted of 140 children, with 70 children in each group. The tool used in the study was the Strength and Difficulty Questionnaire (SDQ) which is a brief behavioural screening questionnaire developed by Goodman et al (1998). The statistical analysis was done using the software SPSS 20. Normality was checked and based on normality; t test and Mann-Whitney U test were used for data analysis. The results of the study revealed that there is no significant difference among single children and children with sibling in externalizing **-** internalizing behavioural problems and a significant difference in prosocial behaviour. The result implies that single children tend to exhibit more prosocial behaviour than children with sibling. The finding of the study suggests that single children are not at any disadvantage compared to children with sibling rather they enjoy some advantages.

**Key Words – Single Children, Children with Sibling, Internalizing Behaviour Problems, Externalizing Behaviour Problems, Prosocial Behaviour**

**PYUG003**
**Sneha AManuel**

**Won ThirdPrize**

# Paranormal Belief Among Adolescence In Relation To Subjective Well Being And Self Regulation

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## Abstract

Many people believe that we gain information about the external world without the use of five basic senses. They believe in the existence of Extra Sensory Perception (ESP).Parapsychologists who study about paranormal events had explained several distinct forms of Psi including Precognition, Clairvoyance, telepathy, Psychokinesis etc. Adolescents are considered to be more vulnerable to psychological and physical changes and also their belief in paranormal forces. Paranormal belief may also have a considerable influence on adolescent's well- being and self - regulation. Adolescents have a more flexible range of emotional and behavioral responses. Self- regulation is considered to be the most important aspect in adolescent's behavior such as impulse control and maintaining short term goals. So the present study focuses on the "Paranormal Belief among Adolescents in relation to Subjective Well Being and Self- Regulation". The objective is to find out the inter relationship between variables of paranormal belief, subjective wellbeing and self-regulation. Sample Size of the present study consists of 276 students of the age group 18 and 19 and the study used an exploratory research design. Subjective Wellbeing Inventory, Revised Paranormal Belief Scale and Adolescents Self-Regulatory Inventory were used for the data collection. Correlation and t-test were used for statistical analysis. From the study it was found that there was relationship between subjective wellbeing, traditional religious belief, psi, witchcraft, superstition, spiritualism, extraordinary life forms, precognition, long-term self- regulation, short term self- regulation and total self- regulation. There is a difference between Psi, long term self-regulation and total self-regulation on the basis of gender among adolescence. The present study has given many evidences related to relationship between paranormal belief, subjective well- being and self- regulation among adolescence.

**Key Words: Paranormal, Psi, Adolescence, Well-Being, Self-Regulation**

**SOUG004**

**Tina Maria Dsouza**

**Won Third Prize**

# The Influence Of Religion On The Expression Of Sexual Orientation: A Study On Gay, Lesbian And Bisexual Individuals

**[1]Tina Maria Dsouza, [1]Adriana Da Graco Carlos Macamo,[1]Bimita G C, [1]Siri Manasa Poluru, [1]Wonchibeni Patton &[*]Sudipta Garai**

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## Abstract

Religion as a social institution has always influenced communities and individuals in the way they perceive themselves and the ways in which identities are constructed. Non- heterosexuality as a choice has hardly been represented in any major religious texts and practices, at least in the popular imagination. Even after the decriminalisation of homosexuality under Section 377 of the Indian Penal Code, non-heterosexual individuals continuously negotiate with their religious identities and their sexual choices. This paper intends to investigate the presence of such a conflict, and study the extent of it, if any, for non-heterosexual individuals, specifically gay, lesbian, and bisexual individuals born into Hindu, Christian, Islamic, Jain, Sikh, and Buddhist families. The focus in this paper will be on the narratives and experiences of gay, lesbian, and bisexual individuals with regard to religion, spirituality, sexuality, and at times, their gender, the intersection of these aspects of their identity, and the existence of conflict between them.

**Key Words: Religion, Sexual Orientation, Gay, Lesbian, Bisexual**

**PYPG005**

**Daya Mary Varghese**

**Won Second Prize**

# Mindfulness, Self-Control And Internet Addiction Among College Students

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## Abstract

In today's fast-paced digital world, which is run by technology and internet, it is transforming the way we live, study, think and work. Internet has become an unavoidable part of our lives which has altered our lives The Internet usage demographics shows India having the second biggest online population, at 560 million, where the majority of the users being youth (IAMAI, 2019). There are negative consequences of using excessive Internet, which can lead to addiction; it also has a direct influence on a person's physical and psychological health as well as social relationships. The major objectives of the present study are to assess mindfulness, self-control and internet addiction among college students, as well as on the basis of gender and internet addicted and non-addicted students. A total of 160 participants consisting of both males and females who were doing Graduation and Post-graduation in Arts & Science Colleges in Ernakulam, Kottayam, Idukki, Thiruvananthapuram & Pathanamthitta districts in Kerala were selected using Convenience sampling technique. The scales used were Mindfulness Attention Awareness Scale (MAAS), Brief Self Control Scale (BSCS) and The Internet Addiction Test (IAT). The results of the study found that there is no significant difference in college students on mindfulness and self-control based on gender. Out of 160 college students, 57.5% students are internet addicted and 42.5% students are non-addicted. The male college students have more internet addiction compared to female students. Non- addicted college students have more mindfulness and self-control than internet addicted college students. There is low level of relationship between mindfulness and self-control among college students.

**Key Words: Mindfulness, Self-Control, Internet Addiction, College Students**

**PYPG006**

**Ganga Mohan**

**Won Third Prize**

# Learning Satisfaction, Study Habits And Quality Of Life Of College Students During Covid19

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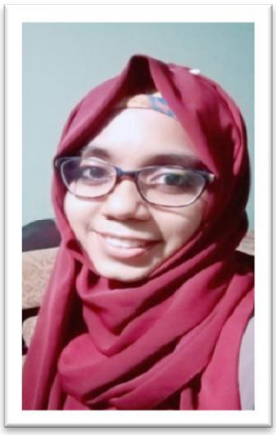
## Abstract

The spread of Covid19 and the unprecedented lockdown has made a devastating impact on many. Educational sector like other sectors have been affected due to Covid19. Educational institutions were shut down and learning platforms changed from class room to virtual space. Amidst this situation, the three factors worth research attention are study habits, learning satisfaction and quality of life of students. The aim of the present study is to study the learning satisfaction, study habits and quality of life of college students during covid19. The main objectives of the study were to study the learning satisfaction, study habits and quality of life of college students during Covid19, to assess the relationship between study habits and learning satisfaction on quality of life of students and to check whether there is any significant difference among males and females in study habits, learning satisfaction and quality of life. The sample consisted of 200 undergraduate students from Thiruvananthapuram. The tools used in the study are Personal Data Sheet, Study Habits Inventory, Students Learning Satisfaction Questionnaire and World Health Organization Quality of Life (WHOQOL) - BREF. Data was analyzed by means of t-test and Pearson's correlation. Results showed that there was no significant difference found among males and females in study habits, learning satisfaction and quality of life. A perfect positive correlation was found between study habits and learning satisfaction of students. There was a perfect positive correlation found between study habits and quality of life of students. The results show a perfect positive correlation between learning satisfaction and quality of life of students.

**Key Words: COVID 19, Learning Satisfaction, Quality of Life, Lock down**

**PYPG007**

**Fathima Banu C A**



**Won Excelsior Award (First Prize)**

# Daily Hassles And Coping Among College Students During The Covid-19 Lockdown

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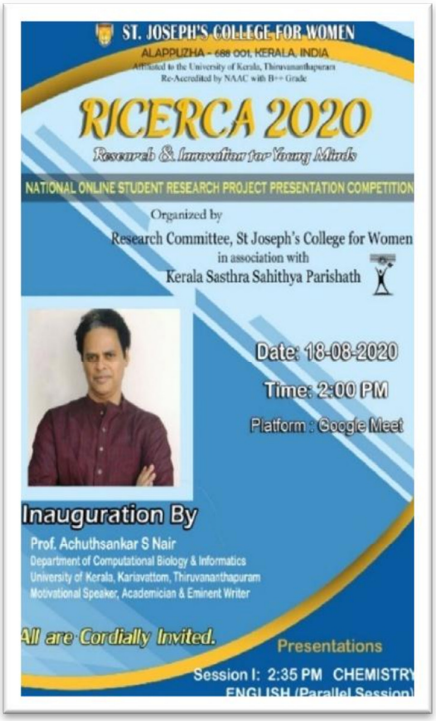
## Abstract

The outbreak of the Covid-19 pandemic and the subsequent lockdown have brought about fundamental alterations in people's lives in almost all domains of functioning. The higher educational scenario too has witnessed sudden changes in this situation, affecting college students in many ways. An individual's appraisal of situations is primary in determining whether it is stressful and everyday stress or hassles have a greater effect on health than relatively rare life events (Lazarus, 1984). The present study is qualitative in nature with a cross-sectional single group design and it attempts to examine daily hassles experienced by college students during the lockdown period and the coping strategies used by them. The sample included 31 college students (20 females and 11 males) from various districts of Kerala. Personal data sheet and a form were circulated to the participants of the study through WhatsApp to seek information related to daily hassles faced by them and the strategies they used to deal with these. This was followed up with semi-structured telephonic interviews. The data were subjected to content analysis. The prominent themes related to daily hassles and coping that emerged from the analysis and the implications of the findings have been discussed.

**Key Words: Covid-19, Lockdown, College Students, Daily Hassles, Coping**

## Glimpses from RICERCA 2020






ഗവേഷണ
പ്രബന്ധ മത്സരം
ഇന്നു സമാപിക്കും

# St. Joseph's College for Women, Alappuzha, Kerala, India

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