# SIES College of Arts, Science and Commerce (Autonomous)

Sion West, Mumbai 400 022

## NAAC SSR -Cycle 4 : 2018-2023

## 3.1.1. Jignyasa- Research Hub and Avishkar

**SIES College of Arts, Science and Commerce (Autonomous)**

Sion West, Mumbai 400 022

**NAAC SSR -Cycle 4 : 2018-2023**

3.1.1: Jignyasa- Research Hub and Avishkar 2019-2023

Page no. 1 to 41 of the reports is certified to be true.

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## 'JIGNYASA' – Research Hub

### Objectives of the Practice

Research Hub' – 'Jignyasa' (curiosity) serves as a platform/forum to encourage research scholars/students to participate, discuss and share their views on ideas, concepts, research articles, research papers, book reviews, current affairs among others. It also enables a healthy interaction amongst faculty and students representing different disciplines thereby inculcating an interdisciplinary/cross disciplinary approach in pursuing higher education. The relevance of this forum is to inspire and motivate students especially undergraduates to be innovative, creative, explore topics/subjects beyond the curriculum, stimulate 'out of box' thinking, brainstorm over ideas/concepts, propagate the news of current scenario in different fields etc.

### The context

The idea of creating this 'Jignyasa' was to

- ✓ Motivate students to ask questions and create inquisitive culture among them
- ✓ Generate awareness about current scenario in different fields of education and other emerging areas in their subjects
- ✓ Promote an interdisciplinary approach towards education.
- ✓ Help them ICT tools to make posters and presentations.
- ✓ Enable students to present ideas concepts and research findings confidently before an audience.

However, the challenges faced while implementing this practice were:

- ✓ To get the student from all faculties (Arts, Science and Commerce) together on the same platform for all the activities planned, due to timetable constraints.
- ✓ To organize guest lectures and activities that would be appealing alike to students from all disciplines.
- ✓ During the academic years 2020-21 and 2021-22 the activities had to be shifted to an online platform which saw a reduction in active participation

### The Practice

Teachers have been long relying on traditional classroom lectures in educating students. It is unrealistic to expect students to understand all things by listening to them for the first time. To improve students' learning, the teaching methods may be changed from teacher-centred paradigm to student-centred paradigm, as students will be able to remember and understand more things when they are actively involved in the learning process. Hands-on lab work, seminars and project-based learning are among the teaching methods that lead to active learning. This would enable learning by giving control of the process to the learner.

To promote critical thinking and problem-solving ability, we encouraged our UG and PG students to try out small research projects and present its outcome in the form of a poster presentation. Inter-collegiate research meets have been held regularly under the aegis of Jignyasa regularly for this purpose. During the years when the pandemic swept the country, we were successful in keeping the young minds ignited by taking Avishkar Research Convention of Mumbai University under the wings of Jignyasa.

The difficulties incurred while teaching research methods to undergraduates primarily lies in engaging the students in a subject which they are not basically interested in. Exposing

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undergraduates to research can increase the likelihood of creating successful researchers in the future. Some undergraduates are unsure of their future goals and proceed to graduate school thinking that it is the only next logical step after their undergraduate studies. Exposing them to undergraduate research helps them to understand their aptitude for research. In some cases, the passion for research is kindled, which otherwise would have remained unknown.
Facilities are provided like Skill hub, Centralized Incubation centre to explore . They get motivation through National Eminence award function organized by society, interactions with research scholars and eminent scientists and vibrant alumni. The implementation of this varies across programs, in general. As an iterative process it moves from a problem analysis phase, a period of self-directed learning and lastly, a reporting phase.

**Evidence of success**

The implementation of this best practice led to the following outcomes:
SIES College of Arts, Science and Commerce, Sion (W) bagged Overall Championship Award in Avishkar-2019-2020 from Mumbai university in Zone-II.
As mentioned above, during the years of pandemic, an online competition on research-proposal writing was conducted, and the winners were selected for zonal round of Avishkar Research Convention of Mumbai University 2020-21. Four students were successful in reaching the final round.
During the year 2021-22 also, an online competition on research- proposal writing was conducted, and the winners were selected for zonal round of Avishkar Research Convention of Mumbai University 2021-22. A total of eight Research Proposals were selected for the Zonal Level Final rounds, and the following students secured ranks in the final round. Ms. Mansi Rawat secured third rank in Agriculture and Animal Husbandry category, PG level and Ms. Akshaya Ajay Bhosale secured third rank in Pure Sciences category, PG level.
SIES College of Arts, Science and Commerce, Sion (W) was awarded Overall Championship in the 16th Avishkar Research Convention 2021-2022 from Mumbai University in Zone-II.
Well placed Alumni is a valuable evidence who constantly support the students at present The results clearly indicate that the students are benefitted and equally motivated to write as well carry out independent research proposals.

**Problems Encountered and Resources Required**

Project based learning, as clearly demonstrated above has an impact on the learner with respect to improving their abilities pertaining to critical thinking, oral and written communication skills which eventually would help them in their studies ahead. However, students need motivation and incentives in terms of credit for their constructive contribution to the activity along with the use of new technological pedagogies. To encourage increased and dedicated participation we require to increase the credits associated with project-based learning. A significant number of undergraduate students are overwhelmed by the academic process and not aware of research as an option for them. Therefore, project-based learning is a tremendous challenge for the teacher mentor to ignite a passion for research. Hence, Jignyasa needs to be revamped in the coming years shall include debates, quiz seminars etc. it is also observed that overall declining input for core science programmes which is very disheartening

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RISE WITH EDUCATION

NAAC REACCREDITED - 'A' GRADE

# Avishkar/Jignyasa Committee Report

## 2019-2020

**Following are the activities conducted by the Committee:**

- Guest lecture on "Critical Thinking" by Dr. Uma Shankar, Principal on Tuesday 13th August-2019.
- A Faculty Dr. ShamaTodurkar and a student Ms. Gayathri Iyer were participated in the workshop on Avishkar Research Convention:2019-20, organized by K.J. Somaiya College of Arts Science & Commerce, VidyaVihar, Mumbai for Zonal round-II on Friday 16th August 2019.
- Organized an interactive session on Avishkar Research Convention of Mumbai University 2019. Guest Speaker: Dr. Kamal Shrinivas, Department of Philosophy SIESASCS and Lynn Dlima, Research Scholar, Department of Microbiology, SIESASC on Tuesday 17th November-2019.
- 35 teams were participated in Avishkar Research Convention of Mumbai University 2019 and 7 teams were the Zone-II winners organized by Vivekananda College on 24th December-2019.
- Mr. Pramod Kamble Assistant Professor, Department of Biotechnology bagged the third prize in final round of Avishkar Research Convention of Mumbai University 2019 in Teachers Category of pure and applied sciences.
- SIES institute bagged Overall Championship Award in Avishkar-2019-2020 from Mumbai university in Zone-II.
- Organized an intercollegiate poster presentation competition on Wednesday, 8th January-2020 for UG and PG students in Arts, Science & Commerce. The number of participated students was 76 and number of presented posters was 53. Five colleges participated in the event.

**Annexure**: Photographs are attached .

**Name of the Teacher/Co-ordinator**

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**Principal**

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**Jignyasa 2019-2020 Inauguration**

**Jignyasa 2019-20 Poster Presentation**

**Jignyasa 2019-2020 Team**

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**SIES COLLEGE OF ARTS, SCIENCE & COMMERCE (AUTONOMOUS)**

**SION (WEST), MUMBAI- 400022**

# JIGNYASA

*... A Research Hub*

*An Intercollegiate*

## *Paper Presentation Competition*

# Abstract Book

*8th January 2020*

***Contact:***

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# Abstract Book

## Pure & Applied Sciences

**"JIGNYASA"**

**08/01/2020**

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# Anti-Lice Activity and Antimicrobial Activity of Lemon Peel Extract

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**Abstract**

Pediculosis caused by *Pediculus humanus var capitis* is one of the serious health problem worldwide. Head lice infestations are ranked third after diarrhea and conjunctivitis as the most reported conditions.Topical insecticides are the present standard treatment for pediculosis,but growing pattern of anti-lice drug resistance towards head louse laid the foundation for research in exploring novel anti-lice agents from medicinal plants. Microorganisms are becoming resistant to present day antibiotics, the use of naturally occurring antimicrobial substance is gaining more importance.Biologically active compounds present in the medicinal plants have always been of great interest of scientists. Peel of citrus fruits is a rich source of flavonoids and many polymethoxylated flavones, this compounds are of commercial interest because of their multitude of application in the food and pharmaceutical industries. In the current study, analysis of the anti- lice and antimicrobial activities of lemon peel using filter paper assay with extracts prepared using alcoholic, aqueous and hydro alcoholic solvents each of 10000ppm resulted in a notable result in microbial growth and head louse. Thus domestic waste generated in the form of lemon peel can be recycled for the benefit of mankind.



# Impacts of Climate Change

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**Abstract**

An issue of global concern, worthy of our greatest attention is – Climate Change. Though the observable effects of climate change on the environment began many decades ago, the gravity of it is yet unknown to many. The impacts of climate change have gone beyond imagination & numbering. The evidences of climate change aresignificant and real, with indications of increase with time. Impacts on global temperatures, physical systems of the planet, wildlife, health of humans, etc. are about to be severe. Adverse health effects due to climate change would be worldwide. Scientific studies suggest through evidences that genetic changes could be triggered by changes in the atmosphere. Climate change is also believed to impact trades & businesses all around the globe. Steps & measures to tackle climate change need implementation at the earliest. Global carbon emissions, waste management practices, fuel consumption rates, greener energy substitutes, etc. need to be under strict regulations & working for us to be able to reverse climate change. With the clock ticking on our Planet of Life, the responsibility is on us humans, who caused it in the first place. Work is the only need.

# Metallic nanoparticles size determination using UV-visible spectra

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**Abstract**

In this project I present a technique for size determination of metal nano particles. The technique includes comparison between UV-Visible spectra fitting of the colloidal nano particles and theoretical calculation of absorption spectra. For metal colloidal nano particles, Mie theory is used to obtain the lorentzian profile of absorption. The width of the profile is related to the size of nano particles. The intensity of absorption spectra is related to the liquid dielectric constant. This allows us to measure the size of colloidal nano particles.

# Identification and characterization of antimicrobial compound produced by soil isolate

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**Abstract**

Microorganisms grow in rapid rate to ensure their survival. Also, during the course of time they evolve or adapt by mutation, gene transfer and several other mechanisms. Therefore, search for new antimicrobial agents to control them is never ending. Soil is diverse environment which is used for the primary screening of organism producing antimicrobial compounds. The present study has led to the isolation of Bacillus species producing antimicrobial against fungi and bacteria. Studies have revealed that the antimicrobial compound increases the pH of the surrounding medium resulting in inhibition of fungi. For bacteria, even at neutral pH inhibition was seen which suggests the presence of the antimicrobial compound. Chemical structure evaluation/characterization; presence of plasmid; MIC; In-silico studies for drug designing would be future prospects of the study.

# PGPR Obtained From Rice Rhizosphere - A Magical Bioinoculant

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**Abstract**

Rice is consumed in large quantity. Use of chemical fertilizers to improve crop production has an insignificant effect on an environment. Plant root colonizes various phyto beneficial bacteria called as PGPR (Plant Growth Promoting Rhizobacteria) and can be used as biofertilizers. The aim of this study is to isolate PGPR from rice rhizophere and develop an efficient bioinoculant bacteria isolates were screened for phosphate solubilizing and nitrogen fixing abiity, siderophore and IAA production . Out of 15 isolates, 7 were found to have above characters. Isolates will be used consortium to develop bionoculants like seed coat and liquid formulation.

KEY WORDS - PGPR, Bio inoculants, Biofertlilzers, Phytobeneficial, Rice rhizosphere.

# Halotolerant Bacteria- The Polyenzyme Producers And Their Applications

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**Abstract**

The marine environment harbour varieties of organisms that are capable of surviving under adverse conditions of temperature fluctuations, salinity and pressure. Thus, in order to survive under these conditions marine microbes produces enzymes which may have an industrial value.
The basic aim of this study was to observe production of multiple halotolerant hydrolytic enzymes from the bacterial isolates from the marine environment. Initial enrichment in respective broth media was carried out in order to elicit the production; with added salt concentration of 5% and 9%. In total 22 isolates were obtained out of these 22; 6 showed polyenzyme production at 9% salt concentration.
Such hydrolytic enzymes can be used for saline wastewater treatment as normal conventional cultures generally fail due to plasmolysis at such a high concentration of salt (>2% w/v). The other applications of these enzymes include enzymes like xylanases from a halotolerant bacterial can be used in detergent formulations especially for washing purpose in presence of hard water too. Other applications include use of amylases for salt degradation mainly in the industrial processes that have high saline concentration. Enzymes like cellulases and xylanases can be used in paper and pulp industries that generally has high salt content.

# Development of a Probiotic Chocolate By Using Encapsulated Lactobacillus Strain

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**Abstract**

An increase in lifestyle disorders due to junk food and fast food cultures has created many health related problems and this in turn has led to the increased dependency on wonder drugs and switching to many probiotic health products. The incorporation of probiotics into chocolate could offer a good alternative to common dairy products. Chocolate being a food that is a favorite among children, probiotic chocolate supplemented with live lactic acid bacteria would not just make a good snack but also act as means of providing essential nutrition and health benefits. The main objective of this work is to obtain a potentially probiotic chocolate by using encapsulated Lactobacillus strains. The strains were isolated and was found to tolerate high acid and bile salt concentrations. The number of live bacterial cells should be maintained at the functional level of 107 -109 Cfu/g during the storage conditions upto 4 weeks. There should be no change in the overall acceptability of the chocolate during the storage conditions.

# Production of Vinegar From Over-Ripe Banana

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**Abstract**

Spirit vinegar is produced from direct crude alcohol but it is, however found that traditionally vinegar was made from wine and ripe fruits as they have high sugar content. One such fruit having high sugar content is banana; which can be used in vinegar production. Banana's are common food crop of India and are produced in large number. Overripe bananas are usually not consumed and get wasted. The purpose of this project is to use these overripe bananas for the production of vinegar. Banana pulp is used in the production of ethanol in the presence of commercially available yeast. The produced ethanol will be converted to vinegar by Acetobacter species. Properties of vinegar produced will be obtained. A concentration of 4.67 % of vinegar is expected to be obtained from the overripe banana used.

# Production and optimization of Dextran using Leuconostoc mesenteriods Isolated from fermented food products

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**Abstract**

Dextran is exopolysaccharide with versatile industrial applications. Natural biopolymers have gained importance as multipurpose polysaccharides. Leuconostoc mesenteriods is used industrially to produce dextran. In the present study L. mesenteriods were isolated from fermented food products such as idli batter and grown in sucrose rich medium. The dextran produced can be dried and purified. Presence of dextran can be identified at 200-220nm.Process optimization can be done based on literature variables. An alternate low-cost carbon source such as Sugarcane bagasse and pineapple waste can be used. Dextran can be exploited for its anticoagulant and bio-flocculant nature.

# Exploring an alternative carbon source for biosynthesis of Alginate by Azotobacter spp.

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**Abstract**

Alginate is a naturally occurring polysaccharide currently produced from marine brown algae. Alginate is also produced by soil bacterium Azotobacter sp. Alginate is a linear polymer of mannuronic acid and guluronic acid. Alginate, due to its colloidal behaviour is of great use in food, biomedical and pharmaceutical industries. Algal source may give varied alginate composition with different batches, however bacterial source may give unlimited and better quality alginate. Three potential alginate producing isolates were obtained from rice rhizosphere soil, of which one was selected on basis of maximum alginate production. Obtained alginate was confirmed using Carbazole assay. Among tested medias, Ashbys mannitol broth gave maximum alginate production. Maximum alginate was obtained after 5 days of incubation with sucrose as carbon source. Alternative carbon source will be used for reducing the production cost. Process optimisation with respect to physical parameters will be performed. Effect of using different nitrogen sources on the production will be studied. The obtained alginate will be used for beta amylase immobilization in calcium alginate beads. Also effect of alginate on plant growth will be studied.

# Improving microbial oil production in oleaginous yeasts for biodiesel production

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**Abstract**

Microorganisms that are capable of storing lipid more than 20% of their biomass are called oleaginous. Microbial lipids have similar composition and properties to lipids obtained from animals and plants. Hence it can be used for biodiesel production which has many environmental benefits. Many strains of yeast have shown good potential for lipid production. To make the production of microbial lipids from yeast economical, optimization of cultivation conditions must be done to obtain higher production using low cost substrates. Oleaginous yeast will be isolated from potential sources using nitrogen restricted medium and screened by Sudan Black B staining. The lipid productivity and dry biomass will be determined. Optimization of cultivation conditions will be done for different carbon and nitrogen sources, based on literature. The carbon sources used include- glucose and glycerol and the nitrogen sources include yeast extract, peptone, ammonium sulphate and ammonium chloride. The lipid obtained will be used for biodiesel production by transesterification process. GC-MS will be used for analysing and confirming the production of microbial lipids and biodiesel. The use of microbial lipids as food additives and as substitutes for animal and plant triglycerides for production of oleochemicals can be explored.

# Preparation of antioxidant rich and zero waste health drink by fermentation of pomegranate juice infused with medicinal plant using Effective microorganisms

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**Abstract**

Consumption of bioactive compounds such as antioxidants, phytochemicals and alcohol in moderate amount is beneficial to our body as it decreases the risk of cardiovascular diseases, neurodegenerative diseases and slows the ageing process. In the present study, antioxidant rich health drink was made by fermentation of pomegranate juice which is rich in antioxidants using EM that is Effective microorganisms. EM is a combination of beneficial microorganisms including yeast, bacteria and photosynthesizing bacteria. For enhancing the antioxidant level, pomegranate juice was infused with medicinal plant- Asparagus racemosus (Shatavari). Presence of phytochemicals, antioxidants and alcohol levels and stability of antioxidants can be measured during and after the fermentation process. The entire process is a zero-waste process as the solid waste generated can be used as biofertilizer.

# Effect of UV mutation on Prodigiosin production and study of it's various applications

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**Abstract**

Pigments are chemical compounds that absorb light in the visible range of electromagnetic spectrum. Due to the various allergies caused by synthetic pigments, pigments from microbial sources are preferred. These natural pigments are not only safe but also have many biological activities such as antimalarial, antibacterial, immunosuppressive etc. Prodigiosin is one of the bio pigments extracted from Serratia marcescens. It is a secondary metabolite which is produced at the later stages of bacterial growth. In the present study various parameters were checked for the enhancement of pigment production. Cultural parameters include media, effect on aeration was studied. The peanut broth in the shaker condition gave the maximum pigment production. The effect of mutations was also checked by inducing UV radiations. It was seen that there was no enhancement of pigment production but instead a decrease was observed. The extracted Prodigiosin pigment will be then checked for various applications such as antibacterial, dyeing of cloth and as a pH indicator. These applications therefore have a wide scope in the textile as well as in the pharmaceutical industry.

# Pure and Zno doped $SnO_2$ Nano particles

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**Abstract**

Pure and ZnO doped $SnO_2$ Nanoparticles were synthesised by co-precipitation method. The structural analysis of prepared Nanoparticles were characterized by x-ray diffraction and scanning electron microscopy. The crystalline structure of both pure ZnO and doped $SnO_2$ Nano particles was characterized by x-ray diffraction of powder substance. XRD results confirmed the formation of cassiterite. Nature of $SnO_2$ scanning electron microscopy confirmed the formation of Nano particles.

# Isolation and screening for alcohol producing bacteria from flower waste

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**Abstract**

Bio waste comprises of unwanted material of biological origin such as bio solids, animal effluent, wood waste and green waste containing high concentrations of organic matter making them valuable soil conditioners. Large amounts of flowers especially Tagetes erecta (Orange and Yellow marigold) are offered in temples creating enormous floral waste which are then released into the water bodies or dumped in open yards causing severe environmental pollution. In the environment, micro-organisms co-exist with different organisms establishing a symbiotic or mutual relationships which help them degrade complex organic matter into simple monomeric units.Therefore, the present study was undertaken to develop efficient microbial consortium for degradation of flower waste and produce good quality of bioethanol by the process of fermentation.

# Catalytic Activity of Chemical and Biological Nanosilver : A Comparative Study

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**Abstract**

Dyes are used in various industries and laboratories as coloring agents. However, their unregulated disposal in environment poses a major threat for human health, plants and ecological balance. Hence, novel strategies are required for efficient decolorization and degradation of these synthetic dyes. Silver nanoparticles (SNPs) exhibit an excellent catalytic activity in organic reactions. The present study deals with synthesis, optimization and nanocatalytic activity of SNPs with respect to dye decolorization. Here, we have synthesized SNPs by two ways: chemical reduction using trisodium citrate and biological synthesis using Murraya koenigii leaf extract. Reaction parameters, such as silver nitrate concentration and temperature affected the rate of synthesis and morphology of SNPs. The nanoparticles were roughly spherical and crystalline with a face-centered cubic structure. We further compared their nano catalytic activity with respect to dye decolorization and found that plant mediated SNPs exhibit faster decolorization of congo red and trypan blue as compared to chemically synthesized SNPs.

# Preparation and Formulation of Essential oil Nanoemulsion loaded Edible films

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**Abstract**

The use of chemical preservatives combined with the rising demand for eco-friendly packaging alternatives has encouraged the development of novel bio-based edible films. Essential oils exhibit antimicrobial activities against various pathogenic microorganisms, but its low water solubility limits their application in foods. To improve water dispersion and protect the essential oil from degradation, formulation as nanoemulsion is a viable option. Thus, the current study aimed at preparing Ajwain oil nanoemulsions loaded edible films. The antioxidant property of Ajwain oil as well as the nanoemulsion were determined using DPPH scavenging method. They exhibited good antioxidant property ranging between 80-98%. The possibility of the nanoemulsion being a potential irritant was also evaluated using RBCs as an indicator system. At lower concentration, the nanoemulsion was found to be non- irritant. The edible films were then formulated using various gelling agents like Carboxy methyl cellulose (CMC), pectin and gelatin. At 1.5% w/v concentration, CMC produced flexible yet rigid film with good tensile strength. Antimicrobial activity of ajwain oil and nanoemulsion loaded edible films was evaluated against test organisms like Bacillus spp., Pseudomonas spp., Klebsiella spp., E.coli and S.aureus using diffusion technique. The thickness and elasticity of the edible film needs to be further evaluated.

Keywords: Edible films, Nanoemulsion, Ajwain oil, Carboxy methyl cellulose, food spoilage, antioxidant

# Waste to Recycled Paper & Reducing Carbon Footprint

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**Abstract**

Paper is an essential stationary material used in our day to day life. Processing of paper leads to deforestation causing environmental destruction. The present research aims to produce a simple yet cost effective solution to the above problem by preparing paper from organic wastes such as Onion and Corn husks. A slurry is prepared by boiling the layers after cleaning the waste. The cleaved husk is then placed on a smooth flat surface and allowed to dry for 10 hours. The paper can be used as a good quality, recyclable stationery material.

Keywords: Handmade Paper, Carbon Footprint, Vegetable peels.

# Preparation and Formulation of Essential oil Nanoemulsion loaded Edible films

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**Abstract**

The use of chemical preservatives combined with the rising demand for eco-friendly packaging alternatives has encouraged the development of novel bio-based edible films. Essential oils exhibit antimicrobial activities against various pathogenic microorganisms, but its low water solubility limits their application in foods. To improve water dispersion and protect the essential oil from degradation, formulation as nanoemulsion is a viable option. Thus, the current study aimed at preparing Ajwain oil nanoemulsions loaded edible films. The antioxidant property of Ajwain oil as well as the nanoemulsion were determined using DPPH scavenging method. They exhibited good antioxidant property ranging between 80- 98%. The possibility of the nanoemulsion being a potential irritant was also evaluated using RBCs as an indicator system. At lower concentration, the nanoemulsion was found to be non-irritant. The edible films were then formulated using various gelling agents like Carboxy methyl cellulose (CMC), pectin and gelatin. At 1.5% w/v concentration, CMC produced flexible yet rigid film with good tensile strength. Antimicrobial activity of ajwain oil and nanoemulsion loaded edible films was evaluated against test organisms like Bacillus spp., Pseudomonas spp., Klebsiella spp., E.coli and S.aureus using diffusion technique. The thickness and elasticity of the edible film needs to be further evaluated.
Keywords: Edible films, Nanoemulsion, Ajwain oil, Carboxy methyl cellulose, food spoilage, antioxidant

# Water Treatment Using Bio-Adsorbent

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**Abstract**

Various techniques have been employed for water purification and most of them suffer from drawbacks such as use of costly materials, in accuracy, difficulty in reproducibility of results, and environmental hazards. The present research focuses on development of effective and economical bio adsorbent developed from waste banana, corn and sugarcane peels. They act as a great adsorbent for removing hard metals from the water. It also includes firstly preparation of synthetic hard water by using different metals (Ni, Co, Ca, Zn, Pd etc.) with their different concentrations. The instrument used for this process is Spectrophotometer.

Keywords: Bio waste, hard water, bio adsorbed, removal and estimation.

# Isolation of crude oil degrading organisms from oil contaminated Soil samples

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**Abstract**

Microbial degradation of petroleum hydrocarbons is one of the major practices in natural decontamination process. The present study investigated about the isolation of bacteria from crude oil contaminated site. These bacteria were screened with two important factors such as growth on mineral salt medium incorporated with crude oil and analysis of hydrocarbon biodegradation using gravimetric analysis. Gravimetric analysis results indicated maximum degradation of crude oil. Six isolates with crude oil degrading ability were preliminarily identified based on morphological observation, physiological and biochemical tests. Species level identification showed that the isolates belong to Beijirinckia spp., Acinetobacter spp., Acetobacter spp., Pseudomonas spp. and Gluconobacter spp. DCPIP assay for all isolates [i.e. G1, G2(3), G2(4), G2(R), G2(W), W] indicated their ability to breakdown crude oil. The isolates were also grown on individual components of crude oil so as to check for the hydrocarbon maximally supporting the growth of the organisms. The heavy metal tolerance and activity of degradation-related enzymes of the strains were also studied, including dehydrogenase, catechol 1,2-dioxygenase, catechol 2,3-dioxygenase, and laccase. The isolates obtained in this study have shown to possess catabolic capabilities for the biodegradation of crude oil.



# Electrodynamics Simulator

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**Abstract**

The project is made to enable the simulations of electric and magnetic fields in 3 dimensions. The current state of the project allows one to plot time independent electric fields and magnetic fields by the charge density equations and current density equations. The program makes heavy use of the Poisson's Equation for Electrostatics, and computes an inverse Laplacian on the Poisson's Equation in order to get a potential field and then computes a gradient to get the Electric field; The process for a Magnetic field is similar except requiring a vector Potential field and computing the curl of that field to get the magnetic field.The program can be extended to include time dependent electromagnetic fields as well which is one of the future goals of the project.

# Anti-Pediculus humanus capitis (Head lice) and Anti-Trichodectes canis (Dog lice) activity of Areca Catechu and synthesis of products by using leaf extract of Areca Catechu

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**Abstract**

Many beneficial phytochemical constituents are present in Areca Catechu leaves. Unlike pharmaceutical chemical these phytochemicals don't have any side effects and were easily available. Anti -head lice and Anti-Dog lice activity of leaf extract is natural prevention. The main organism termed as Pediculus humanus capitis and Trichodectes canis are exogenous parasite found mainly in hair, these pests are known to cause irritation as well as inflammation. In this case sucking louse which feast on blood are known for causing skin infection and are very resilient in nature; they have rapid reproduction rate causing havoc. They are resistant to many chemical shampoos. So, there was essential need to find natural alternative which would kill lice and causes no harm to hair. Areca catechu has a potential to kill the head lice similar to the action of synthetic shampoo. Areca catechu leaves have promising aspects because it is high in terpenoids which disrupts the lice by killing it on the site of topical application. Terpenoids attack the Peripheral nervous system which leads to neither biting nor sucking and move away from their food source.

# Comparison of Proteolytic Activity of Extract from Ananas comosus and Zingiber officinale

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**Abstract**

Proteases are a complex of endopeptidase enzyme complex present in a variety of living organisms and have various industrial applications. Plant proteases are preferred over animal-derived proteases such as trypsin, as they have less toxic effect on consumption to humans and are stable over a wide range of pH and temperature. Proteases account for 60% of the total enzyme market. This produces a lucrative opportunity for developing countries like India having a tropical climate and high production of these plants, to enter the enzyme market. Bromelain is the major protease complex, present in pineapple (Ananas comosus) and Zingibain or Ginger Protease-II (GP-II) is the major protease complex present in Ginger rhizome (Zingiber officinale). The objective of the present study is to compare the proteolytic activity of Fruit Bromelain and Ginger Protease-II and determine the more effective protease from two sources by hydrolysis of gelatin and casein substrates respectively. The proteolytic activity of the extracts is estimated using redox titration and spectrophotometric method for Bromelain and ginger protease respectively.

# Removal of magnesium ions from hard water by immobilizing using sugarcane baggase as bio adsorbent

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**Abstract**

Water with high mineral content is hard water which is formed when water percolates through deposits of limestone, gypsum largely made up of calcium and magnesium carbonates, bicarbonate and sulfates which in turn is harmful to human health. Additionally, WHO reports that excess intake of calcium is associated with kidney stones and that of magnesium leads to diarrhoea and laxative effect due to change in bowel habit. The present study is based on the principles of adsorption by immobilizing the Mg ions using sugarcane bagasse as a bioadsorbent which is pre treated through environment friendly process that involved washing, boiling, drying and milling into powder for removal of magnesium ions. The experiment was performed in batches to study the effect of various controlling parameters such as the concentration of bio adsorbent, contact time and agitation speed on adsorption using synthetic hard water. The efficiency of adsorption was found to be increasing with increasing concentration of bio adsorbent and the average percent reduction in the concentration of magnesium ions was determined to be 76.32% with a holding capacity of 3 hrs. This study proves the favourability of the removal of magnesium ions onto sugarcane bagasse and the use of locally available biowaste as a bio adsorbent in the filter which can be used for hard water treatment.

# Isolation of Phosphate-solubilizing Bacteria from Mangrove rhizosphere and Determination of Inorganic phosphate solubilizing ability of isolates

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**Abstract**

Phosphorus, a major nutrient, is required for photosynthesis and respiration by plants and is applied to soil as phosphatic fertilizers. However, a large portion of soluble inorganic phosphate applied to the soil as fertilizer is immobilized rapidly thus, it is unavailable to plants at adequate concentration. In phosphorus and nitrogen-deficient environments such as mangroves, micro-organisms establish symbiotic relationships which help them convert insoluble inorganic substrates into their simpler form. Thus, the present study was undertaken to develop efficient microbial consortium that can convert this insoluble phosphorus into its soluble, usable form-orthophosphate, the phosphate-solubilizing potential of isolates was determined using Molybdenum-Blue method colorimetrically. Further, this microbial consortium can be used to develop a potential biofertilizer that can be used alone replacing synthetic phosphatic fertilizers.

# Study of effect of colloidal silver on E.coli persisters

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**Abstract**

Bacterial persisters are phenotypic variants that form under stress and possess antibiotic tolerance. Multidrug tolerance of persister cells is one of the major factors for the inability of antibiotics to eliminate the pathogen and for recurrent infections. Since persister cells are highly tolerant to antibiotics, new methods to enhance the antibiotic action or to reduce the persistence can aid to combat recurrent bacterial infections. Colloidal silver has multiple modes of action against bacteria and does not exhibit any side effects. As bacterial tolerance towards metallic ions and metals in the colloidal state has not been reported so far; the use of colloidal silver seems to be promising for overcoming persistence. The following study includes the isolation of E.coli K12 NCIM 2665 persisters to Ampicillin by treating growth at the logarithmic phase with 100x MIC concentration. Ampicillin at 400µg/ml was used to obtain persister population. Effect of colloidal silver on persister formation was checked by i) pre-treating the log phase cultures with silver and then exposing to 400µg/ml of Ampicillin ii) treating the culture with a combination of both and iii) treating with silver after exposure to Ampicillin. Synergistic action of ampicillin and silver was checked by checkerboard assay. The results suggest that there is an effective decrease in the persister population when pretreated with silver and that synergistic action of Ampicillin and silver is effective against persister population. Synergy suggests that persisters can be susceptible to lower concentrations of Ampicillin, thus avoiding the use of higher drug concentrations. Thus colloidal silver can be used as an alternative approach to overcome antibiotic resistance.

# Microgreen- A small scale factory of health and revenue generation

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**Abstract**

Microgreens are miniature plants of greens, herbs or other vegetables. They are concentrated nutrient source and packed with beneficial enzymes because of their rapid growth. Triticum aestivum, Eleusine coracana, Spinacia oleracea and Brassica juncea are well documented for its microgreen and nutritional value. The current study is focused on determining total protein content, vitamin C content, antioxidant and antimicrobial activity of the microgreens by preparing aqueous extracts. Among various extracts screened, the extracts of Spinacia oleracea showed maximum protein content. Microgreen of Triticum aestivum showed the highest content of vitamin C and the best antioxidant activity. The study showed that each microgreen extract does not produce any antimicrobial agent. Antibiotic susceptibility test revealed a resistivity pattern of the test cultures against commonly used antibiotics. The bioactive compounds from the plant extracts should be identified and its anti-cancerous potential needs to be evaluated.

Keywords: Microgreen, Triticum aestivum, Eleusine coracana, Spinacia oleracea, Brassica juncea, bioactive compounds

# Antimicrobial effect of hydroethanolic extract of Punica granatum peel and juice on oral microbiota

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**Abstract**

This study is aimed to assess the antioxidant and antimicrobial effect of hydroethanolic juice and peel extract of pomegranate on oral microbiota. Antimicrobial and antioxidant activity against gram positive and gram negative organisms including Klebsiella pneumoniae, Pseudomonas aeruginosa, Proteus spp, Escherichia coli, Staphylococcus aureus and also mixed oral microorganisms. Antioxidant activity of the peel and juice extract was studied using DPPH method which was found to be 76.5% and 84.4% respectively. Antimicrobial activity was studied using well diffusion method. The antimicrobial activity was not observed at lower concentrations of juice and peel extract; thus higher concentration study was performed; which was predominantly observed in Staphylococcus aureus, Escherichia coli and Proteus spp. The hydroethanolic extract of peel with higher concentration was then used to prepare hydroethanolic mouthwash to test and compare the activity on mixed oral micro-organisms. Optimum activity was not observed maybe due to different factors like pH, components in saliva and other active components present in the extract. By performing the analysis considering different factors and by using highly sophisticated techniques the pomegranate extract could be used as a source of high added-value bioactive compounds for antioxidant. Effectiveness of the prepared hydroethanolic mouthwash has to be studied by increasing the sample size of individual.

# Production and characterization of red pigment by soil fungus and it's application

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**Abstract**

Natural pigments have been obtained since long time ago and it is preferred over synthetic dyes due to problems of toxicity and carcinogenicity. In this study, a Red pigment producing fungus was isolated from garden soil sample on Pikovskayas agar. Pigmentation was observed only in the presence of calcium phosphate supplemented sabourauds broth. The pigment showed maximum absorbance at 500nm and 225nm in visible range and UV range, respectively. The pigment was found to be partially soluble in Ethyl acetate and butanol but highest solubility in water. On studying the effect of physical parameters, the pigment showed color change only at 100°C and pH 12. The pigment displayed no antimicrobial activity when tested against S.aureus, E.coli and K.pneumoniae. Microcytotoxicity test performed using Chironemous larvae revealed no cytotoxic effect even after 24hrs. On comparing with commercial sunscreen, the 1: 100 dilution showed lower transmittance down to 15.4% in UV-B region. DPPH assay of the 1: 1000, 1: 500, 1: 100 dilution of the pigment showed antioxidant activity of 72.1%, 76.65%, 85.5%. The pigment also showed potential anticoagulant activity which should be explored further.

Keywords: Fungal Pigment, Sunscreen, Mircocytotoxicity, DPPH, Anticoagulant.

# Rhizobacterial Siderophores in Biodemediation

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**Abstract**

Microbes synthesize and excrete iron chelators called siderophores to sequester and deliver iron by active transport processes. In this experiment, Rhizobium recovered from root nodules of Trigonella foenumgraecum were selected for their potential as bioremediation and plant growth promoting agents. The Rhizobium were isolated on CREYMA followed by induction of Siderophore production using IFS media. The effect of siderophores on plant growth was studied using surface sterilized seeds of Trigonella foenumgraecum, grown in sterile soil. The plants showed significant increase in growth as compared to controls. Presence of siderophores was checked by CAS assay where a known siderophore producing Pseudomonas strain was used as a control. The siderophores were extracted by solvent extraction method and were checked for their ability to chelate other metals for the purpose of bioremediation. CAS media was prepared using Copper (CuSO4), Cobalt (CoCl2) and Iron (FeCl3). Presence of Halos in CAS media indicated the ability of the siderophores to chelate other metals as well. In conclusion, siderophore producing bacteria have the potential as plant growth promoters and strong bioremediation abilities. It's application as soil mix + seedling root treatments could be used for effective bio-management of pathogen as well as phytoremediation of soil contaminated with heavy metals.

# Removal of Metals From Synthetic Hard Water Using Bio-Waste

LALCHAND DURGARAM BORA
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**Abstract**

Water with high concentration of minerals is called hard water. Water is essential for life, but water with very high degrees of hardness is harmful to health. In the past five decades or so evidence has been accumulating about an environmental factor, which appears to be influencing mortality, in particular, cardiovascular mortality, and this can be associated with the hardness of the drinking water. Present study is based on the scientific principles of adsorption by immobilizing the minerals which are present in hard water (e.g.-Ca2+) with the help of corn cobs and coconut shell powder as a bio adsorbent. Batch experiments were carried out to determine the effect of various adsorbent factors such as types of bio adsorbent, types of minerals adsorbed and contact time on the adsorption process using synthetic hard water samples. Removal efficiency of corn cob had shown 69.34% with contact time 2 hour for Ca+2 whereas no such effect was observed with Coconut shell bio adsorbent . This study will give an insight on the efficiency of locally available bio-waste on hard water treatment which can be used to reduce the hardness of water in small towns and villages because the communities residing there may not be able to afford expensive equipment for water purification.

# Synthesis and Characterization of Luminescence Materials

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**Abstract**

The main objective of this project is to synthesize inorganic material using various dopants which are responsible for giving luminescence spectra at different wavelength. Also the study has found that this spectra changes with the phases of the material and hence our objective is to find the different route of synthesis to change the phase of the material using simple technique. we recognized $CaSO_4$ has various phase and can be altered above 400°C. Here we tried to change the phase at room lamp.

$CaSO_4$ has prepared by using control precipitation method and bulk method in the stoichiometric ratio of Calcium Nitrate and Ammonim Sulphate. $Dy(NO)_3$, $Ce(NO_3)_2$ were used as a dopants separately. Various samples were prepared with different concentrations of dopants to optimized the concentration. XRD and photoluminescence have studied so far.

It has been found that the with cerium dopants the sample shows red shift in emission spectra. The emission observed at 354nm with the shoulder at 324nm this is far different from the bulk sample prepared by direct precipitation method. The XRD matches well with the $0.6H_2O$ phase of $CaSO_4$. However the phase of the bulk sample is orthorhombic.

However the photoluminescence spectra of dopants $Dy(NO)_3$ is observed at 517nm where a strong blue shift is observed compared to bulk sample. The emission was reported at 573nm in case of bulk sample. This is strongly co related with the particle size. As reported in the papers the blue shift is due to the particle size. Hence our further study is to study the particle size using SEM and whether it is possible to study the regain its original phase.

# Abstract Book

## Commerce Management & Law

**"JIGNYASA"**

**08/01/2020**

# Converting waste to business & reducing global warming

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**Abstract**

The footwear industries are producing billions of shoe pairs each year which results in release of harmful wastes in the environment. These waste materials can be recycled into appropriate usage for making soles of footwear which in turn can be reused to manufacture sandals and chappals by using Thermoplast and Thermosetting treatments. These footwear are made from cheap materials. Hence, it is productive, economical and profitable.

Keywords: Waste material, recycle, profit, footwear.

# Impact of social media and Digital media and viewing on children

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**Abstract**

This study is conducted to understand the impact of Digital and social media use and viewing on children with reference to Mumbai region.
Purpose – To scrutinize the possible effects of Digital and social media use and viewing on children
Methodology – Questionnaires were aimed and circulated to all parents having children 10 and below age. This stately observed levels of impact of this on the learning experience of children.
Findings – Stress can be perceived to control both negative and positive effect on the children.
Research limitations – The research was done in some parts of Mumbai and hence effects cannot be comprehensive to shield the whole dynamics.
Practical implications – The findings, together with a growing wakefulness of the impact of , it clearly shows that around 63% of the respondents are feeling risky in terms of sharing information on social media. Also, when it comes to using digital and social media, around 87% respondents wants their children to use the same at the time of doing household chores. So, from the results it clearly shows it has created a negative impact of Digital and social media on relationship with the family.
The paper has explored the impact of Digital and social media use and its negative impact on the mental and physical health of the children.

Key words : Digital media, Social media, Physical health, Mental health

# Dynamics of Online Payment Usage in Mumbai: Consumer Perspective

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**Abstract**

Business has taken its path in establishing itself on every corner of the earth and money has been playing the most crucial role in defining its existence and survival. There has been a progressive change with respect to modes of payment and the same holds significance when it comes to consumers, as they are the bearers. With a majestic growth in communication and technology, there has been a paradigm shift in the methods of settling business deals. To be precise, technology has provided a high level aid for general consumers to make cashless payments for their purchases. Though cash has not lost any battle and still holds its physical existence and significance, but somewhere cashless mode of payments is taking a steady lead in establishing itself in the global economy.

This research paper aims to understand consumer's preference pertaining to the most appropriate mode of making payments during their purchases. Focus has been made to measure the degree of acceptance of online payment options by consumers in relation to their daily purchases considering certain qualitative and quantitative factors such as awareness, trust, volume of transactions, nature of the goods and services, accounting, convenience, etc. The study has geographically covered only the jurisdiction of Mumbai and has considered respondents of age groups from 18 to 70 years. The study has involved only getting responses from technologically able consumers with respect to their personal expenditures. Possible outcomes are not only understanding consumer's payment preference but also identifying reasons for the same, which would be highly beneficial for business enterprises to mould their style of accepting payments. This paper enhances consumers to believe and opt to head to a cashless state of economy as projected by our Hon'ble Prime Minister.

# Internship for Undergraduate's

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**Abstract**

The job market is a competitive one, and often that is a tough learning curve for recent graduates. This is a big reason behind the growth of applied learning and internship opportunities becoming a key part of the college experience for all students.Internships help you understand your field, your career goals, and they provide adequate experience to give you a fighting chance at securing an entry-level job after graduation.Our work is on the ratio of students who were trained in soft skills and secured internship to enrich job quotient.

# Digital Attendance System

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**Abstract**

Attendance tracking is a routine activity before beginning of any event/ academic lecture. Currently there are multiple methods available to make attendance these include pen and paper method RFID and Biometric. Each of these methods have a lot of human involvement and hence are time consuming. Our proposed system tries to reduce human involvement and the time consumed for marking attendance by creating a unique QR code for every attendance session. To avoid marking a fake attendance without being present in the classroom, we update the QR code after every 10 seconds discarding the previous one. The attendance report generation is automated. We believe that if the system is implemented, it would help reduce the time and efforts in tracking attendance.

# Abstract Book

## Arts & Humanities

**"JIGNYASA"**

**08/01/2020**

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# Impact of Age on Stigma Related to Mental Illnesses

Divya R Iyengar
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**Abstract**

According to the WHO, 7.5% of Indians suffer from mental illness and 70% don't receive treatment. One of the reasons for not seeking treatment for mental illness is stigma about mental illness. Age is an important variable in this regard. Researches about age-differences in Stigma about mental illnesses have got mixed results. The current research aims at studying the impact of age differences on stigma related to mental illness. Data were collected from adolescents (16 to 20 years) and elderly (65 to 70 years) by using Community Attitudes towards Mental Illness (CAMI) scale. The four dimensions of the scale are Authoritarianism, Benevolence, Social Restrictiveness and Community Mental Health Ideology. Elderly were found to have higher stigma as far as dimension of Authoritarianism was concerned. Adolescents were found to believe more in socially restricting mentally ill. No significant differences were found between two groups on the dimensions of Benevolence and Community Mental Health Ideology. The findings imply that de-stigmatisation programs have to be initiated for both the groups but aspect of stigma to be focused would be different. According to the WHO, 7.5% of Indians suffer from mental illness and 70% don't receive treatment. One of the reasons for not seeking treatment for mental illness is stigma about mental illness. Age is an important variable in this regard. Researches about age-differences in Stigma about mental illnesses have got mixed results. The current research aims at studying the impact of age differences on stigma related to mental illness. Data were collected from adolescents (16 to 20 years) and elderly (65 to 70 years) by using Community Attitudes towards Mental Illness (CAMI) scale. The four dimensions of the scale are Authoritarianism, Benevolence, Social Restrictiveness and Community Mental Health Ideology. Elderly were found to have higher stigma as far as dimension of Authoritarianism was concerned. Adolescents were found to believe more in socially restricting mentally ill. No significant differences were found between two groups on the dimensions of Benevolence and Community Mental Health Ideology. The findings imply that de-stigmatisation programs have to be initiated for both the groups but aspect of stigma to be focused would be different.

# Work-Family Conflict

Anmol Bhargava

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**Abstract**

Work-Family Conflict (WFC) is the form of conflict in which demands of work interfere with those of the family and vice-versa. Two important contributors to WFC are longer working hours and lack of schedule flexibility. The academic and corporate sectors differ in these two aspects. So, the current study was conducted to find out if extent of Work- Family Conflict is different in these two sectors. The sample chosen was women working in the academic sector (assistant professors) or corporate sector (managers) having children in the age group of 3 to 10 years. Work and Family Conflict Scale (WAFCS) was used to measure extent of Work- to- Family and Family-to-Work conflicts. The results indicated that there is no significant difference in the Work-Family Conflict experienced by the two groups. This suggests that mental hours put in the work by teachers may be same as those from corporate sector, interfering with their family-life. Interestingly, it was seen that in case of both the groups, work affected family life more than family's interference in work. The findings imply that there is a need for better policies at the workplace, especially for working mothers to minimise their work to family conflict.

# Correlation Between Spirituality and Mental Wellbeing

Anuya Ajay Patil

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Mental Well-being is important for optimal functioning of an individual. Mental Health Professionals, currently, incorporate Spirituality in treating mental illnesses like PTSD, Depression, and Schizophrenia etc. However, whether Spirituality is related to ongoing mental well-being of an individual has not been explored. The present study aims to find out if there exists a correlation between Spirituality and Mental Wellbeing. Scales assessing Mental Well-being and Spirituality were used in this study. Data were collected from 50 young adults (between 15 to 29 years) from Mumbai, Pune and Bangalore. Correlation between Spirituality and Mental wellbeing was found to be significant [$r(50) = 0.28$, $p<.05$.]. This implies that Spirituality can be used to promote mental well-being of young adults. The findings are relevant to young adults, Mental Health Professionals working with them, and educational institutes as it highlights one of the ways to promote mental well-being.

Keywords: Spirituality, Mental Wellbeing, Young adults

# The story of a Cup

Jewel Jacob, Sharon Sanghi

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**Abstract**

The commonly known sanitary product in India are the sanitary pads. These pads are made of single-use plastic and have dangerous chemicals which can cause rashes, dryness, etc. A single pad is equivalent to 4 plastic bags and takes up to 500-800 years to even start decomposing. A woman going through menstrual cycle with an average flow uses up to 12 pads per cycle, which amounts to 144 pads per year. This plethoric use of these pads will prove to be very perilous to the environment.Our project aims to analyze women's perspectives towards menstrual cups and spread awareness about the same. Rather than absorbing blood, these flexible medical-grade silicone cups collect it from within the vagina, hence preventing the ill-effects caused by pads. They are recyclable and reusable up to 10 years. We have conducted a survey in Mumbai, Navi-Mumbai and Thane. According to our data, 8.76% women use menstrual cups. Of the remaining 91.24%, 77.1% are aware about these cups and about 17.5% women are willing to make the switch. Keeping in mind the hazards of using pads, this project intends to encourage people to switch to this environmental-friendly and economical alternative.

# Reading preferences of post- millennials (popular Romances and Murder Mysteries)

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**Abstract**

In this expeditious era, students have come across various avenues such as E-resources, PDFs, Kindle versions that are freely available online. Our project aims to analyse the reading habits of the post-millennials in terms of popular fiction especially murder mysteries and romances. The research will focus on identifying if there are any patterns in the way readers hand-pick or browse books. It will mainly focus on post-millennial students through a statistical analysis. These fact-findings will allow us to have an idea whether students will select popular fiction (Romances or murder mysteries). It'll be supported by a quantitative analysis acquired through a questionnaire that will gauge the reading preferences of under-graduate students in the age group of 18-20 years. The factors that influence them when they select specific genres can also be analyzed.

SIES College of Arts, Science & Commerce (Autonomous)

RISE WITH EDUCATION

NAAC REACCREDITED - 'A' GRADE

## Avishkar Committee Report-2020-21 Report

- Due to pandemic situation of Covid-19, the research proposal writing, preparing power point presentation, viva practice has been conducted by the faculties on departmental level.
- 33 students and 1 faculty have participated in zonal round of Avishkar Research Convention-2020-2021 on 12th April-2021.
- 4 students are selected for the Mumbai University Level Final round held on 23rd June-2021. The list of final round students is as follows:
    i. Ms. Nair Nikita Lajith
    ii. Ms. Khodke Purva Ajay
    iii. Ms. Udayan Drishya
    iv. Ms. Akolkar Aishwarya Shreekant
- 18 teachers have actively involved in research proposal writing and preparing the students for the competition.

**Annexure**: List of Mentors

**Co-ordinator**

SIES COLLEGE OF ARTS, SCIENCE & COMMERCE (AUTONOMOUS) MUMBAI 400 022

**Principal**
Principal
SIES College of Arts, Science & Commerce (Autonomous)
Sion (West), Mumbai - 400 022.

**15th Intercollegiate Mumbai Univerrsity AvishkarConvention·2020-2021**

**List of Mentors**

| SN | Name | Department |
|---|---|---|
| 1. | Dr. Mahavir Gosavi | Botany |
| 2. | Dr. Tara Menon | Biotechnology |
| 3. | Dr. Subi Yoosuf | Biotechnology |
| 4. | Mr. Prajit Nambiar | Biotechnology |
| 5. | Mr. Pramod Kamble | Biotechnology |
| 6. | Dr. Richa Singh | Biotechnology |
| 7. | Ms. Vibha Deepak Ail | Biotechnology |
| 8. | Ms. Priti Pandit | Biotechnology |
| 9. | Ms. Anju James | Biotechnology |
| 10. | Dr. K. George Abraham | Chemistry |
| 11. | Dr. Abuzar Ansari | Computer Science |
| 12. | Mr. Gaurang Kelkar | Computer Science |
| 13. | Dr. Aarti Muley | Physics |
| 14. | Ms. Naziya Sultana | Physics |
| 15. | Mr. Mustafa Jeelani | Physics |
| 16. | Ms. Amruta Padhye | Psychology |
| 17. | Ms. Pallavi Rege | Statistics |
| 18. | Mr. Pushparaj Shetty | Zoology |

**SIES COLLEGE OF ARTS, SCIENCE & COMMERCE**
**AUTONOMOUS**
**SION (WEST), MUMBAI - 400022.**

**28.12.20222**

**Participation in the 17th Intercollegiate Aavishkar Research Convention 2022-23, University of Mumbai**

**Details of the Projects Presented at the Zonal Round:**

Category: Agriculture and Animal Husbandry; Level: UG

| Sr. No. | Project Title | Name of the Presenters | Class | Name of the Mentor |
|---|---|---|---|---|
| 1 | Floral Dyes: Answer to Chemical Dyes | i. Jayaraj Geethanjali<br>ii. Deshpande Chaitrali | TYBSc | Dr. Mahavir Gosavi |

Category: Engineering and Technology; Level: UG

| Sr. No. | Project Title | Name of the Presenters | Class | Name of the Mentor |
|---|---|---|---|---|
| 1 | ShipBid.in | i. Nadar Sachin<br>ii. Nadar JilbinSam<br>iii. Nadar Robinson | TYBSc-CS | Dr. Manoj Singh |
| 2. | Minerva | i. Ranjan Kartik<br>ii. Unnikrishnan Aditya | TYBSc-CS | Dr. Manoj Singh |

Category: Humanities, Languages and Fine Arts; Level: UG

| Sr. No. | Project Title | Name of the Presenters | Class | Name of the Mentor |
|---|---|---|---|---|
| 1 | Effect of Subtitling Modality on L2 Vocabulary Recall in a New Context | Raji Ramanujan | TYBA | Ms. Amruta Padhye |
| 2. | Comparison of Compassion Fatigue in Pediatric and Non-Pediatric Palliative Care Nurses | Sakshi Parekh Rupesh | TYBA | Ms. Shama Todurkar |

| | | | | |
|---|---|---|---|---|
| 3. | Facets of Job Satisfaction among Female Police Personnel in Mumbai: A Qualitative Study | Qureshi Samrah | TYBA | Ms. Shama Todurkar |
| 4 | Comparison of stress levels of working and Non-working mothers of children on the autism spectrum disorder in Mumbai | Fernandes Sharlene | TYBA | Ms. Shama Todurkar |

**Participants:**
7 research projects involving 11 student participants participated in the 17th Inter-Collegiate/Institute/Department Aavishkar Research Convention 2022-23.

**Student Volunteers:**
2 Student Volunteers one from PG and one from UG were selected, their details are as follows:

| **Name of the Student** | **Class** | **Div. and Roll No.** |
|---|---|---|
| Ms. Pavitra Ankam | MSc-I | SMOC2223001 |
| Mr. Rishi Kapoor | SYBCom | SC2223037 |

**Methodology:**
After screening at the college level which is done by the Avishkar Committee in association with the mentors and other college teachers, a total of 7 teams participated in the Selection round of the 17th Inter-Collegiate/Institute/Department Aavishkar Research Convention 2022-23 was conducted by Department of Students' Development, University of Mumbai at Guru Nanak College of Arts, Science and Commerce on 21st December-2022.

**Outcome:**
One project presented by Ms. Sharlene Fernandes mentored by Ms. Shama Todurkar was selected for the final rounds in Humanities, Languages and Fine Arts Category, UG Level and bagged the Consolation Prize in the final round, Zone-II of the 17th Intercollegiate Aavishkar Research Convention 2022-23 held on Monday, 26th December 2022 at Satish Pradhan Dnyanasadhana College, Thane.

**28.12.2022**

**Dr. Pallavi T Roy**

Teacher Co-ordinator Aavishkar

**Dr. Uma Shankar**

Principal

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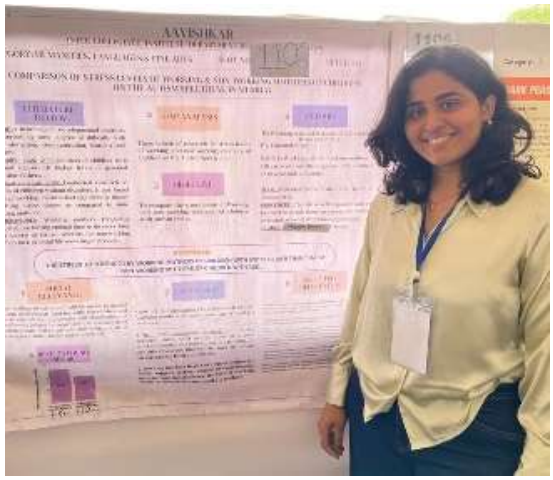
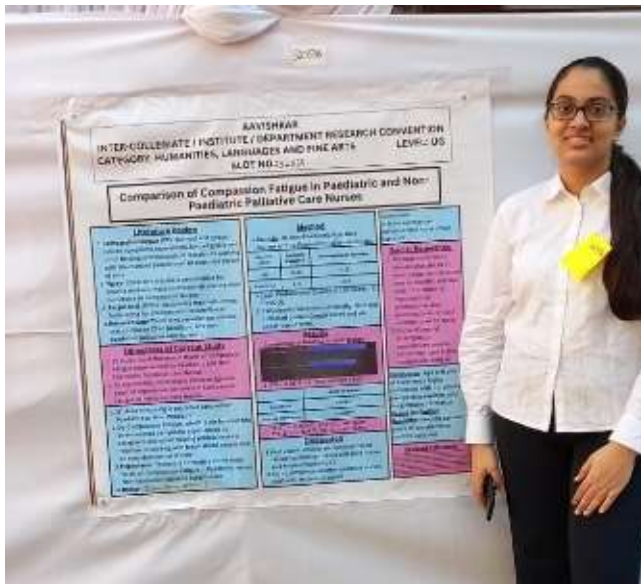
**Participation in the 17th Intercollegiate Aavishkar Research Convention 2022-23, University of Mumbai**



Ms. Sharlene Fernandes presentation and award ceremony, TYBA Psychology


Presentation by Qureshi Samrah, TYBA Psychology




Presentation by Sakshi Parekh Rupesh, TYBA Psychology

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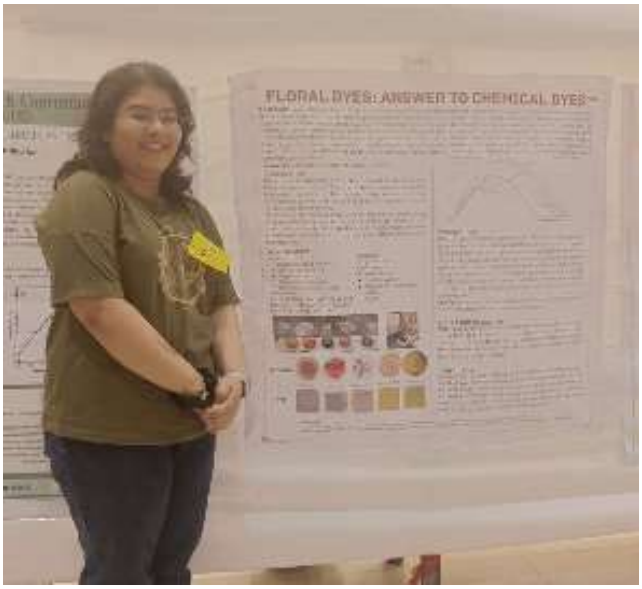
Presentation by Minerva team, TYBSc-CS




Presentation by Deshpande Chaitrali, TYBSc Botany


Presentation by Raji Ramanujan, TYBA Psychology