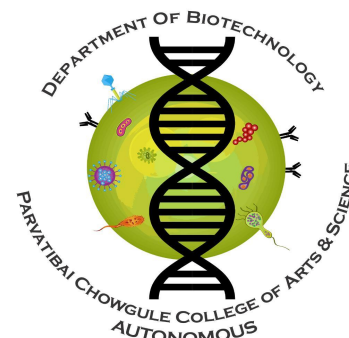




BIOBYTES



DEPARTMENT OF BIOTECHNOLOGY Parvatibai Chowgule College of Arts & Science Autonomous

VOLUME 12, ISSUE 2

JUNE 2022

HIGHLIGHTS

- ❑ Faculty and student activities
- ❑ Project findings 2021-2022
- ❑ Farewell function for third year Biotechnology students

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EDITORIAL

Welcome to the last issue of our departmental newsletter for the academic year 2021- 22. We are almost towards the end of this academic year and with exams going on, it is a hectic time for both students and teachers. Just to make this time a little less stressful, we bring to you this issue of our newsletter, do go through the activities and achievements of both our students and faculty members and stay motivated!

This newsletter brings to you all the activities participated by our students and faculty members. Also events organised by our department and Biotechnology club 'Biochrome'. Do not skip through the interesting, fun and informative activities and events participated and won by our student. Events organised by our department as well external bodies such as at the National Science film festival organised by the Government of Goa. We are also delighted to share a brief on the project findings of our third year students and field visits.

Happy reading!

- By, Ms. Hashma Mujawar, Assistant Professors in the Department of Biotechnology

FACULTY ACTIVITIES

1. Dr. R. Kanchana, Faculty in Dept of Biotechnology participated in the following;
 - ❖ Attended a webinar on 'Identify, Protect, Commercialize your Ideas and Innovations' organised by Goa University in association with Directorate of Internal Quality Assurance Cell, Goa on 7th Jan, 2022.
 - ❖ Participated in online 'Science Communication Workshop' organised by DBT/Wellcome Trust India Alliance on 18 - 19th January 2022.
 - ❖ Participated in one day National Seminar on "Recent Researches in Bio-fertilizers: From Lab to commercialization" organized virtually by Department of Biotechnology, Institute of Science and Research, IPS Academy, Indore, M.P. on 12th February, 2022.
 - ❖ Participated in an online expert talk on 'Process of Innovation Development & Technology Readiness Level (TRL) & Commercialization of Lab Technologies and Tech-Transfer' organised by Goa University on 18.02.2022.
 - ❖ Participated in an online workshop on 'Entrepreneurship skill, Attitude and Behaviour Development' organised by Goa University on 24.02.2022.
 - ❖ Participated in a webinar on 'Mending Academic Talent for Industrial applications' organised by Goa University on 28.02.2022.
 - ❖ Participated in a state level webinar on 'Security Intelligence on Cyber Crime: Device Targeted' organised by 'SPES's Goa Multi-Faculty College, Dharbandora, on 28th February 2022.
 - ❖ Participation in an online session on "How to plan for Start-up and legal and ethical steps" held on May 24, 2022 organised by Institution's Innovation Council, Goa University, Goa.
2. Ms. Madhavi M. Motankar, Faculty in Dept of Biotechnology participated in the following;
 - ❖ IP Awareness Training programme under National Intellectual Property Awareness Mission on 20th December 2021
 - ❖ One Day National Level Workshop on Importance of IPR "Patent Processing & Role of Patent Agent" organised by Goa State Council for Science and Technology Saligao, Goa in association with VVM's Govind Ramnath Kare College of Law, Margao Goa on 23rd December 2021
 - ❖ Webinar on 'Identify, protect, commercialise your ideas & innovations' held on 7th January 2022
 - ❖ Online Science Communication Workshop held on 18th and 19th January 2022 organized by DBT Wellcome Trust India Alliance for Chandigarh Group of Colleges
 - ❖ Two days National Webinar on 'Advances in Plant Sciences' organized by the Department of Botany, Goa University on 3rd and 4th February 2022 organized by Intellectual Property Office, Government of India
 - ❖ Dr. R. Kanchana and Ms. Madhavi M. Motankar organized a talk on Intellectual Property Rights - Basics and Scope by Ms. Rejita Rajan Faculty, V.M. Salgaonkars College, Miramar on 21st May 2022.

3. Dr. Starlaine Mascarenhas, Faculty in Dept of Biotechnology participated in the following;
- ❖ Participated in a National Webinar on “Mending Academic Talent for Industrial Applications” organized by the School of Chemical Sciences, Goa University on the occasion of National Science Day and in commemoration of Azadi ka Amrut Mahotsav on 28th February, 2022.
 - ❖ Participated in the IP Awareness/Training program under National Intellectual Property Awareness Mission organized by Intellectual Property Office, India on 5th March, 2022.
 - ❖ Completed a Workshop on “Blogging as a Knowledge Sharing Tool” organised by CTL of College on 1st April, 2022. The resource person was Mr. Malcolm Afonso, Assistant Professor, Department of Geology.
 - ❖ Completed a Workshop on “Flipped Learning - An Introduction”, a focused learning workshop on 19th April 2022 organised by Mr. Andrew Barreto, Assistant Professor, Department of English.
 - ❖ Completed ‘Impact lecture series’ on innovation, organised by Dhempe college of Arts and Science, on 24th June 2022.
4. Ms Hashma Mujawar, Faculty in Dept of Biotechnology participated in the following;
- ❖ Attended webinar on the occasion of world cancer day on 4th February 2022, in collaboration with P.E.S Medical Center and IQAC on “What my doctor never told me”. The speaker was DR. Padmanabh Rataboli, Professor and Head, Department of Pharmacology, GMC, Bambolim
 - ❖ Attended workshop on “Design, thinking, critical thinking and innovation design”? organised by IIC, Parvatibai Chowgule College.
 - ❖ Participated and won 2nd place at the Startup BioChallenge organized by BITS Goa Innovation, Incubation & Entrepreneurship Society (BGIIES) on 14th March 2022.
 - ❖ Completed a Workshop on “Blogging as a Knowledge Sharing Tool” organised by CTL of College on 1st April, 2022. The resource person was Mr. Malcolm Afonso, Assistant Professor, Department of Geology.
 - ❖ Completed a Workshop on “Flipped Learning - An Introduction”, a focused learning workshop on 19th April 2022 organised by Mr. Andrew Barreto, Assistant Professor, Department of English.

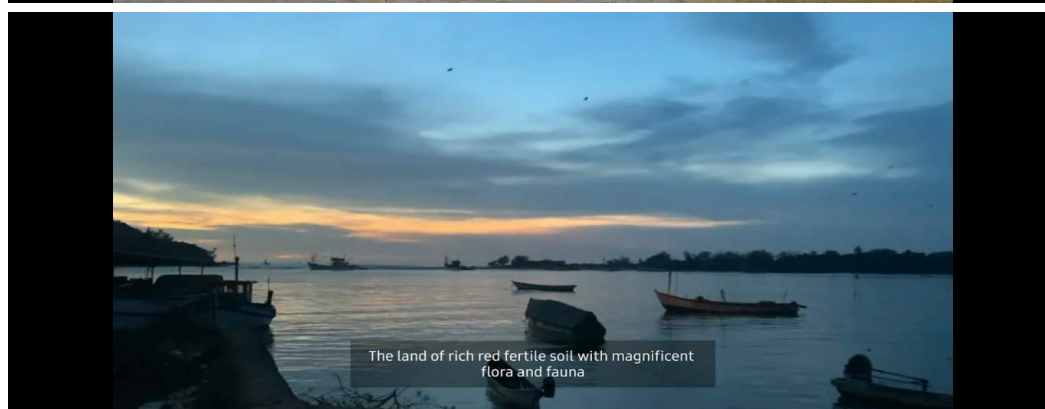
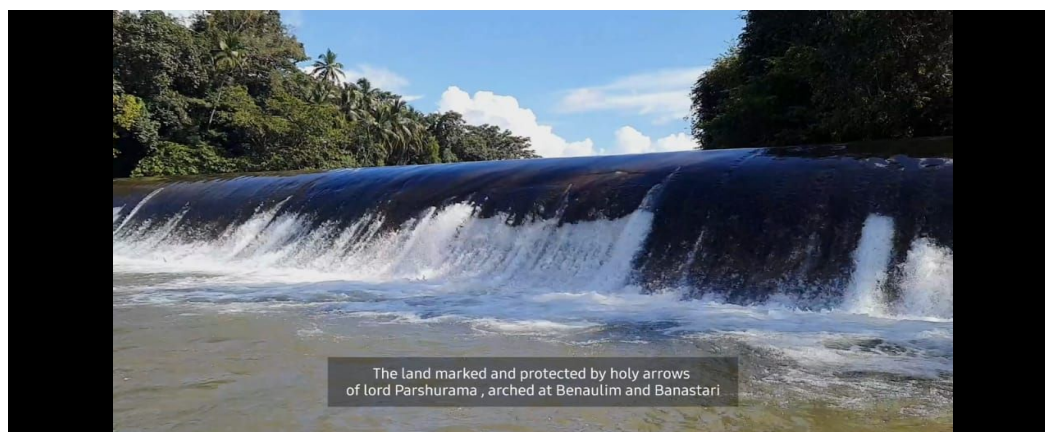
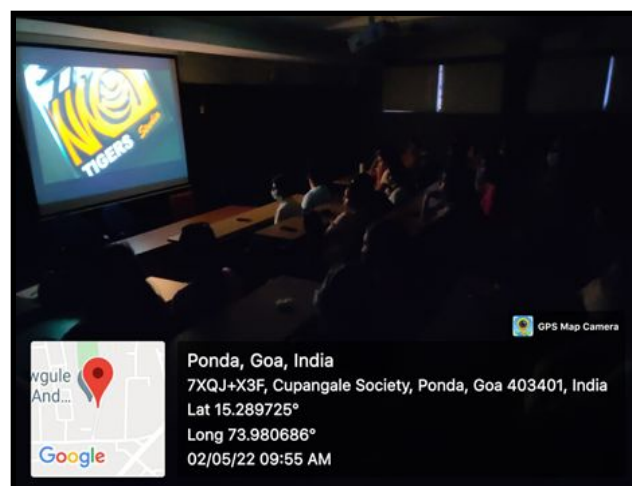


Startup BioChallenge organized by BITS Goa Innovation, Incubation & Entrepreneurship Society (BGIIES)

- By Dr. R. Kanchana, Ms. Madhavi M. Motankar, Ms. Hashma Mujawar & Dr. Starlaine Mascarenhas, Faculty of the Department of Biotechnology

STUDENT ACHIEVEMENTS

- ❖ Department of Biotechnology organised screening of film show on 'Let Goa Breathe' directed and produced by our TY Biotechnology students- Ms. Swati Mishra, Ms. Shriya Gaunekar and Ms. Melisha Cardoso that was short listed amongst the top three Environmental Science films organised by Science Film Festival of India in the lower auditorium on 2nd May 2022. Faculties and students from the departments of Biotechnology, Biochemistry and Geography attended the screening.



Picture showing screening and snippets of film on 'Let Goa Breathe' directed and produced by TY Biotechnology students Ms. Swati Mishra, Ms. Shriya Gaunekar and Ms. Melisha Cardoso

-By Ms. Hashma Mujawar & Dr. Starlaine Mascarenhas, Faculty of the Department of Biotechnology

The final year (T.Y) B.Sc. Biotechnology students are required to complete a dissertation project as a part of the curriculum. Presenting here, a brief report of the various project work carried out by the students with the final outcome as follows;

[PROJECT 1: Production of Eco-Friendly Bio-products](#)

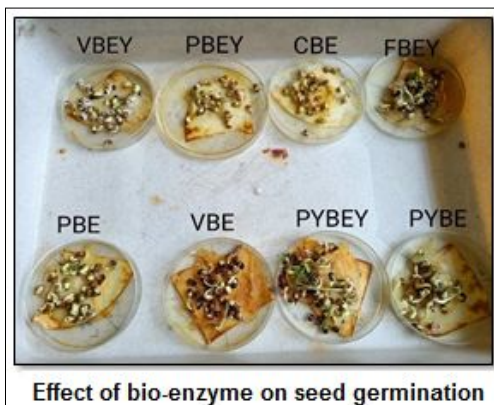
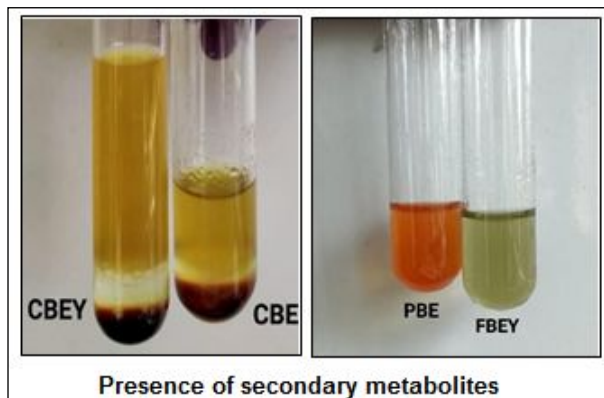
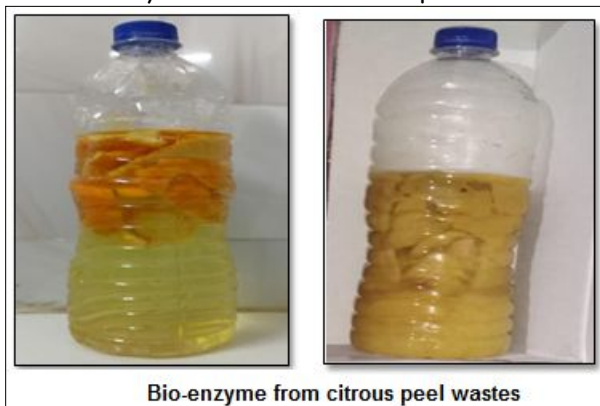
Students: Prathamesh Shetgaonkar, Pranali Waghchoure. Sahil Chawan, Ankit Naik, Fizza Aboobakar , Tanvi Shirodker, Arpita Bhange, Sakshi Gowda and Joleta D'Costa

Guide: Dr. R. Kanchna

Summary

The present project concerns the development of product/s with the environmental concern in mind. The bio-enzymes were prepared from mixed vegetable peels, fruit peels and flower waste and were screened for various enzyme activity & secondary metabolites, antimicrobial efficacy, plant growth promoting efficiency, in the treatment of wastewater and in the cleaning of the greased vessel. The results were promising suggesting the utility of bio-enzyme for various applications.

Conventional/synthetic non-biodegradable plastics have adverse effects on the environment. This study focused on the production of bio-plastic/biomaterial from cornstarch and fruits/vegetable wastes. The biodegradability test revealed the complete degradation of cornstarch bioplastic. Further an eco-friendly product was successfully made using bio-plastic. Thus, the eco-friendly products made in the present study will be the choice to replace their synthetic counterparts.





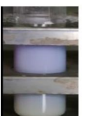

PROJECT 2: Investigation on Dairy products


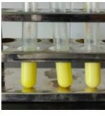

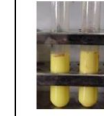
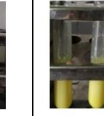
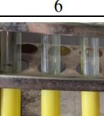
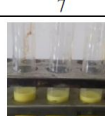
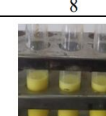


Students: Shriya Dattakumar Gaunekar, Gauri Nitin Naik, Gloria Lynnea Carneiro, Vaishnavi Vasant Parikar, Valantina Abixa Fernandes, Melisha Cardoso, Deandra Trecia Figueiredo, Anneliese Heidi Rodrigues

Guide: Ms. Madhavi Motankar

Summary

A survey conducted on milk consumption showed 99.5% consumed packaged and processed milk whereas, 0.5% preferred raw milk consumption. In the day today, everyone is fond of relishing various types of dairy products in cafe's, milk parlours, hotels, ready to have tetra packs which are consumed directly on daily basis. Most of the times, pasteurized or unpasteurized milk is used without any heat treatment for preparation of milk shakes, cold coffee, smoothie, falooda, etc which may lead to milk borne diseases due to various sources of contamination, adulterants and improper storage. Fundamental qualitative detection of adulterants in milk were performed using chemical, microbial and enzymatic analysis. All the milk samples tested showed the presence of adulterants such as, sodium chlorides meant for preserving shelf life. But high acidity may lead to decrease in shelf of life of packaged milk, presence of ammonium sulphates and poor quality of raw milk samples would hinder shelf life. Based on the quantitative tests, raw milk samples were found to have more pathogenic microbes thereby resulting in quick spoilage compared to the packaged milk samples that showed presence of a few harmful bacteria yet it can be consumed after boiling milk thoroughly which leads to destruction of the pathogenic bacteria. New innovation in the commercially available dairy products will be beneficial in terms of nutrition and health benefits for people of all age groups hence the replacement of normal milk with lactose free milk for preparation of various fast selling dairy products would be sustainable.

Time	0 minutes	10 minutes
Test		
Control		

Milk sample	1	2	3	4	5
Milk sample					
Milk sample					

Picture showing milk analysis using resazurin dye reduction test and detection of ammonium sulphate

[PROJECT 3: Production of bioethanol from a wide array of cellulosic substrates and its comparative analysis](#)

Students: Anuj Chandrakant Mandrekar, Arya Raju Naik, Farhad Aziz Jivani, Harshal Alias Shivani Naik, Merilyn Glancy Furtado, Nisreen Idris Calcuttawala, Samradni Rohit Paigankar, Stanford Lloyd Fernandes, Swati Kumari Mishra

Guide: Dr. Starlaine Mascarenhas

Summary

The improper handling and disposal of such wastes have led to hazards like environmental degradation, water pollution, soil pollution and air pollution.

This advocates the need to convert solid wastes such as organic cellulosic wastes into useful products, such as in the production of bio-ethanol. The main objective of the project that was carried out was the production of bioethanol from various cellulosic wastes such as Coconut husk, Pistachio shells, Cotton lint, Aloe vera rind, koorka peel and waste cardboard and to carry out a comparative analysis between each substrate used. Experimental studies were carried out by following mainly 3 steps that involved pre-treatment, hydrolysis and fermentation for the production of bioethanol. Pre-treatment is required to remove the lignin and hemicellulose to enhance the process of hydrolysis. Hydrolysis was carried out using 2 methods namely enzymatic hydrolysis and acid hydrolysis. The reducing sugars were then fermented to produce Bioethanol using the yeast (*Saccharomyces cerevisiae*) and the yield was estimated using a spectrophotometric method post distillation.



Pretreatment of cardboard soaked overnight



The students extracting crude enzyme from spent substrate of *Pleurotus ostreatus*

- By Ms. Madhavi Motankar, Dr. R Kanchana & Dr. Starlaine Mascarenhas, Faculty of the Department of Biotechnology

Departmental activities

- ❖ Industrial visit was organized by the Department of Biotechnology for the third year students to the National Center for Polar and Ocean Research situated at Vasco on the 4th of April 2022. On reaching the institute, the students were directed to a conference room where a presentation was given by Dr. Swati Nagar who is a part of the outreach department at NCPOR. She spoke about the functioning of NCPOR, the research activities being conducted there and in other regions of the world like in the Antarctic and Himalayas. She explained about the various expeditions being carried out and the stringent application process needed to carry out these expeditions which include stringent health checks followed by training programs conducted by the Indo Tibetan border police. Her presentation showed some of the research activities being carried out and indigenous animals inhabiting Antarctica. She also spoke of regions that are under the purview of NCPOR like the southern oceans. After the presentation, snacks and refreshments were provided to the students followed by a talk given by Dr. Ravidas Naik. He spoke about the southern oceans and its coordinates and about his ongoing projects based on micro plastics. He also explained about a patent being filed under his team's name for a filter to filter our microplastics when ships take in or discharge ballast water from ballast tanks. This will ensure cleaner seas and saving the environment. After the talk, students were encouraged to clear doubts if any.



Picture of the Third Year Students along with the accompanying faculty in front of the institute.

- By, Ms. Hashma Mujawar, Assistant Professor in Biotechnology

Departmental activities

- ❖ The Mentor Mentee Meet for B.Sc. Biotechnology students was conducted on 22nd February 2022 to resolve their issues and motivate them towards career goals.
- ❖ Short term training course on 'Entrepreneurial opportunities in Fermented Food technology' from 30.06.2022 to 05.07.2022 organised by Dr.R.Kanchana & Dr. Aduja Naik, Department of Biotechnology and Biochemistry respectively.

The theme of the workshop is to connect fermented foods to health status and social well being. Fermented foods have been playing a key role in the diet of human beings for centuries. Now several probiotic, prebiotic, symbiotic foods are available and sold as functional foods, nutraceuticals, health foods, dietary foods, etc. The exchange of the rich resources of fermented foods know how can present a golden opportunity for the expansion of the functional food market. Now we are happy to announce this short-term training course on "Entrepreneurial opportunities in Fermented Food technology" to share technical knowledge on fermented foods by the experts. This short-term training course includes talk series, delivered from experts and entrepreneurs in the fermented technology industry as well as academicians specialised in food technology.

FAREWELL TO THIRD YEAR BIOTECHNOLOGY STUDENTS

Farewell function for the third year Biotechnology students was organised by our first and second year students. The event was organised on 26th May 2022 on the theme Las Vegas. Dance performance by first and second year students and various other games and activities were conducted. The students as well as the faculty truly enjoyed the event.



Picture showing our students at the farewell function

- By, Ms. Hashma Mujawar, Assistant Professor in Biotechnology

Biochrome - Biotechnology Club activities

- ❖ 'Online Essay writing competition' on the theme 'Biotechnology – Present and Future', 'BioWar – Pros and Cons' and 'Bye-Bye Covid-19' was conducted on 17th February 2022. S.Y.B.Sc. Biotechnology student Ms. Apurva Damle bagged the first prize.
- ❖ Video making competition on "Integrated Approach in Science & Technology for Sustainable Future" wherein 41 students participated. T.Y.B.Sc. Biotechnology students, Mr. Stanford Fernandes, Mr. Farhad Aziz Jivani, Mr. Anuj Mandrekar, Mr. Prathamesh Shetgaonkar, Ms. Pranali Waghchoure, Mr. Sahil Chawan, Ms. Fizza Aboobkar, Mr. Ankit Naik, Ms. Nisreen Calcuttawala on 'Biosafety of Genetically Modified Crops' bagged the first prize and S.Y.B.Sc. Biotechnology student, Ms. Indira Sanzgiri on 'Radioisotopes sustainability' bagged the second prize.



Snippets from the video making competition on "Integrated Approach in Science & Technology for Sustainable Future"

- ❖ Alumni talk by Mrs. Alrida Braganza, Quality Assurance Officer, Britannia Pharmaceuticals, UK on 22nd April 2022. The purpose of these alumni talk series is mainly for experience sharing and guidance for the Biotechnologists in the making.



Parvatibai Chowgule College of Arts and Science Autonomous
Gogol, Margao - Goa India
Department of Biotechnology
Organizes an Alumni talk on
'My Career journey in Biotechnology'
by, Mrs. Alrida Braganza



DEPARTMENT OF BIOTECHNOLOGY
PARVATIBAI CHOWGULE COLLEGE OF ARTS & SCIENCE
AUTONOMOUS

MSc in Biomedical science from
University of Westminster, UK
Quality Assurance officer,
Britannia Pharmaceuticals, UK



Join us on Friday,
22nd April 2022 at 1 pm
Google meet link;
meet.google.com/rra-kxgw-ciz

<https://www.linkedin.com/in/alrida-dmello-0a86775b/>

- By, Ms. Hashma Mujawar, Assistant Professor in Biotechnology

Editor: Ms Hashma Mujawar, Dr. Starlaine Mascarenhas, Faculty in the Department of Biotechnology
Reports and pictures of the activities contributed by Students of the Department of Biotechnology: Ms. Swati Mishra, Ms. Indira Sansgiri, Ms. Dhiti Lotlikar & Faculty of the Department of Biotechnology: Dr. R. Kanchana, Ms. Madhavi M. Motankar, Ms. Hashma Mujawar & Dr. Starlaine Mascarenhas