



Book #5
2017-18

BIOBEADS

DEPARTMENT NEWSLETTER

Department of Biotechnology Engineering

SAHRDAYA
College of Engineering & Technology



INSTITUTE VISION

To train the youth to be the leaders of tomorrow with apt skills, deep rooted sense of social responsibility, strong ethical values and with a global outlook to face the challenges of changing world

INSTITUTE MISSION

With a high caliber faculty and an excellent infrastructure, we promote academic excellence, absolute discipline and sound practical exposure

DEPARTMENT VISION

To instruct students and advance research in Biosciences and Applied Biotechnology that will best serve our nation and the world

DEPARTMENT MISSION

1. Educating the next generation of engineers with a continual relevant curriculum that will teach them to integrate biological sciences with engineering fundamentals that can make, model and manipulate biological systems for industrial applicability
2. The department will research and develop new knowledge at the interface of engineering and biology that is industrially and socially relevant and looks at sustainability
3. Train leaders who value professional ethics and realize the need for societal contribution and environmental sustainability in their work.

PROGRAM EDUCATIONAL OBJECTIVES

1. To be equipped with the engineering skills and technical concepts enabling them to take up careers in Biotechnology and allied fields globally
2. To instill the passion for lifelong learning and scientific discovery, allowing them to conduct research, communicate and innovate technologies keeping them motivated to take research and higher education
3. To inculcate entrepreneurial and techno management skills along with professional and ethical responsibility empowering them to be responsible and socially aware citizens

PROGRAM SPECIFIC OUTCOMES

1. Able to measure, model and manipulate properties of biological systems at the cellular and molecular level so as to produce sustainable bio-products that address environmental and ethical standards
2. Able to formulate and execute quantitative and design oriented analysis of biological systems with modern tools and techniques and sustain a desire for learning and research that generates new knowledge at the interface of engineering and biology
3. Transform as socially relevant biological engineers having an entrepreneurial spirit and a professional outlook that would enable them to work as a part of a team in an industrial or research set up



DEPARTMENT ACTIVITIES

FACULTY DEVELOPMENT PROGRAMME

- AICTE sponsored Faculty Development Program on Technological Developments in Bioprocess Technologies was conducted from Nov 27 to Dec 09, 2017. Dr Radhakrishna Pillai, Director, Rajiv Gandhi Centre For Biotechnology, Trivandrum inaugurated the session and gave a talk on ‘RGCB as a gateway to translation of Biotechnology. A webinar session on ‘Who should pay for Biopharmaceutical innovation?’ was done by Dr. Krishnan Ramanathan, Senior Global Program Head, Neuroscience Development Unit, Novartis.
- The other eminent speakers included Dr. Deepu Krishnan P.R, of Indriyam Biologics Pvt. Ltd, Dr. Anil Kumar PR, and Dr. Lynda V from Sree Chitra Tirunal Institute for Medical Sciences and Technology, Dr. Fatima D’Souza of Zelle Biotechnology Pvt Ltd, Dr. Karthikeyan Sivashanmugam of VIT University, Dr. S S.Easwaran, from Biocon Academy, Dr. Jayachandran K of M G University, Dr. Rajeev Sukumaran and Dr. Binod of National Institute for Interdisciplinary Science and Technology, Thiruvananthapuram, Dr. Parag Saudagar, S K Biobiz Pvt Ltd, Nashik, Dr. S Karthikeyan of Tamil Nadu Agricultural University, Dr. Febe Francis, of Hamilton Institute, Ireland and Dr Leon Ittiachen of our department.



NATIONAL SEMINAR

KSCSTE sponsored National Seminar on Molecular Tools and Disease Diagnosis was conducted on the dates 16th March and 17th March 2018 by the Department of Biotechnology. Dr Savithri, Scientist, IISC inaugurated the

session and delivered the keynote address. The sessions also involved renowned speakers across the country. Our students K Achyuthanand, Devu P, Keerthana Anil and Sandra Marium Kurien presented various papers on this session.



INVITED TALKS

- Technical Programme on Analytical Methods and Applications by Mr Anil V Kurup and Mr Narayan Patil from Waters India Pvt Ltd. Bangalore was conducted for 2015 and 2016 batch students on 17th March 2018.
- GE Healthcare arranged a one hour session on GE Training modules for the 2014 and 2015 batch students on August 8th 2017 by Mr Aniruddha Bose.

STUDENT ACHIEVEMENTS

STUDENT PROJECT GRANTS

- The project titled “PeBLas: An innovative novel toothpaste formulation against tooth decay” with Dr Ambili Mechoor as Principal Investigator and Najeeb Bin Haneef O, Adityah Ganesh, Delvy Davis, Divya Anand & Sruthy S Nair of 2016 batch as student investigators have been granted an amount of Rs 6000 from KSCSTE.
- The project entitled ‘Marijuana and Alcohol Detector’ received the Idea Day Grant of 2 lakhs from Kerala Start Up Mission 2018. The project team members are K Achyuthanand, Gopika Menon, Parvathy M, Aysha Rega and Manu Joseph of 2015 Batch. The project is guided by Dr Dhanya Gangadharan (BTE) and Ms Ambily Francis (EC).
- The project entitled ‘BIOME Photobioreactor’ received the Idea Day Grant of 1.5 lakhs from Kerala Startup Mission 2018. The project team members are AswinSasi, Hilal Aboobacker, Neha Nagarkoti, Anna Jelson and Haritha R of 2015 batch and the project is guided by Dr Dhanya Gangadharan (BTE)



STUDENT PROJECT AWARDS

- The academic year started with two awards at TECHTOP 2017 held at IIT Delhi in July 2017. Aleena Sebastian, Swathy & Jeena Elizabeth of 2013 batch secured Woman in Technology Award for the project titled ‘Chitowrapper’ guided by Ms Smeera Thomas. They received the Certificate of Appreciation and cash prize worth Rs 20,000. Shery George, Krishnakeerthi, Archana Menon, Gismaria Jose, Ashwin & Gain Varghese of 2014 batch secured a special prize on “Environmental Compatability” for the project ‘Biosensor for detection and degradation of pesticides’ guided by Dr Leon Ittiachen
- The project entitled ‘Bio-Na-Chi for burn wound healing’ secured the Manorama Yuva Mastermind 2017 grant of Rs.10,000 and participated in the project competition organized by Malayala-Manorama in technical partnership with Amal Jyothi Engineering College in January 2017. The project team members were Aryasree N M, Chinju Paul, Sony Vincent, Kavya N.M, Neethu K.S of 2014 batch and the guide is Ms.Amitha Joy.



- The “Bio-Na –Chi’ team won the second runner up prize in the Srishti 2018 contest held at Saintgits College of Engineering and Technology, Kottayam.



- Our first year M Tech students (Anitta Sunny, Aleena Sebastian, Merin Raju, Anumol S Kottakkal bagged Dr. Pradeep P. Thevannoor Innovation Awards (PPTIA 2018) of Rs.1 lakh and certificates for the project ‘Chitowrapper’ in the project competition held at SCMS School of Engineering and Technology, Cochin.
- The project ‘BIOME Photobioreactor’ was selected for the ABLE-BEST INDIA 2017 Entrepreneurship Workshop, Bangalore held on February 12-16, 2018. The project team members were Aswin Sasi, Hilal Aboobacker, Neha Nagarkoti, Anna Jelson and Haritha R of 2015 batch and the project was guided by Dr. Dhanya Gangadharan.



- The interdepartmental project ‘Marijuana and Alcohol Detector’ secured the 2nd prize in Srishti 2018 conducted at Saint Gits College of Engineering and Technology, Kottayam during January 2018. The project team members are K Achyuthanand, GopikaMenon, Parvathy M, Aysha Regaan D Manu Joseph of 2015 batch guided by Dr Dhanya Gangadharan (BTE) and Ms Ambily Francis (EC).





- Athul .K. Balachandran and Ayishabi of 2015 batch attained first prize for Project Presentation held at Vidya Academy of Science and Technology in March 2018. This was carried out under the guidance of Ms. Marria C. Cyriac.
- A group of four students from 2015 batch Aswin Sasi, Anna Jelson, Haritha R and Hilal Aboobacker were selected as the top ten finalists for the Global Impact Challenge by Singularity University and KSUM from July 2nd to 7th 2018. This project was done under the guidance of Dr. Dhanya G.

PAPER PRESENTATION AND PROJECT PARTICIPATION

- Devu P Vijayan and Gayathry Rajeev of 2015 batch secured 2nd prize in Inter University Powerpoint Presentation Competition on “Stay Healthy in Monsoon” conducted in connection with Monsoon Disease Awareness Programme - 2017 by Department of Microbiology, St. Mary’s College, Thrissur on July 28th 2017
- Atul, Ayishabi, Jewel Mathew and Mary Tania Christopher of 2015 batch attended a National Seminar on Currents Trends in Biotechnology at St. Joseph’s College of Engineering and Technology on 15th December 2017 and participated in the paper presentation.
- First prize for KETCON 2018 paper presentation was bagged by Mr. Aswin Sasi of 2015 batch.
- Steve Manjaly of 2015 batch attended a conference on Complex Genetic Disorders at ICCONS, Shoranur in January 2018



- Seven of our student projects was selected for Project Exhibition in TEKON 2018 and they are Biosensors for detection and degradation of pesticides, Enzymatic catalysis for enhanced biodiesel production using membrane bioreactor, Media optimization for probiotics using fruit waste and vitamin enriched functional food and Bio-Na-Chi for burn-wound healing, Marijuana and Alcohol Detector, Biome Photobioreactor guided by Dr Dhanya Gangadharan, Dr Uma Krishnakumar, Ms Marria C Cyriac, Ms Amitha Joy and Dr Dhanya Gangadharan respectively.
- Ruth K Joji, Karthika V, Padmasoonam, Nirosha Sunil and Christeena Jose of 2014 batch participated in Paper Presentation in International Conference on Energy and Environment: Global Challenges conducted by National Institute of Technology, Calicut, Kerala on 9th and 10th March 2018 on the topic “Enzymatic catalysis for enhanced biodiesel production using membrane bioreactor”.
- Students of 2015 and 2016 batch attended the National Level Seminar on ‘Molecular Tools and Disease Detection’ held at our Campus on 16th and 17th March 2018 K Achyuthanand, Sandra Marium Kurien, Keerthana Anil and Devu Vijayan of 2015 batch presented papers and K. Achyuthanand received the first prize.
- Sixteen students of 2015 batch attended a National Level Symposium at Sree Chithira Thirunal College, Thiruvananthapuram ‘Equilibria 2018’ on 23rd and 24th March 2018. Sreya Sreekumar and Sona Rafeek of 2015 batch participated in a paper presentation at on the topic ‘Adsorption of Phenol components through human water hair’. Sili V and Sreya Sreekumar of 2015 batch presented a paper on ‘Microbial Pigment Production’.
- K. Achyuthanad, Siby Issac, Mame Bajo, Niranjana, Abhilash, Annmariya Benny of 2015 batch were selected for Idea Fest Finals held in May 2018 The project was guided by of Dr. Dhanya .G.
- Thulasi V.V, Shiji Gopalakrishnan, Shreya Suresh, Sivik M.R, Shery George presented a paper in International Conference on Bioengineering on



Health and Environment on January 8th to 10th, 2018 organized by Sathyabhama Institute of Science and Technology, Chennai

PUBLICATIONS – CONFERENCE PROCEEDINGS

- Mary Tania Christopher and Athul K Balachander, Production of Fertilizer from waste paper; Kerala Technological Congress - KETCON (2018) 309-313
- Aswin Sasi, Haritha R, Anna Jelson, Hilal Aboobacker, Compact Photobioreactor BIOME, Kerala Technological Congress - KETCON (2018) 314-317
- Arya Sree NM and Sony Vincent, Bio-Na-Chi for burn wound healing; Kerala Technological Congress - KETCON (2018) 323-330
- Jain Rose CJ, Libna Lawrence, Thamanna K, Sherin Shams, New Material From Coconut Shell Powder ‘Co-Res-Co’, Kerala Technological Congress - KETCON (2018) 344-349
- Archana and Gain Varghese, Biosensors for detection and degradation of pesticides, Kerala Technological Congress - KETCON (2018), 352-355
- Padmasoonam and Karthika R, Enzymatic Catalysis for Enhanced Biodiesel production using Membrane Bioreactor, Kerala Technological Congress - KETCON (2018) 996-1000.
- Thulasi V.V, Shiji Gopalakrishnan, Shreya Suresh, Sivik M.R, Shery George, Purification of laccase from *Trichoderma Harzianum* and application in dye decolourisation” International Conference on Bioengineering on Health and Environment 2018.

TRAINING, INTERNSHIPS, COURSES & WORKSHOP

- Keerthana Anil of 2015 batch received the prestigious IAS summer research fellowship program 2017 to undertake a two months research at IISER Kolkata
- Students of 2015 batch underwent their internships at Indo-American Hybrid seeds, Bangalore; Synergy Systems, Kochi; Kerala

Agriculture University, Mannuthy during June and July 2017. 2016 Batch did their internships at a vivid range of institutions like Baby Memorial Hospital, Calicut; KSE, Irinjalakuda; Lantern Interns; KEL, Mammala; Fruitomann’s, Ernakulam; FACT, Udyogamandal; Southern Union Pharmaceuticals; Goldson Paints Pvt. Ltd; Sevana Industries; Milma, Thripunitura; Sitharam, Kanimangalam; Jubilee Mission Research Centre, Thrissur; Carborandum Universal Ltd, Chalakudy; Eastern Pvt Ltd during June and July 2017.

- During June and July 2018 student of 2015 batch underwent their internships at various different industries and institutes like Rupture Biotech, Chennai; Bioaxis DNAResearch Center, Hyderabad; Pasteur Institute, Coonor; Kerala Forest Research Institute, Thrissur; Milma; Rajiv Gandhi Centre for Biotechnology; Kerala Agriculture University, Mannuthy; Agronomic Research Centre, Chalakudy; Julphar-Gulf Pharmaceutical training, Ras-al-khaimah.
- 2016 batch students did their internships at Pasteur Institute of India, coonor; Teacher cream frost Ice cream company; AVT Biotech ; Indo-American hybrid seeds, Bangalore; ICAR-Sugarcane breeding institute, Coimbatore; KSE Ltd, Irinjalakuda; Kerala Agricultural University, Mannuthy; Spirulina Training, Pondicherry during June and July 2018. 2017 batch students attended their internship training at FACT, Udyogamandal; Nita-Gelatin, Infopark; RUBCO, Thalassery; Eastern during June and July 2018.
- Students of 2015 batch (Haritha R, Anna Jelson, Aswin Sasi, Hilal Aboobacker) attended FABXL workshop at METS School of Engineering from 9th to 11th Nov 2017
- Najeeb Bin Haneef O, Abhayraj C R, Aakash P and Rakesh V R, attended two days Inplant Training Program in Spirulina Cultivation Technology at Gerophyta, Spirulina Production Plant and Research, 21st & 22nd September 2017, Tamil Nadu.
- Eighteen students of 2014 batch successfully



completed the courses of National programme on technology enhanced learning (NPTEL) which included Animal physiology, Cell culture techniques, Introduction to Mechanobiology, Industrial biotechnology, Biostatistics, Biomedical nanotechnology, Human molecular genetics, Medical biomaterials.

UNIVERSITY RESULTS

- Calicut University results for 2014 batch were announced and toppers of 6th, 7th and 8th semesters were K. Anagha (CGPA-9.44), Padma Soonam (CGPA-9.44) and Padma Soonam (CGPA-8.36) respectively.
- KTU results for 2015 batch were announced and toppers of 5th and 6th semesters are Sreya Sreekumar (CGPA-8.74) and Sachin Thomas (CGPA-8.24) respectively.
- Athulya Martin (CGPA – 8.75) of 2016 batch was the topper of Third semester.
- First and second semester KTU results for 2017 batch were announced and toppers were Linta Johnson (CGPA-9.7) and Pooja P Nair (CGPA-9.54)

PLACEMENTS AND HIGHER STUDIES

- Vaishnavi Menon of 2013 batch was recruited by campus interview conducted by ZIFO R & D solutions.
- Feather Soft Info Solutions Pvt. Ltd, Bangalore recruited Sreeraj N of 2014 batch for the post of Business Analyst.
- The following students of 2013 batch were recruited at various companies: Nimmy Paul at U Bio, Dhanya Varghese at LJ International, Mohammed Shafeek C P at Kumar labs Pollachi, Riya S Imatty at Lavish Premeir Electricals & Saniwares.
- The following students of 2013 batch got admitted at various institutions for higher studies: Linus Augustine at NIT Durgapur; Ann Maria Tony & Navia Vinoy at Centre for Nanosciences, Amritha Institute; Kavya Suresh at Amritha University; Vishnu K and

Franklin P M at IIT Guwahati; Abey Joseph at NIT Bhopal; Anandaraj K & Shruthi Jacob at VIT; Harikrishnan K & Reshma M R at Pondicherry University; K Sreekumar at Warwick University, UK; Sneha A at University of Queensland, Australia; Jeena Elizabeth Rajan at Calicut University; Jemilakshmi T V at Karunya University; Anumol S Kottackal, Anjana K, Aleena Sebastian, Merin Raju, Sesheena Sebastian Menachery, Glady K Sunny, Anitta Sunny at SCET, Kodakara. Padmasoonam and Samanatha of 2014 batch qualified GATE 2018.

FACULTY ACHIEVEMENT

- Dr. Ambili Mechoor received a grant of Rs 5 Lakh for conducting a two week FDP and a grant of Rs.40,000 from KSCSTE for the conduction of National Seminar.
- Dr. Leon Ittiachen served as a resource person for AICTE sponsored FDP on “Technological Developments in Bioprocess Engineering”.
- Dr. Ambili Mechoor served as a resource person for KSCSTE sponsored National Seminar on “Molecular Tools and Disease detection”
- Ms. Sangeetha Gopal registered for PhD (KTU) under the guidance of Dr. Leon Ittiachen. The first Doctoral Committe was held on 23rd May 2018

PUBLICATIONS

- Praveena P, Therapeutic effect of *hydro-ethanolic extract of Pothos scandens L* on key carbohydrate metabolizing enzymes and xenobiotics marker enzymes in DMBA induced experimental mammary carcinoma, Int J of Pharmaceutical Educational and Research (2017)
- Praveena P, Preliminary screening of *Hydro ethanolic extract Pothos scandens L* for its potential anticancer activity, Journal of Applied Science and Engineering Methodologies (2017)
- Uma Krishnakumar, Kinetic study of preparation of biodiesel from crude rubber seed oil over a modified heterogeneous catalyst, Indian Journal of Chemical Technology (2017)



- Ambili Mechoor, Zymography in multiwells for quality assessment of proteinases, Zymography - Methods and Protocols, Book Chapter 21 (2017)
- Ambili Mechoor, Detection and characterization of bacterial proteinases using Zymography, Zymography - Methods and Protocols, Book Chapter 9 (2017)

FDP AND TRAININGS ATTENDED

- All the faculty members attended a FDP on Foundation Program in ICT for Education from 03 Aug to 07 Sep 2017 conducted by IIT Bombay.
- All the faculty members participated in the FDP “Technological Developments in Bioprocess Engineering” during 27 Nov - 09 Dec, 2017.
- All the faculty members participated in the National Seminar “Molecular on Tools and Disease detection” held on 16 and 17 March, 2018.
- Ms. Ranimol G, Ms Marria C Cyriac, Dr. Dhanya Gangadharan attended a Hands on training in Analytical techniques from 25th June - 5th July 2018 at BIONEST KINFRA.
- Ms. Salini P J and Dr. Uma Krishnakumar attended a Faculty Development Programme on “Advanced Techniques in Energy and Waste Water Treatment” during 2-7 July at NIT Calicut

BEATS – ASSOCIATION EVENTS

TECHNICAL SYMPOSIUM- PALMARIUS

The annual technical fest Palmarius was conducted along with TEKON-KETCON 2018 on 23rd, 24th and 25th February 2018 with two technical events REDRUM and JUMANJI. There were lots of external participants also for the events.

- REDRUM WAS all about testing your analytical abilities, observations and deduction skills. Progress through a series of methodologies and identify the criminal.
- INDRIYA took the participants through a series of assessments fludged with ticklers, games and much more surprises that really makes sense.

- JUMANJI was a confusing network of interconnected pathways and labrynth. The participants had to solve the tricky puzzles and find their way out to grab prizes.

COMPETITION ORGANIZED

- Dr. George Thottappilly memorial Essay Writing Competition is conducted for which the theme for this year 2018 was ‘Big Data Storage’.

DEPARTMENT DAY



- Our Department conducted department day for encouraging the extra-curricular talents of our students on 19th March. There were several entertainment events conducted by our students including Department band, dance by students of all batches, musical events, skits and movie spoof

INDUSTRIAL VISIT

- An industrial visit to MILMA Wayanad dairy was organized for the students of 2015 batch on 25th January 2018. It was a 3 day programme to Wayanad initiating with the industry visit to Wayanad Milma dairy. 46 students accompanied with 2 faculty members and 2 parents headed to Wayanad. They were accompanied by Dr. Uma Krishnakumar and Mr. Francis John V as the faculty representatives and Mr. Anilkumar V B and Mrs. Beena Anil as the parent representatives.





- The students of 2016 batch went for an industrial visit to Milma Dairy, Wayanad during the 3 day trip to Wayanad from 10th to 12th February 2018. 59 students were accompanied by Ms. Marria C Cyriac and Mr Shyam Krishna as faculty representatives and Mr. Santhosh Kumar and Mrs Sunitha Santhosh as parent representatives.

SPORTS

- Our students (Annmariya Benny, Christy, Sandra Marium, Namitha, Dona Joseph) have participated in various events including college sports meet, inter college tournaments. University Tournament (KTU tournament for Basket Ball) including various friendly matches. They won the won the E-zone Basketball tournament (KTU), 2016 at Nehru College of Engineering and Technology, Palakkad. They were also the first runner up in the e-zone KTU tournament, 2017 and winners of the PECSAGA 2018 tournaments held on 23rd and 24th March 2018.
- Anmariya Benny of 2015 batch won the ‘Man of the Match Tournament’ title. Anjana A. Nair, Swetha K, Keerthana Anil, Sandra Anand, Gayathri Rajeev participated for PECSAGA Volleyball Tournament at Malabar College of Engineering and technology (Deshamangalam).

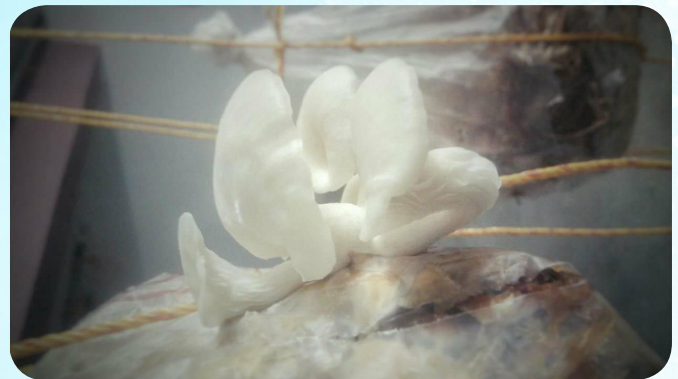
SOCIAL EXTENSION PROGRAMS

- Hilal Aboobacker, Gayathri Rajeev, Athul K.B, Aswin Sasi, Deepika V of 2015 Batch along with the faculty members Ms Smeera Thomas and Dr Uma Krishnakumar conducted an activity session on design of “Effective Waste Management” at Holy Cross CHSS (Mapranam) and St Mary’s HSS (Irinjalakuda).
- The NSS volunteers of 2015 batch has actively participated in the 3 – day PUNARJANI camp held at GOVT. Taluk Hospital, Puthukad & GOVT. Health Center, Matathur.
- The NSS volunteers of 2015 and 2016 batch actively participated in the washing of KSRTC buses at Thrissur depot

ENTREPRENEURIAL INITIATIVES

- A team of seventeen students from our

department attended mushroom culture training at Kerala Agricultural University, Mannuthy and started culturing oyster mushrooms using paddy straw last year. These enthusiastic students clustered and formed groups to engage in different activities like sterilizing, culturing, harvesting and packaging, raw material collection. They formed an effective center of activity and never stopped working for the betterment of Mushroom Hub.



ALUMNI IN NEWS



Dr Lekshmy Pooyath of 2008 batch received the Full Bright Fellowship to pursue her post doctoral studies in US after her PhD at Indian Institute of Science, Bangalore.

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