



DBT – ICT CENTRE FOR ENERGY BIOSCIENCES



PREFACE

PROF. ARVIND M. LALI

**Professor (Chem. Engg.),
Head, DBT-ICT Centre for Energy
Biosciences**

Ph. D. Chem Engg.

The DBT-ICT Centre for Energy Biosciences (DBT-ICT-CEB) is a unique place that integrates basic and translational science capabilities for bioprocess development and scale up. Funded by the Department of Biotechnology, Ministry of Science and Technology, India, the Centre was established and formally inaugurated in May 2009. Established at a total cumulative cost equivalent to more than USD 15 million, the Centre is a part of the Institute of Chemical Technology (ICT) at Matunga, Mumbai, which is a deemed University under Section 3 of UGC Act 1956. The Centre was set up as a result of vision and efforts of Dr. M. K. Bhan, Secretary DBT and Dr. Renu Swarup, Advisor, DBT, and functions under the leadership of Dr. G. D. Yadav, Vice Chancellor, ICT. The projects and technical programs at the Centre are coordinated by Prof. Arvind Lali. The Centre is focused primarily at developing biotechnologies for deriving biofuels and other products from renewable resources for reducing India's rising dependence on petroleum and cut down greenhouse gas emissions. The

Centre believes in building multidisciplinary capacity for development of integrated technology packages.

The Centre successfully completed its first phase of five years in 2013 and was awarded an extension of five years by the Department of Biotechnology with the extended mandate of upscaling and upgrading the platform technologies developed during the first phase. The 10 Ton/day biomass pilot plant set up by Industry has successfully validated all segments of the novel DBT-ICT Lignocellulosic Ethanol Technology in a continuous non-stop flow mode from biomass size reduction to ethanol fermentation. The technology is at present being taken to commercial scales by different oil marketing companies. The Centre has developed a highly competent working groups in the area of Synthetic biology, Fermentation technology, Green/Chemical catalysis, Algal technologies, Enzyme engineering & technology, Separation technologies. These groups have developed a range of globally competitive cutting edge technologies that are at present being translated to demonstration and commercial scale plants.

With an outstanding achievement in the first phase, the second phase progressed to develop platform technologies for conversion of all domestic, industrial and agricultural wastes to renewable products (fuel, food, feed, material, energy and chemicals) using smart

combinations of chemical and biological technologies. Also during the second phase, the Centre has developed an integrated biorefinery concept through multi-product processing using chemical or biological routes that are being taken up for technology transfer or scaleup. The Centre has expanded its state-of-art facility and procured several high-end equipment's and instruments that not only leads to high level contemporary research but also an accelerated development of several more scalable technologies based on the knowledge base generated. The Centre having completed its second phase in 2018, aims to continue the work in an intensive mission mode for innovative research and translation of developed technologies.

The Centre for Energy Biosciences has attracted a large number of industrial and academic collaborations as a result of its reputation of conducting cutting edge research and delivering viable and scalable solutions to the biotech industry. The Centre is also part of several national and international academic collaborations (Indo-UK, Indo-Australia, Indo-German, Indo-US and several national projects) with grants amounting to more than 10 million USD under various R&D schemes floated by Ministry of Science and Technology, Government of India. The technologies developed at the DBT-ICT Centre have been secured through patent filings across the world. A number of technologies have been already licensed to industries for pilot and commercial scale plants.

AIMS:

- Envisage the end goals as clearly as possible at all times
- Put all multiple disciplines to work in close co-ordination
- Combine expertise at two ends of the spectrum i.e. molecular biology and engineering sciences
- Scale up and apply evolving principles/ideas progressively alongside development in order to make sure that efforts are time efficient and not wasted and the technology zeroes to viability at a faster rate

RESEARCH GROUPS

GREEN/CHEMICAL CATALYSIS



Objectives

- Developing second and next generation sustainable biofuel technologies
- Development of biorefinery concept through multiproduct processing
- Scaling up and implementing biofuel plants in decentralized manner

Approaches

- Innovative pre-treatment strategies
- Radical intensification for enzyme process
- Intensification of fermentation steps

Achievements

- Technology developed for pre-treatment of low & high lignin biomass
- Production of separate enzyme amenable cellulose and hemicellulose fractions along with lignin
- Novel two step continuous enzyme process with rapid reaction rates and reduction in enzyme dosage and reaction time

PRESENT SCENARIO

Currently the Centre has following human resource

Faculty	Professor - 2	22
	Associate Professor - 3	
	Assistant Professor - 3	
	Research Scientist - 6	
	Research Associate - 8	
Ph. D Scholars	PhD Bioprocess Technology	30
	PhD Biotechnology	
	PhD Science	
	PhD in Chemical Engineering	
M. Tech Students	Bioprocess Technology	12
	Chemical Engineering	
Support Staff	Support Staff	25

Support Staff:

Sr.	Name	Designation
1.	Vibha Raut	Instrumentation Engineer (Electrical/Electronics)
2.	Akshay Kolge	Instrumentation Engineer (Electrical/Electronics)
3.	Megha Pujari	Office Assistant
4.	Shilpa Tondlekar	Office Assistant
5.	Deepti Kataria	Typist Clerk
6.	Shreya Chopdekar	Typist Clerk
7.	Rutika Chandane	Typist Clerk
8.	Himanshu Sati	Project Assistant
9.	Survana Rayate	Project Attendant
10.	Vinaykumar Patil	Project Attendant
11.	Vaishali Parmar	Project Attendant
12.	Nilesh Satve	Project Attendant
13.	Sandeep Ghole	Project Attendant
14.	Sameer Gawade	Project Attendant
15.	Santosh Yadav	Project Attendant
16.	Ketan Khare	Laboratory Assistant
17.	Shah Mohd. Khalid	Laboratory Assistant
18.	Kiran Bhangare	Laboratory Assistant
19.	Suhas Chile	Laboratory Attendant
20.	Prashant Mohite	Laboratory Attendant
21.	Prashant Koli	Laboratory Attendant
22.	Imran Mohd. Mustaf Khan	Laboratory Attendant
23.	Krishna Monde	Project Helper
24.	Mangesh Kesarkar	Helper
25.	Kalpesh Gugale	Helper

Equipment List:

Name of Equipment	Units
Robotic System-Cell Explorer	1
GC with headspace sampler	1
GC with inert XL EI/CI MSD with Triple-Axis Detector	1
HPLC systems with UV, DAD, RI, ELSD and CAD detectors	9
HPLC-MS/MS (Q-TOF; Triple-Quad; Ion Trap)	3
SELDI	1
Preparative HPLC	2
Moisture Analyzer	1
RO and Analytical balances	4
Karl-Fischer Autotitrator	1
Fluorescence Microscope	1
Infrared Spectrophotometer (FTIR)	1
UV-VIS Spectrophotometers	2
Complete ELISA station	1
Versa Doc and Gel Doc Imaging System	1
PCR and RT-PCR	1
Gel electrophoresis systems & Image analysis	1
Ion Chromatographic system with ECD and BioScan detectors	1
Spectrofluorometer	1
Nano Drop	1
Algal Stirred Photo Bioreactor	4
1000L and 5000L Raceway Ponds	1
Pulse Amplitude Modulated Fluorimeter (PAM)	1
Olympus Microscope Model IX51 with camera and software	1
Continuous Chromatography System. Simulated Moving Bed lab cum pilot scale high pressure Multicolumn System	1
Microwave reactor systems	2
Continuous microwave reactor system	1
3L to 10L Bioreactors	8
Parallel 3x1L Bioreactor Assembly	1
Multiple micro-Fermenter assembly	1
Off-gas analyzer for the fermentation systems	1
Gradient PCR	2
Thermal Activity Monitor	1
Anaerobic work stations	2
Elemental analyzer	1
Parr/High pressure reactors	3
Microbial Identification System	1
Phenotype Microarray System	1
Particle size analyzer	1
Mini-raceway ponds	10
Accelerated Solvent Extraction Systems	1



PROF. ARVIND M. LALI

Ph. D. Chem Engg.

Professor (Chem. Engg.),

Head, DBT-ICT Centre for Energy Biosciences

Subject Taught:

Bioprocess simulation modeling & bioreactor design, Instrumentation & process control, Adsorptive separations Statistical methods

Research Interests :

Bioenergy, biofuels & biomass to other chemicals, Purification of proteins, nucleic acids & other biomolecules, natural & synthetic APIs high value organic/

inorganic chemicals, Continuous chromatography, Modeling & adsorptive separations, Biocatalysis & biotransformatics, bioreactor design, Mixing & Dynamics of solid liquid Fluidized bed, Dynamics of gas-solid Circulating fluidized bed, Process Integration & intensification, Process development, characterization & scale up

Research Students :

Ph.D. (guided) – 60 (so far),

Ongoing - 14,
Masters (guided) – 72 (so far)
Ongoing - 3

Research Publications :

International – 72 (so far)

Patents :

International – 23 (granted),
110 - (filed) (so far)

National – 3 (granted), 43 (filed) (so far)



DR. ANNAMMA ODANETH

Ph.D. Applied Chemistry

Associate Professor

Subject Taught:

Biological Sciences, Protein & Enzyme, Engineering, Biocatalysis & Enzyme technology

Research Interest :

Biocatalysis & Microbial Fermentation for waste to value Products, secondary agricultural, Mining, redesigning & implementing Proteins for food,

feed, fuel & Functional molecule, synthesis, Yeast Microbiology & synthetic engineering, byproduct process Development, integration& intensification, process development, Characterization & scale-up

Research students :

Ph. D. – 7 (guided),
14 (co-guided)

8 (ongoing)
Master – 12 (guided), 3 (ongoing)

Research Publications :

International – 55

Patent :

International – 20 (granted),
64 (filed) so
National – 1 (granted),
12 (filed) so far



DR. REENA PANDIT

Ph.D. Marine Biotechnology
Associate Professor

Subject Taught:

Biochemistry & Green Biotechnology

Research Interests :

Algal growth engineering for Production of biofuel & biochemical CO₂ sequestration & waste

water Management using micro & macroalgal systems, Genetic engineering of cyanobacteria for Value added compounds

Research Students:

Ph. D. – 5 (guided),
1 – (co-guided)

3- (ongoing)
Masters – 16 (guided),
4 (ongoing)

Research Publications:

International – 22 (so far)



DR. GUNJAN PRAKASH

Ph. D. Plant Biotechnology
Associate Professor

Subject Taught :

General Microbiology, Fermentation

Research Interests:

Genetic engineering of Microalgae for increasing the photosynthetic efficiency, abiotic stress resistance & value added compounds, Fermentation Production of

value added compounds from microorganisms, marine protist & microalgae

Research Students :

Ph. D. – 3 (ongoing),
Masters – 8 (guided),
2- (ongoing)

Research Publications :

International – 15 (so far)
National - 2 (so far)

Patents :

International – 1 (granted)



DR. SHAMLAN M. S. RESAMWALA

Ph.D.
Assistant Professor

Subject Taught:

Molecular biology & biotechnology, Biosystems engineering, Intellectual Property rights

Research Interests :

Molecular & synthetic biology of prokaryotic & eukaryotic systems, utilization of abundant

feedstocks for biosynthesis of transportation fuels and chemicals, overexpression and secretion of recombinant proteins, enzyme engineering for improved catalysis & robustness, bioprospecting to explore metabolic diversity in environmental niches, techno-economic valuation,

Pedagogy & active learning, IP Policy

Research Students :

(Co.Guide) Ph.D. – 1, M. Tech. - 1

Research Publications:

International – 8

Patents :

National – 1 (granted) Filled -2



DR. MANJU SHARMA

Ph. D. Microbiology
Assistant Professor

Subject Taught :

Microbiology

Research Interests :

Anaerobic digestion of lignocellulosic biomass for enhanced & rapid

methane production, Anaerobic microbiology: mining of efficient microbes, consortium design & study of syntrophic interactions amongst the consortium members

Research Publications :

International – 6 (so far)

Patents :

International – 1 (filed)

National – 1 (filed) (so far)



DR. HITESH PAWAR

Ph.D. (Sci.) Chemistry
Assistant Professor

Research Interests :

Conversion of bio-based Sugar to value added chemicals, Photocatalytic hydrogen production, Novel homogeneous, heterogeneous & transition metal catalysis, Synthesis of ionic liquids, deep entectic solvents, Study of reaction kinetics & reaction mechanism,

Designing & development of industrial catalyst, Process intensification & integration, Process development, characterization & scale-up, Chromatographic separation & purification of small molecules, Computational chemistry & molecular modeling effluent treatment

Research Publications :

International – 4 (so far)

Patents :

International – 1 (granted)
4 – filed,
National – 4 filed so far



DR. POOJA JOSHI

Ph. D. Plant Biotechnology
Research Scientist

Subject Taught:

Patents & IPR

Research Interests :

Plant biotechnology, IP protection & policy, Patent Search & analysis, patent drafting & prosecution

Research Publications :

National – 1 (so far)

International – 3 (so far)

Book chapter – 1 (so far)



DR. SHALINI DEB

Ph. D. (Sci.) Biotechnology
Research Scientist

Subject Taught:

Biosystems Engineering

Research Interests :

Metabolic engineering, Protein engineering, Gas fermentation, high-throughput screening strategies

for metabolites of interest

Research Publications :
International – 3

Patents : International - 1 (filled)



DR. RAJESHKUMAR VADGAMA

Ph. D. Biotechnology
Research Scientist

Subject Taught:

Industrial Biocatalysis

Research Interests :

Enzyme & microbial technology, Green chemistry, design &

development catalyzed processes, Lipid characterization, bio-molecule isolation & purification

Patents :

1 (so far)

Research Publications :

International – 5 (so far)



DR. UMESH INGLE

Ph.D. Chem. Eng.
Scientist 'G'

Subject Taught :

Adsorptive, Chromatographic & Membrane separation, Unit operation in bioprocessing



DR. JAYESH VARAVADEKAR

Ph. D.
Research Scientist

Research Interests :

Sustainable chemicals via the bio-route, Fermentation, Bioenergy, Microbial electrosynthesis, Molecular biology

Patents : 2



DR. SANJEEV K. CHANDRAYAN

Ph. D.
DBT Overseas Energy Biosciences Fellow

Subject Taught: Microbiology & Biochemistry

Research Interests :

Thermophiles & Thermozyms for bioprocessing, Enzyme discovery,

Production & engineering ,
Metabolic Engineering of extreme microbes for fuels & chemicals

Research Students :

Ph. D. -1 (ongoing)

Masters – 2 (guided), 2 (ongoing)

Research Publications :

International – 22(so far)

Patents :

National - 1 (filed)



DR. NITIN TRIVEDI

Ph. D. (Biological Sciences)
DST INSPIRE Faculty

Subject Taught:

Microbiology (B.Tech & B. Pharma)

Research Interests :

Algal biofuel, biochemicals & biorefineries (Seaweed), Algal

growth engineering, Algal bioremediation, Biomass to biomolecules using marine microbes & enzymes

Research Students : 1

Research Publications :

International – 21 (so far)

National -18,

Book Chapter -3

Patents : National - 2 (so far)



DR. CRK REDDY

Ph.D. Marine Sciences
DBT Energy Biosciences Chair Professor

Research Interests :

Marine Microalgae farming,
Processing value addition outreach

Research Publications :

National – 4 (so far)
International – 80 (so far)
Book chapter – 3 (so far)

Patents : 1



MR. SANDIP KALE

M.Sc. (Organic Chemistry) & Post Graduate Diploma in Patent Law
Research Associate

Research Interests : Intellectual Property Rights & Policy, Patent search & Analysis, patent drafting, filing prosecution

Patents : 1



MR. DEEPAK SARMA

M.Tech.BPT, LLB
Research Associate

Subject Taught : IP

Research Interests : Intellectual property rights such as Patent, Trademark, Copyright, IP Prosecution, Agreements NDA/MOU

Ongoing Students for Ph.D. (Tech)

Sr.	Research Scholar	Previous Institution	Title of Project	Supervisor
1.	Pawar Pratik R.	UICT, NMU, Jalgaon	Continuous fermentation strategies for production of PUFA rich cell biomass and oil by Thraustochytrides sp	Prof. A.M. Lali
2.	Chakraborty Moushmi	LIT, Nagpur	Catalytic valorization of lignin	Prof. A.M. Lali
3.	Savvashe Prashant	ICT, Mumbai	Design and development of air-lift photobioreactors for production of algae	Prof. A.M. Lali
4.	Subramanian Sunu	A.C.Tech Campus, Anna University Chennai	Continuous Chromatography for difficult Separations	Prof. A.M. Lali
5.	Vasishta Ayush	SRM University, Chennai	Reaction engineering for production of Furan derivatives from bio based sugars	Prof. A.M. Lali
6.	Mahale Jyoti	Indian Institute of Technology Kanpur	Novel routes to green C4 products from 2,3 butanediol	Prof. A.M. Lali
7.	Pawar Pratik P	ICT, Mumbai	Process for Production of Edible Grade Microbial oil	Dr. A. Odaneth

Ongoing Students for Ph. D. (Sci.)

Sr.	Research Scholar	Previous Institution	Title of Project	Supervisor
1.	Asodekar Bhupal	University of Mumbai	Isolation of cellulose from lignocellulosic feedstock and its catalytic conversion to platform chemicals	Prof. A.M. Lali
2.	Upadhyay Priya	St. Xaviers College, Mumbai	Engineered Pseudomonas putida. for the biosynthesis of aromatic chemicals from lignin derived model compounds and lignocellulosic biomass hydrolysate	Prof. A.M. Lali
3.	More Pooja	The Institute of Science, Mumbai	Anaerobic acidogenesis for production of volatile fatty acids (VFAs) from complex waste streams.	Prof. A.M. Lali
4.	Pandey Preeti	Savitribai Phule Pune University, Pune	Catalytic transformation of CO2 to chemicals	Prof. A.M. Lali
5.	Ukarde Tejas	Savitribai Phule University Pune,Pune	Catalysis for Liquefaction of Solid organic Waste	Prof. A.M. Lali
6.	Chavan Aniket	The Institute Of Science. Fort. Mumbai.	Thermophilic Anaerobic Digestion for improved biogas production from waste hydrolysis.	Prof. A.M. Lali
7.	Gupta Vaishali	Kalinga University, Raipur	Fermentative Production of organic acids	Prof. A.M. Lali
8.	Dargode Priyanka	K.T.H.M. College, Nasik	Consortium design for improved anaerobic digestion	Prof. A. M. Lali
9.	Mahadik Chinmayee	St. Xaviers College, Mumbai	Saccharide synthesis from lignocellulosic biomass	Dr. A. Odaneth
10.	Khadye Vishwanath	V. G Vaze College	Production of Beta-glucosidase in Bacillus subtilis	Dr. A. Odaneth

11.	Shaikh Kurshedaktar	Ramniranjan Jhunjhunwala College, Mumbai	Developing Yarrowia lipolytica as a platform host for production of cellulases	Dr. A. Odaneth
12.	Kothari Shruti	Ramnarin Ruia College, Matunga	Evaluating physicochemical dependency of yeasts on nitrogen source	Dr. A. Odaneth
13.	Fernandes Custan	St. Xaviers College, Mumbai	Recycling of cellulases for saccharification	Dr. A. Odaneth
14.	Tupe Rasika	Ramnarin Ruia College, Matunga	Actinomycetes for complete catabolic valorization of lignin-derived monomers	Dr. A. Odaneth
15.	Sawant Kaustubh	The Maharaja Sayajirao University of Baroda	Development of molecular modification tools for sustainable production of hydrocarbons from cyanobacteria	Dr. R. Pandit
16.	Kumari Sujata	I.A.R.Institute, New Delhi	Development of novel microalgal chloroplast genetic engineering platform and engineering of Chlamydomonas for value added products	Dr. G. Prakash
17.	Kadalag Nikhil	S.I.E.S College, Sion-West, Mumbai	Terpene production from microalgae	Dr. G. Prakash
18.	Yadav Namrata	Ramnarin Ruia College, Matunga, Mumbai.	Biotransformation of steviolglycosides to sweeter derivatives as a artificial sweetner	Dr. G. Prakash
19.	Sathe Sneha	Ramnarin Ruia College, Matunga, Mumbai.	Thermostzymes for biomass hydrolysis	Dr. S.K. Chandrayan

Ongoing Students for M. Tech

Sr.	Research Scholar	Pervious Institution	Title of Project	Supervisor
1.	Sneha Kulthe	NDMVPS, College of Pharmacy, Nashik	Designing of Extraction and purification strategies for capsaicinoids from chilli/pepper	Prof. A. M. Lali
2.	Suraj Sharma	P.G Dept of Biotechnology, Utkal University, Bhubaneswar, Odisha	Protein expression in genome edited Yarrowia lipolytica	Dr. A. Odaneth
4.	Yuvarajan M	Bannari Amman Institute of Technology, Anna University, Erode, Tamil Nadu	Biotransformation of chiral compound	Dr. A. Odaneth
5.	Tara Poduval	Sies Graduate School of Technology, Navi Mumbai, University of Mumbai	Assesment of protein production potential of microalgae	Dr. G. Prakash
6.	Divyani Pal	NIET (Greater Noida), Dr. APJ Abdul Kalam Technical University, U.P	Pilot scale production of Poly hydroxy butyrate from Synechocystis species	Dr. R. Pandit

7.	Shailesh Bharti	Sardar Vallabh Bhai patel University of Agriculture and Technology, Meerut U.P.	Carbon reclamation of industrial solid waste.	Dr. H. Pawar
8.	Velpur Sai Krishna	St Marys College of Pharmacy	Enzymatic sulfate removal in agar extracted from seaweed	Dr. S. K. Chandrayan

Ongoing Students for M. Chem. Engg.

Sr.	Research Scholar	Previous Institution	Title of Project	Supervisor
1.	Rohit Kousika	Visvesvaraya National Institute of Technology, Nagpur	Modelling of protein extraction from soy flakes.	Prof. A.M.Lali
2.	Vinaypriy Maroti Wane	Dept. of Technology, Shivaji University Kolhapur	Downstreaming of 5 HMF	Prof. A.M.Lali

Ongoing Projects

Government

Sr.	Title	Funding Agency	Amount (INR Lakhs)	Duration
1.	Economic non-food sugar from variable mixed solid waste for high value chemical products	DBT BIRAC Newton BHABHA	272.456	2018-2021
2.	Customized, Demand Driven Convergent Water solutions to address prevalent and emerging water challenges in Mission Mode in Narippaiyur Village, Ramanathapuram District, Tamil Nadu”	DST-KGDS	14.2916	2018-2021
3.	Biphasic Fermentation for Triacyl Glycerol (TAG) production from pretreated lignocellulosic biomass hydrolysates using Mixed Microbial Cultures.	DBT, India	39.84	2017-2020
4.	Setting up Demonstration Plant to 1 ton/day MSW Into Energy	DBT, India	670.39	2017-2019
5.	International Genetically Engineered Machines Contest (iGEM)	DBT, India	20.00	2017-2019
6.	Performance and durability improvements in the solar thermal desalination system at Narippaiyur and utilization of reject sea water for algae cultivation to produce biogas	DST-KGDS	61.35	2015-2020
7.	DBT-ICT Centre for Energy Biosciences: New and extension proposals	DBT, India	1800.00	2013-2018
8.	Energy Biosciences Overseas Fellowship & Chairs	DBT, India	1472.21	2009-2020

Private Projects

Sr.	Title	Funding Agency	Amount (INR Lakhs)	Duration
1	Development of laboratory scale SMB chiral separation method for either Brivaracetam (S,R) from its disterioisomer (S,S) from OR fro BRT-III (S,R) from its disterioisomer	Lupin Ltd	28.00	2018-2019
2	Development of cutting edge biofuel technologies for converting waste to fuel and has developed proprietary next generation waste treatment technology for converting Muncipal waste into clean air, clean water and Bio-energy	BPCL	807.40	2018-2019
3	On shore Cultivation of Macroalgae at Bhavnagar District's Gujarat	Pidilite Industries Limited	42.00	2018-2019
4	Research & Development of Chloroplast Derived Enzyme Mixtures	Gencrest LLP	246.00	2017-2019
5	Research & Development & Generation, protection & Deployment of Innovation & Technologies in the field of Cellulosic Ethanol Technology & its scale up	L&T Hydrocarbon Engineering Ltd.	500.00	2017-2020

Publications

- Wagh A.S., Ukarde T. M., Pandey P. H., Lali A. M., Pawar H. (2019) Self-catalysed deconstruction of acid modified k-carrageenan for production of 5-Hydroxymethyl furfural. ACS Sustainable Chemistry & Engineering. <https://doi.org/10.1021/acssuschemeng.9b02186>.
- Yadav M. G., Vadgama R. N., Kavadia M. R., Odaneth A. A., Lali A. M. (2019) Production of Pentaerythritol Monoricinoleate (PEMR) by immobilized Candida antarctica lipase B. Biotechnology Reports 23, e00353.
- Soni S., Sathe S.S., Sheth R. R., Tiwari P., Vadgama R. N., Odaneth A. A., Lali A. M. (2019) N-terminal domain replacement changes an archaeal monoacylglycerol lipase into a triacylglycerol lipase. Biotechnology for biofuels 12 (1), 110.
- Sarnaik A., Abernathy M. H., Han X., Ouyang Y., Xia K., Chen Y., Zhang F., Pandit R., Lali A. M., M.Lindhart R., Tang Y. J., Koffas M., (2019) Metabolic engineering of cyanobacteria for photoautotrophic production of heparosan, a pharmaceutical precursor of heparin. Algal research 37, 57-63.
- Deb S.S., Reshamwala SMS., Lali A. M. (2019) Activation of alternative metabolic pathways diverts carbon flux away from isobutanol formation in an engineered Escherichia coli strain. Biotechnology letters 41 (6-7), 823-836
- Devi R., Joshi S., Lali A. M., Gantayet L. M., Verma R. (2019) Anion exchange separation of antimony and the integrated ion exchange process for decontamination of used zircaloy pressure tubes from Indian pressurized heavy water reactors. Separation Science and Technology, 1-9
- Sawant S. S., Gosavi S. N., Khadamkar H. P., Mathpati C. S., Pandit R., Lali A. M. (2019) Energy efficient design of high depth raceway pond using computational fluid dynamics. Renewable energy 133, 528-537.
- Vadgama R.N., Odaneth A.A., Lali A. M. (2019) New synthetic route for polyricinoleic acid with Tin (II) 2-ethylhexanoate. Heliyon 5 (6), e01944.
- Kavadia M., Yadav M.G., Vadgama R.N., Odaneth A.A., Lali A. M. (2019) Production of trans-free interesterified fat using indigenously immobilized lipase. Preparative Biochemistry and Biotechnology 49 (5), 444-452.
- Patil M.L., Lali A. M., Dalai A.K. (2019) Catalytic hydrodeoxygenation of nio-oil model compound for production of fuel grade oil. Asia Pacific Journal of Chemical Engg. E2317.

- Choudhari V.G., Odaneth A.A., Lali A. M. (2019) Application of high-throughput screening for evaluating hydrolytic potential of cellulases. *Biomass Conversion and Biorefinery*, 1-9.
- Ingle U., Lali A. M. (2019) Design of High-Productivity Mixed Tocopherol Purification from Deodorized Distillates by Tandem Reverse Phase Chromatography. *Journal of the American Oil Chemists' Society*.
- Ganesan M, Trivedi, N, Gupta V, Venu Madhav, S, Reddy CRK, Levine I.A. (2019). Indian seaweed resources: a growing sector poised to propel bioeconomy. *Botanica Marina*, 2019, DOI: 10.1515/bot-2018-0056.
- Shaikh A., Pawar A., Parmar H., Vadgama RN., Odaneth A.A., Lali A.M. (2018) Conjugated Linoleic Acid production by Lactic Acid Bacteria: A Bio-transformation study in media with oil hydrolysates. *J Appl Biotechnol Bioeng.*, 5(5):321-327.
- Pawar H., Lali A.M. (2018) DICAT-2: A solid acid catalyst with a protagonistic backbone for microwave assisted synthesis of 5-HMF in IPA. *Industrial & Engineering Chemistry Research* 57(43).
- Sarnaik A., Nambissan V., Pandit R., Lali A.M. (2018) Recombinant *Synechococcus elongatus* PCC 7942 for improved zeaxanthin production under natural light conditions. *Algal Research*, 36; 139-151.
- Mhatre A., Gore S., Mhatre A., Trivedi N., Sharma M., Pandit R., Odaneth A A., Lali A.M. (2019) Effect of multiple product extractions on bio-methane potential of marine macrophytic green alga *Ulva lactuca*. *Renewable Energy*, 132; 742-751.
- Sawant S. S., Khadamkar H.P., Mathpati C.S., Pandit R., Lali A.M. (2018) Computational and experimental studies of high depth algal raceway pond photo-bioreactor. *Renewable Energy*, 118; 152-159.
- Gharata K., Agarwal A., Pandit R.A., Lali A.M. (2018) Development of fed batch strategies to improve the production of eicosapentaenoic acid from a marine microalga *Nannochloropsis oculata*. *Bioresource Technology Reports*, 4;193-201.
- Pawar H., Lali A., (2018) A solid acid catalyst with a protagonistic backbone for microwave assisted synthesis of 5-HMF in IPA. *Industrial and Engineering Chemistry Research*.
- Mhatre, A., Patil, S., Agarwal, A., Pandit, R., & Lali, A. M. (2018). Influence of nitrogen source on photochemistry and antenna size of the photosystems in marine green macroalgae, *Ulva lactuca*. *Photosynthesis research*, 1-13.
- Agarwal, A., Patil, S., Gharat, K., Pandit, R. A., & Lali, A. M. (2018). Modulation in light utilization by a microalga *Asteracys* sp. under mixotrophic growth regimes. *Photosynthesis research*, 1-15.
- Sawant, S. S., Khadamkar, H.P., Mathpati, C.S., Pandit, R., Lali, A.M. (2018). Computational and experimental studies of high depth algal raceway pond photo-bioreactor. *Renewable Energy*. 118, 152-159.
- Mhatre, A., Navale, M., Trivedi, N., Pandit, R., & Lali, A. M. (2018). Pilot scale flat panel photobioreactor system for mass production of *Ulva lactuca* (Chlorophyta). *Bioresource technology*, 249, 582-591.
- Kavadia M, Yadav M, Odaneth AA, Lali A. M. (2018). Synthesis of designer triglycerides by enzymatic acidolysis. *Biotechnology Reports*.
- Ingle U, Lali A. M. (2017) Development and optimization of a single step cation chromatographic whey protein fractionation process: Evaluation and comparison of scale-up strategies. *Brazilian Journal of Chemical Engg.* 35(2), 805-818.

Patents Granted

Sr. no.	Inventor	Title	Country/Application no. & Date
1.	Lali Arvind Mallinath; Odaneth Annamma Anil; Victoria Juliet Joanna; Choudhari Vikram Gunvant; Wadekar Prathamesh Chandrashekhar; Patil Mallikarjun Laxmiputra; Patil Parmeshwar Shivajirao; Asodekar Bhupal Ravindra; Prakash Indra; Huang Xiaoyan	Process for production of pure glucose from cellulose	USA: 15/746,217; Notice of Allowance; 2019

2.	Lali Arvind Mallinath; Pawar Hitesh Suresh	Process for synthesis of furan derivatives from saccharides using acid catalyst and preparation thereof	Patent No.: US 15/038,416; Issued notice of allowance, 2018 Patent No.: JP2016-533608; 2018
3.	Lali Arvind Mallinath; Odaneth Annamma Anil; Bihade SachinkumarHiraman; Victoria Juliet Joanna; Sawant Sneha Chandrakant	A process for production of soluble sugars from biomass	Patent No.: ZA2016/05597; 2018 Patent No.: JP2016-564438; 2018 Patent No.: EP3094733; 2018 Patent No.: US9862980; 2018 Patent No.: SG11201605855T; 2018 Patent No.: AU2015207338; 2018 Patent No.: US9862980; 2018 Patent No.: US9862980; 2018
4.	Lali Arvind Mallinath; Odaneth Annamma Anil; PednekarMukesh Prabhakar	Process for fractionation of oligosaccharides from agri-waste	Patent No.: AU2015207336; 2018 Patent No.: JP2016-564437; 2018 Patent No.: US 15/112,095; Issued notice of allowance, 2018 Patent No.: EP3094734; 2018 Patent No.: US US9963725; 2018
5.	Lali Arvind Mallinath; Odaneth Annamma Anil; Vadgama Rajesh; WarkeMrunal; Bhat Anuradha	Enzymatic process for fat and oil hydrolysis	Patent No.: IN308754; 2019 Patent No.: PH1/2014/501720; 2019 Patent No.: EP2809789; 2018 Patent No.: MX354561; 2018
6.	Lali Arvind Mallinath; Odaneth Annamma Anil; Nagwekar Pooja Devidas; Varavadekar Jayesh Suman; WadekarPrathameshChandrashekhar; GujarathiSwapnali Subhash; ValteRajeshwarDattatraya; Bihade SachinkumarHiraman	Method for production of fermentable sugars from biomass	Patent No.: AR076925B1; 2018 Patent No.: KR101842080; 2018 Patent No.: CA2763588; 2018
7.	Lali Arvind Mallinath; Maurya Ritu Rahul	Separation of organic acid from mixtures containing ammonium salt of organic acids	Patent No.: US10221120; 2018

Patents Filed

Sr.	Inventor	Title	Country/Application no. & Date
1.	Lali Arvind Mallinath; Varavadekar Jayesh Suman; Reshamwala Shamlan M.S.	High cell density continuous fermentation of C5 sugar/s or both C5 & C6 sugars to ethanol	Indian Application No.: 201821027586
2.	Lali Arvind Mallinath; Wadekar Prathamesh Chandrashekhar; Patil Mallikarjun Laxmiputra; Patil Parmeshwar Shivajirao	Continuous operating system and process for partial or complete deconstruction of polymeric organic feed	Indian Application No.: 201821024740

3.	Lali Arvind Mallinath; Wadekar Prathamesh Chandrashekhar	A system and method for preparing pumpable polymeric organic feed slurry	Indian Application No.: 201821024733
4.	Lali Arvind Mallinath; Odaneth Annamma Anil; Pawar Pratik Prashant; Chourasia Vallari Ramesh	A method for producing microbial oil from lignin or lignin hydrolysate using oleaginous yeasts	PCT Application No.: PCT/IN2018/050506
5.	Lali Arvind Mallinath; Odaneth Annamma Anil; Pawar Pratik Prashant; Warke Mrunal Anil; Vadgama Rajeshkumar Natwarlal; Chourasia Vallari Ramesh	Extractive production of microbial oil using oleaginous yeasts	Lali Arvind Mallinath; Odaneth Annamma Anil; Pawar Pratik Prashant; Warke Mrunal Anil; Vadgama Rajeshkumar Natwarlal; Chourasia Vallari Ramesh
6.	Lali Arvind Mallinath; Pawar Hitesh Suresh	Process for treating liquid industrial effluents to produce clean water and recovering pollutants for value addition	PCT Application No.: PCT/IN2018/050034
7.	Lali Arvind Mallinath; Pawar Hitesh Suresh; Shravan sreenivasan	A catalytic liquefaction (CTL) method for production of bio-crude oil using ionic liquid catalyst and preparation thereof	Brazil Application No.: BR 11 2019 0015647
			EPO Application No.: 17833711.9
8.	Lali Arvind Mallinath; Prakash Gunjan; Pillai Vijita V.	Continuous process for production of Vitamin B12	PCT Application No.:PCT/IN2017/050303
			Indian Application Number: 201621017230

Conference, Events, Workshop & Delivered a lecture

Faculty

Prof A.M. Lali

- Invited as a speaker at "2nd EU-India Conference on Advance Biofuels" organized by Ministry of Petroleum & Natural Gas, Govt. of India & European Commission jointly at New Delhi on 12th -13th March 2019.
- Delivered a talk on "Biotechnology for Fuels & Chemicals" at ICGEB Course on Clean Energy "Development of Enzymes & Microbial Technologies for Clean Energy" at ICGEB, New Delhi on 18th -22nd February 2019.
- Delivered lecture at Toray India Forum Series by Toray Industries India Pvt. Ltd. at The Claridges, New Delhi on 11th February 2019.
- Participated in the AIDA's National Technical Seminar at New Delhi on 7th -8th February 2019.
- Invited as a speaker on Chemical Conversion of bio-feedstocks in the context of the energy transition at symposium: An Energy Science & Technology Agenda for India organized by Shell Technology Centre, Bangalore on 31st January 2019.
- Participated & presented poster in "India International Seaweed Expo & Summit" organized by Indian Chamber of Commerce at World Trade Centre, Mumbai on 22nd-24th January 2019.
- Invited as a speaker and presented poster at the "23rd Refining & Petrochemicals Technology Meet" organized by Centre for High Technology Ministry of Petroleum & Natural Gas, Govt. of India at Mumbai on 12th -14th January 2019.
- Participated at World Biofuel Day-2018 Conference organizing by Ministry of Petroleum & Natural Gas at Vigyan Bhawan, New Delhi on 10th August 2018.

- Delivered a lecture & attended a workshop on "Recent innovations in algal biofuels and bio-energy technologies" at University of Petroleum and Energy Studies, Dehradun on 3rd August 2018.
- Invited as a speaker at DBT National Workshop on Bioenergy -2018 at IIT Roorkee organized by Department of Biotechnology, Govt. of India, New Delhi on 6th -7th July 2018.
- AttendedACHEMA 2018, World Forum and Leading Show for the Process Industries at Frankfurt am Main, Germany on 11th - 15th June 2018.
- Invited as a Panelist for the Ethanol Summit of the Asia-Pacific organized by The U.S. Grains Council and Sponsors Growth Energy and the Renewable Fuels Association at Minneapolis, Minnesota, USA on 21st - 23rd May 2018.
- Participated in 3rd LBNNet Conference in Session 1: "Challenge and opportunities in lignocellulosic Biorefining" organized by University of York, UK at Cheshire, UK on 16th -18th April 2018.
- Attended AIDA's 2 day National Technical Seminar by AIDA, Hotel Eros, Nehru Place, New Delhi on 26th - 27th March 2018.
- Invited as a guest speaker at Dr. A K Dorle Memorial lecture series III in Nagpur organized by Alumni Association of University Department of Pharmaceutical Sc. Nagpur University on 14th March 2018.
- Attended EU-India Conference on Advanced Biofuels at Taj Mahal Hotel, New Delhi on 7th - 8th March 2018.

Dr. Annamma Odaneth

- Attended Bioenergy conference at the Royal Botanic Gardens, Kew from 26th June & 28th June 2019.
- Attended SynbiTECH 2019 conference at Queen Elizabeth II Centre, London on 24th to 25th June 2019.
- Nominated to participate for the Oral Presentation in Mission Innovation- The 2nd International Conference on "Sustainable Biology for Biofuel Production" at Yantai City, China on 2nd to 4th April 2019.
- Invited as a Domain Expert at "Biotechnology TM Programma" organized by Entrepreneurship Development Institute of India with the active support by Gujarat State Biotechnology Mission, Govt. of Gujarat on 19th January 2019.
- Attended Society of Biological Chemist Annual meeting 2018 at ICT, Mumbai on 13th October 2018.
- Attended the Science in the Age of Experience 2018 by Dassault Systems India at Bengaluru on 11th October 2018.
- Participated in the National Stakeholders workshop on Waste to Energy at NCL, Pune organizing by Department of Biotechnology (DBT), Government of India with CSIR-CLRI, Adyar, Chennai on 10th & 11th September 2018.
- Participated at World Biofuel Day-2018 Conference organizing by Ministry of Petroleum & Natural Gas at Vigyan Bhawan, New Delhi on 10th August 2018.
- Invited as a Guest Speaker at the Brain Storming session on "Recent advances in production of 2G biofuel in India" organizing by Sardar Patel Renewable Energy Research Institute (SPRERI) with GSBTM on 10th July 2018 at SPRERI, Gujarat.

Dr. Reena Pandit

- Attended India International Seaweed Expo & Summit 2019 at World Trade Centre on 22nd to 24th January 2019.
- Deliver a talk at workshop & course on "New Frontiers in Algal Omics" organized by International Centre for Genetic Engineering & Biotechnology (ICGEB) on 19th to 30th November 2018.
- Participate in the National Stakeholders workshop on Waste to Energy at NCL, Pune organizing by Department of Biotechnology (DBT), Government of India with CSIR-CLRI, Adyar, Chennai on 10th & 11th September 2018.
- Participated at World Biofuel Day-2018 Conference organizing by Ministry of Petroleum & Natural Gas at Vigyan Bhawan, New Delhi on 10th August 2018.
- Invited as a speaker at DBT National Workshop on Bioenergy -2018 at IIT Roorkee organized by Department of Biotechnology, Govt. of India, New Delhi on 6th -7th July 2018.

Dr. Gunjan Prakash

- Invited as a speaker at DBT National Workshop on Bioenergy -2018 at IIT Roorkee organized by Department of Biotechnology, Govt. of India, New Delhi on 6th -7th July 2018.

Dr. Pooja Joshi

- Participate in "International Conference on "Sustainable Biofuel 2018" at New Delhi organized by DBT, New Delhi on 26th & 27th February 2018.
- Participated in Petrochemical Investor Conclave 2017 organized by Indian Oil Corporation (IOCL) in Bhubaneswar on 16th November 2017.

Dr. Shamlan Reshamwala

- Workshop on Modelling Biological Systems for UG, PG & Ph.D. students on 16th to 23rd April 2019.
- Participated in the workshop on "Synthetic Biology for college teachers" organized by DBT -CEB on 13th to 15th December 2018.

Dr. Sanjeev K. Chandrayan

- Invited as a speaker for the session 'Protein Engineering' at 6th Bioprocessing India Conference 2018 at IIT. Delhi on 16th to 18th December 2018.
- Attended International Conference Extremophile-2018 and Italian Society of Astrobiology organizing by 12th Edition of the International Congress on Extremophiles at Hotel Continental Terme on 16th to 20th September 2018.

Dr. Manju Sharma

- Participated in BioCARE Conclave at National Institute of Plant Genome Research, New Delhi on 8th & 9th March 2019.
- Attended Biogas Science 2018 International Conference on 'Anaerobic Digestion' on 17th to 19th September 2019 at Torino, Italy.
- Participate in the National Stakeholders workshop on Waste to Energy at NCL, Pune organizing by Department of Biotechnology (DBT), Government of India with CSIR-CLRI, Adyar, Chennai on 10th & 11th September 2018.

Dr. Hitesh Pawar

- Attended "Sustainable Alternative towards affordable transportation" SATAT" Seminar launched by Ministry of Petroleum & Natural Gas Govt. of India, New Delhi on 21st January 2019.
- Participate in the National Stakeholders workshop on Waste to Energy at NCL, Pune organizing by Department of Biotechnology (DBT), Government of India with CSIR-CLRI, Adyar, Chennai on 10th & 11th September 2018.
- Participated at World Biofuel Day-2018 Conference organizing by Ministry of Petroleum & Natural Gas at Vigyan Bhawan, New Delhi on 10th August 2018.

Dr. Nitin Trivedi

- Poster presentation in Asia Pacific Aquaculture (APA) 2019 conference, organized by World Aquaculture Society at Chennai Trade Centre, Chennai, India from 19th to 21st June 2019.
- Oral presentation (by project student) in International Conference in Advances in Biosciences and Biotechnology (ICABB) organized by Department of Biotechnology, Jaypee Institute of Information Technology, Noida, India on 31st February.

- Participated in India International Seaweed Expo and Summit, organized by CSIR-CSMCRI, Bhavnagar and ICC, Kolkata at World Trade Centre, Mumbai, India 22nd to 24th January 2019
- Participated in workshop on "Synthetic Biology for college teachers" organized by DBT-ICT CEB, Institute of Chemical Technology, Mumbai, India on 13th to 15th December 2018.
- Delivered Invited talk on Marine macroalgae: an untapped feedstock for biorefinery in LAKE 2018: Conference on Conservation and Sustainable Management of Riverine Ecosystems organized by IISC Bangalore at Moodbidri, Karnataka on 22nd to 24th November 2018.
- Delivered invited talk on "Bioenergy potential of Seaweeds" in DBT National Workshop on Bioenergy-2018 at Department of Biotechnology, IIT Roorkee, Uttarakhand, India on 6th -7th July 2018.

Dr. Rajeshkumar Vadgama

- Invited as a Resource Person at the "Spectrophotometer applications" workshop organized by Jai Hind College, Mumbai on 15th April 2019.
- Oral presentation at Bioprocessing India (BPI) at IIT, Delhi on 16th to 18th December 2018.
- Attended Society of Biological Chemist Annual meeting 2018 at ICT, Mumbai on 13th October 2018.
- Attended conference on "India Centric R&D" organized by Technology & Energy Expert Committee (ICC) at K.J Somaiya College of Science and Commerce, Mumbai on 12th & 13th January 2018.

Dr. Shalini Deb

- Participated in International Genetically Engineered Machine Competition (iGEM2018) at Boston, USA on 24th to 28th October 2018.
- Invited as a speaker at DBT National Workshop on Bioenergy -2018 at IIT Roorkee organized by Department of Biotechnology, Govt. of India, New Delhi on 6th -7th July 2018.

Dr. Jayesh Varavadekar

- Invited as a speaker at DBT National Workshop on Bioenergy -2018 at IIT Roorkee organized by Department of Biotechnology, Govt. of India, New Delhi on 6th -7th July 2018.

Dr. CRK Reddy

- Invited has a Session Chair for Seaweed Culture at Asian Pacific Aquaculture 2019 Conference organized by World Aquaculture Society at Chennai from 19th to 21st June 2019.
- Invited to deliver a Research Seminar at the "International Symposium on Blue Agriculture: Biotechnological Advances in Exploring the Ocean for Food & Nutraceuticals" organized by Institute of Sustainable Biotechnology (ISBiot), Inter American University of Puerto Rico, Barranquitas Campus at Barranquitas, Puerto Rico, USA on 8th to 10th April 2019.
- Delivered a lecture as Visiting Scientist of UGC-SAP on Algology organized by Centre for Advanced Studies in Botany, University of Madras on 28th March 2019.
- Attended India International Seaweed Expo & Summit 2019 at World Trade Centre on 22nd to 24th January 2019.
- Attended National Conference on Vistas in Biodiversity, Biology, Biotechnology 7 Nanotechnology of Algae (VBBNA 2018) organized by Madras Christian College (Autonomous), Chennai on 20th to 22nd September 2018.

Students

- Mr. Kurshedaktar M. Shaikh worked as a short-term research scholar at University of Kent, UK under Newton Bhabha Ph.D. placement programme (2018-19) from 1st March to 30th June 2019.
- Ms. Pooja More participated in BioCARE Conclave organized by DBT, New Delhi at National Institute of Plant Genome Research, New Delhi on 8th & 9th March 2019.
- Ms. Sujata Kumari attended workshop “Flow cytometry Basics, Multicolor Flow Cytometry, Data analysis & Presentation” organized by Venture Centre, NCL, Pune on 21st to 23rd February 2019.
- Ms. Vaishali Parmar attended training course “Next Generation Genomic Technologies & Bioinformatics” at Chandigarh organized by Select Biosciences India on 1st March to 2nd March 2019.
- Mr. Himanshu Sati presented poster at “International Conference on Advances in Biosciences & Biotechnology” organized by JAYPEE Institute of Information Technology, Noida on 31st to 2nd February 2019.
- Ms. Akanksha Mhatre, Mr. Prashant Savvashe, Ms. Gayatri Pillai, Mr. Darren Jacob, Mr. Himanshu Sati, Ms. Vaishali Parmar, Mr. Vinay Patil participated in India International Seaweed Expo & Summit 2019 at World Trade Centre on 22nd to 24th January 2019.
- Mr. Aditya Sarnaik, Mr. Prashant Savvashe, Mr. Kaustubh Sawant, Mr. Nikhil Kadlag attended Bioprocessing India 2018 at IIT Delhi on 16th to 18th December 2018.

Poster Presentation

- Surabhi Soni, Annamma Odaneth, Sanjeev K. Chandrayan, Arvind M. Lali, “Tailoring lipases for bioprocesses”. New horizons in Biotechnology- A Biotech Conclave, ICT Mumbai, 13th March, 2019.
- Surabhi Soni, Annamma Odaneth, Sanjeev K. Chandrayan, Arvind M. Lali, “Green synthesis of isopropyl myristate by a thermostable acetyl xylan esterase from *Caldicellulosiruptor Bescii*”. Bioprocessing India, IIT Delhi, India, December 16th to 18th, 2018
- Pratik P. Pawar, Annamma A. Anil, and Arvind M. Lali, on the title “Microbial oil production using Non-Conventional Yeasts” in EMBO Workshop: Experimental approaches to evolution and ecology using yeast and other model systems held at European Molecular Biology Laboratory, Heidelberg, Germany during 17th to 20th October 2018.
- Pratik P. Pawar, Annamma A. Anil, and Arvind M. Lali, on the title “Strategies for production of Microbial oil using oleaginous yeast” in 10th Yeast Biology Conference at Jawaharlal Nehru University, New Delhi during 8th to 11th February 2018.
- Surabhi Soni, Sanjeev K. Chandrayan, Annamma Odaneth, Arvind M. Lali. “Expression analysis of the *Thermomyces lanuginosus* lipase gene”. 10th Conference on Yeast Biology, JNU campus, New Delhi, India, 8th -11th, February 2018.

Oral Presentation

- Pratik P. Pawar, Annamma A. Anil, and Arvind M. Lali, on the title “Microbial oil production using Non-Conventional Yeasts” in EMBO Workshop: Experimental approaches to evolution and ecology using yeast and other model systems held at European Molecular Biology Laboratory, Heidelberg, Germany during 17th – 20th October 2018.

Events Organized

- Workshop on Modelling Biological Systems for UG, PG & Ph.D. students on 16th to 23rd April 2019.
- Lecture by Prof. Mark Smales, University of Kent, UK on “Engineering mammalian cell factories for production of recombinant proteins, vesicles and gene therapies” held on 1st March 2019.
- Lecture by Ms. Aishwarya Mohan, Research Manager, Cape Breton University Canada on “Mining marine by-products for functional molecules” on 25th January 2019.
- Lecture by Dr. Sarah Hotchkiss, Project Manager Cybercolloids Ltd. Ireland on “CyberColloids: a small Irish company with a big interest in seaweed” on 25th January 2019.

- Lecture by Dr. John Sewuster, Waypoint Business Solutions Inc., Canada (Chair) on “Staged bioprocessing- Maximizing economic value and biomass utilization” on 25th January 2019.
- Lecture by Dr. Noreen Breathnach, Consultant Ireland on “Overview of hand harvesting *Ascophyllum nodosum* from Ireland’s pristine Atlantic waters to being a world leader in the marketplace” held on 25th January 2019.
- Lecture by Dr. Sowmyalakshmi Subramanian, Post-Doctoral fellow, McGill University Canada, Post-Doctoral fellow, McGill University Canada on “Harnessing the potentials of the phytomicrobiome” held on 25th January 2019.
- Lecture by Prof. Ricardo Radulovich, Dept. of Biosystems Engineering, University of Costa Rica on “Exploring Solar Radiation Relations of Seaweeds Floating at Sea: A Tool to Counteract Ocean Warming?” held on 25th January 2019.
- Lecture by Dr. Anicia Hurtado, Scientist- Consultant in Seaweed Tissue Culture and Aquaculture, Philippines on “The Role of UKRI-GCRF Global Seaweed STAR in meeting the challenges of the Philippine Seaweed Industry” held on 25th January 2019.
- Organized Workshop on Synthetic Biology was organized held on 15th December 2018.
- Lecture by Prof. K.V. Venkatesh, Department of Chemical Engineering, IIT Bombay on “Computational Modelling in Synthetic Biology” held on 15th December 2018.
- Lecture by Mr. Bibhuti Pradhan, General Manager (CSR), Indian Oil Corporation Limited (IOC), Corporate, Office, New Delhi held on “International and National Perspectives of Sustainability and CSR” held on 24th September 2018.
- Inaugural ceremony of Novel PerkinElmer-ICT HTS platform by Dr. Renu Swarup (Secretary, Department of Biotechnology, Govt. of India) held on 28th September 2018.

Ph.D. Students Thesis Submitted

Sr.	Research Scholar	Course	Title of the project	Supervisor
1.	Degweker Gautam	Ph.D. (Tech.)	Design of high productivity fermentation systems	Prof. A. M. Lali
2.	Bellary Suveera	Ph.D (Sci.)	Designing microbial conversion of lignin	Prof. A. M. Lali
3.	Gore Suhas	Ph.D (Sci.)	Improved biogas production from complex substrates	Prof. A. M. Lali
4.	Singh Naina	Int. Ph.D	Designing strategies for stabilization of biomolecules using saccharides, salts and amino acids	Dr. S.B. Kale
5.	Nair Sushitha	Ph. D (Tech.)	Multi-objective parameter optimization and media engineering for integrated fermentation and purification of biomolecules	Dr. S.B. Kale
6.	Vanza Meghna	Ph.D (Sci.)	Designing strategies for purification and stabilization of plasma proteins	Dr. S.B. Kale
7.	Soni Surabhi	Ph.D. (Tech)	Designing and production of industrially relevant thermophilic lipases and esterases.	Dr. A. Anil
8.	Mhatre Akanksha	Ph.D. (Sci.)	Growth engineering of <i>Ulva lactuca</i> for improved and sustainable biomass production	Dr. R. Pandit
9	Agarwal Akanksha	Ph.D. (Sci.)	Sustainable microalgal cultivation: adopting alternate carbon sources and nutrient recycling	Dr. R. Pandit

M. Tech. Students Thesis Submitted

Sr.	Research Scholar	Course	Title of the project	Supervisor
1.	Bhabad Mahadev	M. Tech. (BPT)	Combined C5&C6 sugar fermentation to ethanol using genetically modified yeast	Prof. A. M. Lali
2.	Sali Juili Shrikant	M. Tech. (BPT)	Production, Purification and characterization of self-assembling lipase	Dr. A. Odaneth
3.	Waghmae Sunil Tulshiram	M. Tech. (BPT)	Production of Astaxanthin from Haematococcus pluvialis	Dr. R. Pandit
4.	Tambe Jayesh Ramesh	M. Tech. (BPT)	Purification of dalbavancin from fermentation broth.	Dr. R. Pandit
5.	Sadasivan Brijitha	M. Tech. (Green Tech)	Spentwash treatment using microalgae	Dr. R. Pandit
6.	Shetty Aishwarya	M. Tech. (BPT)	Production of Paramylon from Euglena gracilis and evaluation of its prebiotic effect	Dr. G. Prakash
7.	Gangil Nitin	M. Tech. (BPT)	Growth and secretom study of Thermobifida fusca on pretreated biomass	Dr. S. K. Chandrayan
8.	Sewalkar Sampada Jayant	M. Tech. (BPT)	Process based characterization of adsorptive and chromatographic media for purification of biomolecules	Dr. S. K. Chandrayan
9.	Pavan Kumar K	M. Tech. (BPT)	Fundamentals and Process Investigation of Hydrophobic Interaction Size Exclusion Chromatography	Dr. S. K. Chandrayan
10.	Barde Vijay	M. Tech. (BPT)	Microbial/enzymatic degradation of PET	Dr. S. K. Chandrayan
11.	Gaonkar Priyanka Ramchandra	M. Tech. (BPT)	Developing improved process for large scale removal of endotoxins in proteins and other biomolecules	Dr. U. Ingle
12.	Panchal Archana Dinesh	M. Tech. (BPT)	Purification of Serratiopeptidase	Dr. U. Ingle

M. Chem. Engg. Students Thesis Submitted

Sr.	Name	Course	Title of Project	Supervisor
1.	Narjary Dorothy	M.Chem.Engg.	Production of Lactic acid	Prof. A. M. Lali
2.	Krishnan Anjali	M.Chem Engg.	Biogas production and Design of Anaerobic Digester.	Prof. A. M. Lali

Ph. D. Students who were awarded Ph.D. degree

Sr.	Name	Course	Title of Project	Supervisor
1.	Patil Parmeshwar	Ph.D. (Sci.)	Designing Biomass Deconstruction: Process Scale and High Throughput Analytical Scale	Prof. A. M. Lali
2.	Kavadia Monali	Ph.D. (Sci.)	Lipase mediated synthesis of designer lipids	Prof. A. M. Lali
3.	Rao S. P. Poornima	Ph.D. (Sci.)	Improved production of acetic acid by Escherichia coli and Moorella thermoacetica	Prof. A. M. Lali

4.	Patil Mallikarjun	Ph.D. (Sci.)	Recovery and transformation of lignin to value added products	Prof. A. M. Lali
5.	Singh Nitesh Kumar	Ph.D. (Sci.)	Isolation, characterization and valorization of phenolic compounds from lignocellulosic biomass	Prof. A. M. Lali
6.	Das Arijit	Direct Ph.D. (Tech.) BPT	Improved fermentation for 2,3 – butanediol production	Prof. A. M. Lali
7.	Sonawane Anup	Ph.D. (Sci.)	Development of sustainable biorefinery processes for secondary agriculture	Dr. S. B. Kale
8.	Tiwari Richa	Ph.D. (Sci.)	Synthesis of dendrimer for catalysis and chromatographic separation	Dr. S. B. Kale
9.	Patel Bhavin	Ph.D. (Sci.)	Designing processes for cost-effective production and purification of biotechnology and bio-based products	Dr. S. B. Kale
10.	Choudhari Vikram	Ph.D. (Sci.)	Study on enzymatic deconstruction of lignocellulosic biomass	Dr. A. Odaneth
11.	Rodrigues Valerie	Ph.D. (Sci.)	Mining of organisms associated with green macroalgae Ulva spp. for ulvan and cellulose saccharifying enzymes	Dr. A. Odaneth
12.	Sarnaik Aditya	Ph.D. (Sci.)	Genetic and growth engineering of cyanobacteria for the production of hydrocarbons	Dr. R. Pandit

M. Tech. Students who were awarded M. Tech degree

Sr.	Name	Course	Title of Project	Supervisor
1.	Prashant Pokhriyal	M. Tech. (BPT)	Flux analysis and kinetic modelling of microbial systems for biochemical production	Prof. A. M. Lali
2.	Wannere Priyanka Sanjay	M. Tech. (BPT)	Preparative Chromatographic purification of Lethal Toxin Neutralizing Factor peptide (LTNF)	Dr. S. B. Kale
3.	Choughule Shaktisinha Prasad	M. Tech. (BPT)	Improvements for processing of coconut water and sugarcane juice	Dr. S. B. Kale
4.	Sorte Sneha Kamalakar	M. Tech. (BPT)	Process development for fractionation of milk whey into proteins and lactose	Dr. S. B. Kale
5.	Khatkhatay Abdul Basit	M. Tech. (BPT)	Fatty acid ester synthesis using immobilized lipases	Dr. A. Odaneth
6.	Rane Divyata Vilas	M. Tech. (BPT)	Production of oil and carotenoids from red yeast	Dr. A. Odaneth
7.	Gharat Krushna Kanchan	M. Tech. (BPT)	Growth engineering for enhanced PUFA production and development of a continuous cultivation and integrated lipid extraction strategy for microalgae	Dr. R. Pandit

8.	Nambissan Vishnu Damodaran	M. Tech. (BPT)	Growth engineering of <i>H. pluvialis</i> for enhanced biomass and astaxanthin production	Dr. R. Pandit
9.	Laddha Hrishikesh Govardhan	M. Tech. (BPT)	Development of combined "ex novo" and "de novo" fermentation strategies by <i>Thraustochytrids</i> and its potential applications	Dr. G. Prakash
10.	Bhattad Tanmay	M. Tech. (BPT)	Production, structural characterization and functional	Dr. G. Prakash
11.	Sheth Rutuja Rajan	M. Tech. (BPT)	Enzymes and processes for rare sugar production	Dr. S. K. Chandrayan
12.	Athalye Shreya M.	M.Tech. (Green Tech.)	Bio-concentration of the phosphate from effluents using microalgae	Dr. R. Pandit

M. Chem. Engg. Students who were awarded M. Chem. Engg. Degree

Sr.	Name	Course	Title of Thesis	Supervisor
1.	Akshay Gajanan Gotmare	M. Chem. Engg.	Intensification of catalytic liquefaction process for conversion of municipal solid waste into energy	Prof. A. M. Lali

Academic and Centre Management

Sr.	Committee	Members
1.	F&A	Dr. Reena Pandit
2.	Admission and Academics	Dr. Shalini Deb
3.	GC/SAC/Chair fellow	Dr. Gunjan Prakash
4.	General Administration	Dr. Manju Sharma
5.	Stores/Electronics/Communication	Dr. Rajeshkumar Vadgama
6.	Softwares/Licensing	Mrs. Vibha Raut
7.	RRC/IBC	Dr. Shamlan Reshawala
8.	Projects Management	Dr. Lucy Nainan
9.	General upkeep & discipline	Dr. Annamma Odaneth
10.	Attendant/Clerks/Accountant/Non-teaching staff management	Dr. Reena Pandit
11.	Instruments & Maintenance	Mrs. Vibha Raut
12.	Lab Upkeep + Safety + Disposal	Mrs. Vibha Raut, Dr. Shamlan Reshamwala Dr. Gunjan Prakash

Synthetic Biology



Algal Biotechnologies



Enzyme Technologies



Separation Technologies



Fermentation Technologies



Green/Chemical Catalysis



IPM-TC Unit



DBT-ICT CEB Faculty Group



Technical Staff



Support Staff





Event Organized



Lecture on Seaweed Cultivation organized by DBT-ICT Centre for Energy Biosciences on 25th January 2019.



Signing MOU between Institute of Chemical Technology & Pidilite Industries Ltd. 25th January 2019



Participated in India International Seaweed Expo & Summit, Mumbai (22nd-24th January 2019)



Workshop on Synthetic Biology for College Teachers organized by DBT-ICT Centre for Energy Biosciences 13-15th December 2018



Inauguration of PerkinElmer –DBT-ICT explorer TM G3 Project an Advanced High-Throughput Screening Facility held on 28th September 2018.