

Department of Biotechnology
Sri Venkateswara College of Engineering

Research Activity Report (January – June 2018)

1. Research activities of the faculty members:

Number of faculty in the Department : 15
 Number of faculty with Ph D qualification : 06
 Number of faculty pursuing Ph D : 06
 Number of Anna University approved PhD Mentors : 05
 Number of PhD Scholars mentored by the faculty : 08 (PT-6, FT-4)
 Number of MS (By Research) Scholars mentored by the faculty: 02 (FT-2)
 Number of PDF (N-PDF) mentored by the Faculty :01

A). Papers/Book Chapters published by the faculty members in National (N) and International (IN) Journals/Books

S. No.	Name of Faculty	N/IN	Title of the paper	Name of the Journal	Date
1	Rajendra Kumar. R, Rupesh Balaji, A.Senthil Nagappan	International	Direct saponification of wet microalgae by methanolic potassium hydroxide using acetone as co-solvent	Bioresource Technology Reports	In Press
2	Pandi Prabha, S, Johanna Rajkumar, Suresh S, Karthikeyan S	International	Antiosteoporotic effect of <i>Hydrilla verticillata</i> against lead induced damage in bone samples of edible fish <i>Labeo rohita</i> – an FTIR approach	Materials Science and Engineering C	2018, Vol. 90, pp. 657-663
3	Prof. Nakkeeran E	International	Mechanism and application of nano assisted carrier systems in food	Bioorganic Phase in Natural Food: An Overview (Book Chapter)	Springer International Publishing AG 2018, pp .273-292
4	Prof. Nakkeeran E	International	Potential applications of nanotechnology in agriculture: current status and future aspects	Bioorganic Phase in Natural Food: An Overview (Book Chapter)	Springer International Publishing AG 2018, pp 187-209
5	Prof. Nakkeeran E	International	Toxicological studies and regulatory aspects of nanobased foods	Bioorganic Phase in Natural Food: An Overview (Book Chapter)	Springer International Publishing AG 2018, pp 225-257

6	Sumitha.V, Christy Mathelin. R & Sivanandham. M	International	Effect Of Major And Minor Nutrients On Lactic Acid Production Using Biodiesel Waste-Derived Crude Glycerol As A Carbon Source By Lactobacillus Casei Ncim 2125	Energy Sources, Part A: Recovery, Utilization, And Environmental Effects	2018, Volume 40, Issue 11, 1322-1331
7	Dr. D. Nilavunesan	International	Effects Of Retting Pond Wastewater Pollution And Seasonal Variation	Int. J. Environment and Sustainable Development	Vol. 17, Nos. 2/3, 2018

B). Papers presented by the faculty members in National and International conferences/ symposiums/ workshops:

S. No.	Name of Faculty	Title of the paper	Name of the Conference/ symposium/ workshop	National/ International	Date
1.	S. Pandi Prabha	Isolation, Purification and Application of Phytol from the aquatic weed <i>Hydrilla verticillata</i>	Recent Trends in Applied Perspective of Plant Sciences (NCAPS – 2018)	National	27/02/2018 & 28/02/2018
2.	S. Pandi Prabha	Phytol – A Novel Biosurfactant from the aquatic weed <i>Hydrilla verticillata</i>	Biotechnology for Sustainable Development – HAPTEN’ 2018	National	16/03/2018 & 17/03/2018
3.	Dr. S. Prabhu	Development of the anti-diabetic drug from polyphenols rich tamarind seed coat extracts and its <i>in-vitro</i> experimental analysis and <i>invivo</i> pre-clinical therapeutic studies	Faculty Research Day	National	26/04/ 2018
4.	Dr. S. Prabhu	A Novel therapeutics approach in suppressing the Dengue virus by turmeric crude extract	4 th International conference on Science and Technology	International	23/03/2018 & 24/03/2018
5.	Prof. Sulochana Somasundaram	Isolation and Characterization of ESBLs from soil samples	National Conference on Biology and Therapy of Infections	National	09/02/2018 & 10/02/2018

6.	Dr. S. Prabhu	Immunotherapy for treatment of cancer	National Conference on Biology and Therapy of Infections	National	09/02/2018 & 10/02/2018
7.	Ms. S. PandiPrabha	Phytol as a potential drug to treat infectious diseases	National Conference on Biology and Therapy of Infections	National	09/02/2018 & 10/02/2018
8.	Mr. S. Naga Vignesh	Mining of <i>Deinococcus radiodurans</i> Bacterial Genome for the production of L-Ornithine	National Conference on Biology and Therapy of Infections	National	09/02/2018 & 10/02/2018
9.	Dr. E. Nakkeeran	Presented a paper titled "Enzymatic extraction of oil from Cactus pear seed"	National Conference on Recent Trends in Applied Perspective of Plant Sciences	National	27/02/2018 & 28/02/2018
10.	Ms. P. Jaibiba	Presented a poster entitled "Enzymatic extraction of oil from <i>Cactus pear seed</i> "	National Conference on Recent Trends in Applied Perspective of Plant Sciences	National	27/02/2018 & 28/02/2018
11.	Prof. R. B. Narayanan	Presented a poster entitled "Development of functional assay for probiotics"	National Conference on Recent Trends in Applied Perspective of Plant Sciences	National	27/02/2018 & 28/02/2018
12.	Ms. S. PandiPrabha	Presented a paper entitled "Isolation, Purification and Application of Phytol from the aquatic weed <i>Hydrillaverticillata</i> "	National Conference on Recent Trends in Applied Perspective of Plant Sciences	National	27/02/2018 & 28/02/2018
13.	Dr. E. Nakkeeran	Presented a poster entitled "Microbial Inhibitory potential of Phyto-Phospholipid complex from <i>Azadirachta indica</i> leaves"	National Conference on Recent Trends in Applied Perspective of Plant Sciences	National	27/02/2018 & 28/02/2018
14.	Mr. J. Hariharan	Presented a poster entitled Effect of probiotics derived metabolites on gastric cancer cell lines	National Conference on Recent Trends in Applied Biotechnology	National	01.03.2018 & 02.03.2018
15.	Mr. P. K. Praveen Kumar	Presented a poster entitled In-silico studies of binding of Boeravinones on IL-4R and TNF- α R	VISTAS	National	01.03.2018 & 02.03.2018
16.	Prof. R. B. Narayanan	Presented a poster entitled Isolation & Characterization of	Avidadham'18	National	27.02.2018 & 28.02.2018

		lactic acid Bacteria from <i>Zingiber officinale</i>			
17.	Prof. E. Nakkeeran	Presented a poster entitled Isolation & Identification of Mannitol Producing Bacteria from Diary Industrial Effluents	National Conference on Biotechnology for Sustainable Development	National	16/03/2018 & 17/03/2018
18.	Prof. E. Nakkeeran	Presented a poster entitled Formulation and Evaluation of Transdermal Matrix-Type Therapeutic System for Rivastigmine Tartarate	SVCE Innovates	National	23/03/2018
19.	Prof. E. Nakkeeran	Presented a poster entitled Hexavalent chromium removal from tannery industrial effluent using silver nanocomposite in a packed bed reactor	2 nd International Conference on Bioresources, Energy, Environment, and Materials Technology	International	10/06/2018 – 13/06/2018
20.	Prof. E. Nakkeeran	Presented a poster entitled Process modeling for carbohydrate elimination from anthocyanin rich red cabbage extracts using semi interpenetrating network hydrogel beads in a packed bed column	International Conference on Frontiers in Engineering, Applied Sciences and Technology	International	27/04/2018 & 28/04/2018
21.	Prof. E. Nakkeeran	Presented a paper titled Preparation and characterization of β -sitosterol- phospholipid complex from cactus cladode as an effective drug delivery system	SVCE Innovates	National	23/03/2018
22.	Prof. E. Nakkeeran	Presented a paper titled Stability Assessment of Betacyanin from Cactus Pear	Faculty Research Day 2018	National	26/04/018
23.	Prof. E. Nakkeeran	Presented a paper titled Athermal Membrane Process for the Concentration of Betacyanin from	Faculty Research Day 2018	National	26/04/2018

		<i>Opuntia ficus-indica</i>			
24.	Prof. E. Nakkeeran	Presented a paper titled Production Of Pullulan From <i>Aureobasidium Pullulans</i> Using Sago Industrial Waste	Faculty Research Day 2018	National	26/04/2018
25.	S.Pandi Prabha	Hepatoprotective effect of Hydrilla verticillata against Lead Induced Toxicity in Fish	Faculty Research Day 2018	National	26/04/2018
26.	A.Senthil Nagappan	Improvement of biodiesel property of microalgal lipid by removing Unsaturated fatty acids	ICEEIS	International	22/02/2018
27.	A.Senthil Nagappan	Screening of filamentous nitrogen fixing cyanobacteria for Biodiesel production	ICEEIS	International	22/02/2018
28.	A.Senthil Nagappan	The effect of nitrogen deprivation on lipid and other biochemical Constituent	ICEEIS	International	22/02/2018
29.	Lakshmi, S., Madan, A., Nakkeeran, E And A.Senthil Nagappan	Bioproduction of alpha linolenic acid, an omega-3 fatty acid from Microalgae	NCETSM'18	National	19/01/2018
30.	Rupesh Balaji, Rajendra Kumar, K.R. Karthikeyan, Sriram Prakash, A.Senthil Nagappan	Characterization of chlorella sp. Sskv1 for biodiesel production	Biotechnology for Sustainable Development	National	16/03/2018 & 17/03/2018
31.	P.K.Praveen Kumar	Effect of Withanolide A treated dendritic cells on T-cell proliferation	Aavishkaar 2018	National	02/04/18
32.	P.K.Praveen Kumar	Effect of Boeravinone B treated dendritic cell on T-cell proliferation	National conference on Transfigures in Bioscience and Technology	National	16/03/18
33.	P.K.Praveen Kumar	In silico studies of binding of	Recent trends in biotechnology and its	National	02/03/18

		Boeravinones on IL-4R and TNF- α R	application		
34.	N. Sathish	Isolation and Characterization of metal resistant lactobacillus from goat gut and its activity against chromium”	Biotechnology for Sustainable Development (HAPTEN2018)	National	16/03/2018 & 17/03/2018
35.	N. Sathish	Isolation and Characterisation of Metal Resistant Lactobacillus from Goat Gut and its activity against Chromium	Faculty Research Day	National	26/04/2018.
36.	Dr. S. Prabhu	Genetic Modification of LDLR Gene Mutation to prevent Familial Hypercholesterolemia	SVCE innovates 2018	National	23/03/2018
37.	Dr. S. Prabhu	An innovative approach to suppress chemotherapeutic Side effects using Resveratrol polyphenol in treating retinoblastoma through activation of AMPH molecular pathway	SVCE innovates 2018	National	23/03/2018
38.	Dr. S. Prabhu	Nanoparticle mediated drug delivery of a novel synthetic compound to break down the beta-amyloidprotein for the treatment of Alzheimer’s disease.	SVCE innovates 2018	National	23/03/2018
39.	Dr. S. Prabhu	Discovery of adenoviral vector mediated novel gene therapy for retinoblstoma	SVCE innovates 2018	National	23/03/2018
40.	Dr. S. Prabhu	Characterization of anthranilate synthase coding <i>trpE</i> gene for overproduction of l-tryptophan aminoacid in <i>E.coli</i> DH5 α strain	SVCE innovates 2018	National	23/03/2018
41.	Dr. S. Prabhu	<i>In-vitro</i> evaluation of Anti-inflammatory and Anti-urolithiatic	SVCE innovates 2018	National	23/03/2018

		activity of <i>Cichorium intybus</i> leaves extract			
42.	Dr. S. Prabhu	Evaluation of Antioxidant, Antimicrobial and Cytotoxic Activity of <i>Albizia richardiana</i> seed extract	SVCE innovates 2018	National	23/03/2018
43.	Dr. S. Prabhu	Dye degradation using genetically modified Synthetic bacteria	SVCE innovates 2018	National	23/03/2018
44.	Dr. S. Prabhu	Determination of soil parameters using Biosensors	SVCE innovates 2018	National	23/03/2018
45.	Dr. S. Prabhu	Development of novel biosensor for detection of toxic gases	SVCE innovates 2018	National	23/03/2018
46.	S. Pandi Prabha	Lipoprotein Lipase – A Novel Biomarker for Assessment of POPs	SVCE innovates 2018	National	23/03/2018
47.	Dr. S. Prabhu	Mapping of POs, PEOs and PSOs for Curriculum Development towards	Compliance on NBA Accreditation	National	27/02/2018
48.	S. Naga Vignesh	Genome scale editing and metabolic pathway reconstruction for potential ioremediation of <i>Deinococcus radiodurans</i>	Faculty research day 2018, SVCE	National	26/04/2018
49.	P. Jaibiba	Stability Assessment of betacyanin from cactus pear	Faculty research day 2018, SVCE	National	26/04/2018
50.	P. Jaibiba	Stability Assessment of betacyanin from <i>Opuntia</i> fruit by different athermal processes	Recent Trends in Applied Perspectives of Plant Sciences	National	27/02/2018 To 28/02/2018
51.	P. Jaibiba	Antimicrobial activity from the leaf extract of <i>Raphanus sativus</i>	Transfigures in Bioscience and Technology	National	16/03/2018
52.	Mr. J. Hariharan	Effect of BCC Primed and Naïve Bone marrow derived MSCs	Faculty Research Day SVCE	National	26 th April 2018

		exosomes on MCF7 Breast cancer cells			
53.	Mr. D. Suresh Kumar	Biosorption Technology for Removal of Chromium, Lead, Cadmium and Nickel by Dead Biomass of <i>Bacterial Isolates</i> "	"Innovations in Chemical Engineering for Sustainable Development"	national	28.03.2018

C). National and International Conferences/ symposiums/ workshops attended by the Faculty members:

S. No.	Name of Faculty	Name of the Conference/ symposium/ workshop	Place	National/ International	Date
1.	P.K.Praveen Kumar	AICTE sponsored QIP short term course on "Powder X-ray diffraction theory, practical and applications"	IISC, Bengaluru	National	14/05/18 - 18/05/18
2.	All Faculty members (14)	STTP on " <i>Bioprocess and Downstream Process Techniques</i> "	Department of Biotechnology, SVCE	National	21/05/18 To 25/05/18
3.	All Faculty members (15)	ICMR sponsored National Conference on " <i>Biology and therapy of infections</i> "	Department of Biotechnology, SVCE	National	09/02/18 & 10/02/18
4.	Ms. N. Kanagam	CHEST '18 - National Seminar on "Clean Healthy Environment by sustainable Technologies"	A.C. Tech, Anna University	National	27/03/18 & 28/03/18
5.	Ms. N. Kanagam	Bioprocessing and Tissue Engineering Techniques	Synkromax Biotech Pvt Ltd	National	22/05/18 to 28/05/18
6.	Ms. N. Kanagam	Palmarosa Cultivation and oil extraction and value added geraniol extraction	Sri Venkateswara Chemicals Pvt Ltd	National	19/06/18 to 21/06/18
7.	Prof. Nakkeeran E	Summer Camp on Engineering & Technology for School Children	SVCE	National	07/05/2018 – 11/05/2018
8.	N. Sathish	Had attended two day National Recent Trends in Additive Manufacturing of Tissues and Organs, Two day National Level Technical Seminar on Recent Trends in Additive Manufacturing	GRT Institute of Engineering and Technology, Tiruttani	National	12/11/ 2017

		of Tissues and Organs			
9.	N. Sathish	Draining techniques on use of Bioreactor, quality of Textiles, Leather, Tea and Food industry, Enzyme in Agricultural and industry, Biofertilizers-Formulation and Production, Electrospinning etc.	Synkromax Biotech Pvt Ltd	National	21/05/2018 To 23/05/2018
10.	A. Senthil Nagappan	Industrial training	United Alacrity, Chennai	National	6/6/2018 To 8/6/2018
11.	Dr. S. Prabhu	DST- New Delhi sponsored International Workshop on Recent Materials for Health care and Industrial applications	Department of Medical Physics and Department of Crystal Growth Centre, Anna University, Chennai	Inter National	22 nd & 23 rd January 2018
12.	Dr. S. Prabhu	National Level Technical symposium on Cervello Pratiyog	Department of Biotechnology, JEC, Chennai	National	10/03/ 2018
13.	Dr. S. Prabhu	DST- PURSE Sponsored Entrepreneurship programme	Anna University, Chennai- 20	National	22/01/2018 & 23/01/2018
14.	Dr. S. Prabhu	Short term course sponsored by AICTE on quality improvement programme on Recent trends in Clean Technology for sustainable development	Department of Chemical Engineering, CIT, Coimbatore	National	16/04/ 2018 To 22/04/ 2018
15.	Dr. S. Prabhu	Short term course sponsored by AICTE on quality improvement programme on Advance Genetic Engineering and Transgenic Engineering techniques	CCE, IISC, Bangalore.	National	25/06/2018 To 29/06/2018
16.	Dr. S. Prabhu	4 th International Conference on Science Engineering and Technology on Role of Robotics in Science and Technology	JEC, Chennai	International	23/03/ 2018 & 24/03/ 2018
17.	J. Hariharan	Advances in Genetic Engineering and Transgenic technology	IISC	National	24/06/2018 To 29/06/ 2018

18.	Mr. D. Suresh Kumar	Project Expo '18	Jeppiaar Engineering College	National	14.03.2018
19.	Mr. D. Suresh Kumar	"Recent Trends in Additive Manufacturing of Tissues and Organs"	GRT Institute of Engineering and Technology	National	26th and 27th April 2018

2) Departmental research activities:

A). *Symposium, Conferences, Workshop and Guest lectures Conducted:*

S.No	Name of the Event	Place	Period	Funding Agency	National/ International	Organizing Secretary
1.	National Conference on ICMR sponsored " <i>Biology and therapy of infections</i> "	Department of Biotechnology, SVCE	09/02/2018 To 10/02/2018	ICMR, New Delhi.	National	Prof. R. B. Narayanan
2.	Summer Camp on Engineering & Technology for School Children	SVCE	07/05/2018 – 11/05/2018	SVCE	National	Prof. E. Nakkeeran
3.	Short-term training programme on Bioprocess and Downstream Process Techniques	Department of Biotechnology SVCE	21/05/2018 – 25/05/2018	SVCE	National	Prof. E. Nakkeeran
4.	Guest lecture by Dr. G. Narendran, Scientist 'E' Medical & Deputy Director, Department of Clinical Research, National institute for Research in Tuberculosis on "Treatment and Prevention of TB in India".	Department of Biotechnology, SVCE	09/02/2018	ICMR, New Delhi.	National	Prof. R. B. Narayanan
5.	Prof. M. Sivanandham, Visiting Professor, Dept of Biotechnology, SVCE & Secretary, SVEHT, Chennai delivered guest lecture on "Viral Etiology on some types of Cancers and their Therapies	Department of Biotechnology, SVCE	09/02/2018	ICMR, New Delhi.	National	Prof. R. B. Narayanan
6.	Anuradha Rajamanickam, Post-Doctoral Fellow, Center for Excellence in Research (NIH) Tuberculosis Research Centre delivered guest lecture on "Characterization of immune responses in Strongyloides stercoralis infection"	Department of Biotechnology, SVCE	9/2/2018	ICMR, New Delhi.	National	Prof. R. B. Narayanan

7.	Dr. S. Swaminathan, Expert Virologist, Recombinant Gene Products Laboratory, International Centre for Genetic Engineering and Biotechnology delivered guest lecture on "Defeating Dengue with Biotechnology".	Department of Biotechnology, SVCE	10/2/2018	ICMR, New Delhi.	National	Prof. R. B. Narayanan
8.	Dr. Nivedita Chatterjee, Senior Scientist, Vision Research Foundation, Sankara Nethralaya delivered guest lecture on "Viral Infections of the eye".	Department of Biotechnology SVCE	10/2/2018	ICMR, New Delhi.	National	Prof. R. B. Narayanan
9.	Mr. E. Balaji, Director, SYNDROBS Biosolution Pvt. Ltd, Chennai delivered guest lecture on "Clinical Research In Biotechnology".	Department of Biotechnology SVCE	16/02/2018	-	National	Mr. D. Suresh Kumar
10.	Ms. Ranitha, Programme Analyst, Zifo R & D Solutions, Chennai addressed the pre-final year regarding "Healthcare professionals"	Department of Biotechnology SVCE	09/03/2018	-	National	Dr. E. Nakkeeran

B) Funded projects in the Department:

S. No.	Name of the Project	Funding Agency	Period & Amount Sanctioned	Coordinators	Status of the project
1	Therapeutic assessment of novel phospholipid based nano-material loaded essential oil from Indian spices" from	Science and Engineering Research Board (SERB)- DST, New Delhi, India.	2 Years & Rs. 19,20,000/-	Dr. A. Kalaiselvi National Post-Doctoral Fellow (N-PDF) under the mentorship of Dr. E. Nakkeeran	Ongoing
2	Effect of Withanolide A treated DC on T- cell proliferation	UG Intramural Project Grant	Dec'17-Apr'18 & Rs.9500	Prof.M.Sivanandham, Mr.P.K.Praveen Kumar	Completed

3	Essential Oil mediated Biogenic Nanoparticle Activity against mosquito larvae	Intramural fund, SVCE	1 Year Rs.10,000/-	Dr. E Nakkeeran & Mr. Aswin Jenoj J.G	Completed
5	Converting Sugarcane bagasse into cost effective poultry feed	MSME- New Delhi, Govt of India through SVCE-EDC	2 Years Rs.5,00000/-	Prof. M. Sivanandham Mr. Arun & Ms. V. Sumitha	Ongoing
6	Purification of Geraniol by Novel Chromatography for Therapeutic Applications	MSME- New Delhi, Govt of India through SVCE-EDC	2 Years Rs.5,00000/-	Mr. Aswin Jenoj JG & Ms. S. Pandi Prabha	Ongoing

C). Projects submitted to Funding Agencies by the Department:

S. No.	Name of the Project	Funding Agency	Period & Amount applied	Coordinators
1.	Anticancer Effect of Gartanin Xanthone in NDEA induced Hepatocellular Carcinoma in mice- PI- Dr. S. Prabhu- SERB- DST- New Delhi, Govt of India	Science and Engineering Research Board (SERB- DST)	3 years & Rs. 2086800	Dr. S. Prabhu
2.	Genetic Engineering towards Nannochloropsis trait improvement for CO2 biomitigation and biofuel purposes	Science and Engineering Research Board (SERB- DST)	2 years & Rs. 12,00,000	Dr. A. Senthil Nagappan
3.	Alpha linolenic acid based microalgal biolubricant	DBT BIRAC Synthetic Biology	2 years & Rs. 11,00,000	Dr. A. Senthil Nagappan
4.	Environmental water pollutant mapping and its management through biosensor by IoT	Science and Engineering Research Board (SERB- DST)	2 years & Rs. 11,50,000	Dr. D. Nilavu Nesan

D). Research centre status of the department: Active (Valid till October 2019)

3) Student Research Activities:

*A). List of projects carried out by the students in the department as in house and Industrial project:
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Sl.No	Name	Guide Name	Project Title	Inhouse/Industry
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1.	Aswin Jen0 J.G,	Dr. E. Nakkeeran	Essential oils mediated biogenic nanoparticle activity against mosquito larvae	Inhouse
2.	Kavitha Shri R.K.	Prof. Sulochana Somasundaram	Cloning of mutated <i>Bacillus subtilis</i> derived laccase gene into <i>E.coli</i> for its enhanced detoxification of crystal violet dye and its immobilization	Inhouse
3.	Lakshminarayanan C.P.	Dr. S. Prabhu	Development of anti-diabetic drug from tamarind seed coat extract and its experimental analysis in streptozotocin induced diabetic mice	Inhouse
4.	Leena K.B.	Prof.M.Sivanandham Co-Guide: Mr. PK. Praveen Kumar	Testing the efficacy of the immune-analytic software for compounds having immune modulatory activity on dendritic cells	Inhouse
5.	Priyanka T.R.	Prof. R.B. Naryanan	Isolation and characterization of Lactic acid bacteria from medicinal plant <i>Zingiber officinale</i>	Inhouse
6.	Revathi B.	Prof. Nalinkanth V. Ghone	Studying the interaction between MCF-7 and the Mesenchymal Stem Cells using 3D printed PLA scaffold as a co-culture system	Inhouse
7.	Shreekavi V.	Dr. E. Nakkeeran	Genetic approach to understand link between lifestyle disorders	IISC, Bangalore

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S.No	Name	Guide Name	Project Title	Inhouse/External Project
1.	Hitesh G P Manoj Krishna M	Prof. Sulochana Somasundaram	Effect of PA-824 on <i>Mycobacterium smegmatis</i> infected human peripheral blood derived macrophages	Inhouse
2.	Prasanna Kumar S B Priyadharshini V	Prof. Sulochana Somasundaram	Development of a rapid and cost effective diagnostic kit for Tuberculosis	Inhouse

3.	Asvika Rajkumar S Harini Subbiah	Prof. R. B. Narayanan	Development of Functional Assay for Probiotics	Inhouse
4.	Sonia K P	Mr. P. K. Praveen Kumar	Effect of Boeravinone-B treated dendritic cell on T-cell proliferation	Inhouse
5.	Devapriya S Karthik Raj B N	Mr. P. K. Praveen Kumar	Effect of Withanaloide-A treated dendritic cell on T-cell proliferation	Inhouse
6.	Hemachandrika S	Ms. S. Pandi Prabha	Isolation, Purification and Application of Phytol from the aquatic weed <i>Hydrilla verticillata</i>	Inhouse
7.	Karthick M Veveeyan S	Prof. Nalinkanth V. Ghone	Effect of conditioned medium derived from MCF-7 cells on mesenchymal stem cells in 3D cultures	Inhouse
8.	Swetha S Narayanan Azhagammal S C	Prof. Nalinkanth V. Ghone	Spheroidal culture of MCF-7 and MSCs in core-shell pattern as a tumor model	Inhouse
9.	Mamta N V Yashaswini J	Prof. Nalinkanth V. Ghone	Effect of AGS Gastric Cancer conditioned medium on AMP activity of MSCs	Inhouse
10.	Sivapriya K Praveena S	Mr. J. Hariharan	Effect of probiotics derived metabolites on gastric cancer cell lines	Inhouse
11.	Anirudh S Kaviya S	Ms. P. Jaibiba	Stability assessment of betacyanin from opuntia fruits using different athermal process	Inhouse
12.	Jayashree B	Ms. P. Jaibiba	Antimicrobial studies of <i>Raphanus sativus</i> leaf extract	Inhouse
13.	Dhamini V Sakthivel Pandiyan S	Mr. N. Sathish	Construction of probiotics <i>Lactobacillus</i> with metal reducing genes for the reduction of chromium toxicity	Inhouse
14.	Darun S R Charulatha S	Dr. S. Prabhu	Characterization of anthranilate synthase coding trpE gene for overproduction of L-tryptophan aminoacid in E.Coli DH5 α strain	Inhouse
15.	Aishwarya P Kabilan K M Vinith Kumar R	Prof. E. Nakkeeran	Enzymatic extraction of cactus seed oil and its anti-microbial studies	Inhouse
16.	Deeyaneshwaran G Varsha Bhaskar	Prof. E. Nakkeeran	Matrix type silk fibroin transdermal patch system for Rivastigmine Tartarat	Inhouse
17.	Thenmozhi B Dharshni S	Prof. E. Nakkeeran	Isolation of mannitol producing bacteria from Dairy industry effluents	Inhouse
18.	KaviyaG	Prof. E.	Synthesis Characterization of	Inhouse

	Sowbhagyalakshmi S	Nakkeeran	phytosomes of β -sitosterol from cactus cladodes and its toxicological study	
19.	Nanditha R Yamini Swetha N	Dr. S. Prabhu	Evaluation of Anti-inflammatory & Anti-urolithiatic activity of Cichorium Intybus leaves Extract	Inhouse
20.	Poorvisha T Srinidhi R	Dr. S. Prabhu	Evaluation of anti-oxidant, Anti-microbial and cytotoxic activity of Albizia richardiana seed extract	Inhouse
21.	Arvind R Vishal Bhupathi B Saran K	Prof. M. Sivanandham	Effect of CD40 ligand mimetic molecule on the differentiation of haematopoietic stem cells into dendritic cells	Inhouse

UG: External Projects

S.No	Name	Place / Institute	Project Title
1.	Aditi Valecha	Centre for Medical Genetics, Chennai	Genetic Counselling of patients suffering from different genetic disorders
2.	Aishwaryalakshmi V Mangaiyarkarasi S	CSIR – Central Leather Research Institute, Chennai	Development of Drug Conjugated Gold Nanofiber and its effect on skin cancer
3.	Ramit B	United Breweries Ltd, Mysore	Riboswitch class classification using a multi-layered perceptron and exploring denova riboswitch generation using GANs
4.	Samyuktha D	CSIR – Central Leather Research Institute, Chennai	Effect of thymoquinone and theobromine on collagen Fibrillogenesis
5.	Mythreyi N R	CSIR – Central Leather Research Institute, Chennai	Molecular Metagenomics of lipase production for enzymatic transesterification of leather solid waste for biodiesel production
6.	Pooja M	CSIR – Central Leather Research Institute, Chennai	Studies on the interaction of L-carnosine with collagen and its tissue engineering applications
7.	Meenaakshe R.P Pooja shree R	CSIR – Central Leather Research Institute, Chennai	Optimization of inoculum/substrate for food waste banana and tea residue
8.	Harini R	National University of Singapore, Singapore	Role of cytochrome genes in salt exclusion process and in the synthesis of suberin monomers

B). Student Project award:

Mythreyi N.R received project funding of **Rs. 10000/-** from the TNSCST for project entitled “Molecular Metagenomics of lipases production for enzymatic trans-esterification of leather solid waste for bio diesel production” in the academic year 2018.

C). Research Publications by students in National and International Journal:

S. No.	Name of the Students	National/International	Title of the paper	Name of the Journal	Date
1	Sumitha.V, Christy Mathelin. R & Sivanandham. M	International	Effect of major and minor nutrients on lactic acid production using biodiesel waste-derived crude glycerol as a carbon source by Lactobacillus Casei NCIM 2125	Energy Sources, Part A: Recovery, Utilization, and Environmental Effects	2018, Volume 40, Issue 11, 1322-1331
2	Rajendra KumarR, Rupesh Balaji, A.Senthil Nagappan	International	Direct saponification of wet microalgae by methanolic potassium hydroxide using acetone as co-solvent	Bioresource Technology Reports	In Press

D). Research Presentations by students in National and International Conferences/ symposiums/ workshops:

S. No.	Name of Student	Title of the paper	Name of the Conference/ symposium/ workshop	National/ International	Venue	Date
1.	Aditi Valecha	Genetic Counseling of Patients Suffering From Rare Genetic Disorders	National conference on Medical Genetics And Genetic Counseling	National	Bharath Institute of Science And Technology ,Selaiyur, Chennai.	19/02/2018
2.	Aishwarya.P Kabilan.K.M	Enzymatic extraction of oil from Cactus pear seed	Recent Trends in Applied Perspective of Plant Sciences (NCAPS – 2018)	National	PG and Research Department of Botany, Pachaiyappa's College, Chennai, Tamil Nadu, India.	27/02/2018 28/02/2018

3.	Aishwaryalaksh mi.V Mangaiyakarasi .S	Green synthesis of gold nanoparticles and development of gold nanofibers and their characterisation	7th National Conference on Transfigures in Bioscience and Technology	National	Madha Engineering College	16/03/2018
4.	Anirudh. S Kaviya.S	Stability Assessment of Betacyanin extracted from Opuntia fruits by different athermal processes	Recent Trends in Applied Perspective of Plant Sciences (NCAPS – 2018)	National	PG and Research Department of Botany, Pachaiyapp a's College, Chennai, Tamil Nadu, India.	27/02/2018 28/02/2018
5.	Asvika Rajkumar	Development of functional assay for probiotics	Recent Trends in Applied Perspective of Plant Sciences (NCAPS – 2018)	National	PG and Research Department of Botany, Pachaiyapp a's College, Chennai, Tamil Nadu, India.	27/02/2018 28/02/2018
6.	Azhagammal .S.C	Spheroidal Culture of MSCs and MCF7 in Core Shell	National conference- aavishkaar 2018	National	Vel Tech High Tech Dr. Rangarajan Dr. Sakunthala Engineering College, Avadi, Chennai	2/04/2018

7.	Charulatha.S Darun.S.R	Characterization of anthranilate synthase coding <i>trpE</i> gene for overproduction of L-tryptophan amino acid in <i>E. coli</i> DH5 α strain	National Conference on “Recent Trends in Biotechnology and its Applications	National	Department of Bioengineering, School of Engineering, VISTAS, Pallavaram, Chennai, Tamil Nadu, India.	01/03/2018 02/03/2018
8.	Devapriya.S	Effect of Withanolide A Treated Dendritic Cells on T-cell proliferation	National conference-aavishkaar 2018	National	Vel Tech High Tech Dr. Rangarajan Dr. Sakunthala Engineering College, Avadi, Chennai	2/04/2018
9.	Dhamini.V	Construction of probiotic <i>Lactobacillus</i> with metal reducing genes for the reduction of chromium toxicity	7th National Conference on Transfigures in Bioscience and Technology	National	Madha Engineering College	16/03/2018
10.	Dharshini.S	Isolation and identification of mannitol producing bacteria from dairy industry effluent	National conference on Biotechnology for sustainable development	National	Arunai Engineering College	16/04/2018 17/04/2018

11.	Harini Subbiah	Development of functional assay for probiotics	National Conference on Recent Trends in Applied Perspective of Plant Sciences (NCAPS – 2018)	National	PG and Research Department of Botany, Pachaiyappa's College, Chennai, Tamil Nadu, India.	27/02/2018 28/02/2018
12.	Hema Chandrika.S	Isolation, Purification and Application of Phytol from the aquatic weed <i>Hydrillaverticillata</i>	National Conference on Recent Trends in Applied Perspective of Plant Sciences (NCAPS – 2018)	National	PG and Research Department of Botany, Pachaiyappa's College, Chennai, Tamil Nadu, India.	27/02/2018 28/02/2018
13.	Hitesh.G.P Manoj Krishna.M	Effect of PA-824 on Mycobacterium smegmatis infected peripheral blood derived macrophages	National conference-aavishkaar 2018	National	Vel Tech High Tech Dr. Rangarajan Dr. Sakunthala Engineering College, Avadi, Chennai	2/04/2018
14.	Jayashree.B	Antimicrobial activity of Different extracts of <i>Raphanus sativus</i>	7th National Conference on Transfigures in Bioscience and Technology	National	Madha Engineering College	16/03/2018
15.	Karthick.M	Effect of conditioned medium derived from MCF-7 Cells on Mesenchymal Stem Cells in 3D Spheroidal cultures	National conference-aavishkaar 2018	National	Vel Tech High Tech Dr. Rangarajan Dr. Sakunthala Engineering College, Avadi, Chennai	2/04/2018

16.	Karthik Raj.B.N	Effect of Withanolide A treated Dendritic cells on T-cell proliferation	National conference-aavishkaar 2018	National	Vel Tech High Tech Dr. Rangarajan Dr. Sakunthala Engineering College, Avadi, Chennai	2/04/2018
17.	Kaviya.G	Microbial Inhibitory potential of Phyto-Phospholipid complex from <i>Azadirachtaindi ca</i> leaves	National Conference on Recent Trends in Applied Perspective of Plant Sciences (NCAPS – 2018)	National	PG and Research Department of Botany, Pachaiyappa's College, Chennai, Tamil Nadu, India.	27/02/2018 - 28/02/2018
18.	Kushmitha.K	A Reverse Vaccinology Approach to Develop a Vaccine Against Hepatitis B	National Conference on “Current Trends In Diagnostics And Therapeutics For Lifestyle Diseases (AVIDADHAM - 2018)	National	Anna University, Chennai, Tamil Nadu, India.	27/02/2018 - 28/02/2018
19.	Mamta.N.V	Effect of Gastric Cancer like environment on the Antimicrobial Activity of Mesenchymal Stem Cells	National conference-aavishkaar 2018	National	Vel Tech High Tech Dr. Rangarajan Dr. Sakunthala Engineering College, Avadi, Chennai	2/04/2018
20.	Aishwarya Thyagarajan	Screening of Filamentous cyanobacteria for Bio diesel	International Conference on Energy and Industrial Safety / SALVATIO'18	International	A.C.Tech	22.02.2018 & 23.02.2018

21.	Aparna Madan	Bioproduction of Omega-3 Fatty acid from microalgae	National Conference on Emerging trends in Smart Materials / NCETSM'18	National	SSN	19.01.2018 & 20.01.2018
22.	Lakshmi S	Bioproduction of Omega-3 Fatty acid from microalgae	National Conference on Emerging trends in Smart Materials / NCETSM'18	National	SSN	19.01.2018 & 20.01.2018
23.	Lokapriya D	Screening of Filamentous cyanobacteria for Bio diesel	International Conference on Energy and Industrial Safety / SALVATIO'18	International	A.C.Tech	22.02.2018 & 23.02.2018
24.	Mahalakshmi S	The effect of Nitrogen deprivation on lipid and other biochemical constituents of four microalgae	International Conference on Energy and Industrial Safety / SALVATIO'18	International	A.C.Tech	22.02.2018 & 23.02.2018
25.	Suvedha K	The effect of Nitrogen deprivation on lipid and other biochemical constituents of four microalgae	International Conference on Energy and Industrial Safety / SALVATIO'18	International	A.C.Tech	22.02.2018 & 23.02.2018
26.	Sruthi R	The effect of Nitrogen deprivation on lipid and other biochemical constituents of four microalgae	International Conference on Energy and Industrial Safety / SALVATIO'18	International	A.C.Tech	22.02.2018 & 23.02.2018
27.	Vardhini A	Screening of Filamentous cyanobacteria for Bio diesel	International Conference on Energy and Industrial Safety / SALVATIO'18	International	A.C.Tech	22.02.2018 & 23.02.2018
28.	Subasree S	Screening of Filamentous cyanobacteria for Bio diesel	International Conference on Energy and Industrial Safety / SALVATIO'18	International	A.C.Tech	22.02.2018 & 23.02.2018

29.	Vardhini A	Food Waste co-digested with sugar waste water for biogas production	National Conference on current and future trends in Food Waste management and valorization / VALORIZE'18	National	A.C Tech	24.01.2018 & 25.01.2018
30.	Subasree S	Food Waste co-digested with sugar waste water for biogas production	National Conference on current and future trends in Food Waste management and valorization / VALORIZE'18	National	A.C Tech	24.01.2018 & 25.01.2018
31.	Sriram K	Design of solar powered mosquito repellent using Bio-liquid	National Conference on Emerging trends in Samrt Materials / NCETSM'18	National	SSN	19.01.2018 & 20.01.2018
32.	Aswin Sai Murali N	Design of solar powered mosquito repellent using Bio-liquid	National Conference on Emerging trends in Samrt Materials / NCETSM'18	National	SSN	19.01.2018 & 20.01.2018
33.	Vignesh G	Design of solar powered mosquito repellent using Bio-liquid	National Conference on Emerging trends in Samrt Materials / NCETSM'18	National	SSN	19.01.2018 & 20.01.2018
34.	Sriram Praksh B	Design of solar powered mosquito repellent using Bio-liquid	National Conference on Emerging trends in Samrt Materials / NCETSM'18	National	SSN	19.01.2018 & 20.01.2018
35.	Leena KB	In silico studies of binding of Boeravinones on IL-4R and TNF- α R	National conference on "Recent trends in biotechnology and its application"	National	Vels University	02/03/18

PG Students (2016-18 Batch) Paper Presentation in Conferences

S. No.	Name of Student	Title of the paper	Name of the Conference/ symposium/ workshop	National/ International	Venue	Date
1	Aswin Jenoj G	“Evaluation of bactericidal, fungicidal and mosquito larvicidal properties of clove-bud oil mediated niosomes”	Recent Trends in Biotechnology and its Applications-2018’	National	VELS University, Pallavaram	01/03/2018 & 02/03/ 2018
2	Kavitha Shri R K	Cloning of mutated Bacillus subtilis derived laccase gene into E.coli for its enhanced detoxification of Crystal violet dye and its Immobilization”	AAVISHKAAR 2018	National	Vel Tech Hightech Dr. Rangarajan Dr. Sakunthala Engineering College.	02/04/2018
3	Lakshminarayanan C P	Development of anti-diabetic drug from polyphenols of Tamarind seed coat extract”	AVIDADHAM 2018	Anna University ,Chennai	National	27/02/2018 & 28/02/2018
4	Leena K.B	Testing the efficacy of immuno-analytic software for compounds having immune modulatory activity	Recent Trends in Biotechnology and its applications (RTBA 2018)”	VELS University, Chennai	National	01/03/2018 & 02/03/ 2018
5	Priyanka T R,	Isolation and characterization of Lactic Acid Bacteria from <i>Zingiber officinale</i> ”	AVIDADHAM 2018	Anna University ,Chennai	National	27/02/2018 & 28/02/2018

6	Revathi B	Studying the interaction between MCF-7 and Mesenchymal Stem Cells using 3D printed PLA scaffold as a co-culture system”	AAVISHKAAR 2018	National Conference	Vel Tech Hightech Dr. Rangarajan Dr. Sakunthala Engineering College.	02/04/2018
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E). Participation of Students in Conferences/Workshops/Symposium

S. No.	Name of Student with Batch	Name of the Conferences/ symposiums/ workshops	National/ International	Venue	Date
1	Ashwin	SVCE Research Day - Discovery Of Adenoviral Mediated Novel Gene Therapy For Retinoblastoma	Research Day	SVCE	23rd March 2018
2	Ashwin	Symposium - Global Energy	National	IIT Madras	10th March 2018
3	A.Bhuvaneshwari Janani	Real Time PCR	Work Shop	Anna University	24th March 2018
4	A.Bhuvaneshwari Janani	Bioenergy And Bioproducts	International conference	Bannari Amman Institute Of Technology	9th March 2018
5	Sanyukthaa M	Material science	International conference	SCSVMV	25th and 26th June 2018
6	Shruthi Sampath	Bioenergy And Bioproducts	International conference	Bannari Amman Institute Of Technology	9th March 2018
7	Shruthi Sampath	SVCE Research Day - Construction Of Gene Cassette In A Novel Vector For Producing Genetically Engineered Salt Tolerant Crops	Research Day	SVCE	23rd March 2018

8	Hriday purohit	SVCE Research Day - Nanoparticle mediated drug delivery of a novel synthetic compound to break down the beta amyloid protein to treat Alzheimer's disease.	Research Day	SVCE	23rd March 2018
9	Ajay.v	SVCE Research Day - Novel Therapeutic Method For Beta Amyloid Degradation And Hyperphosphorylation Alzheimer's Disease	Research day	SVCE	23rd March 2018
10	Janani.k	Bioenergy And Bioproducts	International conference	Bannari Amman Institute Of Technology	9th March 2018
11	Janani.k	Modification of staple crop into salt resistance crop for large scale production	International conference	SVCE	23rd March 2018
12	G.Sudarshan	DNA extraction	Work shop	VIT Vellore	24th and 25th Feb 2018
13	G.Sudarshan	SVCE Research Day - Genetic modification of LDLR gene mutation to prevent familial hypercholesterolemia	Research Day	SVCE	23rd March 2018
14	G.Sudarshan	Bioenergy And Bioproducts	International Conference	Bannari Amman Institute Of Technology	9th March 2018
15	N. Shakunthala	Creating a prototype of a completely Automated Agricultural Field For Pest Management	Symposium- Biotechcellence	Anna University	13th-15th March 2018
16	N. Shakunthala	SVCE Research Day - Novel Electronic Waste Based Material Degradation Using Genetic Consortium- a Remedy.	Research Day	SVCE	23rd March 2018

17	R.Akila	SVCE Research Day - Genetic modification of LDLR gene mutation to prevent familial hypercholesterolemia	Research Day	SVCE	23rd March 2018
18	R.Akila	Bioenergy And Bioproducts	international conference	Bannari Amman Institute Of Technology	9th March 2018
19	R.Malavika	SVCE Research Day - Genetic modification of LDLR gene mutation to prevent familial hypercholesterolemi	Research Day	SVCE	23rd March 2018
20	R.Malavika	Bioenergy And Bioproducts	International conference	Bannari Amman Institute Of Technology	9th March 2018
21	Reethika.B	Bioenergy And Bioproducts	international conference	Bannari Amman Institute Of Technology	9th March 2018
22	Reethika.B	DNA day	Work shop	VIT Vellore	24th and 25th Feb 2018
23	Deeska .M	Bioenergy And Bioproducts	International Conference	Bannari Amman Institute Of Technology	9th March 2018
24	prasanth.M	Bioenergy And Bioproducts	international conference	Bannari Amman Institute Of Technology	9th March 2018
25	prasanth.M	Real Time PCR	Work Shop	Anna University	24 March 2018
26	Naveen Kumar .G	Bioenergy And Bioproducts	International conference	Bannari Amman Institute Of Technology	9th March 2018
27	R.Rajesh	Bioenergy And Bioproducts	international conference	Bannari Amman Institute Of Technology	9th March 2018

28	Anusuya Narayanan	SVCE Research Day - Creating a prototype of a completely Automated Agricultural Field For Pest Management	Research Day	SVCE	23rd March 2018
29	Nithiyashri J	SVCE Research Day - Novel gene technology for the restoration of intoxicated cows	Research Day	SVCE	23rd March 2018
30	Nithiyashri J	Bioenergy And Bioproducts	International Conference	Bannari Amman Institute Of Technology	9th March 2018
31	Nithya Priya. M	SVCE Research Day - Novel gene technology for the restoration of intoxicated cows	Research Day	SVCE	23rd March 2018
32	Nithya Priya. M	Bioenergy And Bioproducts	International Conference	Bannari Amman Institute Of Technology	9th March 2018
33	Dharshini	SVCE Research Day - Novel Therapeutic Method For Beta Amyloid Degradation And Hyperphosphorylation Alzheimer's Disease	Research day	SVCE	23rd March 2018
34	Madhivadani.s	SVCE Research Day - Creating a prototype of a completely Automated Agricultural Field For Pest Management	Research Day	SVCE	23rd March 2018
35	Dhrithi Prabhuram	Bioenergy And Bioproducts	International Conference	Bannari Amman Institute Of Technology	9th March 2018
36	RACHEL PRISCILLA E	DNA extraction	work shop	VIT Vellore	24 and 25th Feb 2018
37	D.Khaviya	SVCE Research Day - Gene modification on salt tolerant crops	Research Day	SVCE	23rd March 2018
38	J. Sarumathy	Bioenergy And Bioproducts	International Conference	Bannari Amman Institute Of Technology	9th March 2018

39	Hari Vishal	Bioenergy And Bioproducts	International Conference	Bannari Amman Institute Of Technology	9th March 2018
40	Hari Vishal	SVCE Research Day - Discovery Of Adenoviral Mediated Novel Gene Therapy For Retinoblastoma	research day	SVCE	23rd March 2018
41	Nivedha .V	SVCE Research Day - Novel gene technology for the restoration of intoxicated cows	Research Day	SVCE	23rd March 2018

4) Sponsorship details of faculty and students:

I) Sponsorship for faculty members:

A) Faculty sponsored for presentation in International/National Conferences/ symposiums/workshops:

S. No	Name of the Faculty	Date	Title of the Paper	Name of the Conferences/ symposiums/ workshops	Venue	Sponsorship Amount(Rs.)
1	N.Sathish	16th and 17th March 2018	Isolation and Characterization of metal resistant lactobacillus from goat gut and its activity against chromium	HAPTEN2018	Arunai Engineering College, Tiruvannamalai, Tamilnadu	Rs.750

B) Faculty sponsored for attending national Conferences/ symposiums/ workshops:

S. No.	Name of the Faculty	Date	Name of the Conference/ symposium/ workshop	Venue	Sponsorship Amount(Rs.)
1	Dr. S. Prabhu	22/01/2018 To 23/01/2018	DST- New Delhi sponsored International Workshop on Recent Materials for Health care and Industrial applications	Department of Medical Physics and Department of Crystal Growth Centre, Anna University, Chennai	Rs. 1000/-

II) Sponsorship for Students:

Students sponsored for presentation in International/National Conferences/ symposiums/ workshops:

S.No	Name of the Student	Date	Title of the paper	Name of the Conference/ symposium/ workshop	Venue	Sponsorship Amount (Rs.)
1	Nil	Nil	Nil	Nil	Nil	Nil

5) Research cell(s) /Area(s) of research in the Department:

Biochemical and Bioprocess Engineering, Biochemical Toxicology, Antioxidant Therapy, Free Radical biology, Degenerative Diseases (Diabetes, Cancer and Neuro Degenerative Disorders), Infectious Diseases, Laboratory Small Animal Studies, Bio-separation Techniques, Food Processing, Nano-biotechnology, Stem Cell Techniques, Immuno-technology, Bioinformatics, Bio Pharmaceutical Technology, Biofuels, Environmental Biotechnology, Microbial Technology, Genetic Engineering, Metabolic Engineering, Biomaterials, Computational Biology, Plant Biotechnology, Herbal Medicine, Molecular Biology and Synthetic Biology

6) Consultancy work in the department:

Mr. P. K. Praveen kumar has developed Curriculum and content for CEO Skill Foundations Pvt. Ltd, Chennai (Approved by Tata Institute of Social Sciences, Mumbai) as consultancy work for the consultancy amount of Rs. 14,000/-

7) Patent information:

Dr. A. Senthil Nagappan filed a patent on Rapid preparation of Fatty acids from wet microalgal biomass. Application number 201841006326, dated 20/2/18