DEPARTMENT OF BIOTECHNOLOGY
(Annual Report 2008-09)

1. INTRODUCTION

Department of Biotechnology at IIT Guwahati is dedicated to provide quality education that combines intense academic study and globally recognized research. The excellent infrastructure and knowledge resources available in the department provide the base. Eighteen faculty members from diverse streams and specializations are actively involved in teaching and research. Faculty members of the department are recognized internationally for its high academic level. The department has 6 well-trained scientific staff and two administrative staff members. There are 114 B.Tech., 12 M.Tech. and 47 Ph.D. students from different parts of the nation are currently pursuing study in the department. However, the number of student, staff and faculty members is expected to increase in the forthcoming years. The department has developed many special research facilities to meet the need of cutting edge research in the field of biotechnology. The broad research areas of the department include, but not limited to, Protein science, Plant biotechnology, Nano-biotechnology, Computational biology, Bioengineering, Medical Biotechnology, Environmental and Industrial biotechnology.

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2. ACADEMIC ACTIVITIES

The department is currently offering undergraduate (B.Tech), postgraduate (M.Tech) and doctoral programmes (Ph.D). The students enrolled in B.Tech program from IIT-JEE pool while PhD and M.Tech students are enrolled after rigorous selection procedure. Both, undergraduate and postgraduate degrees offer comprehensive education in biotechnology focusing on basic concepts and techniques in biotechnology and allied engineering sciences. These programmes consist of core and elective courses, as well as a final year research project. The curriculum of B.Tech program recognizes the challenges in Biotechnology and offers Modern Biology course as a core subject to first year B.Tech. students of all disciplines. The curriculum of our new M.Tech course is designed to produce dynamic biotechnologists who can meet the ever growing demands of the biotechnological industry and academia. The M.Tech programme is supported by the Department of Biotechnology, Govt. of India. Besides, extensive research leading to Ph.D. is being carried out on various aspects of Biotechnology like Protein Science; Antileishmania drug development; Enzyme and Microbial Technology; Biomaterials; Drug Delivery; Tissue engineering; Plant Cell and Tissue Culture; Plant Genetic Engineering; Gene Therapy; Molecular Fingerprinting and Expression Systems in Food Grade bacteria; Biochemistry and Molecular Biology of Carbohydrate Enzymes; Fungal Biotechnology and Bio-pesticides, Biological Control of Insect Pests; Environmental bioremediation, Bioprocess development (upstream to downstream), Metabolic Engineering., biosensor and biofuel cell.

3. STUDENT INTAKE

Number of B.Tech students enrolled : 29

Number of M.Tech students enrolled : 12

Number of PhD students enrolled : 15

4. FACULTY STRENGTH: 18

Associate Professor : 8 (Eight)

Assistant Professor : 10 (Ten)

5. MAJOR EQUIPMENT AND FACILITIES

The department of Biotechnology at IIT Guwahati has developed sophisticated teaching and research laboratories in various area of Biotechnology. The department has fully equipped B.Tech. and M.Tech laboratories.. Moreover, the department has broad range of instrumentation that is usually not available in individual laboratories/investigators. All the researchers of the department have access to several sophisticated departmental resources like super speed centrifuges, Ultracentrifuge, Inverted fluorescence microscopes, PCR machine, Steady state fluorimeter, UV-Visible thermostat control spectrophotometer, Ultrasonicator, Fermenters, Gel documentation system, Cell disrupter, Atomic force microscope, HPLC, Tensiometer etc. In addition to that the department has created facilities like mammalian cell culture laboratory, transgenic greenhouse containment and biochemical engineering lab. Moreover, many other facilities like, confocal Laser Scan Microscope, NMR (400 mHz) Scanning Electron Microscope, ESR spectroscopy, TEM, LC-MS-MS etc. available in the adjacent Central Instruments facility of the institute and provide access to the researchers of the department. The department of Biotechnology, IIT Guwahati, has a separate computational lab with the following facilities:

a) *Desktop Computers:* 49 in number; Operating systems: Windows/Linux; Connected to Servers at the Institutional Computer Center by LAN.
b) *Dedicated departmental Server for computational biology work:*
   i] Acer Tower Model Server, Model: Atlas G710; Duel Intel Xenon Pocessor 3.2 GHz; Extended memory 64 technology; Hyperthreading; 800 MHz FSB chipset – 01 No.
   ii] HP Proloiant ML 150 G2 Server – 02 Nos.
   iii] Opteron Rack Server, Model: HP Proliant DL 585 G2 – 01 No.
   iv] RISC Workstation, Model: Sun Blade 2500, Sun Microsystems, with 2* 1.228 GHz Ultra SPARC IIIi Processor.
c) *Access to GARUDA grid of C-DAC:* Being a member institution of GARUDA grid, our department have access to this network and used for large scale computational biology works.
d) *Software for computational Biology:* SYBYL modules (Tripos) – SYBYL Base, Biopolymer, Dynamic, Amber 8, Delphi, PGI Workstation. These modules are used for molecular modeling and molecular dynamic simulations.

Apart from these facilities, each of the faculties is provided with personal desktop computers connected to the LAN.

6. RESEARCH AND DEVELOPMENT ACTIVITIES

Over the past years, the Department has been reorganized for quality research in various area of Biotechnology. The remarkable publication records of the department speaks both to the international impact of research and to his growing prominence. The greatest strength of the departmental research comes from the interdisciplinary approach to scientific problem. Faculty members in the department are actively engaged in high quality research and development activities in the area of Biotechnology. Research projects sponsored by several funding agencies like Department of Science and Technology (DST), Ministry of Human Resource and Development (MHRD), Council of Scientific and Industrial Research (CSIR), Department of Information technology (DIT) and Department of Biotechnology (DBT) are currently in progress. Recently, DBT has funded Programme support to the department. The quality of research in the department is evident from more than fifty publications during period under report, mostly in prestigious peer reviewed international journals. Forty seven Ph.D. students are pursuing research for their doctoral degree. Research groups are working in the areas like protein aggregation with emphasis on structural characteristics of aggregates and detection of Protein aggregates in solution, Effect of macromolecular crowding on enzyme kinetics, Structure-function-

folding relationship of proteins, Antileishmanial drug development; Biomaterials for drug delivery and tissue engineering, Nano carriers for drug delivery to cancer cells; electrospinning of nanofibers for tissue engineering and siRNA mediated gene silencing of cancer cells. Development of redox and lipolytic enzymes for regio and enantio-selective synthesis of pharmaceutical compounds and development of biosensors and enzymatic biofuel cell; Genetic engineering of grain legumes for biotic and abiotic stress tolerance, marker free transgenic; Identification of plus trees and mass cultivation in biofuel plants; Segregation of abiotic stress genes in mapping population of rice; Phylogenetic analysis of emerging infectious viruses, Gene-therapy approaches for viral and metabolic diseases; Molecular fingerprinting of industrial food grade microorganisms, Identification of bioactive compounds from metagenomic library, Molecular analysis of carbohydrate enzymes; Biological control of insect pests, Plant tissue culture and biochemical analysis; Environmental bioremediation, Biohydrometallurgy; Bioprocess development (upstream to downstream), Bioreactor design and control, Metabolic engineering, Bioenergy; Biomolecule Immobilization, Biosensors, Analytical Biochemistry and Bioassays.

7. RESEARCH PROJECTS

a) New Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (Years)
Dr.L Rangan	DNAB (DNA Barcoding) based biodiversity inventory in Zingiberaceae of Northeast India	DIT	71.16	Dr. L Sahoo	05
Dr.L Rangan	Analysis of start codon context and sequence characteristics around TIS in plant model systems	DBT	5.05	Dr. K Pakshirajan	02
Dr. V.K. Dubey	Studies on Trypanothione Reductase from Leishmania Parasites: Structure, Function, Folding and Potential for Chemotherapy	DBT	35.76	Dr. S. Patra	03
Dr. V.K. Dubey	Development of novel therapeutics against leishmaniasis	DIT	8.66	Dr. A. Goyal	02
Dr. S. Patra	Protein stability prediction of lipases – in silico studies	DIT	40.89	Dr. V.K. Dubey	03
Dr. K. Pakshirajan	*In situ p*roduction of sophorolipid by the yeast *Candida bombicola* for pre-treatment of fats and oils containing dairy wastewaters	DST	16.80	None	03
Dr. K. Pakshirajan	Non-conventional two phase partitioning bioreactor systems for biodegradation of polycyclic aromatic hydrocarbons by *Mycobacterium frederiksbergense*	DBT	11.60	None	02
Dr. L.Sahoo	Development and Evaluation of Transgenic Mungbean over Expressing ATNHX1 and AVP1 for Salt Tolerance	DBT			

Dr. S.S. Ghosh (Project coordinator of DBT Program support)	Fundamental Molecular Investigations in Biotechnology	DBT	1133.68	Dr. P.Goswami Dr. L. Sahoo Dr. B. Bose Dr. A. Ramesh Dr. S. Patra	05
Following projects are sanctioned under DBT program support					
Dr. P. Goswami	Studies and application of redox enzymes for bioelectornics devices	DBT		Dr. S. Patra	05
Dr. S.S. Ghosh	Investigations on the molecular mechanism of nanomaterial-cellular interactions	DBT		Dr. A. Ramesh, Dr. B. Bose	05
Dr. L. Sahoo	Molecular cloning and functional character-ization of heavy metal stress specific phyto-chelatin synthase gene from *Eichhornia crassipes*	DBT			05
Dr. B. Bose	Combination therapy using suicide genes and recombinant antibody	DBT		Dr. S. S Ghosh	05
Dr. V.V. Dasu	Purification, Characterization and Production of Microbial Cutinase	DST	33.48		03
Dr. A. Goyal	Microbial conversion of cellulose to sugars for ethanol production	DBT	31.48		03
Dean, R&D	Strengthening of Biotechnology teaching, training and research in Universities and colleges in North Eastern region	DBT	1490	Dr. A. Goyal (CO-P.I)	05

b) Ongoing Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Co-Investigator	Duration (Years)
Dr. P. Goswami	Development of Enzyme Electrode for the Construction of Cholesterol Biosensor.	CSIR	2.25 +RA/JRF/SRF	Dr. U. Bora,	03
Dr. P. Goswami	*Enzymatic Biofuel cell for Biomedical application	DBT	35	Dr. Anil Verma, CL; Dr. M. Barthakur, IITG Hospital; Dr. U. Bora, BT; Mrs. L. Borbora, CEE	02
Dr. S. S. Ghosh	**Nanoscale materials with therapeutic implications	DBT	102.62	Prof. A. Chattopadhay , CH; Dr. A. Ramesh; Dr. B. Bose	03
Dr. V.V. Dasu	Production of Bacterial L-Asparaginase: An approach for process optimization	DBT	6.0		02
Dr R. Chaturvedi	In vitro production of haploid Tea	DBT	34.49	Dr. V.V. Dasu, BT; Dr. M. Hazarika, TRA, Jorhat	03

Dr. L. Sahoo	Genetic engineering of cowpea (*Vigna unguiculata* L. Walp) for resistance to pod borer and bruchid	DBT	12.0	Dr. L. Rangan,	03
Dr. B. Bose	Inhibitor Based Selection of Blocking Antibodies against Heparin-binding EGF-like Growth Factor: Developing Potent Molecules for Antibody-based Cancer Therapy.	DBT	11.72	Dr. S. S. Ghosh	03
Dr. B.Bose	Development of Therapeutic Human Antibodies Against Cripto-1: Targeting Oncogenic Signaling	DST	10.34	None	03
Dr. U. Bora	Nanoparticle mediated siRNA delivery to cancer cell line.	DST	12.96		03
Dr. U. Bora	Electrospun nanofiber scaffolds for hepatic tissue engineering	DBT	52.55	Dr. P. Goswami and Dr.. R.R. Dhonde, NCCS	03
Dr. V.K. Dubey	Structural Properties and folding mechanism of apocytichrome C552 from *Hydrogenobactor Thermophilus*	DST	11.5	None	03
Dr. V.K. Dubey	Structure, Stability and Functional Studies of 2, 5-Diketo-D-gluconate Reductase	DBT	11.65	None	03
Dr. K. Pakshirajan	Decolorization of textile dyeing wastewaters by the white rot fungi Phanerochaete chrysosporium in a novel rotating biological contactor reactor	C.S.I.R.	11.50	None	03
Dr.R. Swaminathan	Tracking the growth of soluble protein aggregates in real time using fluorescence and subsequent manoeuvres to inhibit their growth.	CSIR	9.80	None	03
Dr.R. Chaturvedi	In vitro morphogenesis and biochemical analysis of neem (Azadirachta indica A. Juss).	DST	9.96	None	03
Dr. U. Bora	Synthesis of Biodegradable Nanocarriers for Targeted Drug Delivery.	DBT	12.4	Dr. P. Goswami	03
Dr.S. Khijwania, PH	***Glucose sensor based on evanescent wave induced fluorescence spectroscopy	BRNS, DAE,	9.35	Dr. U. Bora	03
Dr. A. Chattopadhay,	***Engineering nanoscale materials and	DST	200	Dr. S. S. Ghosh	05

CH	their pplications in nanotechnology				
Dr. L.Sahoo	Genetic engineering of cowpea (Vigna unguiculata L. Walp) for storage pest resistance	DST	4.92	None	03
Dr. L.Sahoo	*Development of micropropagation technology for large-scale cultivation of Jatropha: A potential biofuel plant	NEDFI	4.0	None	03
Dr. L.Sahoo	*Cloning of Elite Germplasm of Jatropha for Large Scale Plantation	DARL	10.0	None	02

** Running from Center for Energy, IIT Guwahati.*
** *Running from Department of Physics
*** Running from center of Nanothechnology, IIT Guwahati.*

c) Completed Sponsored Projects

Principal Investigator	Name of Project	Sponsoring Agency	Amount Sanctioned (Lakh)	Co-Investigator	Duration (Years)
Dr. L Rangan	Effect of NaCl on expression of translation initiation factor (eIF1) gene in leaf and roots of rice varieties and mapping of the gene in segregating populations	CSIR	11.96	-	03
Dr. L Rangan	Collection of *Pongamia* germplasm from North Guwahati for identification of plus trees and mass cultivation in wasteland	DST	6.75	-	03
Dr. S.S. Ghosh	Sleeping Beauty (SB) transposon mediated sequence specific delivery and activation of prodrug gene in heptocellular carcinoma cells.	CSIR	14.53	None	03
Dr. Arun Goyal	Structural, functional and biochemical analyses of modular cellulases	CSIR	11.97	None	03
Dr G. K. Saini	Evaluation of *Beauveria bassiana* (Bals.) Vuill and Metarhizium anisopliae (Metsch.) Sorokin isolates for virulence, development of DNA markers and transformation studies	MHRD	14.00	None	03.5
Dr G. K. Saini	Genetic evaluation and mass production of entomopathogenic fungi for development as a potent biopesticide.	DST	7.92	None	3

8. CONSULTANCY: None

9. PUBLICATIONS (PLEASE USE SERIAL NUMBERS)

International Journal

1) Ali, S.S., Kasoju, N., Sahu, A., Bora, D.K. and Bora, U (2008). Removal of coomassie brilliant blue from laboratory wastewater with chitosan beads. Asian Chitosan Journal 4, 55.
2) Sahu, A., Bora, U., Kasoju, N. and Goswami P. (2008) Synthesis of novel biodegradable and self-assembling methoxy poly(ethylene glycol)–palmitate nanocarrier for curcumin delivery to cancer cells. *Acta Biomaterialia*. 4, 1752-1761.
3) Sahu, A., Goswami, P**.** and Bora, U. (2009) Microwave mediated rapid synthesis of chitosan. *Journal of Material Science: Materials in Medicine,* 24, 2313–2322.
4) Sahu,A., Kasoju, N. and Bora, U. (2008) Fluorescence Study of Curcumin-Casein Micelle Complexation and Its Application as Drug Nano carrier to Cancer Cells. Biomacromolecules, 9, 2905-2912
5) Srivastava P. and Chaturvedi, R. (2008) *In vitro* androgenesis in tree species: an update and prospect for further research. *Biotechnology Advances*, 26, 482-491.
6) Kumar, S., Kundu, S., Pakshirajan K**.** and Dasu V.V. (2008). Cephalosporins determination with a novel microbial biosensor based on permeabilized *Pseudomonas aeruginosa* whole cells'. *Applied Biochemistry and Biotechnology*, 151, 653-664.
7) Mahanty, B., Pakshirajan K. and Dasu V. V. (2008). Synchronous fluorescence as a selective method for monitoring pyrene in biodegradation studies'. *Polycyclic Aromatic Compounds*, 28, 213-227.
8) Kasturi, D., Sen S. and Venkata Dasu V.V (2009) 'Production, characterization and applications of microbial cutinases'*, Process Biochemistry*, 44, 127–134.
9) Mahanty, B. Pakshirajan, K. and Dasu, V.V. (2009) 'Pyrene encapsulated alginate bead type for sustained release in biodegradation: preparation and characteristics'. *Polycyclic Aromatic Compounds*, 29, 56-73.
10) Nimish, G. Uppaluri, R. Sen S. and Venkata Dasu V.V (2008) 'Growth kinetics of *Aspergillus niger* grown on sucrose during glucose oxidase production'. *Chemical and Biochemical Engineering Quarterly*, 22, 315 – 320.
11) Singh, B.K., Sarkar, N., Jagannadham M.V. and Dubey, V.K. (2008). Modeled Structure of Trypanothione Reductase of *Leismania infantum*. Biochemistry and Molecular Biology Reports, 41, 444-447.
12) Dubey, V.K., and Jagannadham M.V. Roles for cavities in protein structure: New insights. Current Proteomics, 5, 157-160, 2008.
13) Sarkar, N. Srivastava, P.K. and Dubey, V.K. (2009) Understanding the Language of Vitamin C. Current Nutrition & Food Science, 5, 53-55.
14) Gopinath, P, and Ghosh, S.S. (2008) Implication of functional activity for determining therapeutic efficacy of suicide genes in vitro. *Biotechnol Lett.* 30,1913-21.
15) Gopinath, P, and Ghosh, S.S. (2009) Understanding apoptotic signaling pathways in cytosine deaminase-uracil phosphoribosyl transferase-mediated suicide gene therapy in vitro. *Mol Cell Biochem*.324, 21-29.
16) Sanpui, P., Murugadoss. A., Prasad, P.V., Ghosh, S.S. and Chattopadhyay A. (2008) The antibacterial properties of a novel chitosan-Ag-nanoparticle composite. *Int J Food Microbiol*. 124,142-146.
17) Sanpui, P., Pandey ,S.B., Ghosh, S.S. and Chattopadhyay A. (2008). Green fluorescent protein for in situ synthesis of highly uniform Au nanoparticles and monitoring protein denaturation. *J Colloid Interface Sci*.326,129-137.
18) Kumar, A. K. and Goswami, P**.** (2009). Dissociation and reconstitution studies of a broad substrate specific multimeric alcohol oxidase protein produced by *A. terreus. Journal of Biochemistry* 145, 259–265.
19) Kumar, A. K. and Goswami, P**.** (2008). Purification and properties of a novel broad substrate specific alcohol oxidase from *Aspergillus terreus* MTCC 6324. *BBA- Protein. Proteom.* 1784,1552-1559.
20) Sarma, A.K., Vatsyayan, P., Goswami, P**.,** Minteer, S.D. (2009). Recent Advances in Material Sciences for Developing Enzyme Electrodes. *Biosensors & Bioelectronics* 24, 2313–2322.

21) Vatsyayan, P., Kumar, A.K., Goswami, P. and Goswami, P**.** (2008). Broad Substrate Cytochrome-P450-monooxygenase activity in the cells of *Aspergillus terreus* MTCC 6324. *Biores. Technol.* 99: 68-75.

22) Majumder, A., Singh, A. and Goyal, A. (2009) Application of response surface methodology for glucan production from *Leuconostoc dextranicum* and its structural characterization. *Carbohydrate Polymers* 75, 150-156.

23) Purama, R.K., and Goyal, A. (2008) Effect of nutrients using one variable at a time approach for dextransucrase production from *Leuconostoc mesenteroides* NRRL B-640. *Internet Journal of Microbiology*. 5, 1-12.

24) Purama, R.K., and Goyal, A. (2009) Purified dextransucrase from *Leuconostoc mesenteroides* NRRL B-640 exists as single homogeneous protein: Analysis by non-denaturing native-PAGE. *Internet Journal of Microbiology*. 6, 1-7.

25) Purama, R.K., and Goyal, A. (2008) Application of response surface methodology for maximizing dextransucrase production from *Leuconotoc mesenteroides* NRRL-B-640 in a bioreactor. *Applied Biochemistry and Biotechnology.* 151, 182-192.

26) Purama, R.K., Goswami, P., Khan, A.T. and Goyal, A. (2009) Structural analysis and properties of dextran produced by *Leuconostoc mesenteroides* NRRL B-640. *Carbohydrate Polymers*, 76, 30-35.

27) Singh, A., Majumder, A. and Goyal, A. (2008) Artificial intelligence based optimization of exocellular glucansucrase production from *Leuconostoc dextranicum* NRRL B-1146. *Bioresource Technology* 99, 8201-8206.

28) Dhar, P and Kaur, G. (2009) Optimization of different factors for efficient protoplast release from entomopathogenic fungus *Metarhizium anisopliae.* Annals of Microbiology, 59, 183-186.

29) Kaur, G and Padmaja V. (2008) Evaluation of Beauveria bassiana isolates for virulence against Spodoptera litura (Fab.) (Lepidoptera:Noctuidae) and their characterization by RAPD-PCR. African Journal of Microbiology Research, 2, 299-307.

30) Pakshirajan K and Manda C. (2009). Optimisation of pesticide crystal protein production from *Bacillus thuringiensis* employing artificial intelligence techniques', *International Journal of Adaptive and Innovative systems*, 1, 77–86.

31) Pakshirajan K**.,** Chugh D. and Saravanan P. (2008). Feasibility of m-cresol degradation using an indigenous mixed microbial culture with glucose as co-substrate', *Clean Technologies and Environmental Policy*, 10,303-308.

32) Saravanan, P., Pakshirajan K**.** and Saha P. (2008) 'Kinetics of growth and multi substrate degradation by an indigenous mixed microbial culture isolated from a wastewater treatment plant in Guwahati, India', *Water Science and Technology*, 58, 1101–1106.

33) Saravanan, P., Pakshirajan K. and Saha P. (2008) 'Kinetics of phenol and *m*-cresol biodegradation by an indigenous mixed microbial culture isolated from a sewage treatment plant', *Journal of Environmental Sciences*, 20, 1508-1513.

34) Saravanan, P., Pakshirajan K. and Saha P. (2008) Performance of batch stirred tank bioreactor and internal loop airlift bioreactor in degrading phenol using *Pseudomonas* spp. - A comparative study. Journal of Environmental Protection Science, 2, pp 81 – 86.

35) Saravanan, P., Pakshirajan K. and Saha P. (2008) 'Biodegradation of phenol and m-cresol in a batch and fed batch operated internal loop airlift bioreactor by indigenous mixed microbial culture predominantly *Pseudomonas* sp.', *Bioresource Technology*, 99, 8553-8558.

36) Saravanan, P., Pakshirajan K. and Saha P. (2009).'Batch growth kinetics of an indigenous mixed microbial culture utilizing m-cresol as the sole carbon source', *Journal of Hazardous Materials*, 162 , 476–481, 2009.

37) Deka. J., Paul. A., Ramesh, A. and Chattopadhyay. A. (2008). 'Probing Au nanoparticle uptake by enzyme following the digestion of a starch-Au-nanoparticle composite', *Langmuir* 24, pp 9945-9951.

38) Panda. B.R., Singh. A.K., Ramesh. A. and Chattopadhyay. A. (2008)'Rapid estimation of bacteria by a fluorescent Au-nanoparticle-polythiophene composite', *Langmuir* 24, pp 11995-12000.

39) Kesari, V., Anitha K. and Rangan L. (2008) 'Systematic characterization and oil analysis in candidate plus trees of biodiesel plant *P. pinnata*,' *Annals of Applied Biology*, 152, 397-404.

40) Rangan, L., Vogel C. and A.K. Srivastava. (2008)Analysis of context sequence surrounding translation initiation site from complete genome of model plants,' *Molecular Biotechnology,* 39, 207-213.

41) Purkayastha, J ., Sugla, T., Paul, A., Solleti, S ., Sahoo, L. (2008) Rapid in vitro multiplication and plant regeneration from nodal explants of Andrographis paniculata: a valuable medicinal plant. *In Vitro Cell.Dev.Biol.-Plant.* 44:442–447

42) Solleti, S.K., Bakshi, S., Purkayastha, J., Panda, S.K. and Sahoo, L. (2008) Transgenic cowpea (Vigna unguiculata) seeds expressing a bean alpha-amylase inhibitor 1 confer resistance to storage pests, bruchid beetles**.** Plant Cell Rep. 27,1841-50.

43) Solleti, S.K., Bakshi, S. and Sahoo, L. (2008) Additional virulence genes in conjunction with efficient selection scheme, and compatible culture regime enhance recovery of stable transgenic plants of cowpea via *Agrobacterium tumefaciens*-mediated transformation. Journal of Biotechnology 135, 97–104

44) Dash, N., Chipem, F. A. S., Swaminathan R. and Krishnamoorthy G. (2008). 'Hydrogen bond induced twisted intramolecular charge transfer in 2-(4'-N,N-dimethylaminophenyl)imidazo [4,5-b]pyridine', Chem. Phys. Lett. 460, 119-124.

45) Kumar, S., Ravi, V.K and Swaminathan R. (2008). 'How do surfactants and DTT affect the size, dynamics, activity and growth of soluble lysozyme aggregates?' *Biochem. J.* 415, pp 275-288.

46) Kumar, S., Singh, A.K., Krishnamoorthy G. and Swaminathan R. (2008)'Thioflavin T displays enhanced fluorescence selectively inside anionic micelles and mammalian cells', *J. Fluoresc.* 18, 1199-1205.

National Journal

1) Srivastava, P., Chandana K. and Chaturvedi R. (2008) Oleanolic acid and Ursolic acid in cell cultures of Lantana camara L. and their activity against Streptococcus mutans. *Research J. of Biotechnology Special Issue,* 361-365.

2) Mishra, V.K. and Chaturvedi R. (2008) Evaluation of chemical and physical parameters for callus induction from anther cultures of tea (*Camelliasinensis* (L.) O. Kuntze). *Research J. of Biotechnology Special Issue*, 270-273.

3) Singh, B.K., Sarkar, N. and Dubey, V.K. (2008) Modeled Structure of Trypanothione synthetase of *Leishmania infantum* for development of novel therapeutics for leishmaniasis. Current Trends in Biotechnology and Pharmacy. 2, 390-395.

4) Ahmed, S., Deka, D., Jawed, M., Goyal, D., Fontes, C.M.G.A. and Goyal, A. (2009) Biochemical characterization of a recombinant derivative (*Ct*Lic26A-Cel5) of a cellulosomal cellulase from *Clostridium thermocellum. Current Trends in Biotechnology and Pharmacy* 3, 633-640

5) Majumder, A. and Goyal, A (2008) Optimization of culture conditions of a novel glucan producing glucansucrase from *Leuconostoc dextranicum* NRRL B-1146. *Current Trends in Biotechnology and Pharmacy* 2, 260-268.

6) Majumder, A., Mangtani, A. and Goyal, A (2008) Purification, identification and functional characterization of glucansucrase from *Leuconostoc dextranicum* NRRL B-1146. *Current Trends in Biotechnology and Pharmacy* 2, 493-505.

7) Purama, R.K., Agrawal, M., Majumder, A., Ahmed, S. and Goyal, A (2008) Antibiotic sensitivity, carbohydrate fermentation and plasmid profiles of glucansucrase producing four L*euconostoc* strains. *Journal of Pure and Applied Microbiology* 2, 139-146.

8) Purama, R.K., Singh, G., Majumder, A., Dasu V.V. and Goyal, A. (2008) Dextransucrase production by *Leuconostoc mesenteroides* NRRL B-640 in bioreactor: effect of aeration and mathematical modelling. *Journal of Applied Biosciences and Biotechnology* 4, 9-14.

9) Pakshirajan K. and Khataniar, B. (2008) 'Modelling the bacteriological quality of Brahmaputra River in relation with some important physico-chemical parameters employing statistical regression method', *Journal of the Assam Science and Society*, 48, 27–32, 2008.

10) Agrawal, M., Santra, S. B., Anand, R. and Swaminathan R. (2008).'Effect of macromolecular crowding on the rate of diffusion-limited enzymatic reaction', *Pramana-J. Phys.* 71,359-368.

Conference/Workshop/Seminar/Symposia

1) M. S. Sudarsan, Dwivedi G., Bose B. B Cell Receptor Dynamics: Effect Of Ligand Valency. *Integrating Physics, Chemistry, Mathematics and Biology to Understand Living Systems (IPCM 2008)*, Bose Institute, Kolkata, India, December, 2008.

2) Das A. B., Bose B. Heterologous Expression of Human Oncofetal Protein Cripto-1. *77th Annual meeting of Society of Biological Chemists (India)*, IIT Madras, Chennai, India, December 18-20, 2008.

3) Mishra VK. and Chaturvedi, R.. Callus proliferation from anther cultures of *Camellia sinensis* (L.) O. Kuntze. National Seminar on Exploration, Utilization and Strategy Action Plan for Sustainable Management of Plant Resources, February 27-28, 2009. Department of Botany, Guwahati University, Guwahati, Assam, India. Page No. 33 (Oral presentation).

4) Mishra VK. and Chaturvedi, R.Evaluation of chemical and physical parameters for callus induction from anther cultures of tea (*Camellia sinensis* (L.) O. Kuntze). First International Society Biotechnology Conference (ISBT-2008) on Environmental Biotechnology, December 28-30, 2008. Sikkim Manipal Institute of Technology, Gangtok, Sikkim, India. Page No. 270, 2008 (Oral Presentation).

5) Singh M. and Chaturvedi, R.**.** Optimization of S*pilanthes acmella* L. cultivation by *in vitro* nodal segment culture. 4th International Symposium on Acclimatization and Establishment of Micropropagated Plants, December 8-12, 2008, Bangalore, Karnataka, India. Under the auspices of International Society for Horticulture Science (ISHS). Page No. 28, 2008. (Oral Presentation).

6) Singh M. and Chaturvedi, R.An efficient protocol for cyclic somatic embryogenesis in neem (*Azadirachta indica* A Juss). International conference on Energy and Environment, March 19-21, 2009. National Institute of Technology, Kurukshetra, Haryana, India. Page No. 78, (Oral presentation).

7) Singh M. and Chaturvedi, R.Factors affecting *in vitro* clonal propagation of *Spilanthes acmella* L. by axillary shoot proliferation. International Society Biotechnology Conference, December 28-30, 2008. Sikkim Manipal Institute of Technology, Gangtok, Sikkim, India. Page No. 101, 2008. (Poster Presentation).

8) Singh M. and Chaturvedi, R. *De novo* shoot and root organogenesis in leaf disc cultures of *Azadirachta indica* A. Juss. National Seminar on Bioresources of North East India: Industrial Potential and Intellectual Property Right Issues. January 2-3, 2009. Department of Botany, Nowgong College, Assam, India. Page No. 39. (Oral presentation)

9) Srivastava P. and Chaturvedi, R. Accumulation of Oleanolic acid and Ursolic acid in cell cultures of *Lantana camara* L. First International Society Biotechnology Conference (ISBT-2008) on Environmental Biotechnology, December 28-30, 2008. Sikkim Manipal Institute of Technology, Gangtok, Sikkim, India. Page No. 46, 2008 (Oral Presentation).

10) Srivastava P., Singh M. and Chaturvedi, R. Bioproduction of azadirachtin in anther cultures of *Azadirachta indica* and its antifungal activity on *Aspergillus sydowii*. International Herbal Conference, February 28-30, 2009, Bangalore, Karnataka, India. Page No. 152**.**

11) Sen, S., Mandal, B. and Dasu, V.V. 'Applications of alkaline protease from a newly isolated *Bacillus pseudofirmus* SVB1 in slaughter house waste biodegradation'. *Proc. of International society of Biotechnology Conference*, Gangtok, India, 28-30 December 2008

12) Goswami R. and Dasu, V.V. 'Production and partial prurification of L-asparaginase from *Erwinia aroideae* NRRL B-136'. *Proc. of International society of Biotechnology Conference*, Gangtok, India, 28-30 December 2008

13) Sen, S., Mandal B. and V Dasu, V.V. 'Potential application of alkaline protease from *Bacillus pseudofirmus* SVB1 for removal of pathogens from sewage sludge and its solubilisation'. *Proc. of International Congress of Environmental Research Conference*, Goa , India 18-20 December 2008.

14) Kumar, K., Dasu, and K. Pakshirajan 'Purification and properties of a chemoterapeutic enzyme, L-asparaginase,from *Pectobacterium carotovorum* MTCC 1428'. *Proc of EHRLICH II – 2nd world conference on magic bullets*, Nuremberg, Germany, 3 – 5 October 2008

15) Sanjay, K. Pakshirajan K. and Dasu, V.V. 'Development of medium for maximum production of L-asparaginase from *Pectobacterium carotovorum* MTCC 1428'. *Proc. of XX International Congress of Genetics*, Berlin, Germany, 12- 17 July 2008

16) Mahanty, B. Pakshirajan K. and Dasu, V.V. ''Biodegradation of ternary PACs mixture by *Mycobacterium frederiksbergense*'. *Proc. of Annual Research Symposium "ChEmference 08"* Kanpur, India, Jul 23-28, 2008

17) Sen, S., Dasu, V.V. and Mahanty, B. 'Ecofriendly applications of alkaline protease from newly isolated *Bacillus pseudofirmus* SVB1'. . *Proc. of Annual Research Symposium "ChEmference 08"* , Kanpur, India, 23-28 July 2008

18) Dutta, K .and Dasu, V.V. 'Effect of tween 80 and olive oil on production of lipase by *Pseudomonas* species'. . *Proc. of Annual Research Symposium "ChEmference 08"* , Kanpur, India, 23-28 July 2008

19) Sarkar, N and Dubey, V.K. Studies on 2,5 Diketo D Gluconate Reductase: Identification of Amyloid forming folding intermediate under acidic condition. 77th Annual Meeting of Society of Biological Chemists, India held at IIT Madras, Chennai December 18-20, 2008. **[Received B.S Narasinga Rao Best Poster presentation Award]**

20) Aggarwal, S., Das, A., Kesari, V., Sudarshan, M., Vinod, M.S., Parida, A., Sharma, G.C. and Rangan, L. 'Use of plastid specific DNA Barcodes to identify and characterize the *Curcuma* species of Northeast India,' International Conference on Plant Biotechnology and Molecular Biology, Warangal, Aug 15-17, 2009, p87.

21) Agrawal, M., Ahmed, S. and Goyal, A. Mutagenesis of *Leuconostoc mesenteroides* NRRL B-640 for enhanced production of dextransucrase. International Congress on Bioprocesses in Food Industries, November 6-8, 2008 Osmania University, Hyderabad, India. p153.

22) Ahmed, S. Shukla, R. and Goyal, A. Purification and biochemical characterization of bi-functional recombinant derivative (Lic26A-GH5) of cellulosomal cellulase from *Clostridium thermocellum*. International Congress on Bioprocesses in Food Industries, November 6-8, 2008 Osmania University, Hyderabad, India. p172.

23) Ahmed, S., Charan, R. and Goyal, A. Prediction of 3-Dimensional structure of family 43 glycoside hydrolase from *Clostridium thermocellum* by sequence homology based modelling. International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics, December 18-20, 2008, University of Delhi, Delhi, India. p7-8

24) Goswami, P. A potential *A. terreus* strain for bioremediation of petroleum hydrocarbon. *International Conference on Environmental Research* (ICER) 18-20 December 2008, BITS Goa, India.

25) Kumar, A.K and Goswami, P. Dissociation, deflavination, reconstitution studies of a novel multimeric protein containing different alcohol oxidases produced by *Aspergillus terreus*. *33rd FEBS congress and 11th IUBMB conference*, Athens, Greece 28 June-3 July 2008, Page 29

26) Saxena, U. and Goswami, P. Development of Cholesterol Biosensor based on Immobilized Cholesterol Oxidase on Silk Fiber. 1st International Society Biotechnology Conference, 2008, Gangtok, Sikkim, 28-30 December, 2008, Page no: 18

27) Vatsyayan, P and Goswami, P. Studies on a Catalase for the Construction of Enzyme Electrode for Biosensor Applications. 1st International Society Biotechnology Conference, 2008, Gangtok, Sikkim, 28-30 December, 2008, Page no: 22

28) Majumder, A. and Goyal, A. Structural, rheological and gelling properties of a novel glucan from *Leuconostoc dextranicum* NRRL B-1146. International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics December 18-20, 2008, University of Delhi, Delhi, India. p207-208

29) Patel, S. and Goyal, A. Isolation of exopolysaccharide producing enzymes from natural bacterial isolates. International Congress on Bioprocesses in Food Industries, November 6-8, 2008 Osmania University, Hyderabad, India. p99.

30) Patel, S. and Goyal, A. Structural analysis of dextransucrase from *Leuconostoc mesenteroides* NRRL B-640. International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics, December 18-20, 2008, University of Delhi, Delhi, India. p7

31) Sharma, A., Akhtar, N., Deka, D., Goyal, A. and Goyal, D. Isolation and characterization of cellulose degrading bacteria. International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics. December 18-20, 2008, University of Delhi, Delhi, India. p348.

32) Purama, R.K and Goyal, A. Production and characterization of dextransucrase and dextran from *Leuconostoc mesenteroides.* International Congress on Bioprocesses in Food Industries. November 6-8, 2008 Osmania University, Hyderabad, India. p28-29.

33) Purama, R.K and Goyal, A.) Dextransucrase and dextran from *Leuconostoc mesenteroides* NRRL B-640. National Seminar on Pharmacogenomics and its applications in Drug Discovery, January 24-25, 2009, Acharya B.M. Reddy College of Pharmacy, Bangalore, India.

34) Deka, D., Jawed, M. and Goyal, A. Screening, isolation, biochemical characterization and enzymatic assays of cellulolytic microorganism isolated from soil. International Congress on Bioprocesses in Food Industries. November 6-8, 2008 Osmania University, Hyderabad, India. pp97-98.

35) Mustafa Uzma and Kaur, G. Studies on destruxin production by entomopathogenic fungi *Metarhizium anisopliae*. 49th Annual Conference of Association of Microbiologist of India- International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics, Delhi University, Delhi, 18-20 November, pp 226.

36) Mustafa Uzma and Kaur, G. Nutrient stress dependent growth characterization of *Metarhizium anisopliae* (Metch.) Sorokin isolates. International Conference on Biodiversity, Environment and Sustainability: Challenges for Future, Delhi University, Delhi, 4-6 September, pp 63.

37) Mustafa Uzma and Kaur, G. 2008. RAPD PCR based characterization of *Beauveria bassiana* isolates. International Congress on Bioprocesses in Food industries (5th Convention of Biotech Research society of India, November 6-8, 2008 Osmania university, Hyderabad, India. p.169.

38) Mustafa, U. and Kaur, G. Destruxins: mode of action and pathogenesis. International Society of Biotechnology Conference, Gangtok, Sikkim, 28-30 December, pp 17.

39) Mustafa, Uzma and Kaur, G.. Entomopathogenic fungi as potent biocontrol agents. *International Congress of Environmental Research*, BITS – Pilani, Goa Campus, Goa. 18-20 December, pp. 204.

40) Priyanka Dhar and Kaur, G.. Optimization of different factors for efficient protoplast release from entomopathogenic fungus *Metarhizium anisopliae.* 49th annual conference of Association of Microbiologists of India - International Symposium on microbial Biotechnology: Diversity, Genomics and Metagenomics November 18-20, 2008, Delhi University, Delhi, 18-20 November, p.326

41) Priyanka Dhar and Gurvinder Kaur, 2008. Optimization of Solid State Fermentation variables for mass production of *Beauveria bassiana* conidia using Response surface methodology. International Congress on Bioprocesses in Food industries (5th Convention of Biotech Research society of India, November 6-8, 2008 Osmania university, Hyderabad, India. p.114.

42) Limaye, A.M., Desai, K.V., Aravinda, C.K. and Kondaiah, P. 'Regulation of mRNAs encoding MMP-9 and MMP-2 and their inhibitors TIMP-1 and TIMP-2 by androgens in the rat ventral prostate.'- presented in the 28th Annual Convention of IACR and International Symposium on Emerging Challenges and Approaches in Cancer Biology held in Bangalore. Feb 21-24, 2009.

43) Daverey A. and Pakshirajan, K. 'Sophorolipids production by *Candida bombicola* using synthetic dairy wastewaters', *Proc. of International conference on Energy and Environment*, EnviroEnergy 09, Chandigarh, 19-21 March 2009.

44) Daverey, A. and Pakshirajan, K. 'Production and characterization of sophorolipid by *Wickerhamiella domercqiae* NRRL Y-6992 grown on a synthetic medium', *Proc. of the Annual Research Symposium Chemference,* Kanpur, 5–6 July 2008.

45) Ghosh, A., Ghosh, P. K. and Pakshirajan, K. 'Perchlorate removal by bacterial strain *Dechlorosoma sp*. KJ', *Proc. of National Conference on Integrated Water and Wastewater Management*, *IWWM08*, Kolkata, 20-22 November 2008

46) Sahoo, N., Pakshirajan, K. and Ghosh P.K. 'Screening of media constituents for chlorophenol biodegradation by *Arthrobacter chlorophenolicus* A6 employing full factorial design of experiments', *Proc. of the Annual Research Symposium Chemference*, Kanpur, 5–6 July 2008.

47) Saravanan, P., Pakshirajan K. and Saha P. 'Evaluation of indigenous mixed microbial consortium for bioremediation of petroleum refinery effluent'. *Proc International Symposium on 'Sanitary and Environmental Engineering*, University of Florence, Italy, 23-27 June 2008.

48) Singh S. and Pakshirajan, K. 'Decolourization of azo dyes and enzyme activities by the white rot fungi *Phanerochaete chrysosporium*', *Proc. of International Congress of Environmental Research*, *ICER08*, Goa, 18-20 December 2008.

49) Patra, S. and Thakur, M.S. "Biotransformation of caffeine to theophylline and its application in cancer therapy". 28th Annual Convention of Indian Association for Cancer Research & International symposium on "Emerging challenges and approaches in cancer biology". February 21 – 24, 2009

50) Das, A., Kesari, V., Vinod, M.S., Parida A. and. Rangan L 'Genetic diversity analysis of *Curcuma* species of Northeast India using RAPD and SSR markers,' International Conference on Plant Biotechnology and Molecular Biology, Warangal, August 15-17, 2009, 87.

51) Kesari, V., Vinod, M.S., Parida A. and Rangan L. '96th Indian Science Congress, NEHU Shillong. Jan. 3-7, 2009, p7.

Book, Chapter, etc.: None

10. CONFERENCES/WORKSHOPS/SYMPOSIA ATTENDED: INTERNATIONAL, NATIONAL

Name of Faculty	Name of Conf./Workshop	Place	Date	International/ National
Dr. A. M Limaye	International Symposium on Emerging Challenges and Approaches in Cancer Biology	Bangalore, India	Feb. 21-24, 09	International
Dr. A.M LImaye	Workshop for DBT Nominees and IBSC members for strengthening regulatory compliance by IBSCs	Kolkata	Jan. 17, 09	National
Dr. L Rangan	Regional consultation on the proposed National Biotechnology Regulatory Authority (NBRA), Govt of India	Kolkata	June 20, 08	National
Dr. U.Bora	Open Access to Science Publications: Policy perspective, Opportunities and Challenges	New Delhi	March 24, 09	National
Dr. K. Pakshirajan	National Conference on Biohydrogen: an Innovative Fuel	Periyar Maniyammai University, Tanjaur	Jan. 21-24, 09	National
Dr. K. Pakshirajan	6th PAN IIT Alumni Global Conference	IIT-Madras, Chennai	Dec. 19-21, 08	International
Dr. K. Pakshirajan	Seventy-Eight Annual Session of The National Academy of Sciences, India	Panjab University, Chandigarh	Nov. 21-23, 08	National
Dr. K. Pakshirajan	3rd International Congress on Bioprocesses in Food Industries (ICBF 2008)	Osmania University, Hyderabad	Nov. 2–5 2008	International
Dr. K. Pakshirajan	National Seminar on Toxicity of Chemicals & their Hazards with Special Reference to Heavy Metals	St. Edmunds College, Shillong	Oct. 23-24, 08	National
Dr. R. Swaminathan	International Symposium on Emerging Areas in Biosciences and Bioengineering.	School of Biosciences & Bioengineering, IIT Bombay	Feb. 26-28, 09	International
Dr. R. Swaminathan	Fluorescence 2009	Tata Institute of Fundamental Research, Mumbai	March 16-19, 09	International
Dr. R. Swaminathan	Fluorescence Correlation Spectroscopy Workshop	Tata Institute of Fundamental Research, Mumbai	March 7-24 09	National
Dr. A. Goyal	International Symposium on Microbial Biotechnology: Diversity, Genomics and Metagenomics,	University of Delhi, Delhi	Dec.18-20, 08	International
Dr. A. Goyal	International Congress on Bioprocesses in Food Industries	Osmania University, Hyderabad,	Nov. 6-8,08	International
Dr. A. Goyal	National Seminar on Pharmacogenomics and its applications in Drug Discovery	Acharya B.M. Reddy College of Pharmacy, Bangalore	Jan. 24-25, 09	National
Dr. A. Goyal	Workshop for DBT Nominees and IBSC members for regulatory compliance by IBSC	Bangalore	Jan 23 09	National
Dr. R. Chaturvedi	Workshop for DBT Nominees and IBSC members for regulatory compliance by IBSC	New Delhi	Jan 29, 09	National
Dr. V. V. Dasu	XX International Congress of Genetics	Berlin, Germany	July 12-17, 08	International

11. INVITED LECTURES OF FACULTY: IN INDIA, ABROAD

Name of Faculty	Name of Lecture	Name of Inst./Org.	Date	Place
Dr. L. Rangan	Biosafety challenges and issues in NE India	Dept of Biotechnology, Govt of India, Kolkata,	June, 20, 08	National
Dr. A. Ramesh	Nanomaterials tailored for biological applications	Siliguri Institute of Technology, Siliguri, West Benga	September 06, 08	National
Dr. V.K.Dubey	Retrival of Bioinformatics resources and databases	Cotton College	Feb. 12, 09	Guwahati
Dr. V.K.Dubey	Protein identification: Bioinformatics approaches.	Cotton College	Feb. 12, 09	Guwahati
Dr. R. Chaturvedi	Plant Cell and Organ Culture : Value Addition to the Bioresources of NE India	Nowgong College, Assam	Jan. 2-3, 09	Nowgong
Dr. R. Chaturvedi	Plant Cell And Tissue Culture: Alternative For Sustainable Development of Bioresources,	Cotton College	Dec. 1, 08	Guwahati
Dr. R. Chaturvedi	In vitro haploid Production	North-East Institute of Science & Technology	Jan. 23-24, 09	Jorhat
Dr. U.Bora	Drug delivery with polymeric nanocarriers for Cancer therapy (Keynote lecture)	BITE&RM ASBTE Indo Australia Conference	Jan., 09	Sydney, Australia
Dr.G.K.Saini	The application of molecular genetic methods to filamentous fungi	North Eastern Regional Institute of Science and Technology	Oct. 6-10, 08	Arunachal Pradesh
Dr.G.K.Saini	Biotechnological Potential of Entomopathogenic Fungi	North Eastern Regional Institute of Science and Technology	Oct. 6-10, 08	Arunachal Pradesh
Dr.R. Swaminathan	Growth of hen lysozyme aggregates in alkaline pH: Mechanisms and Inhibition	Indian Institute of Technology Bombay	Feb. 28, 09	Mumbai
Dr.R. Swaminathan	Aggregation of hen lysozyme at alkaline pH monitored at different concentrations	Tata Institute of Fundamental Research	Mar 18, 09	Mumbai
Dr.R. Swaminathan	Anomalous spectra arising from ordered water *and* Inhibition of lysozyme aggregation at alkaline pH	Tata Institute of Fundamental Research	July 17, 08	Mumbai
Dr.R. Swaminathan	Aggregation of lysozyme at alkaline pH: Mechanisms & Inhibition *and* How to identify an intrinsically disordered protein?	The Institute of Mathematical Sciences	July 21, 08	Chennai
Dr. A. Goyal	Production and characterization of dextransucrase and dextran from *Leuconostoc mesenteroides"* International Congress on Bioprocesses in Food Industries.	Osmania University	Nov 6-8, 08	Hyderabad,
Dr. A. Goyal	Dextransucrase and dextran from *Leuconostoc mesenteroides* NRRL B-640" National Seminar on Pharmacogenomics and its applications in Drug	Acharya B.M. Reddy College of Pharmacy	Jan 24-25, 09	Bangalore

12. VISITORS FROM OTHER INSTITUTES/UNIVERSITIES/ORGANISATIONS (Only distinguished visitors invited by appropriate authority)

Name	Name of Inst./Univ./Org.	Purpose	Date	Remarks
Prof. Saroj Mishra,	Indian Institute of Technology Delhi	PhD viva and Talk	May 5, 2008	
Prof. Virender S. Chauhan	Director, ICGEB	Talk	Jan. 16, 2009	

13. SHORT-TERM COURSES: None

14. SEMINARS/WORKSHOPS/CONFERENCES ORGANIZED : None

15. INVITED LECTURES

Name	Name of Inst./Org.	Name of Lecture	Date
Dr. Sanjay K Banerjee	University of Pittsburgh, USA	Genetics of Cardiovascular Diseases: from PRKAG2 mutations to Glycogen Storage Cardiomyopathy	3rd April 2008
Prof. Saroj Mishra,	IIT Delhi	Decolorization and detoxification of textile dyes by laccase of *Cyathus bulleri*	5th May 2008
Dr. Debasish Das	IIT Bombay	Development of Dynamic Model For Substrate Uptake and Metabolism in Microbial and Animal Cells	14th July 2008
Dr. M.V .Jagannadham	CCMB, Hyderabad	The role of Bioinformatics in Proteomics	4th Sep 2008
Dr. Anil M. Limaye	J.N.C.A.S.R., Bangalore	Complexities of androgen regulated gene expression: lessons from the rat ventral prostate and future perspectives	15th Sep 2008
Dr. Kaushik Sengupta	Northwestern University, Chicago, USA	A Tale of Two IF Proteins - in health and disease	27th Nov 2008
Mr. Arup Sarma	University of Chicago, USA	Proliferating cells express mRNAs with shortened 3' untranslated regions and fewer microRNA target sites	26th Dec 2008
Ms. Nandini Sarma	University of Missouri, USA	Small Interfering RNAs That Deplete the Cellular Translation Factor eIF4H Impede mRNA Degradation by the Virion Host Shutoff Protein of Herpes Simplex Virus	26th Dec 2008
Dr Diganta B.Das	Loughborough University, USA	Solute Transport in Intervertebral discs (IVD): Experiments and Modelling	30th Dec 2008
Dr. S.Bhattacharyya	Friedrich Miescher Institute for Biomedical Research Basel, Switzerland	Post-transcriptional gene regulation by microRNAs: The role of human GW182 proteins	21st Jan 2009
Dr. Samir K. Patra	University of Parma, Italy	Epigenetics, DNA-methylation and cancer	19th Mar 2009

15. PATENT FILED: None

16. AWARDS AND HONOURS

1) Dr. P. Goswami : Department of Information Technology, Ministry of Communication and Information Technology, has nominated Dr. Pranab Goswami, as Chairman of the project Review and Steering Group meeting on a project "A pilot study to generate microbial database matching landscape ecology" at NEHU, Shillong.

2) Dr. A. Goyal: Elected as FABAP (Fellow, Association of Biotechnology and Pharmacy) for distinguished and dedicated service to the Profession of Biotechnology and Pharmacy. (Jan 2009)

3) Dr. A. Goyal: Elected as FBRS (Fellow, Biotech Research Society) of India in recognition of outstanding research contributions to the advancement of Biotechnology. (Nov 2008)

4) Dr. A. Goyal: Elected as MNASc (Member, The National Academy of Sciences, India). (May 2008)

5) Dr. A. Goyal: Invited as an expert for Brainstorming meeting on "Cellulose to ethanol" at CSIR, New Delhi. (July 2008)

6) Dr. A. Goyal: Invited as an expert for Discussion Meet on Biofuels at DBT, New Delhi. (July 2008)

7) Dr. A. Goyal: Nominated by DBT (GOI) as representative for Institutional Bio-safety Committee (IBSC) at Gauhati University. (June 2008)

8) Dr. A. Goyal: Included in The Marquis "Who's Who in The World' USA 26th Edition of 2009.

9) Dr. A. Goyal: Nominated and Included as member of "Leading Scientists of the World 2008" by International Biographical Centre (IBC), Cambridge, UK. (June 2008)

10) Dr. R. Chaturvedi: as Co-Chairperson National Seminar on Bioresources of North East India: Industrial Potential and Intellectual Property Right Issues. Department of Botany, Nowgong College, Assam, India, Jan 2-3, 2009.

12) Dr. R. Chaturvedi : DBT Nominee for Institutional Biosafety Committee at North-East Institute of Science & Technology (NEIST), Formerly RRL Jorhat

13) Dr. R. Chaturvedi Resource person 8Th A.C. Dutta Memorial Lecture. Department of Botany, Cotton College, Guwahati University, Guwahati, Assam, India, December 1, 2008.

15) Dr. R. Chaturvedi Resource person DBT Sponsored Training Course on Biotechnological Tools & Techniques for Plant Biodiversity and Conservation Study. North-East Institute of Science & Technology (Formerly known as RRL Jorhat), Jorhat, Assam, India, January 23-24, 2009.

16) Dr. R. Chaturvedi Co-Chairperson in the 1st International Society BioTechnology Conference, ISBT 2008, Sikkim Manipal Institute of Technology, Majitar, Gangtok, Sikkim, India, from December 28-30, 2008.

17) Dr. U. Bora: Invitation to Chair the session on Tissue engineering in BITE&RM ASBTE Indo Australia Conference at Australia Jan 2009

18) Dr. U. Bora: Invited to deliver Keynote lecture on DRUG DELIVERY WITH POLYMERIC NANOCARRIERS FORCANCER THERAPY. BITE&RM ASBTEIndo Australia Conference, 21-23 Jan 2009 UNSW, Sydney, Australia.

19) Dr. K. Pakshirajan **:** National Academy of Sciences, India – Young Scientist Award for the Year 2008 in the area of biological sciences.

20) Dr. V.K. Dubey: Invited as Resource person for workshop on Bioinformatics, Cotton College, Guwahati Feb. 11-12, 2009.

21) Dr. V.K Dubey: Invited editorial board member of International Journal of Medical Sciences and Technology; International Journal of Life Sciences and Technology; International Journal of BioSciences and Technology; International Journal of Biological Sciences and Technology; International and Journal of BioSciences, Psychiatry and Technology

22) Dr. V.K Dubey: Invited editorial advisory board member of Advances in Natural and Applied Sciences and Advances in Medical and Dental Sciences

23) Dr. V.K Dubey invited editor: "Biotechnology and Molecular Biology Reviews"

24) Dr. V.K Dubey: Included in The Marquis "Who's Who in The World' USA 26th Edition of 2009.

25) Dr.G.K.Saini : Resource person, Two day workshop and five days training programme on "Recent Advances in Microbial Biotechnology & Molecular Biology", NERIST, Arunachal Pradesh, Oct. 6-10, 2008

26) Dr. V.K Dubey: received B.S Narasinga Rao Best Poster presentation Award during 77th Annual Meeting of Society of Biological Chemists, India held at IIT Madras, Chennai December 18-20, 2008.

17. ANY OTHER (SPECIAL MENTION).

1) Mr. Avishek Majumder (PhD student under supervision of Dr. A. Goyal), Mr. P. Gopinath PhD student under supervision of Dr. S.S. Ghosh) and Mr. Siva Kumar Soletti (PhD student under supervision of Dr. L. Sahoo), completed his Ph.D. in 2008
2) Department of Biotechnology, Govt of India has recommended the proposal on "MTech Biotechnology Programme" support. The recommendation covers Rs 35 lacs equipment grant in addition to recurring grant as per the standard norms of DBT, Govt of India.

19. LIST OF FACULTY MEMBERS ALONG WITH PhD, DESIGNATION, AND AREAS OF INTEREST

Name	Designation	Field of specialization
Bora, U., Ph.D.	Associate Professor	Biomaterials for Drug Delivery, Tissue Engineering and Biosensors, Medicinal Plants.
Bose, B., Ph.D.	Assistant Professor	Recombinant antibody and Theoretical Biology
Chaturvedi, R., Ph.D.	Assistant Professor	Plant Tissue Culture and Secondary Metabolite Production
Dasu, V.V., Ph.D.	Associate Professor	Bioprocess Development (upstream to downstream), Metabolic Engineering, Bioenergy
Dubey, V.K., Ph.D.	Assistant Professor	Protein engineering and structure function relationship; Drug design against leishmaniasis
Ghosh, S.S., Ph.D.	Associate Professor	Expression cloning, Gene Therapy, Nanobiotechnology
Goswami, P., Ph.D.	Associate Professor and Head	Biocatalysis, Biosensor, Enzymatic Biofuel cell.
Goyal A, PhD	Associate Professor	Molecular Biology, Protein Engineering, Structural and Functional Proteomics of Carbohydrate active enzymes
Jaganathan, B.G., Ph.D.	Assistant Professor	Genetic Engineering of Stem Cells for tissue repair, Mesenchymal Stem Cells in disease
Limaye, A.M, Ph.D.	Assistant Professor	Hormonal regulation of gene expression, Reproductive Biology and Molecular Endocrinology, Endocrine related cancers
Pakshirajan, K., Ph.D.	Associate Professor	Environmental Biotechnology
Patra, S., Ph.D.	Assistant Professor	Enzyme applications in pharma and food industry, Biotransformation, Biosensors
Ramesh, A., Ph.D.	Assistant Professor	Molecular detection and typing of antagonistic and cell adhesive lactic acid bacteria; Biological synthesis and functionalization of metal nanoparticles; nanoparticle-bacteria interactions
Rangan, L., Ph.D.	Assistant Professor	Plant- Genetic engineering & functional genomics, Biofuel, Molecular systematics
Sahoo, L., Ph.D.	Associate Professor	Plant Genetic Engineering
Saini, G.K., Ph.D.	Assistant Professor	Fungal Biotechnology, Integrated Pest Management
Swaminathan, R., Ph.D.	Associate Professor	Protein aggregation, Molecular crowding, Microfluidics and Fluorescence Spectroscopy
Tamuli, R., Ph.D.	Assistant Professor	DNA repair and gene silencing, Identification of novel cancer relevant genes