



Dr. Arun Goyal

(FAMI, FBRS, FABAP, FNABS, FNAAS, FIFIB)

Professor of Biotechnology

Former Head

Department of Biosciences and Bioengineering

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Education

- 1995 Ph.D. Chemistry (8.33/10.0) (worked on Microbiology and Enzymology), Indian Institute of Technology Kanpur, Kanpur, India.
- 1989 M.Tech. Biochemical Engineering and Biotechnology (6.96/10.0), Indian Institute of Technology Delhi, New Delhi.
- 1988 M.Sc. Chemistry, (6.82/10.0), Indian Institute of Technology Delhi, New Delhi.
- 1986 B.Sc. (Honours) Chemistry (70.6%) Hindu College, University of Delhi, Delhi.
- 1983 12th Class, Delhi Senior School Certificate Examination, CBSE New Delhi (75.0%), Ramjas Senior Secondary School No. 5, New Delhi.
- 1981 10th Class, Delhi Secondary School Examination, CBSE New Delhi (72.6%), Ramjas Senior Secondary School No. 5, New Delhi.

Positions held

Feb 2017- Mar 2017	Visiting Fellow (UGC), Department of Microbiology, Panjab University, Chandigarh for 2 weeks (Feb-Mar, 2017)
Dec 2015 – contd.	Professor HAG (Higher Administrative Grade), Department of Biosciences & Bioengineering, Indian Institute of Technology Guwahati, Assam
Jun 2015 - Jul 2015	Visiting Professor, Department of Animal Production, Faculty of Veterinary Medicine, University of Lisbon, Portugal.
May 2015- May 2015	Visiting Professor, Department of Food and Environmental Science, University of Helsinki, Finland.
Dec 2014 - Dec 2014	Visiting Professor, Department of Food and Environmental Science, University of Helsinki, Finland.
Jun 2014 - Jul 2014	Visiting Professor, Department of Animal Production, Faculty of Veterinary Medicine, University of Lisbon, Portugal.
Jun 2014 - Jun 2014	Visiting Professor, Department of Food and Environmental Science, University of Helsinki, Finland.
Mar 2013 - Nov 2013	Visiting Professor, Department of Animal Production, Faculty of Veterinary Medicine, University of Lisbon, Portugal.
Dec 2009 - Dec 2015	Professor, Department of Biotechnology, Indian Institute of Technology Guwahati, Assam, India.
Oct 2012 - Oct 2012	Visiting Professor, Department of Food and Environmental Science, University of Helsinki, Finland.
May 2011 - Jun 2011	Visiting Professor, Department of Animal Production, Faculty of Veterinary Medicine, University of Lisbon, Portugal.
Jun 2010 - Jul 2010	Visiting Professor, Department of Biochemistry, Plovdiv University, Bulgaria.
Apr 2009 - Feb 2013	Head, Department of Biotechnology, Indian Institute of Technology Guwahati, Assam, India.
May 2004 - Nov 2009	Associate Professor, Department of Biotechnology, Indian Institute of Technology Guwahati, Assam, India.
May 2005 - Apr 2006	Vice-Chairman, Graduate Aptitude Test in Engineering (GATE) 2006.
Aug 2003 - May 2004	Visiting Associate Professor, Department of Biotechnology, Indian Institute of Technology Guwahati, Assam, India
Sep 2001 - Aug 2003	Post-doctoral Scholar at Faculty of Veterinary Medicine (FMV), Technical University of Lisbon (UTL), Lisbon, Portugal, sponsored through i) 6 year (2001-2007) scholarship awarded by Foundation of Science and Technology (FCT), Portugal and ii) Interdisciplinary Center for Investigation in Animal Health (CIISA) at FMV, Lisbon.
Sep 2000 - Aug 2001	Post-doctoral Fellow, Faculty of Veterinary Medicine (FMV), Technical University of Lisbon (UTL), Lisbon, Portugal.
Feb 2000 - Jun 2000	Scientist, Department of Biotechnology, Birla Institute of Scientific Research (BISR), Jaipur, India.
Feb 1999 - Sep 1999	Post-doctoral Fellow, Department of Biological Sciences, Wayne State University (WSU), Detroit, Michigan, USA.
Nov 1998 - Feb 1999	Visiting Scholar, Neurobiotechnology Center, Ohio State University (OSU), Columbus, Ohio, USA.
Jan 1996 - Oct 1998	Post-doctoral Research Associate, Department of Biochemistry, University College Dublin (UCD), Dublin, Ireland.

While holding Head of Department position (Dec 2009 -Feb 2013), I also

- Executed 6 projects (1 DST, 4 DBT and 1 CSIR) as PI or Coordinator.
- Provided services to Guwahati Biotech Park (GBP) under various capacities.
- Served as Chairman, Institute Purchase committee, IBSD Imphal for 2 years (2011-2013).
- Expert, North East for NERBMPC, DBT, Govt. of India New Delhi for 2 years.
- Department Expansion Plan (redesigning Research, Teaching and Bioinformartics lab with drawings of civil, electrical & furnishing)
- Served as Mentor, DBT-MSc teaching program, Department of Biotechnology, University of North Bengal, Siliguri, West Bengal.
- Served as Advisory Committee member, DBT-MVSc Programme in Animal Biotechnology, College of Veterinary Science, Assam Agricultural University, Guwahati (2011-2013).

Awards/Honours

- 2016 Malaviya Memorial Award- Senior Faculty (Medal and Cash award Rs 15,000/-) for outstanding contributions to Biotechnology by Biotech Research Society of India.
- 2016 G.B Manjrekar Award (citation and cash award Rs 20,000/-) for contribution to fundamentals of applied values of Microbiology by Association of Microbiologists of India
- 2013 J.V. Bhat Award (Cash prize Rs. 3,000/-) for Best Paper published in Indian Journal of Microbiology (Springer) in 2012.
- 2012 Cutting edge Research Enhancement and Scientific Training (CREST) Award by Department of Biotechnology, Ministry of Science and Technology for year 2011-2012 for visiting Faculty of Veterinary Medicine, Lisbon, Portugal (March 2013 to Nov 2013).
- 2010 Dr. C.V. Raman Award (Citation and Cash Award of Rs 11,000/-) for the 4th IES "National Young Teachers Excellence Award 2010" for excellence in the field of Engineering & Technology Education, by IES Group of Institutions, Bhopal.
- 2007 J.V. Bhat Award (Cash prize Rs. 3,000/-) for Best Paper published in Indian Journal of Microbiology (Springer) in 2006.

Fellowships/Scholarships

- 2012 Awarded FIFIB (Fellow, International Forum on Industrial Bioprocesses) Taipei, Taiwan, Oct. 7, 2012.
- 2011 Elected as FNAAS (Fellow, National Academy of Agricultural Sciences, India) Jan 2011.
- 2010 Elected as FNABS (Fellow, National Academy of Biological Sciences) Dec 2010.
- 2009 Elected as FABAP (Fellow, Association of Biotechnology and Pharmacy) for distinguished services to Biotechnology and Pharmacy.
- 2008 Elected as FBRS (Fellow, Biotech Research Society) of India for outstanding research contributions to Biotechnology.
- 2008 Elected as MNASc (Member, The National Academy of Sciences, India). (May 2008)
- 2006 Elected as FAMI (Fellow of Association of Microbiologists of India) in 2006 for contributions to Science & Profession of Microbiology.
- 1988 Graduate Aptitude Test in Engineering (GATE) Fellowship, National Scholarship, [conducted by Ministry of Human Resource Development (MHRD), Govt. of India] with 96.1 percentile.
- 1988 University Grants Commission (UGC) Fellowship, Junior and Senior Research Fellowships, on qualifying the National Entrance Test (NET) jointly conducted by University Grants Commission-Council of Scientific and Industrial Research (UGC-CSIR), India.
- 1981 Rai Kedar Nath Memorial Scholarship for 2 years (1981-1983) by Ramjas Foundation, Delhi, India, Merit scholarship, for 2nd position at school at Delhi Secondary School Certificate Examination (CBSE Delhi, Class 10th).

International Scholarships/Honours

- 2001 Portuguese National Scholarship, for 6 years (Sep. 2001-Aug. 2007) awarded by Foundation of Science and Technology (Fundacao para Ciencia e Tecnologia, FCT), Portugal for post-doctoral research.
- 1999 National Institutes of Health, Fellowship (Feb. 1999 -Oct. 1999), at Wayne State University, Detroit, Michigan, USA.
- 1998 National Institutes of Health, Fellowship (Oct. 1998 – Feb. 1999), at Ohio State University, Columbus, USA.
- 1996 Scholarship from Forbairt (Irish Research and Technology Council) for working at University College Dublin, Ireland (Jan 97-Oct 98)

Honours/Nominations/Recognitions/Invitations

2017

- 2017 Invited as Visiting Fellow (UGC) by Department of Microbiology, Panjab Univeristy, Chandigarh for 2 weeks (Feb-March 2017).
- 2017 Invited to chair a session in International Conference on Sustainable Energy and Environmental Challenges (SEEC-2017), Feb 26-28, 2017, Center of Innovative and Applied Bioprocessing (CIAB), Mohali, India.

2016

- 2016 Invited to Co-chair a session of presentations by Young Scientists during 57th Annual Conference of Association of Microbiologists of India (AMI), November 24-27, 2016, Gauhati University, Guwahati Assam
- 2016 Nominated by Agricultural Recruitment Board (ASRB) as an Advisor on the Selection Committee for conducting Viva-Voce of the candidates from ARS Examination 2015 for the recruitment of posts of Scientist. October 2016.
- 2016 Invited as an "Expert member for Selection Committee" for Faculty selection at Department of Bioengineering at Birla Institute of Technology, MESRA, Ranchi, April 19, 2016.
- 2016 Invited as an "Member Expert Committee" of NER Twinning RnD program of NERBPMC, Mar 11, 2016.
- 2016 Invited as External Examiner, Doctoral thesis, Department of Biotechnology, IIT Hyderabad, March 10, 2016.
- 2016 Invited as an "Member of Screening Committee" of NER- Twinning RnD program of NERBPMC to review the project proposals, Feb 2.
- 2016 Invited as an "Expert member for Selection Committee" for recruitment of Associate Professor at Department of Forestry, North Eastern Regional Institute of Science and Technology (NERIST), Jan 29, 2016.
- 2016 Invited as an "Expert member for Selection Committee" for recruitment of Associate Professor at Department of Human Physiology, Agartala University, Tripura, Jan 15, 2016.

2015

- 2015 Invited to Co-chair a session during 56th International Annual Conference of Association of Microbiologists of India (AMI), Dec 7-10, 2015, Jawahar Lal Nehru University, New Delhi.
- 2015 Invited as member "National Jury" for India Innovation Initiative a National-level competition organized jointly by CII with DST, Government of India and All India Council for Technical Education (AICTE).
- 2015 Invited as Expert, member selection committee for faculty members at Department of Molecular Biology & Genetic Engineering, GB Pant University of Agriculture & Technology, Uttarakhand, Oct 31, 2015.
- 2015 Invited as an "Expert member for selection committee" for recruitment of Professor at Department of Molecular Biology and Bioinformatics, Agartala University, Tripura, October 9, 2015.
- 2015 Invited to Chair a session in "Update on Advances in Cancer Research", Sep 10, B. Borooah Cancer Institute, Guwahati, Assam, India.
- 2015 Nominated as member, Scientific Advisory committee, Cancer Research Foundation, India.
- 2015 Invited to Chair the session in National Conference on Challenges in Environmental Research, 4-6 June, IIT Guwahati, Assam, India.
- 2015 Invited to Chair 2 sessions in 2nd North Eastern Regional Conference on Head and Neck Oncology, May 22-23, 2015, B. Borooah Cancer Institute, Guwahati, Assam, India.

2014

- 2014 Invited as an "Expert member for selection committee" for recruitment of Assistant Professor at Department of Biotechnology, NIT Durgapur, West Bengal, June 5, 2014.

- 2014 Invited as one of the Panel of judges for Best Poster Awards at International Conference on Emerging Trends in Biotechnology (ICETB-2014) and XI Biotech Research Society India, Convention, Nov 6-9, 2014, Jawaharlal Nehru University, New Delhi, India
 - 2014 Invited as Judge for Best oral presentation at International Conference on Biotechnology and Bioengineering (ICBB-2014), Oct 28-29, 2014, BITS Pilani, Dubai Campus, Dubai, UAE.
- 2013**
- 2013 Invited as External Examiner, Doctoral thesis, Department of Chemical Engineering, IIT Roorkee, March 16, 2013.
- 2012**
- 2012 Nominated as a distinguished member for consultative programme to prepare a "Draft Biotechnology Policy" for the state of Assam by Assam Science Technology & Environment Council (ASTEC) to submit the Draft Biotechnology Policy to the Department of Science & Technology, Government of Assam for necessary approval and implementation.
 - 2012 Nominated by DBT as representative for Institutional Bio-safety Committee at North Eastern Hill University, Shillong. (Sep 2012)
 - 2012 Mentor, DBT-MSc teaching program, Department of Biotechnology, University of North Bengal, Siliguri, West Bengal.
 - 2012 Member, Advisory committee, DBT-MSc teaching program, Department of Biotechnology, University of North Bengal, Siliguri, WB.
 - 2012 Invited as External Examiner, Doctoral thesis, Department of Biotechnology, IIT Roorkee, June 2, 2012.
 - 2012 Invited as a member "Expert Committee for North Eastern Region Biotechnology Programmes" by DBT, New Delhi, May 2, 2012.
 - 2012 Invited as member "Purchase Committee" meeting at Guwahati Biotech Park, Guwahati, March 27, 2012.
 - 2012 Invited as an "Expert member for selection committee" for recruitment of Faculty members at Department of Biotechnology, IIT Guwahati, March 24, 2012.
 - 2012 Invited as Chairman, "Institute Purchase Committee (IPC)" meeting at Institute of Biotechnology and Sustainable Development (IBSD) Imphal, Manipur, March 17, 2011.
 - 2012 Invited as External Examiner, Doctoral thesis, Department of Chemistry, IIT Delhi, March 15, 2012.
 - 2012 Invited as an "Expert member for selection committee" for recruitment of Junior Technical Superintendent at Department of Biotechnology, IIT Guwahati, Jan 10, 2012.
- 2011**
- 2011 Invited to Chair the Session on Industrial Biotechnology in an International Conference on "New Horizons in Biotechnology", Nov. 21-24, 2011, National Institute of Interdisciplinary Science and Technology (NIIST), Trivandrum, India.
 - 2011 Invited as Chairman, "Institute Purchase Committee (IPC)" meeting at Institute of Biotechnology and Sustainable Development (IBSD) Imphal, Manipur, September 27, 2011.
 - 2011 Invited as Chairman, "Institute Purchase Committee (IPC)" meeting at Institute of Biotechnology and Sustainable Development (IBSD) Imphal, Manipur, August 11, 2011.
 - 2011 Invited as an "Expert member for selection committee" for Asst Prof./Assoc Prof. at Department of Biotechnology, Institute of Science and Technology, Gauhati University, Guwahati, Mar 21, 2011.
 - 2011 Invited Reviewer, of Pre-proposals from Department of Biotechnology and Ministry of New and Renewable Energy (MNRE)
 - 2011 Invited as Chairman, "Institute Purchase Committee (IPC)" meeting at Institute of Biotechnology and Sustainable Development (IBSD) Imphal, Manipur, March 7, 2011.
 - 2011 Member, Advisory Committee, DBT supported MVSc program in Animal Biotechnology at College of Veterinary Sciences, Assam Agricultural University, Khanapara. Dec 2, 2011
 - 2011 Invited as Chairman, "Institute Purchase Committee (IPC)" meeting at Institute of Biotechnology and Sustainable Development (IBSD) Imphal, Manipur, Feb 28, 2011.
 - 2011 Nominated as Chairman, "Institute Purchase Committee (IPC)" for 3 years at Institute of Biotechnology and Sustainable Development (IBSD) Imphal, Manipur.
 - 2011 Invited as an "Expert member for selection committee" for recruitment of Ass. Prof. /Assoc. Prof. at Department of Biotechnology, IIT Guwahati, Feb 18, 2011.
 - 2011 Invited as an "Expert member for selection committee" for recruitment of Professor, Associate/Assistant Professor at Department of Biotechnology, Jawaharlal Nehru Technological University, Anantapur (JNTUA), Andhra Pradesh, Jan 18, 2011.
 - 2011 Nominated for participation at IIT-DBT meeting on "Enhancing Innovation potential in IIT System" held at IIT Bombay, Jan 6-7 2011.
 - 2011 Invited as an "Expert member for selection committee" for recruitment of Senior Technical Assistant at Biotech Park, Guwahati, Jan 5.
- 2010**
- 2010 Member, DBT Program Support on "NE Institutions for Conferences and Workshops and for Travel Support to attend conferences Abroad", (Aug 2010 to Feb 2013).
 - 2010 Invited as an "Expert member for selection committee" for recruitment of JRF at Institute of Biotechnology and Sustainable Development (IBSD) Imphal, Manipur, Dec 18, 2010.
 - 2010 Invited to Chair the Session on Microbial Genomics in International Conference on Genomic Sciences (ICGS), Nov. 12-14, 2010, Madurai Kamraj University, Tamil Nadu, India.
 - 2010 Invited to Chair Panel of Judges for Best Poster Awards at International Conference on Genomic Sciences (ICGS), Nov. 12-14, 2010, Madurai Kamraj University, Tamil Nadu, India.
 - 2010 Invited as an "Expert member for selection committee" for recruitment of Faculty members at Department of Biotechnology, Jawaharlal Nehru Technological University, Anantapur (JNTUA), Andhra Pradesh, Oct 29, 2010
 - 2010 Invited as a "Member for Technical Evaluation Committee" for purchase of equipment at Guwahati Biotech Park Incubation Center (GBPIC), Guwahati, June 29, 2010.
- 2009**
- 2009 Invited as an "Expert member for selection committee" for recruitment of Assistant Professor at Department of Biotechnology, IIT Guwahati, Dec 01, 2009.
 - 2009 Invited as an "Expert member for screening committee" for applications of "Director Technical" at Biotech Park, Guwahati, Nov 19.
 - 2009 Invited as an "Expert member for selection committee" for Lecturer at Department of Biotechnology, Gauhati University, Nov 16, 2009.
 - 2009 Nominated as a member "Expert Committee for North Eastern Region Biotechnology Programmes" by DBT, New Delhi (Aug 2009)
 - 2009 Nominated Member Secretary, Project Approval Committee for "Strengthening of support to universities in North Eastern Region" by DBT, New Delhi (Dec 2008 - Aug 2009)

- 2009 Invited as an "Expert member for selection committee" for recruitment of Senior Research Scientist/Research Scientist at Biotech Park Guwahati, June 30, 2009.
- 2009 Invited as an expert by The Department of Biotechnology, Government of India for a Brainstorming meeting at Guwahati to evolve Science Promotion Schemes for Colleges in North Eastern States of India. (May 2009)

2008

- 2008 Invited as an expert for Brainstorming meeting on "Cellulose to ethanol" at CSIR, New Delhi. (July, Aug and Nov 2008)
- 2008 Invited as an expert for Discussion Meet on Biofuels at DBT, New Delhi. (July 2008)
- 2008 Nominated by DBT (GOI) as representative for Institutional Bio-safety Committee at Gauhati University, Guwahati, Assam June.

2007

- 2007 Invited to Chair the Session on "Industrial Biotechnology" in an International Conference on New Horizons in Biotechnology, Nov. 26-29, 2007, National Institute of Interdisciplinary Science and Technology (NIIST), Trivandrum, India.
- 2007 3-D structure of Lichenase enzyme was selected for Cover Page for Abstract Book of 36th National Seminar on Crystallography (NSC-36), January 22-24, 2007, University of Madras, Chennai, India.

2006

- 2006 Invited as an "Expert member for selection committee" for recruitment of Senior Technical Assistant at Department of Biotechnology, IIT Guwahati, Jan 14, 2006.

Courses and Projects Reviewed

- 2009-2016 Reviewed several projects from DBT(150), MNRE (4), DST(2), IITG-TIC (4)
- 2016 Reviewed a PG course on the Subject Biochemistry and paper STRUCTURE AND FUNCTION OF BIOMOLECULES II modules on DNA polymerases and Mutations under e-PG Pathshala for e-Content Creation for Postgraduate Students scheme of UGC. Prof. Sunil K. Khare, Principal Investigator, Indian Institute of Technology Delhi.
- 2015 Review of 2nd phase of course "Enzyme Technology (BT 6011)" of BIT Mesra. Under National Mission Project on Education through ICT, MHRD, Government of India for developing suitable pedagogical methods for various classes, intellectual calibers and research in e-learning. Prof. Anup K. Ray, Principal Investigator, Centre for Educational Technology, IIT Kharagpur.
- 2015 Reviewed a PG course on the Subject Biochemistry and paper STRUCTURE AND FUNCTION OF BIOMOLECULES under e-PG Pathshala for e-Content Creation for Postgraduate Students scheme of UGC. Prof. Sunil K. Khare, Principal Investigator, Indian Institute of Technology Delhi.
- 2012 Reviewed B.Sc. Biotechnology course Syllabus for Manipur University, Imphal.
- 2010 Reviewed course "Enzyme Technology (BT 6011)" of BIT Mesra, under National Mission Project on Education through ICT MHRD, Government of India For Developing suitable pedagogical methods for various classes, intellectual calibers and research in e-learning. Prof. A.K. Ray, PI, Centre for Educational Technology, IIT Kharagpur.
- 2010 Reviewed B.Tech. (Biotechnology) Syllabus of Gauhati University, Guwahati, Assam

Titles of Theses

- Ph.D.: Production, purification, characterization and active site mapping of dextransucrase of *Leuconostoc mesenteroides* NRRL B-512F. (Supervisor: Padma Vibhushan (2009), Padamshree (2003), Prof. Sarvagya Singh Katiyar, Vice Chancellor, (4 consecutive terms, 1994 - 2007), Chhatrapati Shahu Ji Maharaj University, Kanpur; Professor and Former Head, Department of Chemistry, IIT Kanpur).
- M.Tech.: Isolation and purification of coenzymes NADH and ATP from *Saccharomyces cerevisiae*. (Supervisor: Professor S. Chand, Former Head, Department of Biochemical Engineering and Biotechnology, IIT Delhi)

Area of Research

Microbial Biotechnology, Molecular Biology, Protein Engineering, Structural & Functional studies of carbohydrate enzymes.

Ongoing Research:

A. Isolation of industrial microbial enzymes from microbial diversity of North-East India.

1. Identification and functional analysis of glucansucrase and fructansucrase producing *Leuconostoc mesenteroides*, *Pediococcus pentosaceus*, *Lactobacillus plantarum*, *Lactobacillus fermentum*, *Weissella confusa* and *Weissella cibaria*.
2. Optimization of conditions for culture for maximum secretion of enzyme using Batch fermentation.
3. Purification of enzyme by fractionation and size exclusion chromatography. Identification of enzyme by activity staining and molecular size analysis by SDS-PAGE.
4. Linkage analysis of glucans by ¹H & ¹³C NMR and FTIR techniques.
5. Production and structure characterization of glucans from novel microbes as agents for anticancer, biomedical, functional food and cereal applications.
6. Isolation and characterization of probiotic microbes *Lactobacillus plantarum* & *Weissella cibaria* for functional food applications.
7. Production and purification of Prebiotic Isomalto-, Gluco-, Gentio-, Manno- and Xylo-oligosaccharides by enzymes.
8. Glucan production from fruit waste by Lactic acid bacteria for food applications.

B. Molecular, structural, functional and biochemical analysis of Carbohydrate Active Enzymes.

9. Hemicellulases (L- α -arabinofuranosidase, a family 43 glycoside hydrolase (GH43), glucuronoxylan-xylanohydrolase, (GH30) and β -mannanase (GH26) from *Clostridium thermocellum*.
10. Polysaccharide Lyases (Pectate lyase, PL1B, PL9 and Rhamnogalacturonan lyase, PL11) from *Clostridium thermocellum*.
11. Pectic methyl esterase of family 8 Carbohydrate esterase (CE8) from *Clostridium thermocellum*.
12. Xylanase (GH11) from *Pedobacter saltans* and xylanase (GH10) from *Clostridium thermocellum*.
13. Binding and structure studies of Carbohydrate binding modules (CBM6 and CBM35) of xylanase, arabinofuranosidase and polysaccharide Lyases.
14. Constructing mutants of carbohydrate binding modules (CBMs) from *Clostridium thermocellum* by *in vitro* site-directed mutagenesis to identify amino acids involved in binding the polysaccharides.

15. Protein engineering of carbohydrate enzymes for developing novel biocatalysts. Protein engineering of GH43 and GH5 for enhancing their enzyme activity and developing chimera.
16. Crystallization and 3D structure analyses of Xyn30A, GH43, GH81, GH26 and PL1B from *Clostridium thermocellum*.
17. Molecular cloning, expression and biochemical characterization of Chondroitin ABC lyase (PL8a) and Heparinase (PL12a) from *Pedobacter saltans*.
18. Structure and functional analysis of a novel curdlanase (GH81) with multi-substrate specificity from *Clostridium thermocellum*.

C. Microbial conversion of cellulosic agrowaste to bioethanol using microbial cultures, natural and recombinant cellulases and hemicellulases for bioethanol production.

19. Selection of agrowaste on the basis of their structural carbohydrate composition: Estimation of cellulose, hemicellulose and lignin of different lignocellulosic leafy biomasses viz., jamun, neem, asoka, bamboo, poplar, wild grass, thatch grass, eucalyptus, mango, water hyacinth, corn cob, sugarcane bagasse and whitetop weed.
20. Identification of efficient pretreatment process aiding in improved saccharification: Confirmation of structural destabilization with porosity increment and lignin breakdown by field emission scanning electron microscopy (FESEM) and Fourier transform infrared (FTIR) spectroscopic analyses.
21. Efficiency of fermentation mode in terms of ethanol yield in shake flask: Separate hydrolysis and fermentation (SHF) and simultaneous saccharification and fermentation (SSF) involving various enzymes viz. *T. reesei* cellulase, *B. subtilis*, *B. amylofaciens* cellulase, recombinant *Clostridium thermocellum* cellulase, hemicellulase, xylanase and fermentative microbes viz. *Zymomonas mobilis*, *Saccharomyces cerevisiae* and *Candida shehatae*. Selection of fermentation by single enzyme-single culture and mixed enzyme-mixed culture system.
22. Optimization of fermentation process parameters at shake flask level: Standardization of fermentation process parameters viz. concentrations of substrate and enzyme, microbial inoculum, pH and temperature for higher ethanol titre and yield.
23. Scale-up at bioreactor level and subsequent product recovery with purification: Shake flask fermentation with increased substrate concentration. Scale-up in 7.0 L bioreactor with optimization of process parameters.
24. Recovery and purification of bioethanol: By distillation, pervaporation, vacuum evaporation. Purification by semi-permeable membrane, molecular sieve and pressure reduction.

Journal Affiliations

National

- 2016 Indian Journal of Biotechnology (NISCAIR)
- 2013 Invited Reviewer, National Academy of Science India (Section- Biology).
- 2011 Member, Editorial Board, Journal of Assam Science Society, Guwahati, India
- 2009 Member, Editorial Board, Journal of Microbial World, Maharashtra, India
- 2009 Invited Reviewer, Indian Journal of Experimental Biology.
- 2008 Invited Reviewer, Current Trends in Biotechnology and Pharmacy (Assn Biotech & Pharmacy Publications)
- 2007 Editor, Indian Journal of Microbiology (AMI publications by Springer-Verlag), (April 2007-2011).
- 2007 Associate Editor, Indian Journal of Microbiology (AMI publications by Springer), Jan-Mar 2007.
- 2004 Member, Editorial Board, Indian Journal of Microbiology (Feb. 2004-Dec 2006).

International

- 2016 Invited Reviewer, Current Protein & Peptide Science
- 2016 Invited Reviewer, Journal of Molecular Catalysis
- 2016 Invited Reviewer, Journal of Functional Foods.
- 2015 Invited Reviewer, Environmental Progress and Sustainable Energy.
- 2015 Invited Reviewer, International Journal of Biological Macromolecules.
- 2014 Invited Reviewer, Plos One
- 2014 Invited Reviewer, Biotechnology Progress
- 2014 Invited Reviewer, Journal of Food Science and Technology.
- 2013 Invited Reviewer, Molecular Biotechnology.
- 2013 Associate Editor, Annals of Microbiology (Springer) (Since Nov 2013)
- 2012 Invited Reviewer, Journal of Industrial Microbiology and Biotechnology
- 2012 Member, Editorial Advisory Board, Journal of Bioscience and Biotechnology, Bulgaria.
- 2009 Invited Reviewer, Carbohydrate Polymers (April 2009)
- 2009 Invited Reviewer, Proteins and Peptide Letters (March 2009)
- 2009 Invited Reviewer, Process Biochemistry, Elsevier (Feb 2009)
- 2008 Invited Reviewer, Biotechnology Progress, Elsevier (Oct 2008)
- 2008 Invited Reviewer, Enzyme and Microbial Technology, Elsevier (Aug 2008)
- 2008 Invited Reviewer, International Journal of Biological Sciences, USA (June 2008)
- 2008 Invited Reviewer, Applied Biochemistry and Biotechnology (Elsevier) (Jan 2008)
- 2007 Invited Reviewer, Journal of Basic Microbiology (Wiley Publications) (Oct 2007)
- 2007 Invited Reviewer, Bioresource Technology (Elsevier) (Sep 2007)
- 2006 Reviewer, Journal of Food Biochemistry, from UC Davis, USA, (Blackwell Publishers), Feb. 2006

Professional Society Affiliations

International

- 2007 Member, American Society of Microbiology (Former member, Jan 2007-2009).
- 2005 Member, American Society for Biochemistry and Molecular Biology (ASBMB), (Former member, Jan. 2005-2007)
- 2002 Member, Portuguese Biochemical Society (SPB) (Former member, 2002-2003).
- 1996 The Biochemical Society, UK (Former member, 1996-1998).

National

- 2015 Member, Scientific Advisory Committee, Cancer Research Foundation, India.
- 2013 Member, Board of Governors, Biotech Research Society of India (BRSI), (May 2013-April 2015)
- 2013 Executive member, North East Unit of Association of Microbiologists of India (AMI).
- 2011 Member, Board of Governors, Biotech Research Society of India (BRSI), (May 2011-April 2013)
- 2009 Life member, Indian Science Congress Association (ISCA), (Nov. 2009)
- 2009 Life member, National Academy of Biological Sciences (NABS), (Oct. 2009)
- 2009 Member, Central Management Council, Biotech Research Society of India (BRSI) (May 2009-April 2011)
- 2009 President, Biotech Research Society of India (BRSI), Guwahati Unit (April 2009)
- 2008 Life member, North East Biotechnology Association (NEBA) (April 2008)
- 2008 Life member, Association of Biotechnology and Pharmacy (March 2008)
- 2008 Life Member, Microbiologist's Society, India (Jan 2008)
- 2006 Life member, Association of Carbohydrate Chemists and Technologists of India (ACCTI), Sep. 2006.
- 2005 Life member, Indian Crystallographic Association (ICA), since July 2005.
- 2004 Life member, Biotech Research Society of India (BRSI), since Sep. 2004.
- 2003 Life member, Society of Biological Chemists of India (SBCI), since Oct. 2003.
- 1995 Life member, Association of Microbiologists of India (AMI), since 1995.

Responsibilities held at Department

- Member, DUPC, (Sep 2016- contd)
- Member, DPPC, (April 2015-April 2017)
- Member, Department Faculty Advisory Committee (DFAC) (Jan 2015 – Dec 2016)
- Faculty Advisor, (BTech, Jul 2011- Feb 2013)
- Head of Department (April 2009 - Feb 2013)
- Faculty Advisor, (BTech, April 2007- May 2010)
- Member, Institute Library Committee (April 2007- April 2009)
- Member, Faculty Recruitment Committee (Oct. 2003- Feb. 2013)
- Coordinator, Equipment Indent Committee (April-2006-07)
- Secretary, Departmental Undergraduate Programme Committee (DUPC) (Oct. 2003-Oct. 2005)
- Member, Departmental Post Graduate Programme Committee (DPPC). (Oct. 2003-May 2005)
- Chairman, Ph.D. student selection committee, Dec. 2004 and member, May 2004, June 2005.
- Undergraduate and Postgraduate Research Laboratory designing and furnishing.
- Designing Research, Teaching, Instrument labs under expansion of Department of Biotechnology, Nov 2013.

Responsibilities held at IIT Guwahati

- Member, Reviewing Committee, Technology Incubation Center (TIC), (June 2012 -contd.)
- Member, Core committee, 12th Convocation, IIT Guwahati, May 2010.
- Member, Senate IIT Guwahati (April 2009- contd)
- Invitee, Senate IIT Guwahati (August 2003- March 2009)
- Vice-Chairman, Graduate Aptitude Test in Engineering, GATE 2006.
- Member, Institute Undergraduate Programme Committee (IUPC). (Oct. 2003 - Octp.2005)
- Member, Committee for Centre for Environmental Science and Engineering. (Feb. 2004)
- Chairman, Course Numbering Committee, appointed by IUPC (March 2004).
- External Member, Departmental Undergraduate Programme Committee (DUPC), Department of Chemical Engg. (Dec03 -Nov05)
- Member, Selection Committee for Technical Assistants at Department of Biotechnology. (Jan 2005)
- Member, Selection Committee for Technical Assistants at Centre for Environment. (March 2005)

Responsibilities held at National level

- Syllabus Setter, Microbiology Section, GATE 2015.
- Paper setter, Microbiology Section, GATE 2012
- Scrutineer, Chemistry, JAM 2008.
- Paper Setter, Biotechnology, JAM 2008.
- Chief Paper Setter, Microbiology, GATE 2007.
- Chief Syllabus Setter, Biotechnology, Graduate Aptitude Test in Engineering, GATE 2006.
- Chief Paper Setter, Biotechnology, Graduate Aptitude Test in Engineering, GATE 2005.
- Empanelled and Invited as Observer, Central Board of Secondary Education, CBSE, Pre-medical Examination, 2005 and 2006.
- Scrutineer, Chemistry main paper, Joint Entrance Exam, JEE 2004, JEE 2005.
- Scrutineer, Chemistry Paper, JAM 2006
- Examination conduction as Indian Institute of Technology (IIT) representative at centers for GATE-2004, 2005, 2011, 2016 and JEE 2004, 2006, 2008, 2014; JAM 2006, DRDO-SET 2007, 2008; BSNL 2008.

Foreign Language

Basic level (1 year) and Advance Level (1 year) Portuguese Language course for reading, writing and speaking Portuguese.

Patent

1. Mayur Agrawal, Rishikesh Shukla, ***Arun Goyal** (2009) "The mutant of *Leuconostoc mesenteroides* NRRL B-640 giving higher production of dextran" (Indian Patent Office, Appl No. 5/KOL/2010 dated Jan 02, 2010)

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1. Deeplina Das and *Arun Goyal (2012) "Chapter 33, Lactic acid bacteria in food industry" in *Microorganisms in Sustainable Agriculture and Biotechnology*, pp. 757-772 (eds) T. Satyanarayana, B.N. Johri and Anil Prakash (Springer, 2012) DOI 10.1007/978-94-007-2214-9_33.
2. Deeplina Das and *Arun Goyal (2013) "Chapter 15, Pharmaceutical Enzymes" in *Biotransformation of waste biomass into high value biochemicals, Part IV Pharmaceutical and personal care products*, pp 367-387, Eds S.K. Brar, G.S. Dhillon and Carlos R. Soccol (Springer, 2013)
3. Nadeem Akhtar, Dinesh Goyal and Arun Goyal (2015) "Chapter 8, Biodegradation of cellulose and agricultural waste material" In *Advances in Biodegradation and Bioremediation of Industrial Waste*, Ed Ram Chandra, ISBN 9781498700542 Taylor and Francis, CRC Press, pp211-234.
4. Damini Kothari, Deeplina Das, Seema Patel and *Arun Goyal (2015) Chapter 25, "Dextran and food applications" In *Polysaccharides: Bioactivity and Biotechnology*, Jean-Michel Merillon and Kishan G. Ramawat (eds.), Springer International Publishing, Switzerland, ISBN 9783319162973, pp 735-752. DOI 10.1007/978-3-319-03751-6_66-1.
5. Arun Dhillon, Kedar Sharma, Vikky Rajulapati and Arun Goyal (2015) Chapter 7, Proteolytic enzymes in "Current Developments in Biotechnology & Bioengineering", Volume 7: Production, Isolation and Purification of Industrial Products, Eds. Ashok Pandey, Sangeeta Negi, Poonam Nigam, Carlos Ricardo Soccol. <http://dx.doi.org/10.1016/B978-0-444-63662-1.00007-5>
6. Damini Kothari, Aruna Rani and Arun Goyal (2015) Chapter 19, Keratinase in "Current Developments in Biotechnology & Bioengineering", Volume 7: Production, Isolation and Purification of Industrial Products, Eds. Ashok Pandey, Sangeeta Negi, Poonam Nigam, Carlos Ricardo Soccol. <http://dx.doi.org/10.1016/B978-0-444-63662-1.00019-1>
7. Arun Dhillon, Soumyadeep Chakraborty, Arun Rani and Arun Goyal (2015) Chapter 23, Polysaccharides lysases in "Current Developments in Biotechnology & Bioengineering", Volume VB: Production, Isolation and Purification of Industrial Products, Eds. Ashok Pandey, Sangeeta Negi, Poonam Nigam, Carlos Ricardo Soccol. <http://dx.doi.org/10.1016/B978-0-444-63662-1.00023-3>
8. Ritesh S. Malani, Arun Goyal and Vijayanand S. Moholkar (2017) Ultrasound-Assisted Biodiesel Synthesis: A Mechanistic Insight in Biofuels, Technology, challenges and Prospects. Eds Avinash Kumar Agarwal, Rashmi Avinash Agarwal, Tarun Gupta and Bhola Ram Gurjar, ISBN 978-981-10-3790-0, Springer, pp 103-135.
9. Rajeev Ravindran, Saprativ P. Das, Deepmoni Deka, Mohammad Jawed and Arun Goyal (2016) Lignocellulosic biomass as a sustainable source for bioethanol production. *Water Science and Technology* by Springer Book Series.

GenBank Submissions

1. NCBI GenBank Accession number KF515952-*Weissella cibaria* strain RBA12 16S ribosomal RNA gene, partial sequence.
2. NCBI GenBank Accession number KC110687-*Weissella cibaria* strain JAG8 16S ribosomal RNA gene, partial sequence.
3. NCBI GenBank Accession number JX649223-*Weissella confusa* strain Cab3 16S ribosomal RNA gene, partial sequence.
4. NCBI GenBank Accession number JX679020-*Pediococcus pentosaceus* strain CRAG3 16S ribosomal RNA gene, partial sequence.
5. NCBI GenBank Accession number KF562066-*Pediococcus pentosaceus* strain SPA 16S ribosomal RNA gene, partial sequence.
6. NCBI GenBank Accession number KC020195-*Lactobacillus plantarum* strain DM5 16S ribosomal RNA gene, partial sequence.
7. NCBI GenBank Accession number KF286000-*Lactobacillus plantarum* strain DM5 RNA polymerase alpha subunit (rpoA) gene, partial cds.
8. NCBI GenBank Accession number JX674030-*Bacillus amyloliquefaciens* strain SS35 16S ribosomal RNA gene, partial sequence.
9. NCBI GenBank Accession number KF019284-*Bacillus amyloliquefaciens* strain SS35 DNA gyrase subunit A (gyrA) gene, partial cds.
10. NCBI GenBank Accession number KF709694-*Pediococcus pentosaceus* strain SPO 16S ribosomal RNA gene, partial sequence.

Research Publications

Published/In press/Accepted (195) *Corresponding Author

Cumulative Impact Factor= ~ 290 2180 citations h-index= 25 i-10 index 62

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1. Vikky Rajulapati and *Arun Goyal (2017) Molecular cloning, expression and characterization of family 8 carbohydrate esterase, pectin methylesterase (CtPME) from *Clostridium thermocellum*. *Molecular Biotechnology*. DOI: 10.1007/s12033-017-9997-7 (JIF 2.3)
2. Seltanna Chalane, C'edric Delattre, Philippe Michaud, Andr'e Lebert, Christine Gardarin, Damini Kothari, Catherine Creuly, Arun Goyal, Ale's Strancar, Guillaume Pierre (2017) Optimized endodextranase-epoxy CIM® Disk reactor for the continuous production of molecular weight-controlled prebiotic isomaltoligosaccharides. *Process Biochemistry*. DOI: 10.1016/j.procbio.2017.04.017 (JIF 2.5)
3. Aruna Rani, Rwivoo Baruah and *Arun Goyal (2017) Physicochemical, antioxidant and biocompatible properties of chondroitin sulphate isolated from chicken keel bone for potential biomedical applications. *Carbohydrate Polymers*, 159, 11-19. (JIF 4.2)
4. Rwivoo Baruah, Ndegwa H. Maina, Kati Katina, Riikka Juvonen and *Arun Goyal (2017) Functional food applications of dextran from *Weissella cibaria* RBA12 from Pummelo (*Citrus maxima*). *International Journal of Food Microbiology*. 242, 124-131. (JIF 3.4)
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6. Seema Patel, Aruna Rani and Arun Goyal (2017) Insights into the allergenic mechanisms of pollen allergens by protein domain profiling. *Computational Biotechnology and Chemistry*. (in press) (JIF 1.0)
7. Ritesh S. Malani, Shubham Patil, Kuldeep, Sankar Chakma, Arun Goyal and Vijayanand Suryakant Moholkar (2017) Mechanistic analysis of ultrasound-assisted biodiesel synthesis with Cu₂O catalyst and mixed oil feedstock using continuous (packed bed) and batch (Slurry) reactors. *Chemical Engineering Science*. (in press) (JIF 2.7)

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12. Nadeem Akhtar, Arun Goyal and Dinesh Goyal (2017) Characterization of microwave-alkali-acid pre-treated rice straw for optimization of ethanol production via simultaneous saccharification and fermentation (SSF). *Energy Conversion and Management*. DOI: 10.1016/j.enconman.2016.06.081 (JIF 4.8)
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15. Nadeem Akhtar, Aanchal, Dinesh Goyal and Arun Goyal (2016) Biodiversity of cellulase producing bacteria and their application. *Cellulose Chemistry and Technology*, 50(9-10) 983-995. (JIF 0.83)
16. Aanchal, Nadeem Akhtar, Kanika, Dinesh Goyal, Arun Goyal (2016) Response surface methodology for optimization of microbial cellulase production. *Romanian Biotechnological Letters*, 21(5), 11832-11841. (JIF= 0.4).
17. Aruna Rani and Arun Goyal* (2016) A new member of family 8 polysaccharide lyase Chondroitin AC lyase (*PsPL8A*) from *Pedobacter saltans* displays endo- and exo-lytic catalysis. *Journal of Molecular Catalysis B: Enzymatic*, 134, 215-234. JIF 2.2)
18. Arun Goyal, Shadab Ahmed, Kedar Sharma, Vikas Gupta, Pedro Bule, Victor D. Alves, Carlos M.G.A. Fontes* and Shabir Najmudin* (2016) Molecular determinants of substrate specificity revealed by the structure of *Clostridium thermocellum* family 43_16 arabinofuranosidase. *Acta Crystallographica Section D. Structural Biology*, D72, 1281-1289. (JIF = 2.5)
19. Filipe Freire[†], Anil Kumar Verma[†], Pedro Bule, Victor D. Alves, Carlos M.G.A. Fontes*, Arun Goyal and Shabir Najmudin* (2016) Conservation in the mechanism of glucuronoxylan hydrolysis revealed by the structure of glucuronoxylan-xylanohydrolase (CtXyn30A) from *Clostridium thermocellum*. *Acta Crystallographica Section D, Structural Biology*, D72, 1162-1173. [†]Equal contributions (JIF 2.5)
20. Shraddha Shukla, Anil Verma, Ilkka Kajala, Antti Nyssölä, Riwivo Baruah, Kati Katina, Riikka Juvonen, Maija Tenkanen and *Arun Goyal (2016) Structure modelling and functional analysis of recombinant dextranase from *Weissella confusa* Cab3 expressed in *Lactococcus lactis*. *Preparative Biochemistry and Biotechnology*, 46, 822-832. (JIF 1.2)
21. Immacolata Venditto, Ana S. Luis, Maja G. Rydahl, Julia Schückel, Vânia O. Fernandes, Silvia Vidal Melgosa, Pedro Bule, Arun Goyal, Virginia M.R. Pires, Catarina G. Dourado, Luis M.A. Ferreira, Pedro M. Coutinho, Bernard Henrissat, J. Paul Knox, Arnaud Baslé, Shabir Najmudin, Harry J. Gilbert, William G. Willats and Carlos M.G.A Fontes (2016) The complexity of the *Ruminococcus flavefaciens* cellulosome reflects an expansion in glycan recognition. *Proceedings of National Academy of Sciences (USA)*, 113, 7136-7141 (JIF 9.7)
22. Arup Jyoti Borah, Mayank Agarwal, Manisha Poudyal, Arun Goyal and Vijayanand Moholkar (2016) Mechanistic investigation in ultrasound induced enhancement of enzymatic hydrolysis of invasive biomass species. *Bioresource Technology*, 213, 342-349. (JIF 4.9).
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25. Ilakka Kajala, Jari Mäkelä, Rossana Coda, Shraddha Shukla, Qiao Shi, Ndegwa Henry Maina, Riikka Juvonen, Päivi Ekholm, Arun Goyal, Maija Tenkanen and Kati Katina (2016) Rye bran as fermentation matrix boosts *in situ* production by *Weissella confusa* compared to wheat bran. *Applied Microbiology and Biotechnology*, 100:3499–3510. (JIF 3.3)
26. Arupjyoti Borah, Shuchi Singh, Arun Goyal and *Vijayanand S. Moholkar (2016) An assessment of invasive weeds as multiple feedstocks for biofuels production. *RSC Advances*, 6, 47151-47163. (JIF 3.8)
27. Anil Kumar Verma and *Arun Goyal (2016) A novel member of family 30 glycoside hydrolase subfamily 8 glucuronoxylan endo- β -1,4-xylanase (CtXynGH30) from *Clostridium thermocellum* orchestrates catalysis on arabinose decorated xylans. *Journal of Molecular Catalysis B: Enzymatic*, 129, 6-14. (JIF 2.1).
28. Riwivo Baruah, Deeplina Das and *Arun Goyal (2016) Heteropolysaccharides from Lactic acid bacteria: Current trends and applications. *Journal of Probiotics and Health*, 4(2), 141. (JIF 1.7)
29. Arun Dhillon, Fernando M.V. Dias, Jose A.M. Prates, Luis M.A. Ferreira, Carlos M.G.A. Fontes, Maria S.J. Centeno and *Arun Goyal (2016) A new member of family 11 polysaccharide lyase, rhamnogalacturonan lyase (CtRGLf) from *Clostridium thermocellum*. *Molecular Biotechnology*, 58(4) 232-240. (JIF1.9)
30. Nadeem Akhtar, Kanika, Alok Kumar Jain, Dinesh Goyal and Arun Goyal (2016) Surfactant assisted microwave-acid pretreatment of leaf litter biomass for enhanced enzymatic release of sugars. *Cellulose Chemistry and Technology*. 50(1) 127-137. (JIF 0.83)

31. Nadeem Akhtar, Kanika Gupta, Dinesh Goyal and Arun Goyal (2016) Recent advances in pre-treatment technologies for efficient hydrolysis of lignocellulosic biomass. *Environmental Progress and Sustainable Energy*, 35(2), 489-511. (JIF 1.3)
32. Saprativ P. Das, Ashutosh Gupta, *Debasish Das, Arun Goyal (2016) Enhanced bioethanol production from water hyacinth (*Eichhornia crassipes*) by statistical optimization of fermentation process parameters using Taguchi orthogonal array design. *International Biodeterioration and Biodegradation*, 109, 174-184. (JIF2.1).

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33. Riwoo Baruah and *Arun Goyal (2015) Hyper glucansucrase, glucan and oligosaccharide producing novel *Weissella cibaria* RBA12 isolated from Pummelo (*Citrus maxima*). *Annals of Microbiology*, 65, 2301-2310. (JIF 1.0)
34. Ashutosh Gupta, Saprativ P. Das, Arabinda Ghosh, Anil Verma, *Debasish Das and *Arun Goyal (2015) Optimization of enzyme saccharification and fermentation process parameters for bioethanol production from *Populus nigra* using recombinant enzymes from *Clostridium thermocellum*. *Research Journal of Recent Sciences*, 4, 144-156.
35. Nadeem Akhtar, Dinesh Goyal and Arun Goyal (2015) Biodegradation of leaf litter biomass by combination of *Bacillus* sp. and *Trichoderma reesei* MTCC164. *Minerva Biotechnologica*, 27(4), 191-199 (JIF 0.4)
36. Nadeem Akhtar, Aanchal, Dinesh Goyal and Arun Goyal (2015) Simplification and optimization of media ingredients for enhanced production of CMCase by newly isolated *Bacillus subtilis* NA15. *Environmental Progress and Sustainable Energy*, 34(2), 533-541. (JIF 1.3)
37. Deeplina Das and *Arun Goyal (2015) Anti-oxidant activity and γ -aminobutyric acid (GABA) producing ability of probiotic *Lactobacillus plantarum* DM5 isolated from Marcha of Sikkim. *LWT Food Science and Technology*, 61(1), 263-268. (JIF 2.5)
38. Anil Kumar Verma, Pedro Bule, Teresa Ribeiro, Joana L. A. Brás, Joyeeta Mukherjee, Munishwar N. Gupta, Carlos M.G.A. Fontes and *Arun Goyal (2015) The family 6 Carbohydrate Binding Module (CtCBM6) of glucuronoxylanase (CtXynGH30) of *Clostridium thermocellum* binds decorated and undecorated xylans through Cleft A. *Archives of Biochemistry and Biophysics*, 575, 8-21. (JIF 3.0)
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41. Shuchi Singh, Shyamali Sarma, Mayank Agarwal, Arun Goyal and Vijayanand S. Moholkar (2015) Ultrasound enhanced ethanol production from *Parthenium hysterophorus*: A mechanistic investigation. *Bioresource Technology*, 188, 287-294. (JIF 5.0)
42. Shuchi Singh, Mayank Agarwal, Shyamali Sarma, Arun Goyal* and Vijayanand S. Moholkar* (2015) Mechanistic insight into ultrasound induced enhancement of simultaneous saccharification and fermentation of *Parthenium hysterophorus* for ethanol production. *Ultrasonics Sonochemistry*. 26, 249-256. (JIF 3.8).
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307. *Arun Goyal and P.E. Kolattukudy (2005) Isolation and purification of short chain mycocerosic acid synthase (SMAS) from *Mycobacterium tuberculosis* H37Rv (ATCC 25618) and from MAS-disrupted mutant strains. 46th Annual Conference of Association of Microbiologists of India (AMI), December 8-10, 2005, University of Hyderabad, Hyderabad, India, p43.
308. Ravi Kiran Purama, Avishek Majumder and *Arun Goyal (2005) Production and purification of family 70, glycoside hydrolase from *Leuconostoc mesenteroides* NRRL B-742. 46th Annual Conference of Association of Microbiologists of India (AMI), December 8-10, 2005, University of Hyderabad, Hyderabad, India, p72-73.
309. Ravi Kiran Purama and *Arun Goyal (2005) Structural analysis, comparative modelling and functional properties of family 2, acetyl-xylan esterase from *Clostridium thermocellum*. 2nd Convention of Biotech Research Society of India (BRSI), November 24-26, Anna University, Chennai, India, p41.
310. *Arun Goyal, L.M.A. Ferreira and C.M.G.A. Fontes (2005) Molecular characterisation of a cloned, family 5 glycoside hydrolase (GH5) module of bifunctional cellulase from *Clostridium thermocellum*. 74th Annual Meeting of Society of Biological Chemists of India (SBCI), November 7-10, 2005, Central Drug Research Institute, Lucknow, India, p40.
311. V.M.R. Pires, Arun Goyal, J.A.M. Prates, L.M.A. Ferreira and C.M.G.A. Fontes (2005) The C-terminal domain of cellulase 5D of *Clostridium thermocellum* displays esterase activity while retaining a carbohydrate binding function. Veterinary Sciences Congress 2005, October 13-15, 2005, Estação Zootécnica Nacional, Santarém, Portugal, p71.
312. J.A.M. Prates, L.M.A. Ferreira, C.M.G.A. Fontes and *Arun Goyal (2005) Functional properties of a family 26 Lichenase from *Clostridium thermocellum*. Microbial Diversity 2005, April 16-18, 2005, University of Delhi South Campus, New Delhi, India, p129.
313. *Arun Goyal, E. Taylor, J.A.M. Prates, G.J. Davies, H.J. Gilbert, L.M.A. Ferreira and C.M.G.A. Fontes (2005) Insights into the molecular determinants of substrate specificity of Lic26A. 6th Carbohydrate Bioengineering Meeting, April 3-6, 2005, Barcelona, Spain, p125.
314. A.L. Carvalho, V.M.R. Pires, J.A.M. Prates, L.M.A. Ferreira, M.J. Romão, C.M.G.A. Fontes and *Arun Goyal (2005) Crystal structure and functional properties of carbohydrate binding module of a cellulase from *Clostridium thermocellum*. 34th National Seminar on Crystallography, January 10-12, 2005, Gauhati University, Guwahati, India, p98.

2004 (3)

315. *Arun Goyal, D.P. Tyagi and S.S. Katiyar (2004) Identification of a single cysteine residue in dextranucrase of *Leuconostoc mesenteroides* NRRL B-512F by amino acid analysis. 45th Annual Conference of Association of Microbiologists of India, Nov 23-25, 2004, National Dairy Research Institute, Karnal, India, p100.
316. *Arun Goyal, M. Nigam and S.S. Katiyar (2004) *Leuconostoc mesenteroides* NRRL B-512F dextranucrase purification by phase partitioning. Bioconvergence, November 18-20, 2004, Thapar Institute of Engineering and Technology, Patiala, India, p118.
317. *Arun Goyal, A.L. Carvalho, V.M.R. Pires, J.A.M. Prates, L.M.A. Ferreira, D.N. Bolam, H.J. Gilbert, M.J. Romão and C.M.G.A. Fontes (2004) Structural and functional analysis of a family 11 carbohydrate binding module of *Clostridium thermocellum* bi-functional cellulosomal cellulase Lic26A-Cel5E. The 2nd Symposium of Protein Society-Protein Structure and Function, Oct 28-30, 2004, IIT Bombay.

2003 (4)

318. *Arun Goyal, J.A.M. Prates, L.M.A. Ferreira and Carlos M.G.A. Fontes (2003) Cloning, expression and characterisation of a family 2, acetyl-xylan esterase from cellulase 5D of *Clostridium thermocellum*. 10th Congress of the Federation of Asian and Oceanian Biochemists and Molecular Biologists (FAOBMB) December 7-11, 2003, Indian Institute of Science, Bangalore, India, p94.
319. C.M.G.A. Fontes, J.A.M. Prates, L.M.A. Ferreira, D.N. Bolam, H.J. Gilbert, F. Vincent, G.J. Davies and Arun Goyal (2003). Functional and structural studies on the bi-functional cellulosomal cellulase (Lic26A-Cel5E) of *Clostridium thermocellum*. Gordon Research Conference (GRC), Cellulases and Cellulosomes, July 27-31, 2003, Andover, New Hampshire, USA.
320. F.M.V. Dias, C.M.G.A. Fontes, Arun Goyal, H.J. Gilbert, J.A.M. Prates and L.M.A. Ferreira (2003) Elucidating the molecular role of *Clostridium thermocellum* Xyn10B carbohydrate binding module 22-1. 5th Carbohydrate Bioengineering Meeting, April 6-9, 2003, University of Groningen, The Netherlands, p138.
321. *Arun Goyal, L.M.A. Ferreira, D.N. Bolam, H.J. Gilbert, C.I.P.D. Guerreiro, J.A.M. Prates and C.M.G.A. Fontes (2003) The family 11 carbohydrate-binding module of *Clostridium thermocellum* bifunctional Cel5E-Man26A binds to soluble cellulose but not to mannan. 5th Carbohydrate Bioengineering Meeting, April 6-9, 2003, University of Groningen, The Netherlands, p136.

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322. *Arun Goyal, J.A.M. Prates, L.M.A. Ferreira and C.M.G.A. Fontes (2002) Molecular characterisation of a family 11 carbohydrate-binding module (CBM11) from cellulaseH of *Clostridium thermocellum*. 13th National Congress of Biochemistry, Dec 5-7, 2002, Lisbon, Portugal.
323. V.M.R. Pires, J.A.M. Prates, Arun Goyal, L.M.A. Ferreira and C.M.G.A. Fontes (2002) Molecular determinants of ligand specificity in family 6 carbohydrate binding modules. 13th National Congress of Biochemistry, December 5-7, 2002, Lisbon, Portugal, p75.

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324. *Arun Goyal, M.S.J. Centeno, L.M.A. Ferreira and C.M.G.A. Fontes (2001) Identification of a new DNA binding protein from *Cellvibrio mixtus*: Potential role in the regulation of cellulase genes. 4th Carbohydrate Bioengineering Meeting, June 10-13, 2001, Royal Institute of Technology (KTH), Stockholm, Sweden, p47.
325. *Arun Goyal, M.S.J. Centeno, L.M.A. Ferreira and C.M.G.A. Fontes (2001) Identification of a regulatory protein (RegA) from *Cellvibrio mixtus*: Potential role in the regulation of cellulase genes. 1st International Symposium - Research in Veterinary Science, May 24-25, 2001, Faculty of Veterinary Medicine, Lisbon, Portugal, p85.
326. C.M.G.A. Fontes, M.S.J. Centeno, A.C.G. Fernandes, F.M.V. Dias, T.C. Reis, Arun Goyal, T.H. Fernandes and L.M.A. Ferreira and (2001) CIISA's Research in Animal Nutrition. 1st International Symposium-Research in Veterinary Science, May 24-25, 2001, Faculty of Veterinary Medicine, Lisbon, Portugal, p34.

1998-1995 (4)

327. Arun Goyal, X.-G. Wang and P.C. Engel (1998) Patterns of activation of the norleucine activity of a quadruple mutant derived from clostridial glutamate dehydrogenase. 666th meeting of The Biochemical Society, London, UK. Jul 29-31, 1998, University of Sheffield, UK.
328. Arun Goyal, B.M. Hayden, S. Aghajanian, X.-G. Wang, and P.C. Engel (1997) Construction and investigation of co-operativity in hybrids of norleucine- and glutamate-active subunits of clostridial glutamate dehydrogenase. 663rd meeting of The Biochemical Society, London, UK, September 3-5, 1997, University College Galway, Ireland, pS27.
329. Arun Goyal, B.M. Hayden, S. Aghajanian, X.-G. Wang, J.L.E. Dean and P.C. Engel (1996) "The use of hybrid hexamers of glutamate dehydrogenase containing both active and inactive subunits in order to study inter-subunit communication" in First International Congress on Extremophiles, June 2-6, 1996, Estoril, Portugal, p248.
330. S.S. Katiyar and Arun Goyal (1995) "Chemical modification of dextranucrase from *Leuconostoc mesenteroides* NRRL B-512F". at Satellite Meeting of American Society for Biochemistry and Molecular Biology, May 21-25, 1995, San Francisco, California, USA. (The FASEB Journal, 1995, Vol. 9, No. 6, p-A1477).

Paper (Oral) presentations

331. Shuchi Singh, Vijayanand S. Moholkar and **Arun Goyal** (2014) Bioethanol production by pretreatment, hydrolysis and fermentation of *Parthenium hysterophorus*. International Conference on Energy Technology, Power Engineering and Environmental Sustainability. Jun 21-22, 2014, Jawaharlal Nehru University, New Delhi. Abstract published in International Journal of Applied Research, 9(9), 1149-1150.
332. Shuchi Singh, Pritam Kumar Dikshit, V. S. Moholkar, **Arun Goyal** (2014) Enhancement of enzymatic hydrolysis of *Parthenium hysterophorus* by response surface methodology. International Conference on Harnessing Natural Resources For Sustainable Development- Global Trend, Jan 29 - 31, 2014, Cotton College, Guwahati, India. (Oral Presentation)
333. T.J.M. Rao and **Arun Goyal** (2014) Synthesis and characterization of dextran coated Fe₃O₄ magnetic nanoparticles with potential biomedical application. International Conference on Harnessing Natural Resources For Sustainable Development- Global Trend, Jan 29 - 31, 2014, Cotton College, Guwahati, India.
334. Ashutosh Gupta, Saprativ P. Das, Debasish Das and **Arun Goyal** (2014) Bioethanol production from peel of Jackfruit (*Artocarpus heterophyllus*) involving recombinant hydrolytic enzymes from *Clostridium thermocellum*. International Conference on Harnessing Natural Resources For Sustainable Development- Global Trend, Jan 29 -31, 2014, Cotton College, Guwahati, India.
335. Shuchi Singh, Vijayanand S. Moholkar and **Arun Goyal** (2013) Statistical optimization of medium composition for cellulase production from an isolate *Bacillus amyloliquefaciens* SS35. National Seminar on Recent Advances in Microbial Technology and Molecular Evolution. March 1-4, 2013, Tezpur University, Assam, India. (Oral Presentation)
336. Rajeev Ravindran, Saprativ P. Das, Deepmoni Deka and **Arun Goyal** (2012) Lignocellulosic biomass as a sustainable source for bioethanol production. International conference on environmentally sustainable urban ecosystems. Feb 24-26, 2012, IIT Guwahati.
337. Deepmoni Deka, Saprativ P. Das, Rajeev Ravindran and **Arun Goyal** (2012) Water hyacinth as a potential source of biofuel for sustainable development. International conference on environmentally sustainable urban ecosystems. Feb 24-26, 2012, IIT Guwahati.
338. Anshuma Mangtani, Avishek Majumder and **Arun Goyal** (2008) Screening of purification methods for an exocellular glucansucrase from *Leuconostoc dextranicum* NRRL B-1146. National Conference on New Horizons in Biotechnology, Feb 8-9, 2008, Swami Vivekanand Mahavidyalaya, Udgir, Maharashtra, India.
339. Avishek Majumder and **Arun Goyal** (2007) Use of statistically designed medium for improved glucansucrase production from *Leuconostoc dextranicum* NRRL B-1146 in a bioreactor. National Conference on Frontiers in Chemical Engineering, December 12-14, 2007, Indian Institute of Technology Guwahati, Guwahati, India.
340. Ravi Kiran Purama, Gurtej Singh, Avishek Majumder, V.V. Dasu and **Arun Goyal** (2007) Dextranucrase production from *Leuconostoc mesenteroides* NRRL B-640 in batch fermentation. National Conference on Frontiers in Chemical Engineering, December 12-14, 2007, Indian Institute of Technology Guwahati, Guwahati, India.
341. J.E. Flint, V.A. Money, V.R. Pires, E. Topekas, C. Montanier, **Arun Goyal**, J.A. M. Prates, D.N. Bolam, H.J. Gilbert, G.J. Davies and C.M. Fontes (2007) Biochemical diversity within family 2 carbohydrate esterases. 7th Carbohydrate Bioengineering Meeting, April, 22-25, 2007, Technical University of Braunschweig, Germany.
342. V.M.R. Pires, **Arun Goyal**, J.A.M. Prates, L.M.A. Ferreira and C.M.G.A. Fontes (2005) The C-terminal domain of cellulase 5D of *Clostridium thermocellum* displays esterase activity while retaining a carbohydrate binding function. Veterinary Sciences Congress 2005, October 13-15, 2005, Estação Zootécnica Nacional, Santarém, Portugal.
343. C.M.G.A. Fontes, J.A.M. Prates, L.M.A. Ferreira, D.N. Bolam, H.J. Gilbert, F. Vincent, G.J. Davies and **Arun Goyal** (2003). Functional and structural studies on the bi functional cellulosomal cellulase (Lic26A-Cel5E) of *Clostridium thermocellum*. Gordon Research Conference (GRC), Cellulases and Cellulosomes, July 27-31, 2003, Andover, New Hampshire, USA.

Invited/Lead Lectures/Talks

National

1. **Arun Goyal** (2017) Recombinant carbohydrate enzyme in conversion of waste biomass to biovalued products. International Conference on Sustainable Energy and Environmental Challenges (SEEC-2017), Feb 26-28, 2017, Center of Innovative and Applied Bioprocessing (CIAB), Mohali, India.
2. **Arun Goyal** (2016) A novel multi-ligand specific family 35 carbohydrate binding module (Rgl-CBM35) from *Clostridium thermocellum* targeting rhamnogalacturonan I. 57th International Annual Conference of The Association of Microbiologists of India (AMI-2016), Nov 24-27, 2016, Gauhati University, Guwahati, Assam India.
3. **Arun Goyal** (2016) Recombinant carbohydrate active enzymes and their applications in conversion of biomass to biovalued products or processes. 1st Biomass to Biovalue Summit (BBSI), Center for Innovative and Applied Bioprocessing. Feb 11-12, 2016, Mohali, Punjab.
4. **Arun Goyal** (2015) Recombinant pectate lyase (CtPL1B) from *Clostridium thermocellum*: Characterization and applications in bioscouring and inhibition of cancer cells. 56th International Annual Conference of Association of Microbiologists of India (AMI), December 7-10, 2015, Jawahar Lal Nehru University, New Delhi.
5. **Arun Goyal** (2014) Structure and functional analyses of recombinant glucuronoxylan-xylanohydrolase (CtXynGH30), its truncated derivative Xyn30A and associated family 6 carbohydrate binding module CtCBM6 from *Clostridium thermocellum*. International Conference on Emerging Trends in Biotechnology (ICETB-2014) and XI Biotech Research Society India (BRSI) Convention, Nov 6-9, 2014, Jawaharlal Nehru University, New Delhi, India.
6. **Arun Goyal** (2013) Cloning, hyper-expression, crystallization and X-ray crystallographic structure analysis of glucuronoxylan-xylanohydrolase (Xyn30A) from *Clostridium thermocellum*. 42nd National Seminar on Crystallography and International Workshop on Application of X-Ray Diffraction for Drug Discovery. Nov 21-23, 2013, Jawaharlal Nehru University, New Delhi, India.
7. **Arun Goyal** (2011) Production, purification and characterization of glucan and gluco-oligosaccharides from *Weissella Confusa*. Symposium on carbohydrates at the interface of Chemistry and Biology (CARBO-XXVI) Nov 23-25 2011, Indian Institute of Chemical Biology, Kolkata..
8. **Arun Goyal** (2011) Biotechnological Applications of Genetic Engineering" Sep. 9, 2011 at Short Term Training on "Molecular Techniques in Biological Research" State Biotech Hub, College of Veterinary Science, Assam Agricultural University, Guwahati.
9. **Arun Goyal** (2011) Biotechnological applications of dextrans from Lactic acid bacteria isolated from microbial diversity hot spot Assam. National Academy of Agricultural Sciences, New Delhi, June 4, 2011.
10. **Arun Goyal** (2010) Enhanced production of bioactive dextran from a novel strain of *Pediococcus pentosaceus* by UV-mutagenesis and Response surface methodology. International Conference on Genomic Sciences, VII Convention of Biotech Research Society of India, Nov 12-14, 2010, Madurai Kamraj University, Tamil Nadu, India.
11. **Arun Goyal** (2010) Applications of Dextrans and Oligosaccharides" Oct. 29, 2010 at Jawaharlal Nehru Technological University, Anantapur (JNTUA), Andhra Pradesh.
12. **Arun Goyal** (2009) "Industrial Microbiology" Dec. 19, 2009, at Government Institute of Science, Aurangabad, Maharashtra.
13. **Arun Goyal** (2009) "Microbial Products and Processes" at UGC PhD Scholar's Program in Biological Sciences, Oct 12 -Nov 1, 2009, UGC Academic Staff College, Gauhati University, Guwahati, India.
14. **Arun Goyal** (2009) "Basics and applications of Genetic Engineering and Protein Engineering" at UGC PhD Scholar's Program in Biological Sciences Oct 12, -Nov 1, 2009, UGC Academic Staff College, Gauhati University, Guwahati, India.

15. **Arun Goyal** (2009) "Dextranase and dextran from *Leuconostoc mesenteroides* NRRL B-640" National Seminar on Pharmacogenomics and its applications in Drug Discovery (2nd Annual Convention of Association of Biotechnology and Pharmacy) 24-25 January, 2009, Acharya B.M. Reddy College of Pharmacy, Bangalore, India.
16. **Arun Goyal** (2008) Production and characterization of dextranase and dextran from *Leuconostoc mesenteroides*" International Congress on Bioprocesses in Food Industries (5th Convention of Biotech Research Society of India, Nov 6-8, 2008, Osmania University, Hyderabad, India.
17. **Arun Goyal** (2007) "Microbial Products and Processes" at Short Term Course on "Engineering aspects of Enzyme and Microbial Processes", June 4-8, 2007, Department of Biotechnology, Indian Institute of Technology Guwahati, India.
18. **Arun Goyal** (2007) "Genetic Engineering and Protein Engineering of Enzymes" at Short Term Course on "Engineering aspects of Enzyme and Microbial Processes" June 4-8, 2007, Department of Biotechnology, Indian Institute of Technology Guwahati, India.

International

19. **Arun Goyal** (2016) Crystal structure and molecular determinants of substrate specificity of arabinofuranosidase from *Clostridium thermocellum*. 14th International Conference of the Asian Crystallographic Association, 4-7 December 2016, Hanoi, Vietnam.
20. **Arun Goyal** (2014) Synthesis and purification of manno-oligosaccharides from copra meal by recombinant endo- β -mannanase and their prebiotic and anticancer properties. International Conference on Biotechnology and Bioengineering (ICBB-2014), Oct 28-29, 2014, BITS Pilani, Dubai Campus, Dubai, UAE. (Lead Lecture)
21. **Arun Goyal** (2014) *Lactobacillus plantarum* DM5 as cell factory for nutraceuticals production. 10th European Symposium on Biochemical Engineering Sciences and 6th International Conference on Industrial bioprocesses, September 7-10, 2014, Lille, France.
22. **Arun Goyal** (2012) Hyper dextran producing *Weissella confusa* isolated from fermented cabbage. Department of Food and Environmental Sciences, University of Helsinki, Helsinki, Finland, Oct 18, 2012.
23. **Arun Goyal** (2012) In vitro analysis of probiotic properties of *Lactobacillus plantarum* DM5 isolated from fermented beverage Marcha of Sikkim. 5th International Conference on Industrial bioprocesses, Oct 7-10 2012, National Taiwan University of Science and Technology, Taipei, Taiwan.
24. **Arun Goyal** (2010) Exploring structure and biotechnological applications of dextrans from Lactic acid bacteria isolated from microbial diversity hot spot in India. 4th International Congress on Bioprocess in Food Industries, Oct 5-8, Curitiba, Brazil.
25. **Arun Goyal** (2000) "Allosteric behaviour of mutant subunits of *Clostridium symbiosum* glutamate dehydrogenase differing in their amino acid specificity" September 21, 2000, Faculty of Veterinary Medicine, Technical University of Lisbon, Lisbon, Portugal.
26. **Arun Goyal** (1999) "Inter-subunit communication in hybrid hexamers of triple mutant (K89L/A163G/S380A) and C320S mutant of glutamate dehydrogenase from *Clostridium symbiosum*" Apr 17, Department of Biological Sciences, Wayne State University, Detroit, Michigan, USA.
27. **Arun Goyal** (1996) "Purification and active site mapping of *Leuconostoc mesenteroides* NRRL B-512F dextranase" March 13, 1996, Department of Biochemistry, University College Dublin, Dublin, Ireland.

General Articles/Bulletins/Press releases

1. Riwivo Baruah, Shweta Singh and Arun Goyal (2015) Microbial diversity in fermented food products of Northeast Himalayan region. Bulletin: Himalayan Ecology" Special issue on Microbial diversity of Indian Himalayan Region.
2. Manoj Gadewar, Arun Goyal and Utpal Bora (2015) Cholesterol lowering agents. Pharma Times, 47(19), 11-12.
3. One of my proteins, carbohydrate-binding module of family 22 (CBM22) was selected for sending to space at NASA, USA in July 2002 for experiments on crystallization under microgravity conditions. This became national news in Portugal under the caption "A Portuguese protein gets ticket for Space" and it appeared on TV channel news, Newspapers and by the caption "Portugal in Space" in a magazine called FOCUS.
4. An article in Science Reporter Magazine, May 1990, on review of a book entitled "From Genes to Clones- Introduction to Gene Technology" by E. Winnacker, VCH Publishers.

Collaborators

Sl. No	Name of Collaborators	Institution
International Collaborators		
1.	Prof. Carlos M.G.A. Fontes	Faculdade de Medicina Veterinária: Universidade de Lisboa,(University of Lisbon) Portugal
2.	Prof. Luís M.A. Ferreira	Faculdade de Medicina Veterinária: Universidade de Lisboa,(University of Lisbon) Portugal
3.	Dr. Jose A.M Praté	Faculdade de Medicina Veterinária: Universidade de Lisboa,(University of Lisbon) Portugal
4.	Dr. Shabir Najmudin	Faculdade de Medicina Veterinária: Universidade de Lisboa,(University of Lisbon) Portugal
5.	Prof. Maija Tenkanen	Department of Food and Environmental Sciences, University of Helsinki, Finland.
6.	Dr. Kati Katina	Department of Food and Environmental Sciences, University of Helsinki, Finland.
7.	Dr. Riikka Juvonen	VTT Technical Research Centre of Finland, VTT Espoo, Finland.
8.	Dr. Cédric Delattre	Clermont Université, Institut Pascal UMR CNR Aubière Cedex, France.
9.	Dr. Kourkoutas Yiannis	Department of Molecular Biology and Genetics (MBG), Democritus University of Thrace, Komotini, Thrace, Greece.
10.	Prof. Ilia Iliev	Department of Biochemistry and Microbiology, Plovdiv, Plovdiv, Bulgaria
11.	Prof. Iskra Ivanova	Sofia University, Sofia, Bulgaria
National Collaborators		
1.	Prof. Vijayanand S. Moholkar	Department of Chemical Engineering, IIT Guwahati, Guwahati, Assam
2.	Dr. Debasish Das	Department of Biosciences and , IIT Guwahati, Guwahati, Assam
3.	Prof. Dinesh Goyal	Department of Biotechnology, Thapar University, Patiala, Punjab
4.	Prof. M.N. Gupta	Department of Biochemical Engineering and Biotechnology, IIT Delhi, New Delhi
5.	Prof. N. Chrungoo	Department of Botany, North Eastern Hill University, Shillong, Meghalaya.

Project(s)

Current Ongoing Projects (02 as PI)

S. No.	Title	Agency	Duration	PI or Co-PI	Years	Amount Rs.= Lakhs
1.	Cloning, expression, biochemical and <i>in vitro</i> analysis of therapeutic chondroitin lyase and oligosaccharides from <i>Pedobacter saltans</i> .	CSIR	May 2016 – Mar 2019	PI CoPI- Dr. A.B. Kunnumakkara	3	19.71
2.	DBT-PAN-IIT Center for Bioenergy (No. BT/EB/PAN IIT/2012) 1. Improvement of hydrolytic enzymes by protein engineering for higher activity and SSF of plant carbohydrates to ethanol (PI) 2. Development of <i>Clostridium</i> sp. as a cell factory for butanol production: Metabolic & biochemical engineering approach. (Co-PI)	DBT	Dec 2014 - Dec 2019	Co-PI PI-Dr. D. Das Coordinator: Dr. P. Wangikar (IITB)	5	92.08 Lakh (AGoyal) 1.74 Crores (IITG) 22.5 Crores (Overall)
3.	Development of novel thermophilic glycoside hydrolases and carbohydrate binding modules and exploiting their properties for bioethanol production and for food and industrial applications	Indo-Portugal Joint Project, DST, New Delhi	Jun 2014 - Jun 2017	PI	3	8.04

Projects completed/Involved (11 as PI)

S. No.	Title	Agency	Years	PI or Co-PI	Status	Amount Rs Lakhs
1.	Synthesis, structure and application analyses of glucans from hyper-producing LAB strains from North-east Indian microbial diversity	Department of Biotechnology (DBT) New Delhi	Jul 2014 – Jul 2016	PI	2	26.65
2.	Molecular and functional characterization of dextran production in <i>Weissella</i> spp. - Superior dextran producers for cereal applications	Indo-Finland Joint Project DBT, New Delhi	Mar 2012 - Mar 2015	PI	Completed	77.03
3.	Process optimization for microbial synthesis of Hyaluronic Acid from new isolates: Development of structured kinetic model and experimental validation	(CSIR) New Delhi	Jan 2012- Jan 2015	Co-PI PI:Dr. D. Das	Completed	14.0
4.	Development and application of recombinant and other cellulases for large scale recycling of cellulosic biomass	Department of Biotechnology DBT, New Delhi	Apr 2011 -Mar 2014	PI Co-PI: (Prof D. Goyal, Thapar University)	Completed	64.35
5.	Cloning and expression biochemical and structural studies of family 5 Glycoside Hydrolase (GH5) cellulase and its derivatives from <i>Clostridium thermocellum</i>	Department of Biotechnology– Cutting edge Research Enhancement and Scientific Training (DBT-CREST)	Mar 2013- Nov 2013	Sole & PI	Completed	14.5
6.	Bioinformatics Infrastructure Facility	Department of Biotechnology DBT, New Delhi	Jul 2010-	Coordinator (Till Feb 2013) Dy Coordinator: Dr. VK Dubey	Contd.	20.0
7.	MTech Program Support	Department of Biotechnology (DBT) New Delhi	May 2009 -Apr 2014	Co-ordinator (Till Feb 2013)	Completed	170.00 (1.7 Crore)
8.	Prebiotics and nutraceuticals production from Lactic acid bacteria.	Indo-Bulgarian Joint project DST, New Delhi	Jan 2010 -Dec 2012	Sole & PI	Completed	16.0
9.	Production of microbial carbohydrates and carbohydrate active enzymes for healthcare	Department of Biotechnology DBT, New Delhi	Apr 2009 - Apr 2012	Sole & PI	Completed	11.74
10.	Probiotic fermentation as a platform for production of nutraceuticals.	Council of Scientific & Industrial Research, CSIR, New Delhi	Apr 2009- Apr 2012	Sole & PI	Completed	20.1
11.	Microbial conversion of cellulose to sugars for ethanol production	Department of Biotechnology DBT, New Delhi	Feb 2009- Feb 2012	PI (D. Goyal, Thapar Univ as Co-PI)	Completed	31.48
12.	Development of novel therapeutics against leishmaniasis	Department of Information Technology DIT, New Delhi	Oct 2008 - Mar 2011	Co-PI PI- Dr VK Dubey	completed	9.02
13.	Strengthening of Bio-technology teaching, training and research in Universities and colleges in North East India	Department of Biotechnology DBT, New Delhi	Co-PI Dec08-Aug 09 Dean R&D as PI	Jan 2009- Jan 2014	completed	1490 (14.9 Crore)
14.	Structural, functional and biochemical analysis of modular cellulases.	CSIR, New Delhi	2005 - 2008	Sole and PI	completed	11.98

Projects completed/Involved before joining IIT Guwahati

S. No.	Title	Agency	Co-PI/ Team member	Year	Status	Amount
1.	Study of 3-dimensional structure of microbial glycoside hydrolases. (Interdisciplinary Centre for Investigation in Animal Health (CIISA/ 2000/37/ glicosil hidrolases)	CIISA/2000/37/ glicosil-hidrolases; Lisbon, Portugal,	Co-investigator	2001-2004	completed	1,00,000 Euros
2.	Molecular analysis of bacterial alpha-galactosidases and evaluation of their potential as a supplement of lupin based diets offered to piglets and lambs (POCTI/CVT/33158/2000)	Foundation of Science and Technology (FCT), Lisbon, Portugal,	Team member	2000-2003	completed	1,00,000 Euros
3.	Genetic control of cellulase and xylanase expression in aerobic soil bacterium <i>Pseudomonas fluorescens</i> subsp. <i>Cellulosa</i> . Praxis/P/ AGR/11042/1998;	Foundation of Science and Technology, (FCT), Lisbon, Portugal,	Team member	1998-2001	completed	1,00,000 Euros).
4.	Identification and characterization of microbial enzymes used as feed enzymes". (Praxis/P/CVT/11041/1998)	Foundation of Science and Technology, (FCT) Lisbon, Portugal,	Team member	1998-2001	completed	1,00,000 Euros)
5.	Microbial diversity of saline lakes and desert regions of Rajasthan.	Department of Biotechnology (DBT), New Delhi	Team member	1999-2001	completed	-
6.	Study of structural and functional relationships of ribosomal RNA from <i>E. coli</i>	National Institutes of Health, USA,	Team member	1998-2001.	completed	-
7.	Elucidation of the role of polyketide synthase genes in cell wall lipids bio-synthesis in <i>Mycobacterium tuberculosis</i> H37Rv	National Institutes of Health, USA.	Team member	1998-2001	completed	-
8.	Allosteric behaviour of hybrid hexamers of different mutant forms of glutamate dehydrogenase (GDH) from <i>Clostridium symbiosum</i>	Forbairt, Irish Research and Technology Council Dublin, Ireland	Team member	1995-1998	completed	-

Research Supervision

PhD Completed (12 as single Supervisor)

S. No.	Name Department/Center	Thesis Title	Joining - Completion/ Present Status
1.	Ravi Kiran Purama (Gen) (MSc, MPhil Life Science), Pondicherry University	Production, purification, identification and characterization of dextranucrase from <i>Leuconostoc mesenteroides</i> NRRL B-640	Jan 2004 -Feb 2008 PDF –Lund Univ, Sweden, Now Assistant Professor, NIT Calicut
2.	Avishek Majumder (Gen) (MSc Biotechnology) Acharya Nagarjuna University	Optimization of production and characterization of glucanucrase and glucan from <i>Leuconostoc dextranicum</i> NRRL B-1146	Aug 2005-May 2008 PDF (Hans Christian Ørsted Fellowship, Technical University Denmark)
3.	Deepmoni Deka (Gen) MSc Biotech, Tezpur Univ (Scientific Officer, Center for Environment, IIT Guwahati)	Bioethanol production involving cellulase producing <i>Bacillus subtilis</i> AS3 using environmentally available thatch grass (<i>Hyparrhenia rufa</i>) as weed	Jan 2006 - Jul 2012 (Dr. M. Jawed, Civil Engg. As Cosupervisor) Technocal Officer, Center for the Environment, IITG
4.	Seema Patel (Gen) (MSc Life Science) Sambalpur University	Production, structure analysis and biotechno-logical applications of dextran from a novel strain of <i>Pediococcus pentosaceus</i> isolated from microbial diversity hot spot Assam	Jul 2007- Jun 2010 Univ of California Davis, USA
5.	Shadab Ahmed (Gen) BPharm, MTech Biotechnology VIT, Vellore	Cloning, expression, purification and biochemical characterization of a novel α -L-arabinofuranosidase of family 43 glycoside hydrolase (GH43) from <i>Clostridium thermocellum</i>	Jan 2008 - Feb 2013 Assistant Professor, Dept. of Biotechnology and Bioinformatics, Univ of Pune
6.	Rishikesh Shukla (Gen) (MSc Microbiology) Jiwaji University, Gwalior	Dextranucrase and dextran with anticancer properties from probiotic <i>Pediococcus pentosaceus</i> CRAG3 isolated from fermented cucumber	Jul 2008- May 2014 RA, UDSC, Delhi DS Kothari Fellow, UGC
7.	Shraddha Shukla (Gen) MSc Microbiology, RML Avadh University, Faizabad (Converted from MTech)	Production, structure analysis and sourdough applications of dextran and gluco-oligo-saccharides from hyper-dextran producing <i>Weissella confusa</i> Cab3 isolated from sauerkraut	July 2008 -Dec 2013 (CIMO Fellowship University of Helsinki) June 2013 –Dec 2013
8.	Swati Khanna (Gen) (MSc Biochem, BHU Varanasi) Center for Energy, IITG	Design and optimization of an integrated whole cell biocatalytic process for production of biodiesel and glycerol value added products.	Jan 2009 - Apr 2013 (Dr. V.S. Moholkar, Chemical Engg. as Supervisor) PDF, NIH
9	Saprativ P. Das (Gen) (MTech Biotechnology) Anna University, Chennai	Lignocellulosic ethanol production from wild grass and water hyacinth involving recombinant <i>Clostridium thermocellum</i> cellulase and hemicellulase.	Jul 2009 - Apr 2014 Dr. D. Das, Biotech as Co-supervisor (IPDF, IIT Bombay)
10.	Deeplina Das (Gen) MTech Biotech, WBUT, Kolkata	Bacteriocin, antioxidant and novel glucan from probiotic <i>Lactobacillus plantarum</i> DM5 isolated from Marcha of Sikkim.	July 2009 -Apr 2014 Asst. Professor, NIT Agartala
11.	Arabinda Ghosh (OBC) (MSc Biotechnology) NEHU, Shillong	Molecular cloning, expression, purification and characterization of β -mannanase of family 26 Glycoside Hydrolase and associated family 35 carbohydrate binding module from <i>Clostridium thermocellum</i> and its application in manno-oligosaccharides production	July 2009 -Feb 2015 Assistant Professor, Gauhati University
12.	Shuchi Singh (SC) MSc Biotechnology CSJM University, Kanpur (Center for Energy, IITG)	Bioethanol production from <i>Parthenium hysterophorus</i> involving cellulase from <i>Bacillus amyloliquefaciens</i> SS35: Process development, optimization and intensification	Jul 2009-Apr29, 2015 (Dr. V.S. Moholkar, Chemical Engg. as Co-supervisor) IPDF, SERB Fellow, IIT Kanpur
13.	Anil Kumar Verma (SC) MSc Industrial Microbiology Devi Ahliya University, Indore (MP)	Structural, biochemical and functional analyses of modular recombinant glucuronoxylan-xylanohydrolase (CtXynGH30) of family 30 Glycoside Hydrolase and its truncated derivative CtXyn30A and associated family 6 carbohydrate binding module CtCBM6 from <i>Clostridium thermocellum</i>	July 2009-May 2015 (Joined the group in Feb 2011) National PDF, SERB Fellow TERI, New Delhi
14.	Jagan Mohan Rao (OBC) MTech Biotechnolgy, JNTU, Hyderabad	Characterization of dextranucrase and dextran from <i>Weissella cibaria</i> JAG8 and <i>in vitro</i> analysis of dextran as prebiotic	Jan 2010- Dec 24, 2013 2014-15 Asst Prof, NIT Warangal 2015-16 PDF, Fed Univ Ceara, Fortaleza, Brazil 2016- Res Prof. Chungbuk National University, Cheongju, Korea
15.	Damini Kothari (Gen) MSc Botany, Gauhati University	Synthesis, purification, characterization and prebiotic applications of dextran and oligo-saccharides from <i>Leuconostoc mesenteroides</i> NRRL B-1426 dextranucrase	Jul 2010-Mar 30,2015
16.	Soumyadeep Chakraborty (Gen) BTech, MTech Biotech WBUT, Kolkata	Molecular cloning, expression, structural and functional characterization of pectate lyase of family 1 polysaccharide lyase (PL1B) from <i>Clostridium thermocellum</i> ATCC 27405 and its applications in production of immobilized magnetic nanoparticle for bioscouring and pectic oligosaccharides inhibiting colon cancer cells	July 2010-Jun 4,2015 IPDF, IIT Bombay

PhD Completed (contd.)

S. No.	Name Department/Center	Thesis Title	Joining - Completion/ Present Status
17.	Manoj Gadewar (Gen) M Pharm, Assistant Professor, Sri Kakatiya Institute of Pharmaceutical Sciences, Warangal (under QIP)	Polyherbal formulation, development and evaluation of medicinal plants from northeast region for metabolic disorders (<i>Diabetes mellitus</i>).	July 2012 – April 2017 (Dr. U. Bora as Supervisor)

PhD Ongoing (09 as single Supervisor)

S. No.	Name Department/Center	Thesis Title	Joining - Completion/ Present Status
1.	Arun Dhillon (Gen) BTech, Biotechnology MDU Faridabad	Cloning, expression, purification, structure and functional characterization of rhamnogalactouronan lyase (CtRGL) from family 11 Polysaccharide Lyase (PL11) and associated Carbohydrate Binding Module 35 (CBM35) from <i>Clostridium thermocellum</i>	July 2011 – Contd. Indo-Portugal DST Project, Nov 2015 visited FMV Lisbon
2.	Aruna Rani (SC) BTech, Biotechnology, GGs IP University, Delhi	Structure and functional characterization of recombinant chondroitin sulphate lyase of family 8 polysaccharide lyase (PsPL8A) from <i>Pedobacter saltans</i> for its <i>in vitro</i> applications in therapeutics and production of prebiotic chondroitin oligosaccharide	July 2011 – Contd.
3.	Rwivoo Baruah (Gen) MSc, Biotechnology, Bangalore University	Production, characterization and food applications of dextran and prebiotic glucooligosaccharides from <i>Weissella cibaria</i> RBA12 isolated from Pummelo (<i>Citrus maxima</i>)	July 2012 – Contd. CIMO Fellowship University of Helsinki, Sep 14 –Mar 15
4.	Arup Jyoti Borah (OBC) MSc Applied Microbiology VIT University (Center for Energy, IIT G)	Biobutanol synthesis from waste biomasses water hyacinth and kudzu using fed-batch and continuous fermentation with immobilized cultures and intensification by ultrasound	Dec 2012 – Contd. Prof. V.S. Moholkar, Chem Engg As Supervisor
5.	Kedar Sharma (OBC) MSc Biotech, Guru Ghasidas Vishwavidyalaya, Bilaspur, Chhatisgarh (Converted from MTech)	Cloning, expression, purification and characterization of xylanase a family 10 glycoside hydrolase (GH10) from <i>Pedobacter saltans</i> DSM 12145	July 2013 – contd Indo-Portugal DST Project, May-June 2016 visited FMV Lisbon
6.	Sumitha Banu J. (Gen) BTech, MTech, Biotech. Anna University, Chennai (Center for Energy, IIT Guwahati)	Saccharification and fermentation of millet straw using native and recombinant hydrolytic enzymes and fermentative microbes for bioethanol production	July 2013-contd (Prof. V.S. Moholkar, Chemical Engg. As Co-supervisor)
7.	Rajulapati Vikky (OBC) MTech, Biotechnology JNTU Hyderabad	Molecular cloning, expression, purification and characterization of pectic methyl esterase a family 8 carbohydratye esterase (CE8) from <i>Clostridium thermocellum</i>	Dec 2013-contd.
8.	Shweta Singh (SC) MSc Agric Microbiology Aligarh Muslim University	Saccharification and pretreatment of lignocellulosic biomass by recombinant enzymes from <i>Clostridium thermocellum</i> and enzymes from wild-type and mutant <i>Bacillus amyloliquefaciens</i> SS35 for bioethanol production	Dec 2014-contd
9	Ritesh S. Malani (Gen) MTech, Chem Eng. IIT Gwahati (Center for Energy, IITG)	Bioethanol production: Process development, optimization and intensification	Dec 2014-contd (Prof VS Moholkar, Chemical Eng. As Supervisor)
10.	Neha Singh (Gen) MTech, Biochem Engg, Amity Univ, NOIDA (Center for Energy, IITG)	Impovement of hydrolytic enzymes for bioethanol production, optimization and intensification	Dec 2014-contd (V.S. Moholkar, Chemical Engg. As Supervisor)
11.	Priyanka Nath (OBC) MSc (Intg). Bioscience and Bioinformatics, Tezpur University	Protein engineering of endo β -1-4 glucanase (CtGH5) and α -L-arabinofuranosidase (CtGH43) from <i>Clostridium thermocellum</i> by site-directed mutagenesis and chimeric construction for enhancing the activity and their applications in bioethanol, biobleaching and sourdough fermentation	Dec 2014 – Contd
12.	Krishan Kumar (SC) BTech, MTech, Biotechnology NIT Rourkela	Structure and functional analysis of a novel glucanase of family 81 glycoside hydrolase (GH81) from <i>Clostridium thermocellum</i>	Dec 2014 - Contd.
13.	Abhijeet Thakur (Gen) MSc Biotech, Jiwaji Univ, Gwalior	Cloning, expression, purification and characterization of family 11 glycoside hydrolase (GH11) from <i>Pedobacter saltans</i> (DSM 12145)	July 2015 - Contd

M. Tech. Projects Supervision

S. No.	Name	Thesis Title	Joined –completion present status
1.	Ruchi Mutreja BTech Biotech	Production of Recombinant cellulases in Fedbatch culture using various cellulosic substrates	May 2010- May 2011 (Dr. D. Das, Jt. Supervisor)
2.	Arijita Dutta BTech Biotech	Purification and characterization of fructan and fructansucrase from <i>Lactobacillus fermentum</i> AKJ15 isolated from Kodo ko Jaanr, a fermented beverage from North Eastern Himalayas	May 2010 –Aug 2011
3.	Ashim Borah BTech Biotech	Synthesis, characterization and cytotoxicity analyses of dextran-coated superparamagnetic iron oxide nanoparticles for biomedical applications	May 2011 –Apr 2012 Asst Prof, NIT Jalandhar
4.	Rajeev Ravindran BTech Biotech	Bioethanol production involving recombinant <i>Clostridium thermocellum</i> hydrolytic enzymes and fermentative microbes	May 2011 –Apr 2012 doing PhD, Dublin Tech Univ
5.	Ruchi Handoo BTech Biotech	Production, purification and characterization of dextransucrase from <i>Weissella cibaria</i> (VTT-072749)	May 2012 – Apr 2013 Dr. D. Das, Jt. Supervisor
6.	Ashutosh Gupta MSc Biotech	Bioethanol production from hemicellulose rich <i>Populus nigra</i> involving recombinant hemicellulases from <i>Clostridium thermocellum</i>	May 2013 – Apr 2014 Dr. D. Das, Jt. Supervisor
7.	Ines L. Antunes Bachelor in Nutrition (4 yrs)	Cloning, expression, purification, biochemical and structure analysis of xylanase, a family 10 glycoside hydrolase (GH10) from <i>Pedobacter saltans</i> DSM 1215	May 2015- July 2016
8.	Karthika B. BTech Biotech	Cloning, expression, purification and characterization of heparinase of family 12 Polysaccharide lyase (PL12) from <i>Pedobacter saltans</i> (DSM 12145)	May 2016- contd

B.Tech. Projects supervision

S. No.	Name	Thesis Title	Joining-Completion
1.	Gurtej Singh	Effect of aeration and pH on dextransucrase production from <i>Leuconostoc mesenteroides</i> NRRL B-640 in batch fermentation in a bioreactor.	Jul 2006- May 2007 Dr VV Dasu, Jt Supervisor
2.	Tushar Saraf	Prediction of catalytic and binding sites from predicted 3-D structure of family 39 glycoside hydrolase from <i>Clostridium thermocellum</i> .	July 2006 – Jan 2008
3.	Angad Singh	Mutagenesis of <i>Leuconostoc dextranicum</i> for higher glucan production and Pulsed Laser Deposition of glucan.	July 2007- May 2008
4.	Anshuma Mangtani	Production and characterization of exocellular glucansucrase and oligosaccharides.	July 2007- May 2008
5.	Sourabh Bhandari	Production of dextran from <i>Leuconostoc mesenteroides</i> NRRL B-640 using response surface methodology.	July 2007- May 2008
6.	Mayur Agrawal	Mutagenesis of <i>Leuconostoc mesenteroides</i> NRRL B-640 for higher production of dextransucrase and dextran	July 2008 –May 2009
7.	Rahul Charan	Expression and purification of recombinant cellulases from <i>Clostridium thermocellum</i>	July 2008 - May 2009
8.	Rahul Vig	Optimization of dextransucrase production by Artificial Neural Networks	July 2008 - May 2009
9.	Shilpi Harish	Isolation of Lactic acid Bacteria from fermented Cucumber for dextransucrase production	July 2009 – May 2010
10.	S. K. Bindu	Optimization of dextransucrase production from the mutant of a new isolate of <i>Pediococcus pentosaceus</i> using Response Surface Methodology	July 2009 – May 2010
11.	Vikas Gupta	Structure analysis of a glycoside hydrolase family 43 xylanase in the complex with xylofuranose and comparative characterization of xylanase	July 2009 – May 2010
12.	P. Bhargavi	Statistical methods for optimization of culture conditions and physical parameters to enhance cellulase production	July 2009 – May 2010
13.	Shushil Shakyavar	Drug Target Protein (DTP) Database of insilico predicted potential drug target proteins in common bacterial human pathogens	July 2009 – May 2010 Dr V Dubey as Supervisor
14.	Ch. Hareesh	Optimization, Production and Purification of dextransucrase from <i>Leuconostoc mesenteroides</i> NRRL B-1149	July 2009 – May 2010
15.	Ankur Tyagi	Purification, stability and inhibition studies of dextransucrase from <i>Pediococcus pentosaceus</i>	July 2010 – May 2011
16.	Anurag Mohta	Production of glucan from <i>Weissella onfus</i> and comparison with other lactic acid bacteria	July 2010 – May 2011
17.	Amer Ahmed	Comparative modeling and properties of family 26 glycoside hydrolase (GH26) from <i>Clostridium thermocellum</i> .	July 2010 – May 2011
18.	Smiti S. Sahoo	Development of structured kinetic model for dextransucrase production via mutant of soil isolate <i>Pediococcus pentosaceus</i>	July 2010 – May 2011 (Dr D Das, as Supervisor)
19.	Sanjay Kamat	Structure prediction and binding analysis of Carbohydrate Binding Module (CBM) 35 from <i>Clostridium thermocellum</i>	July 2011 – May 2012
20.	Puneet Gupta	Structure prediction and ligand binding analysis of Carbohydrate Binding Modules CBM6A and CBM6B from <i>Clostridium thermocellum</i>	July 2011 – May 2012
21.	Abhishek Maitreyi	Extraction and subsequent quantification of oligosaccharides from different fruit samples	July 2012 – Apr 2013 Dr. D. Das, Jt. Supervisor
22.	Drishni Chakravarti	Development of <i>in silico</i> mutant for increased lipid production through metabolic modeling in <i>Chlorella</i> sp. FC2 IITG	July 2013 – Apr 2014 Dr. D. Das as Supervisor
23.	Arpita Das	Sequence analysis and structure prediction of carbohydrate binding modules CBM4 and CBM18 from <i>Ruminococcus flavefaciens</i> .	July 2014 – April 2015
24.	Shiblal Namdas	Sequence analysis and structure prediction of full length mannanase (GH26-CBM35) from <i>Clostridium thermocellum</i> .	July 2016 - contd

Project Staff Supervision

S.No.	Name Degree/	Institution/Place	Project/ Position	Duration	Present Status
1.	Dr. (Mrs.) Sangeeta Bharali PhD Botany	North Eastern Hills Univ, Shillong, Meghalaya,	CSIR/ RA	Aug 05-Oct 06	Lecturer, Govt. College, Golaghat, Assam
2.	Shadab Ahmad BPharm, MTech Biotechnology	Vellore Institute of Technology, Tamil Nadu	CSIR/ SRF	Feb 07-Dec07	Completed PhD at IIT Guwahati. Asst Prof. Pune Univ
3.	Ravi Kiran Purama MSc, Mphil, Life Sciecn	IIT Guwahati, Guwahati, Assam India	CSIR/ SRF	Jan 08-Feb 08	Post-doctoral Fellow, Univ of Lund Sweden
4.	Dr. Ravi Kiran Purama MSc, MPhil, PhD Biotechnology	IIT Guwahati, Guwahati, Assam, India	CSIR/RA	Feb08 -May08	Post-Doctoral Fellow, Univ of Lund Sweden Asst Prof, NIT Calicut
5.	Damini Kothari MSc Botany	Gauhati University	DBT/ Project Assistant	Jul 09-Jul10	pursuing PhD at IITG
6.	Rwivoo Baruah MSc Biotechnology	Bangalore University	DBT/ Project Assistant	Aug 11- Apr12	Pursuing PhD, IIT Guwahati
7.	Vivek Gupta MSc Biotechnology	Rajasthan Univesrity	DBT/JRF	Feb12-Dec 14	-
8.	Qiao shi PhD student MSc Microbiology	Department of Food and Environmental Sciences, University of Helsinki	Indo-Finnish DBT project	Jul – Sep 12	Pursuing PhD, University of Helsinki
9.	Rishi Shukla MSc Microbiology	Registered PhD at IIT Guwahati, Guwahati, Assam, India	SRF/ Indo-Finnish DBT project	Oct 13-Mar 14	RA, DS Kothari Fellow UDSC, Delhi University
10.	Dr. Jagan Mohan Rao T. PhD Biotechnology	IIT Guwahati, Guwahati, Assam, India	DBT	Jan 14-Mar 14	Assistant Professor, NIT Warangal
11.	Dr. Shraddha Shukla	IIT Guwahati, Guwahati, Assam, India	SRFIndo-Finnish DBT project	Apr14 -Aug14	-
12.	Soumyadeep Chakraborty MTech, Biotechnology	Registered PhD at IIT Guwahati	JRF/ DBT Project	Sep14- Mar15	IPDF, IIT Bombay
13.	Anil K. Verma MSc Microbiology	Registered PhD at IIT Guwahati,	SRF Indo-Finnish DBT project	Sep14-Mar 15	National PDF, TERI New Delhi
14.	Bibari Boro MSc Biotechnology	IIT Roorkee	JRF BT/P/DD-5	Sep 15 –July 2016	PhD at IIT Guwahati
15.	Barsha Deka MSc (Intg). Bioscience and Bioinformatics	Tezpur University	JRF BT/P/AG/09	Sep 15 -Sep 2016	-
16.	Aruna Rani	Registered as PhD student IIT Guwahati	SRF	Sep 2016 – contd	-
17.	Arun Dhillon	Registered as PhD student IIT Guwahati	JRF	Dec 2016 -	-

Trainee supervision

S. No.	Name	Degree/Course	Institution/Place	Duration
1.	Vivek Kumar	MSc Biotechnology	Thapar University, Patiala	Jun-Jul 06
2.	Ashish Sharma	MSc Biotechnology	Thapar University, Patiala	Jun-Jul 07
3.	Mayur Agrawal	BTech (III) Biotechnology	IIT Guwahati, Guwahati	May-Jul 07
4.	Saazida Bhanu	MSc Biotechnology	Loyola College, Acharya Nagarjuna University, Vijaywada	May-Jun 08
5.	Shilpi Harish	BTech (III) Biotechnology	IIT Guwahati, Guwahati	May-Jul 08
6.	Hifzur Rahman	BTech (II) Biotechnology	IIT Guwahati, Guwahati	May-Jun 08
7.	Nadeem Akhtar	MSc Biotechnology	Thapar University, Patiala	Jun-Jul 08
8.	Mayur Agrawal	BTech (IV) Biotechnology	IIT Guwahati, Guwahati	Jun-Jul 08
9.	S. Rajesh	MSc Biotechnology	A. Nagarjuna Univ., Guntur	May-Jun 09
10.	G. Sunil	MSc Biotechnology	A. Nagarjuna Univ., Guntur	May-Jun 09
11.	Atul Kumar	BTech (III) Biotechnology	IIT Guwahati, Guwahati	May-Jun 09
12.	Ankur Tyagi	BTech (III) Biotechnology	IIT Guwahati, Guwahati	May-Jun 09
13.	Anurag Mohta	BTech (III) Biotechnology	IIT Guwahati, Guwahati	May-Jun 09
14.	Debraj Das	BTech (III) Biotechnology	IIT Guwahati, Guwahati	May-Jun 09
15.	K.N.V. Sivakumar	MSc Biotechnology	A. Nagarjuna University, Guntur	May-Jun 10
16.	B. Ganesh Kumar	MSc Biotechnology	A. Nagarjuna University, Guntur	May-Jun 10
17.	Ashwini Akhileshwer	BTech (III) Biotechnology	Rajendra Agric. University, Bihar	Jun –Jul 10
18.	Monmi Pangging	BTech (II) Biotechnology	IIT Guwahati, Guwahati	Jun-Jul 11
19.	Anish Jain	BTech (II) Biotechnology	IIT Guwahati, Guwahati	Jun-Jul 11
20.	D. Obaiah	BTech (II) Biotechnology	IIT Guwahati, Guwahati	Jun-Jul 11
21.	K. Siddardha	BTech (II) Biotechnology	IIT Guwahati, Guwahati	Jun-Jul 11
22.	Reema A. Shah	BTech Biotechnology	Heritage Inst. Technol, WBUT, Kolkata	Jun-Jul 11
23.	Himesh V. SubbaRao	MSc Biotechnology	JNTU, Ananthapur, AP	Jun-Jul 11
24.	Sung-hyun Kim	BTech	Hanyang University, South Korea	Jan-Feb 12
25.	S.R. Raju Guvvala	MSc Biotechnology	A. Nagarjuna Univ., Guntur	May-Jun 12
26.	Rajan Choudhary	BTech Biotechnology	NIT Durgapur	May-Jun13
27.	K. Venkatesh	BTech Biotechnology	NIT Warangal	May-Jun14
28.	Rajan Choudhary	BTech Biotechnology	NIT Durgapur	May-Jun14
29.	Anand M. Deshpande	MSc Biotechnology	Marathwada University, Aurangabad	May-Jun 15
30.	Raghvendra Chauhan	BTech Biotechnology	NIT Raipur	May-Jun 15
31.	Neha Mishra	BTech Biochemical Engineering	BTKIT Dwarahat, Uttarakhand Technical University, Dehradun	Jun-Jul 16
32.	Jyotsna Mehra	BTech Biochemical Engineering	BTKIT Dwarahat, Uttarakhand Technical University, Dehradun	Jun -Jul 16
33.	Hitesh Gupta	BTech Biotechnology	Manav Rachna International University, Faridabad	Jun-Jul 2016
34.	Anshuman Juneja	BTech Biotechnology	Manav Rachna International University, Faridabad	Jun 2016

Teaching experience

BTech Core courses:

S.No.	Name of the Course	Code	Core/ Elective	Credits	Contact hour/ week	Semester/Year	No. of Students	Performance Index (Rank)
1.	Microbiology Laboratory	BT220	Core	6	6	Jan-Apr 2004	18	-
2.	Plant Biotechnology Lab	BT240	Core	6	6	Jan-Apr 2004	18	-
3.	Plant Biotechnology	BT204	Core	6	1	Jan-Apr 2004	18	-
4.	Industrial Microbiology	BT305	Core	6	3	Jul-Dec 2004	18	-
5.	Modern Biology	BT101	Core	8	4	Jan-Apr 2005	218	2.9/4 (3)
6.	Industrial Microbiology	BT305	Core	6	3	Jul-Dec 2005	19	2.8/4 (3)
7.	Microbiology Laboratory	BT220	Core	6	6	Jan-May 2006	22	2.5/5
8.	Microbiology Theory	BT202	Core	8	1.3	Jan-May 2006	22	3.5/5 (7)
9.	Enzyme Reaction & Kinetics	BT426	Elective	6	3	Jan-May 2006	04	3.7/5 (5)
10.	Industrial Microbiology	BT305	Core	6	3	Jul-Dec 2006	22	3.5/5
11.	Microbiology Theory	BT202	Core	6	3	Jan-May 2007	23	3.71/5
12.	Microbiology Laboratory	BT220	Core	6	6	Jan-May 2007	23	3.6/5
13.	Modern Biology (Tutor)	BT101	Core	8	1	Jan-May 2007	38	-
14.	Industrial Microbiology	BT305	Core	6	3	July-Nov 2007	23	4.55/5.0
15.	Microbiology Laboratory	BT220	Core	6	6	Jan-May 2008	30	3.5/5.0
16.	Industrial Microbiology	BT305	Core	6	3	July-Nov 2008	30	4.2/5.0
17.	Industrial Microbiology	BT305	Core	6	3	July-Nov 2009	29	4.3/5.0
18.	Industrial Microbiology	BT305	Core	6	3	July-Nov 2010	25	4.45/5.0
19.	Industrial Microbiology	BT305	Core	6	3	July-Nov 2011	35	4.2/5.0
20.	Industrial Microbiology	BT305	Core	6	2	Jan-Apr/2013	35	4.6/5.0
21.	Industrial Microbiology	BT305	Core	6	3	Jan-Apr/ 2014	39	-
22.	Modern Biology	BT101	Core	6	3	Jan-Apr 2015	632	3.4/5.0 (104)
23.	Molecular Biotechnology Laboratory	BT380	Core	6	6	July-Nov2015	44	3.6/5.0 (18)
24.	Industrial Microbiology	BT305	Core	6	3	Jan-Apr 2016	43	4.0/5.0 (28)

MTech Core

S.No	Name of the Course	Code	Core/ Elective	Credits	Contact hour/week	Semester Year	No. of Students	Performance Index/ Rank
1.	Biomolecular and Cellular Process Engineering	BT504	Core	6	3	Jan-May 2009	12	4.1/5.0
2.	Applied Biology and Bioengineering Laboratory	BT520	Core	6	6	Jan-May 2009	12	4.3/5.0
3.	Biomolecular and Cellular Process Engineering	BT504	Core	6	3	Jan-May 2010	24	4.45/5.0
4.	Biomolecular and Cellular Process Engineering	BT504	Core	6	3	Jan-May 2011	29	4.0/5.0

BTech, MTech and PhD Elective Courses

S.No.	Name of the Course	Code	Core/ Elective	Credits	Contact hour/week	Semester, Year	No. of Students	Performance Index
1.	Microbial Biotechnology	BT608	Elective	6	3	Jan-Apr, 2004	06	-
2.	Plant Biotechnology	BT607	Elective	6	1	Jan-Apr, 2004	06	-
3.	Basic Biotechnology	BT602	Core	6	1	Jul-Dec, 2004	05	-
4.	Microbial Biotechnology	BT608	Elective	6	3	Jul-Dec, 2008	42	3.7/5.0
5.	Microbial Biotechnology	BT608	Elective	6	3	Jan-Apr, 2012	42	4.4/5.0
6.	Protein Structure and Function	BT 631	Elective	6	3	Jul-Nov, 2014	50	2.86/5.0
7.	Protein Structure and Function	BT 631	Elective	6	3	Jul-Nov, 2016	48	3.9/5.0 (36)

PhD/MSc Thesis Evaluated

S. No.	Name	Thesis Title	Department/ Organization	Moth, Year
1.	Arvind Sinha	Studies on bioremediation and nanoparticle synthesis by metal bioaccumulating bacteria and their enzymes.	Department of Chemistry, IIT Delhi, Delhi	Dec 2011
2.	Nitin Mahendra Chauhan	Alcohols as Modulators of Dimorphic switching in <i>Candida albicans</i>	Swami Ramanand Teerth Marathwada University, Nanded, Maharashtra	Dec 2011
3.	Aarati C. Kulkarni	Isolation of <i>Bacillus thuringiensis</i> from different locations and its characterization	Sant Gadge Baba Amravati University, Amravati, Maharashtra	April 2012
4.	Rohit	Study of trehalose production and metabolism in <i>Propionibacterium shermanii</i> under osmotic stress	Department of Biotechnology IIT Roorkee, Roorkee, Uttarakhand	June 2012
5.	Nitika Ghosh	Genetic characterization of plantaricin (<i>pln</i>) L4 14 locus in a potentially probiotic strain, <i>Lactobacillus plantarum</i> L4/14	Department of Genetics, University of Delhi, Delhi	Sep, 2012
6.	Debabrata Garai	Production of fungal xylanase using agricultural residues	Department of Chemical Engineering, IIT Roorkee	June 2012
7.	Sanjoy Kumar Bhunia	Structural characterization and biological investigation of mushroom polysaccharides	Department of Chemistry and Chemical Technology, Vidyasagar University Midnapore, West Bengal	Oct, 2013
8	Chanchal Kumar Nadan	Studies on structural investigation of plant and mushroom polysaccharides	Department of Chemistry and Chemical Technology, Vidyasagar University, Midnapore, West Bengal	Dec, 2013
9.	Randhir Singh	Metabolic and genetic aspects of carbaryl degradation from <i>pseudomonas</i> sp. Strain c6	Department of Biosciences and Bioengineering, IIT Bombay, Mumbai,	Jan, 2014
10.	Pavan Kumar	Modelling and simulation of large scale streptokinase production using <i>E. coli</i> as a host	Department of Biotechnology IIT Roorkee, Roorkee, Uttarakhand	Feb, 2014
11.	Aakanksha Vatsal	Production, purification and characterization of dehalogenase from <i>Yarrowia lipolytica</i>	Institute of Bioinformatics and Biotechnology University of Pune, Pune,	Aug, 2014
12.	Priyanka R. Sharma	Functionalized celluloses and their nanoparticles: Synthesis properties and applications	Academy of Council of Scientific and Industrial Research (ACSIR), NCL Pune, Maharashtra	Aug, 2014
13.	A. Shivananda	Phytochemical, Biological and Pharmacological studies of some Medicinal plant extracts	Department of Biotechnology Jawaharlal Nehru Technological University Anantapur, AP	Sep, 2014
14.	R.E.M. Muhamed (MSc Thesis)	Biochemical and Molecular aspects of Cypermethrin pesticide on albino rats.	Department of Chemistry, Faculty of science Cairo University, Giza, Egypt	Nov, 2014
15.	S. Suneetha	Basic studies on marine microbial strain isolation and bioprocess development for the microbial production of L-glutaminase	Faculty of Biotechnology, Jawaharlal Nehru Technological University Hyderabad, AP	Dec, 2014
16.	EmanRefat El-Mahdy Herz (MSc Thesis)	A biochemical study on the relationship between some biochemical parameters and different gene Polymorphisms in breast cancer"	Department of Chemistry Faculty of Science, Cairo University Giza, Egypt	Apr, 2015
17.	Leya Thomas	Microbial Xylanases: Production, Molecular Cloning, characterization and application	Faculty of Applied Sciences and Technology, Kerala University	Jan, 2016
18.	Deepa C.K.	Isolation and characterization of Plant Growth promoting rhizobacteria (PGPR) to improve plant growth	Faculty of Applied Sciences and Technology, Kerala University	Jan, 2016
19.	Gururaj Shivange	Studies on <i>Escherichia Coli</i> AlkB mediated direct DNA Repair: Molecular characterization of RecA and AlkB interaction	Department of Biotechnology, IIT Hyderabad	Jan, 2016

20.	Piyush Verma	Improving drainage characteristics of pulps using commercial and isolated fungal enzymes	Department of Paper Technology, IIT Roorkee	June 2016
21.	Kiran Kumar Sindhu	DNA damage and repair: possible beneficial effects of rasayana therapy in aging rats	Faculty of Biotechnology, Jawaharlal Nehru Technological University Hyderabad Kukatpally, Hyderabad	June 2016
22.	Karthik Narayanan	Production, Purification and Characterization of Chitinolytic Enzymes from Microbial Cultures Isolated from Coastal Environment Samples" submitted	Academy of Scientific and Innovative Research (AcSIR), IIIST Thiruvananthapuram	Aug 2016
23.	Rishabh	Investigation of a cellobiose dehydrogenase from lignocellulose degrading Termitomyces sp. OE 147	Department of Biotechnology, Shri Mata Vaishno Devi University, Katra, Jammu	Oct 2016
24.	Kunzes Dolma	Understanding Gelsolin(s) Mediated Gold and Silver Nanoparticle Synthesis	IMTECH Chandigarh, Jawahar Lal Nehru University, Delhi	Dec 2016
25.	Amandeep Monga	Production, purification and characterisation of hemicellulases from <i>Penicillium janthinellum</i>	Department of Microbiology, Guru Nank Dev University, Amritsar, Punjab	Jan 2017
26.	Rajal Debnath	Bacterial community analysis and lipase screening from cold adapted Tawang region of Arunachal Pradesh, India	Department of Biotechnology, Gauhati University, Guwahati, Assam	Feb 2017
27.	Priya Saini	Cloning and characterization of epoxide hydrolase from <i>Streptomyces griseus</i> for bioresolution of epoxides	Department of Biochemistry, Panjab University, Chandigarh	April 2017
28.	Vijaya	Diversity of Bacterial Laccase like multi-copper oxidase in the activated sludge of pulp and paper industry and hot spring soils and its application in deinking of waste paper	Department of Microbiology, Panjab University, Chandigarh	May 2017

Student's Achievements

SI no	Name of student	Award/ Grant	Year/ Duration	Description
1.	Krishan Kumar	Best Poster Award	Mar 2017	Research Conclave 2017, IIT Guwahati
2.	Rishikesh Shukla	Young Scientist Award, AMI	Nov 2016	Received Young Scientist Award by Association of Microbiologists of India (AMI) in 57 th International Annual Conference of Association of Microbiologists of India (AMI), November, 2016, Gauhati University, Guwahati, Assam.
3.	Sumitha Banu J.	Best Poster Award, NABS	Aug 2016	Comparative study of pretreatment methods for agrowaste pearl millet (<i>Pennisetum glaucum</i>) stalk for bioethanol production. 9th NABS National Conference on New Biological Researches: Opportunities and challenges for sustainable development, Aug 11-12, 2016, School of Energy, Environment and Natural Resources, Madurai Kamaraj University, Madurai, India
4.	Kedar Sharma	Travel Grant, AsCA	Dec 2016	Early Career Research Travel Award by International Union for Crystallography and Asian Crystallography Association for attending 14 th Asian Crystallography Association Conference (AsCA-2016), Hanoi, Vietnam.
5.	Shuchi Singh	Best Thesis Award, ACCTI	2016	Best Thesis Award by Association Carbohydrate Chemist and Technologist of India (ACCTI) for thesis entitled "Bioethanol production from <i>Parthenium hysterophorus</i> involving cellulase from <i>Bacillus amyloliquefaciens</i> SS35: Process development, optimization and intensification".
6.	Kedar Sharma	Travel Grant, DST	May-July 2016	Worked as exchange student at Faculty of Veterinary Medicine (FMV), University of Lisbon under Indo- Portugal Jopint Project.
7.	Shuchi Singh	Best Poster Award, ISEES	2015	Intensification of ethanol production from <i>Parthenium hysterophorus</i> by sonication: A mechanistic investigation. 7 th ISEES International Workshop on Sustainable Energy, Environment & Safety with Railway Centric Theme, Dec 21-23, 2015, Ministry of Railways, RITES, Ministry of Railways, Lucknow, India
8.	Priyanka Nath	Best Poster Award, AMI	2015	Identification of promising functional residues capable of introducing endo-xylanase activity into an exo-acting arabinofuranosidase (Ct43Araf) with enhanced activity: An <i>in silico</i> approach. 56 th International Annual Conference of Association of Microbiologists of India (AMI), Dec 7-10, 2015, Jawahar Lal Nehru University, New Delhi.
9.	Rwivoo Baruah	Best Poster Award, BRSI	2015	Characterization of glucan from <i>Weissella cibaria</i> RBA12 as a potential food additive and hydrocolloid. Annual Conference of Biotech Research Society of India (BRSI), New Horizons in Biotechnology, Nov 22-25, 2015, Trivandrum, India.
10.	Aruna Rani	Travel Grant, DBT	May 2015	International travel grant (Department of Biotechnology, DBT) for attending 11 th Carbohydrate Bioengineering meeting (CBM 11), Helsinki, Finland.

11.	Arun Dhillon	Travel Grant, DST	Oct-Nov 2015	Worked as exchange student at Faculty of Veterinary Medicine (FMV), University of Lisbon under Indo- Portugal Joint Project.
12.	Rwivoo Baruah	CIMO Fellowship, Finland	Sep 2014-Apr 2015	Centre for International Mobility (CIMO) fellowship Finland. Research work done at VVT Technical Research Centre of Finland, Espoo Finland and University of Helsinki, Finland.
13.	Ashutosh Gupta	Best Poster Award, ACCTI	Dec 2014	Bioethanol production from Copra meal involving recombinant β -(1 \rightarrow 4)-Mannanase from <i>Clostridium thermocellum</i> . 29 th ACCTI Carbohydrate Conference (CARBO-XXIX) on ChemBio Innovations for Bioproducts, December 29-31, 2014, Center of Innovative and Applied Bioprocessing (A National Institute under DBT, Govt. of India, Mohali, Punjab, India.
14.	Shuchi Singh	Best Poster Award	Nov 2014	Ultrasound-enhanced bioethanol production from <i>Parthenium hysterophorus</i> (carrot grass) by simultaneous saccharification and fermentation. Indo-US Conference on Advanced Lignocellulosic Biofuels, November, 10-11, 2014, CSIR-Indian Institute of Chemical Technology, Hyderabad, India.
15.	Sparativ P. Das	Travel Grant, DBT	Nov 2013	CTEP (Conference, Travel, Exhibition and Popular Lectures) International travel grant (Department of Biotechnology,DBT) for France
16.	Damini Kothari	Travel Grant, DST	Dec 2013	International Travel Support (ITS) grant from Department of Science and Technology for attending 5 th Congress of European Microbiologists FEMS 2013, Leipzig, Germany.
17.	Shraddha Shukla	CIMO Fellowship, Finland	Jun 2013-Nov 2013	Centre for International Mobility (CIMO) fellowship Finland. Research work done at VVT Technical Research Centre of Finland, Espoo Finland and University of Helsinki, Finland.
18.	Shuchi Singh	Best Poster Award, BRSI	Nov 2012	Stability and specificity studies of cellulase produced from a facultative thermophilic and acidophilic <i>Bacillus amyloliquefaciens</i> SS35. International Conference on Industrial Biotechnology, BRSI, Nov. 21-23, 2012, Punjabi University, Patiala, India.
19.	Shraddha Shukla	Travel Grant, DBT	Oct 2012	CTEP (Conference, Travel, Exhibition and Popular Lectures) International travel grant (Department of Biotechnology,DBT) for attending 11 th Carbohydrate Bioengineering meeting (CBM 11) held at Helsinki, Finland
20.	Shadab Ahmed	Travel Grant, DST	Dec 2009	International Travel Support (ITS) grant from Department of Science and Technology for attending 3 rd International Conference on Environmental, Industrial and Applied Microbiology (BioMicroWorld 2009), Dec 2-4, 2009 University of Lisbon, Lisbon, Portugal.
21.	Ravi Kiran Purama	Young Scientist Award, AMI	Dec 2009	Received Young Scientist Award by Association of Microbiologists of India (AMI) in 50 th International Annual Conference of Association of Microbiologists of India (AMI), Dec, 2009, NCL Pune.
22.	Avishek Majumder	Post Doctoral Fellowship	Sep 2008	Hans Christian Ørsted Fellowship, Technical University Denmark.

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