

**List of Five Year Publication of Department of Biotechnology (2009-13)**  
(\* Corresponding author)

**2013**

1. Arabinda Ghosh, Ana Sofia Luís, Joana, L.A. Brás, Carlos M.G.A. Fontes and \***Arun Goyal** (2013) A novel thermostable recombinant endo-1,4- $\beta$ -mannanase from *Clostridium thermocellum*: Biochemical characterization and manno-oligosaccharides production. Journal of Agricultural and Food Chemistry. DOI:10.1021/jf403111g.
2. Arabinda Ghosh, Ana Sofia Luís, Joana, L.A. Brás, Neeta Pathaw, Nikhil K. Chrungoo, Carlos M.G.A. Fontes and \***Arun Goyal** (2013) Deciphering ligand specificity of a *Clostridium thermocellum* family 35 carbohydrate binding module (CtCBM35) for gluco- and galacto-substituted mannans and its calcium induced stability. PloS One, 8(12), e80415.
3. Saprativ P. Das, Deepmoni Deka, Rajeev Ravindran, Shadab Ahmed, Arabinda Ghosh, Debasish Das, Mohammad Jawed, Carlos M.G.A. Fontes and \***Arun Goyal** (2013) Ethanol production from water hyacinth by recombinant *Clostridium thermocellum* hydrolytic enzymes. Environmental Progress & Sustainable Energy, DOI: 10.1002/ep.11885.)
4. Shadab Ahmed, Ana Sofia Luís, Joana, L.A. Brás, Carlos M.G.A. Fontes and \***Arun Goyal** (2013) Functional and structure characterization of family 6 carbohydrate binding module (CtCBM6A) of *Clostridium thermocellum* alpha-L-arabinofuranosidase. Biochemistry (Moscow), 78(11), 1272-1279.
5. Rishikesh Shukla and \***Arun Goyal** (2013) Novel dextran from *Pediococcus pentosaceus* CRAG3 isolated from fermented cucumber with anticancer properties. International Journal of Biomacromolecules, 62, 352-357.
6. Anil Kumar Verma, **Arun Goyal\***, Filipe Freire, Pedro Bule, Immacolata Venditto, Joana L.A. Brás, Helena Santos, Cecília Bonifácio, Andy Thomson, Vania Cardoso, Maria João Romão, José A. M. Prates, Luís M. A. Ferreira, Carlos M.G.A. Fontes and Shabir Najmudin\* (2013) Over-expression, crystallization and preliminary X-ray crystallographic analysis of glucuronoxylan-xylanohydrolase (Xyn30A) from *Clostridium thermocellum*. Acta Crystallographica F, F69, 1440-1442.
7. Shadab Ahmed, Ana Sofia Luís, Joana L.A. Brás, Arabinda Ghosh, Saurabh Gautam, Munishwar N. Gupta, Carlos M.G.A. Fontes and \***Arun Goyal** (2013) A novel arabinofuranosidase of family 43 glycoside hydrolase (Ct43Araf) from *Clostridium thermocellum* releasing both  $\alpha$ -L arabinofuranose and arabinopyranose from xylan side chains. Plos One, 8(9), e73575.
8. Shadab Ahmed, Ana Sofia Luís, Joana, L.A. Brás, Carlos M.G.A. Fontes and \***Arun Goyal** (2013) The family 6 carbohydrate binding module (CtCBM6B) of *Clostridium thermocellum* alpha-L-arabino furanosidase binds xylans and thermally stabilized by  $Ca^{2+}$  ions. Biocatalysis and Biotransformation, 31(4) 217-225.
9. Shadab Ahmed, Saurabh Gautam, M.N. Gupta and \***Arun Goyal** (2013) Analysis of structural element of family 6 carbohydrate binding module (CtCBM6B) of alpha-L-arabinofuranosidase from *Clostridium thermocellum*. Journal of Proteins and Proteomics 4(1) 27-34.
10. Nadeem Akhtar, Ashish Sharma, Deepmoni Deka, M. Jawed, Dinesh Goyal and **Arun Goyal** (2013) Characterization of cellulase producing Bacillus sp. for effective degradation of leaf litter biomass. Environmental Progress and Sustainable Energy, 32(4), 1195-2101. DOI: 10.1002/ep

11. Deeplina Das and \***Arun Goyal** (2013) Characterization and biocompatibility of Glucan: A safe food additive from probiotic *Lactobacillus plantarum* DM5. Journal of the Science of Food and Agriculture. DOI 10.1002/jsfa.6305.
12. Saprativ P. Das, Deepmoni Deka, Arabinda Ghosh, Debasish Das, Mohammad Jawed and \***Arun Goyal** (2013) Scale up and efficient bioethanol production involving recombinant cellulase (GH5) from *Clostridium thermocellum*. Sustainable Chemical Processes. 2013, 1:19. Doi: 10.1186/2043-7129-1-1.
13. Damini Kothari and \***Arun Goyal** (2013) Structural characterization of enzymatically synthesized dextran and oligosaccharides from *Leuconostoc mesenteroides* NRRL B-1426 dextransucrase. Biochemistry (Moscow). 78(10) 1164-1170.
14. Swati Khanna, Amrita Ranjan, **Arun Goyal**, Vijayanand S. Moholkar (2013) Medium optimization for mixed alcohols production by glycerol utilizing immobilized *Clostridium pasteurianum* MTCC 116. Chemical and Biochemical Engineering Quarterly, 27 (3) 319–325.
15. Swati Khanna, Amrita Ranjan, **Arun Goyal**, Vijayanand S. Moholkar (2013) Mechanistic investigation of ultrasonic enhancement of glycerol bioconversion by immobilized *Clostridium pasteurianum* on silica support. Biotechnology and Bioengineering. 110, 1637–1645.
16. Swati Khanna, **Arun Goyal** and V.S. Moholkar (2013) Production of n-butanol from biodiesel derived crude glycerol using *Clostridium pasteurianum* immobilized on amberlite. Fuel, 112, 556-561.
17. Swati Khanna, **Arun Goyal**, Vijayanand S. Moholkar (2013) Effect of fermentation parameters on bio-alcohols production from glycerol using 30 immobilized *Clostridium pasteurianum*: An optimization study. Preparative Biochemistry and Biotechnology, 43(8), 828-847.
18. Seema Patel and \***Arun Goyal** (2013) 16S rRNA based identification and phylogenetic analysis of an exopolysaccharide producing *Pediococcus pentosaceus* isolated from sugarcane field soil of Orissa. Journal of Microbial World, 14(2), 130-139.
19. Deeplina Das and \***Arun Goyal** (2013) Anti-listerial bactericidal activity of *Lactobacillus plantarum* DM5 isolated from fermented beverage Marcha. Probiotics and Antimicrobial Proteins. 5, 206-215.
20. Shuchi Singh, \*Vijayanand S. Moholkar and \***Arun Goyal** (2013) Optimization of carboxymethyl cellulase production from *Bacillus amyloliquefaciens* SS35. 3 Biotech, DOI: 10.1007/s13205-013-0169-6.
21. Shuchi Singh, \*Vijayanand S. Moholkar and \***Arun Goyal** (2013) Isolation, identification and characterization of a cellulolytic *Bacillus amyloliquefaciens* SS35 from Rhinoceros dung. ISRN Microbiology. Volume 2013, Article ID 728134, 7 pages (doi:10.1155/2013/728134)
22. Seema Patel and \***Arun Goyal** (2013) Evolving roles of probiotics in cancer prophylaxis and therapy. Probiotics and Antimicrobial Proteins. 5, 59-67.
23. Seema Patel and **Arun Goyal** (2013) Current and prospective on food and pharmaceutical applications of Spirulina. Current Trend in Biotechnology and Pharmacy. 7, 696-707.
24. Rishikesh Shukla and \***Arun Goyal** (2013) Probiotic potential of *Pediococcus pentosaceus* CRAG3 a new isolate from fermented cucumber. Probiotics and Antimicrobial Proteins. DOI: 10.1007/s12602-013-9149-8.
25. Rishikesh Shukla and \***Arun Goyal** (2013) Elucidation of structure and biocompatibility of levan from *Leuconostoc mesenteroides* NRRL B-1149. Current Trends in Biotechnology and Pharmacy, 7, 635-643.

26. T. Jagan Mohan Rao and \***Arun Goyal** (2013) Purification, optimization of assay and stability studies on dextransucrase isolated from *Weissella cibaria* JAG8. *Preparative Biochemistry and Biotechnology*, 43, 329-334.
27. T. Jagan Mohan Rao and \***Arun Goyal** (2013) A novel high yielding dextran from *Weissella cibaria* JAG8 for cereal food application. *International Journal of Food Sciences and Nutrition* 64(3):346-354.
28. Shraddha Shukla and \***Arun Goyal** (2013) Medium optimization of fermentation for enhanced dextran production by *Weissella confusa* Cab3 by statistical methods. *Current Biotechnology*, 2, 39-46.
29. Deepmoni Deka, Saprativ P. Das, Naresh Kumar Sahoo, Debasish Das, M. Jawed, Dinesh Goyal and \***Arun Goyal** (2013) Enhanced cellulase production from *Bacillus subtilis* by optimising physical parameters for bioethanol production. *ISRN Biotechnology*. Volume 2013, Article ID 965310, 11 pages (<http://dx.doi.org/10.5402/2013/965310>)
30. Deepmoni Deka, M. Jawed and \***Arun Goyal** (2013) Purification and characterization of an alkaline cellulase produced by *Bacillus subtilis* (AS3). *Preparative Biochemistry and Biotechnology*. 43, 256-270.
31. **Biman B. Mandal**; Eun-Seok Gil; Bruce Panilaitis; David L. Kaplan. Lamellar silk scaffolds for aligned tissue fabrication. *Macromolecular Bioscience*, 2013, 13, 48-58. **(Cover page article)**
32. Himangshu Sonowal, Atul Kumar, Pabitra Kumar Gogoi, **Bithiah Grace Jaganathan\***. Inhibition of Actin Polymerization Decreases Osteogenic Differentiation of Mesenchymal Stem Cells through p38 MAPK Pathway. *J Biomed Sci*. 2013 Sep 26;20(1):71.
33. **Bithiah Grace Jaganathan\***, Fernando Anjos-Afonso, Atul Kumar, Dominique Bonnet. Active RHOA favors retention of human hematopoietic stem/progenitor cells in the niche. *J Biomed Sci*. 2013 Sep 11;20(1):66. doi: 10.1186/1423-0127-20-66.
34. Punetha A, Sivathanu R, **Anand B\***. Active Site Plasticity Enables Metal Dependent Tuning of Cas5d Nuclease Activity in CRISPR-Cas Type I-C System. *Nucleic Acids Res.*, 2013 doi: 10.1093/nar/gkt1335
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36. **Anand B**, Majumdar S, Prakash B. The Structural Basis Unifying Diverse GTP Hydrolysis Mechanisms. *Biochemistry*, 2013, 52, 1122–1130
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38. Singh M. and **Chaturvedi Rakhi\***.2013.Extracts of dedifferentiated cultures of *Spilanthesacmella* Murr. possess antioxidant and anthelmintic properties and hold promise as an alternative source of herbal medicine. *Plant Biosystems*:1-9. (<http://dx.doi.org/10.1080/11263504.2013.7662>)[Publisher: Taylor & Francis]
39. Hazarika R.R. and **Chaturvedi Rakhi\***.2013. Establishment of dedifferentiated callus of haploid origin from unfertilized ovaries of tea (*Camellia sinensis* (L.) O. Kuntze) as a potential source of total phenolics and antioxidant activity. *In Vitro Cell. Dev. Biol. - Plant*49:60-69[Publisher: Springer]
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41. Saprativ P. Das, Rajeev Ravindran, Arabinda Ghosh, Deepmoni Deka, **Debasish Das**, Mohammad Jawed, Carlos M.G.A. Fontes and Arun Goyal (2013) “Efficient pretreatment for bioethanol production from water hyacinth (*Eichhornia crassipes*) involving naturally isolated and recombinant enzymes and its recovery.” *Environmental Progress & Sustainable Energy*, DOI: 10.1002/ep.11885.
42. Saprativ P Das, Arabinda Ghosh, Asutosh Gupta, Arun Goyal\*, **Debasish Das\*** (2013) “Lignocellulosic fermentation of wild grass employing recombinant hydrolytic enzymes and fermentative microbes with effective bioethanol recovery.” *Biomed Res Int*. Article ID 386063, 13 pages.
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44. Saprativ P. Das, Deepmoni Deka, Arabinda Ghosh, **Debasish Das**, Mohammad Jawed and Arun Goyal (2013) Scale up and efficient bioethanol production involving recombinant cellulase (Glycoside hydrolase family 5) from *Clostridium thermocellum*. *Sustainable Chemical Processes*, 2013, 1:19 doi: 10.1186/2043-7129-1-19.
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51. Sarkar, N.; **Dubey, V.K\***. Exploring critical determinants of protein amyloidogenesis: A review. *Journal of Peptide Science*. **2013**, 19, 529-36
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77. M.A. Ahceampong, **K. Pakshirajan** and P.N.L. Lens (2013) Assessment of the effluent quality from a gold mining industry in Ghana. *Environmental Science and Pollution Research*, 20, 3799–3811.
78. **K. Pakshirajan** and P. Radhika (2013) Enzymatic decolourization of textile dyeing wastewater by the white rot fungus *Phanerochaete chrysosporium*. *Textiles and Light Industrial Science and Technology*, 2(1), 42-48.
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