

# CURRICULAM-VITAE

## DIGVIJAY VERMA

SERB-Young Scientist  
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### PRESENT STATUS

I am working as SERB-Young scientist at NSIT, New Delhi.

### ACHIEVEMENTS/AWARDS

- 2005 : Department topper in M.Sc. (Biotechnology) and awarded **special eligibility certificate**
- 2006 : Qualified CSIR-NET-Lectureship exam conducted by Council of Scientific and Industrial Research (**CSIR**)
- 2007-2008 : **Senior research fellow (SRF)** from Indian Council of Agriculture research
- 2008-2012 : **Junior Research fellow (JRF)** and **SRF** from Department of Biotechnology (**DBT**)
- 2012-2013 : Qualified senior research fellowship (**SRF**) from **CSIR**
- 2014 : Qualified DBT- postdoctoral fellowship (**DBT-RA**)
- 2015 : Qualified **SERB** start up grant for **Young Scientist**

### PUBLICATIONS

1. **Verma, D.** and Satyanarayana, T. **2013**. Improvement in thermostability of GH11 xylanases by site directed mutagenesis. *Ind. J. Microbiol. and Biotechnol*, 40: 1373-81.
2. **Verma, D.** and Satyanarayana, T. **2013**. Cloning and expression of xylanase gene in *Bacillus subtilis* and optimization of fermentation conditions for extracellular xylanase from recombinant strain. *Biotechnology Progress* 29: 1441-1447.
3. **Verma, D.,** Ashima, A., and Satyanaryana, T. **2013**. Thermo-alkali-stable endoxylanase of an extremely thermophilic bacterium *Geobacillus thermodenitrificans* TSAA1: Cloning, expression, characteristics and its applicability in generating xylooligosaccharides. *Applied Biochemistry and Biotechnology* 170: 119-130.
4. **Verma, D.,** Kawarabayasi, Y., Miyazaki, K. and Satyanarayana, T. **2013**. Cloning, expression and characteristics of a novel alkalistable and thermostable xylanase encoding gene (*Mxyl*) retrieved from compost-soil metagenome. *PlosONE*8 (1): e52459. doi:10.1371/journal.pone.0052459.
5. **Verma, D.** and Satyanaryana, T. **2012**. Cloning, expression and applicability of thermo-alkali-stable xylanase of *Geobacillus thermoleovorans* in generating xylooligosaccharides from agro-residues. *Bioresource Technology*, 107: 333-338.

6. **Verma, D.** and Satyanaryana, T. **2012**. Phytase production by the unconventional yeast *Pichia anomala*. in fed batch and cyclic fed batch fermentations. *African J Biotechnology*, 11: 13705-13709.
7. Kaur, P. **Verma, D.** and Satynarayana, T. **2011**. Recycling of spent medium from *Pichia anomala* MTCC-4133 phytase fermentation for the production of useful microbial products. *Kavaka*, 39: 8-14.
8. **Verma, D.** and Satyanarayana, T. **2011**. An improved protocol for DNA extraction from alkaline soil and sediment samples for constructing metagenomic libraries. *Applied Biochemistry and Biotechnology*, 165: 454-464.

## REVIEWS

9. **Verma, D.** and Satyanarayana, T. **2014**. Novel alkalistable and thermostable xylanase encoding gene (*Mxyl*) retrieved from compost soil metagenome. In: Encyclopedia in metagenomics. **John Craig Venter Institute (JCVI)**. DOI: 10.1007/978-1-4614-6418-1\_413-2.
10. Kumar, V., **Verma, D.** and Satyanarayana, T. **2013**. Extremophilic Bacterial Xylanases: Production, Characteristics and Applications *Current Biotechnology*.
11. **Verma, D.** and Satyanaryana, T. **2012**. Molecular approaches for ameliorating microbial xylanases. *Bioresource Technology*, 117: 360-367.

## CHAPTERS IN BOOKS

12. **Verma, D.** and Satyanarayana, T. **2014**. Developments in the retrieval of novel biocatalysts by metagenomics approaches. Eds. Robert W. Li, In: *Metagenomics: Methods, Applications and Perspectives*.
13. **Verma, D.** and Satyanarayana, T. **2014**. Cloning, expression and characteristics of a novel alkalistable and thermostable xylanase encoding gene (*Mxyl*) retrieved from compost-soil metagenome. In: *Contemporary issues in Biotechnology*. [**In press**].
14. **Verma, D.,** Kumar, V. and Satyanarayana, T. **2013**. Biotechnological applications of microbial xylanases. In: *Productivity* 54, pp.19-25.
15. Kumar,V., **Verma, D.,** Archana, A. and Satyanarayana, T. **2013**. Thermostable bacterial xylanases. Eds. Satyanarayana, T., Littlechild, J. and Kawarabaysi, Y. In: *Thermophilic microbes in environmental and industrial biotechnology*. pp. 813-857.
16. **Verma, D.,** Kawarabayasi, Y. and Satyanarayana, T. **2010**. Developments in metagenomic for accessing novel genes for useful microbial products. In: *Applications in Microbiology* (Ed. P.C. Trivedi), Aavishkar Publishers, Jaipur, pp. 27-57.

## EDUCATIONAL QUALIFICATION

2014	:	DBT-RA at CSIR-IGIB, New Delhi
2013	:	Ph.D. (Microbiology) from University of Delhi South Campus, New Delhi, India.
2005	:	M.Sc. ( <b>Biotechnology</b> ), <b>79.1%</b> , Chaudhary charan singh University, Meerut, India
2002	:	B.Sc. ( <b>Biological Sciences</b> ), <b>74.4%</b> , Dr. B. A. University, Agra, India
2005	:	DOEACC 'O' level (C language, HTML, Foxpro and IT)

## RESEARCH EXPERIENCE

- Attended **Hands-on Nextgen Sequencing and Bioinformatics workshop** held at Center for Cellular and Molecular Biology, **CCMB**, Hyderabad during **24-30<sup>th</sup> September, 2015**.
- Worked as guest researcher for one month under the project supported by **DST-JSPS** at Laboratory of Microbial Genetics, Dept. of Biosecience and Biotechnology, Kyushu University, Fukuoka, **Japan** under **Dr. T. Oshima** from 31<sup>st</sup> October to 1<sup>st</sup>, December, 2010.
- Worked as research fellow at for one month under the project supported by **DST-JSPS** Enzyme Exploration Research Group of Institute for Biological Resources and Functions, AIST, Tsukuba, **Japan** under **Dr. Kentaro Miyazaki** from 1-29, November, 2009.
- Worked as **SRF** at University of Delhi south Campus, New Delhi, India under **Prof. T. Satyanarayana** in a project entitled “Improving growth of marine Seabass and Tiger shrimp by ameliorating phosphate assimilation using cell bound phytase of the *Pichia anomala*” from 15, March, 2007 to 31, May, 2008.
- M.Sc. Dissertation for 2 months on project entitled “Antimicrobial activities of indigenous plants” under **Dr. Mohd. Owais** at Interdisciplinary Biotechnology Unit, Aligarh Muslim University, Aligarh from June to August 2004.

## TECHNICAL EXPERTISE

- **Molecular Biology/metgaenomics-** Primer design, plasmid extraction, genomic/metagenomic DNA extraction, cloning, protein expression, DNA sequencing, metagenomics library construction, PCR, RT-PCR, quantitative PCR, transformation, heterologous and homologous expression and purification of recombinant proteins in *E. coli*, *Bacillus subtilis* and *Pichia pastoris*. Construction of metagenomic/genomic libraries, site directed mutagenesis/ Techniques involved in directed evolution. Protein engineering, Probe designing, Southern hybridization
- **Microbiology-** Isolation and identification of microbes. Fermentation Technology (Submerged fermentation, solid state fermentation, Batch and Fed batch fermentation), Ultrafiltration, Lyophilization, Sonication and Enzyme kinetics. Experience on handling of extremophiles. Experience to handle stirred tank and air lift fermentors for scaling up the enzyme production
- **Protein analysis-** Protein purification using chromatography techniques (Affinity chromatography, HPLC, FPLC, Gel filtration, cation/anion exchangers), SDS/Native-PAGE, Western Blotting, Determination of isoelectric point. Two dimensional gel electrophoresis. 2D analysis, MALDI
- **Computers language -** Python and C language
- **NGS technology-** Preparation of amplicon and shotgun libraries for metagenomic studies, Whole Genome Sequencing, Whole Exome Sequencing, ChIPSeq, RNAseq, Sequencing on MiSeq illumina machine, Metagenomic NGS analysis

**Date: 14.01.2016**

**Digvijay Verma, PhD**