

Name: Dr. BOMBA DAM

Designation: Assistant Professor (Stage II)

Qualification: M.Sc., Ph.D.



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+91-9475444801

Teaching Experience:

7 years

Research Experience:

12 years

Research areas/Interest:

I am a microbiologist having training in microbial physiology, molecular biology, microbial genomics/metagenomics, and transcriptomics/metatranscriptomics. My research interest is focused on understanding the interplay between the structure and function of microbes at various levels, ranging from understanding key-metabolic pathways involved in the global biogeochemical cycling of carbon (methane), nitrogen and sulfur at the individual/cellular level to complex natural and extreme microbial communities.

My long-term research interest is to explore the genetic potential of the entire

microbial world (including 99% uncultivable microbes) using the “meta-omics” approach to deal with the global warming and energy crisis.

Awards and Honours:

- **Alexander von Humboldt Research Fellowship for Postdoctoral Researchers** (2010-2012) at the Max Planck Institute for Terrestrial Microbiology (MPITM), Karl-von-Frisch-Strasse 10, D-35043 Marburg, Germany.
- **Max Planck Postdoctoral Research fellowship for short research stay** at the MPITM, Marburg, Germany. (Four times)
- **National Eligibility Test (CSIR-JRF 2003)** – (Remarks: Qualified for the SPM Fellowship Test; Top 20% of the qualified candidate)
- **State Level Eligibility Test (SLET 2003)**
- **Graduate Aptitude Test for Engineering (GATE 2003)**
- **National Scholarship, Government of West Bengal** (2001-2002)
- **University Gold Medal** for standing 1st Class 1st with distinction in M.Sc.
- **University Gold Medal** for standing 1st Class 1st with distinction in B.Sc.

Sanctioned Project:

DST SERB sponsored project under the **Young Scientists Scheme** (Sanction No. SB/YS/LS- 16/2013) on understanding the dynamics in microbial community structure in poultry gut with special emphasis to their antibiotic resistance capability. Amount: **23.9 Lakhs**; 2013-16.

UGC sponsored MRP on understanding the dynamics in microbial community structure in extreme saline environment with special emphasis to their lignocellulose degradation capability. Amount: **8.0 Lakhs**; 2015-18.

Significant publications:

1. **Dam B**, Dam S, Kim Y, Liesack W. (2014) Ammonium induces differential expression of methane and nitrogen metabolism-related genes in *Methylocystis* sp. strain SC2. *Environmental Microbiology*. 16(10): 3115-27. (Impact factor: **5.76**).
2. **Dam B**, Dam S, Blom J, Liesack W. (2013) Genome analysis coupled with

- physiological studies reveals a diverse nitrogen metabolism in *Methylocystis* sp. strain SC2. *PLoS ONE*. 8(10): e74767. (Impact factor: **3.73**).
3. **Dam B**, Dam S, Kube M, Reinhardt R, Liesack W. (2012) Complete genome sequence of *Methylocystis* sp. strain SC2, an aerobic methanotroph with high-affinity methane oxidation potential. *J Bacteriology*. 194(21): 6008-6009. (Impact factor: **3.59**).
 4. **Dam B**, Kube M, Dam S, Reinhardt R, Liesack W. (2012) Complete sequence analysis of two methanotroph-specific *repABC* containing plasmids from *Methylocystis* sp. strain SC2. *Applied and Environmental Microbiology*. 78 (12): 4373-4379. (Impact factor: **4.41**).
 5. Nauer PA, **Dam B**, Liesack W, Zeyer J, Schroth MH. (2012) Activity and diversity of methane-oxidizing bacteria in glacier forefields on siliceous and calcareous bedrock. *Biogeosciences*. 9: 2259-2274. (Impact factor: **4.17**).
 6. Pan I, **Dam B**, Sen SK. (2012) Composting of common organic wastes using microbial inoculants. *3 Biotech*. 2(2): 127-134.
 7. Shrestha PM, Kammann C, Lenhart K, **Dam B**, Liesack W. (2011) Linking activity, composition and seasonal dynamics of atmospheric methane oxidizers in a meadow soil. *ISME Journal*. 6(6): 1115-1126. (Impact factor: **8.95**).
 8. Majumdar T, Das B, Bhadra RK, **Dam B**, Mazumder S. (2011) Complete nucleotide sequence of a quinolone resistance gene (*qnrS2*) carrying plasmid of *Aeromonas hydrophila* isolated from fish. *Plasmid*. 66(2): 79-84. (Impact factor: **1.55**).
 9. **Dam B**. (2011) A type Ib plasmid segregation machinery of the *Advenella kashmirensis* plasmid pBTK445. *Plasmid*. 65(2): 185-91. (Impact factor: **1.55**).
 10. Ghosh W and **Dam B**. (2009) Biochemistry and molecular biology of lithotrophic sulfur-oxidation by taxonomically and ecologically diverse bacteria and archaea. *FEMS Microbiology Reviews*. 33(6): 999-1043. (Impact factor: **13.23**).
 11. **Dam B**, Ghosh W, and Das Gupta S K. (2009) Conjugative Type 4 Secretion System of a novel large plasmid from the chemoautotroph *Tetrathiodibacter kashmirensis* and construction of shuttle vectors for *Alcaligenaceae*. *Applied and Environmental Microbiology*. 75(13): 4362-4373. (Impact factor: **4.41**).
 12. **Dam B**, Mandal S, Ghosh W, Das Gupta S K, and Roy P. (2007) The S4-intermediate pathway for the oxidation of thiosulfate by the chemolithoautotroph *Tetrathiodibacter kashmirensis* and inhibition of

- tetrathionate oxidation by sulfite. *Research in Microbiology*. 158: 330-338. (Impact factor: **2.94**).
13. Mandal S, Chatterjee S, **Dam B**, Roy P, and Das Gupta S K. (2007) The dimeric repressor SoxR binds cooperatively to the promoter(s) regulating expression of the sulfur oxidation (*sox*) operon of *Pseudaminobacter salicylatoxidans* KCT001. *Microbiology*. 153: 80-91. (Impact factor: **2.85**).
 14. Lahiri C, Mandal S, Ghosh W, **Dam B** and Roy P. (2006) A novel gene cluster *soxSRT* is essential for the chemolithotrophic oxidation of thiosulfate and tetrathionate by *Pseudaminobacter salicylatoxidans* KCT001. *Current Microbiology*. 52: 267-273. (Impact factor: **1.52**).
 15. Ghosh W, Bagchi A, Mandal S, **Dam B** and Roy P. (2005) *Tetrathiobacter kashmirensis* gen. nov., sp. nov., a novel mesophilic, neutrophilic, tetrathionate-oxidizing, facultatively chemolithotrophic betaproteobacterium isolated from soil from a temperate orchard in Jammu and Kashmir, India. *Int. J of Systematic and Evolutionary Microbiology*. 55(Pt 5): 1779-87. (Impact factor: **2.11**).

Invited/keynote lectures in Academic Conferences/Symposiums

1. “RNA-seq analysis reveals differential expression of methane and nitrogen metabolism related genes in *Methylocystis* sp. strain SC2 due to ammonia amendment”. **Invited Promise speaker** in National Symposium on “Micro and Macro resources in Biomolecular Technology (MIBISEM)”. 25-26th February 2013, University of North Bengal, India.
2. “Harnessing the power of next-generation sequencing technologies to study microbial community structure (metagenomics) and function (metatranscriptomics) in biogas plants: Opportunities and challenges”. **Invited speaker** in International Symposium on “New Horizons in Bioenergy Research (NHBR)”. 14-16th January 2013, IIT Kharagpur, India.
3. “Genome analysis and transcriptome profile of *Methylocystis* sp. strain SC2”. **Session speaker** in Annual Conference of the Association for General and Applied Microbiology, 03-06th April, 2011, Karlsruhe, Germany.

Patents /Any other achievements:

- Member of the Editorial Board of the International Journal, “Microbiological Research”, Elsevier.
- Member of the Editorial Board of the International Journal, “Microbes and health”, Bangladesh Society for Veterinary Microbiology and Public Health.
- Reviewed manuscripts submitted to reputed international Microbiology journals.

Lab members:

Shelly Sinha

Anindita Sinha

Abhijit Sar

Sohini Banerjee

Srikanta Pal