

CURRICULUM VITAE



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Professor

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DOB: 4 th April, 1960

Date of joining: 3th Dec, 1998

AREAS OF EXPERTISE

Enhancing safety and shelf life of dairy foods
Detecting spoilage and pathogenic bacteria in foods
Constructing food-grade plasmid vectors
Developing simple and efficient CRISPR-Cas9 platform for Food-grade bacteria.
Developing non-CRISPR genome engineering platform.
Developing engineered thermostable enzyme for industrial biotechnology.
Developing probiotic bacteria through bioengineering

Development of food grade antiviral agent against COVID-19

EDUCATION:

- University of Calcutta (Bose Institute): Microbiology, Ph.D.
- Visva-Bharati University, Botany: M.Sc.
- Suri Vidyasagar College, Botany (Hons): B.Sc.

PROFESSIONAL SOCIETIES:

- The Association of Microbiologists of India (AMI)
- Indian Science Congress Association

PROFESSIONAL EXPERIENCE:

2011 - present. Professor. Visva-Bharati, Department of Botany. Santiniketan
2008-2011: Associate professor, Visva-Bharati, Department of Botany. Santiniketan
2005-2008: Reader , Visva-Bharati, Department of Botany. Santiniketan
2002-2005: Senior lecturer, Visva-Bharati, Department of Botany. Santiniketan
1998-2002: Lecturer
1994-1997: CSIR (New Delhi) Pool Officer
1989-1993: Post-doc (food Bio-preservation, University of Wyoming, Laramie, USA;
Post-doc (Drug development), Meharry Medical College, Nashville, USA
Post-doc (DNA repair), University of Kentucky, Lexington, USA

RESEARCH INTERESTS

Lactic acid bacteria: physiology, functionality, taxonomy and biodiversity

Quality and safety of dairy foods

Genome engineering and probiotic bacteria

Protein engineering and industrially relevant peptide and enzyme

Genomics of lactic acid bacteria: Plasmid and Genome Sequencing of Lactic Acid Bacteria

Gene Regulation in Lactic Acid Bacteria

Bioengineering of Therapeutic peptide of medical importance

Genetic tools for genetic modification of lactic acid bacteria:

Development of food-grade vector for use as delivery vehicle

GRANT SUPPORT:

- Oligo-mediated genome engineering of *Lactococcus lactis* W8 to generate novel nisin peptides for use in food and health (DBT, New Delhi, Ongoing).
- Molecular investigation into the carbon source mediated transcriptional regulation of *nisZ* gene in *Lactococcus lactis* W8 (UGC, New Delhi, Completed)
- Mechanism of bile inhibition of nisin mediated antimicrobial activity of *Lactococcus lactis* W8 (CSIR, New Delhi, Completed)
- Cloning of β -galactosidase gene from lactic acid bacteria for development of food-grade Selection marker (UGC, New Delhi, Completed)

PUBLICATIONS

Biswas SR, Ray P, Johnson M.C, and Ray B. Influence of growth conditions on the production of bacteriocin, Pediocin ACH by *Pediococcus acidilactici* H (1991). **Applied and Environmental Microbiology** (ASM). 57(4): 1265. (I. factor- 4.0.

Mellon, I, Biswas SR, and Champe GN (1993). Repair of ribosomal RNA genes is selectively inhibited in *mfd* strains of *Escherichia coli*. **Environ. Mol. Mutagen.** 21(Suppl. 22):47.

Mitra S, Mukhopadhyay BC, Chakrabartty PK, Biswas SR (2005). Production and characterization of nisin-like peptide produced by a strain of *Lactococcus lactis* isolated from fermented milk. **Current Microbiology.** 51(3), 183-187 (I. Factor 1.6).

Mitra S, Mukhopadhyay BC, Chakrabartty PK, Biswas SR (2007). Production of nisin Z by *Lactococcus lactis* isolated from Dahi. **Applied Biochemistry and Biotechnology**. 143 (1), 41-53. (I. factor- 2.1)

Mitra S, Mukhopadhyay BC, Chakrabartty PK, Biswas SR (2010). Potential production and preservation of dahi by *Lactococcus lactis* W8, a nisin producing strain. **LWT-Food Science and Technology**. 43 (2), 337-342 (I.Factor- 3.714)

Mitra S, Mukhopadhyay BC, Chakrabartty PK, Biswas SR (2011). Potential application of the nisin Z preparation of *Lactococcus lactis* W8 in preservation of milk. **Letters in Applied Microbiology**. 53, 98-105 (I. factor-1.805)

Mitra S, Mukhopadhyay BC, Chakrabartty PK, Biswas SR (2013). Effect of bile on nisin-mediated antibacterial activity and the expression of nisin genes of *Lactococcus lactis* W8. **Current Microbiology**. 67(6):668-73 (I. factor 1.6)

Mitra S, Mukhopadhyay BC, Mandal AR., Chakrabarty K, Das GK, Chakrabarttya PK, Biswas SR(2015). Cloning, overexpression and characterization of a novel alkalithermostable xylanase from *Geobacillus* sp. WBI. **Journal of Basic Microbiology**. ;55(4):527-37 (I. factor 1.6)

Arukha AP, Mukhopadhyay, BC, Mitra S, Biswas SR (2015). A Constitutive Unregulated Expression of beta-Galactosidase in *Lactobacillus fermentum* M1 **Current Microbiology** 70(2):253-259 (I. factor 1.6)

Juin SK, Mukhopadhyay, BC., Biswas SR., Nath P (2017). Conspecific vitellogenin induces the expression of vg gene in the Indian male walking catfish, *Clarias batrachus* (Linn.). **Aqua. Reports**. 6, 61-67 (I. factor 1.887)

Maji J, Mukhopadhyay BC, Mitra S, Biswas SR (2018). Molecular Characterization of Yeasts and Bacteria Isolated From Handia, an Indian Traditional Rice Fermented Alcoholic Beverage. **American Journals of Current Microbiology**, 6, 1-12

Mitra S, Mukhopadhyay BC, Kaz TA, Bhattacharya R, Mandal S, Biswas SR (2018). Draft Genome Sequence of *Lactococcus lactis* subsp. *lactis*W8, a Potential Nisin-Producing Starter

Culture for Indian Traditional Fermented Milk (Dahi). **Microbiology Resource Announcements (American Society of Microbiology)**, vol. 7, issue 23, e01305-18

Mukhopadhyay BC, Mitra S, Kazi TA, Mandal S, Biswas SR (2019). Draft Genome Sequence of Cold-Tolerant *Kurthia gibsonii* B83, Isolated from Spinach Leaf. **Microbiology Resource Announcements (American Society of Microbiology)**, Vol. 8, issue-11, e01480-

Bhattacharya, R., Gupta, A. M., Mitra, S., Mandal, S., & Biswas, S. R. (2021). A natural food preservative peptide nisin can interact with the SARS-CoV-2 spike protein receptor human ACE2. *Virology*, 552, 107–111. <https://doi.org/10.1016/j.virol.2020.10.002>

Kazi, T. A., Mitra, S., Mukhopadhyay, B. C., Mandal, S., & Ranjan Biswas, S. (2021). Characterization of a novel theta-type plasmid pSM409 of *Enterococcus faecium* RME isolated from raw milk. *Gene*, 777, 145459. <https://doi.org/10.1016/j.gene.2021.145459>

Tawsif Ahmed Kazi, Swadesh Ranjan Biswas, Chapter Four - CRISPR/dCas system as the modulator of gene expression, *Progress in Molecular Biology and Translational Science*, Academic Press, Volume 178, 2021, Pages 99-122, ISSN 1877-1173, ISBN 9780128215906, <https://doi.org/10.1016/bs.pmbts.2020.12.002>.
(<https://www.sciencedirect.com/science/article/pii/S1877117320301721>)