

Santosh Ranjan Mohanty



Principal Scientist
I/c All India Network Project on
Soil Biodiversity Biofertilizers (AINP SBB)

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Research Specialization:

- Soil microbial diversity– Metagenomics, cross biome interaction, nutrient cycling, microbial inoculants and biofertilizers
- Climate change - Greenhouse gas (GHG) emission and mitigation, Biogeochemistry of GHG cycling, Microbial approaches to mitigate GHG emission
- Plant microbiome – Plant microbial interaction, rhizosphere bioengineering, plant growth promoting microorganisms
- Bioenergy – Methanogenesis, enzymatic bioelectrodes

Professional Experience:

- Principal scientist – Indian Institute of Soil Science, 2014-
- Senior Scientist – Indian Institute of Soil Science, 2009-2014
- Academic Faculty - University of Wisconsin Stout, USA 2008-2009
- Research Scientist - University of Wisconsin, Madison, USA 2005-2008
- Research Scientist - University of Alabama, Tuscaloosa, USA 2003-2005
- Post doctoral Fellow - Max Planck Institute for Terrestrial Microbiology, Germany 2001-2003.

Awards and Honours:

- Fellow of Biodiversity Association (FABSc)
- Eminent Scientist award, National Environmental Science Academy
- Young investigator award, India Bioscience, NCBS Bangalore
- Fulbright Fellow, USIEF, USA

Funding Resources

- Metagenomic characterization and spatio temporal changes in the prevalence of microbes involved in nutrient cycling in the rhizosphere of Bioenergy crop *Jatropha curcas* Funded by Department of Biotechnology (DBT), India, 2011-14

- Newton Bhabha Grant “ India UK Nitrogen Fixation Centre” Funded by DBT India and BBSRC UK 2016-19
- Metagenomic mapping of microbial diversity in rhizosphere of major crops of India and Argentina offsetting production potential” India Argentina Research Grant Department of Science and Technology (DST), India and MinCyt Argentina, 2017-20
- Evaluation of Soybean – rhizobia interaction under elevated CO₂ and temperature to develop climate ready microbial inoculants for central India.” Funded by AMAAS, 2017-20
- Ecogenomics of soil microbes involved in global climate mitigation and nitrogen use efficiency in rice-wheat agroecosystem of central India under elevated CO₂ and temperature”, Funded by DST, India. 2018-21
- Methanogenic Bioelectrode Driven Conversion of CO₂ to CH₄ to enhance methanogenesis and mitigation of greenhouse gas from agrowaste based bioenergy systems” Funded by DST India and JSPS Japan, 2020-22

Top Ten publications:

1. Mohanty SR, Nagarjuna M, Parmar R, Ahirwar U, Patra A, Dubey G, Kollah B. 2019. Nitrification Rates Are Affected by Biogenic Nitrate and Volatile Organic Compounds in Agricultural Soils. *Frontiers in Microbiology*;10, 772.
2. Mohanty S R, Yadav R, Dubey G, Ahirwar U, Ahirwar N, Aparna K, Rao D L N and Bharati Kollah. 2018. How sequential reduction of terminal electron acceptors modulates nitrification and dynamics of nitrifying bacteria and archaea in a tropical vertisol. *Journal of Agricultural Science Cambridge* 156, 215-224
3. Mohanty S R, Tiwari S, Dubey G, Ahirwar U, Kollah B, 2016. How methane feedback response influences soil biogeochemical process. *Biology and fertility of soils. Biology and Fertility of Soils*, 52, 5, 479-490.
4. S R Mohanty, GS Bandeppa, G Dubey, U Ahirwar, AK Patra, K Bharati. 2016. Methane oxidation in response to iron reduction-oxidation metabolism in tropical soils. *European Journal of Soil Biology* 78, 75-81
5. Mohanty S R, Kollah B, Singh A B, Choudhury S, Singh M. 2015. Methane uptake in tropical soybean wheat agroecosystem under different fertilizer regimes. *Environmental earth science* 74, 6, 5049-5061.
6. Mohanty S R, Kollah B, Sharma V K, Singh A B, Singh M, Rao A S. 2014. Methane oxidation and methane driven redox process during sequential reduction of a flooded soil ecosystem. *Annals of Microbiology* 2014, 64, 1 : 65-74.
7. Mohanty S R, Brodie E L, Bharati. K, T. C. Hazen, and Roden E. 2011. 16S rRNA Gene Microarray Analysis of Microbial Communities in Ethanol-Stimulated Subsurface Sediment. *Microbes & Environment*. 26, 3, 261-265
8. Mohanty S. R., Kollah B, Hedrick D., Peacock A., Kukkadapu, R., Roden E. 2008. Biogeochemical processes in ethanol stimulated uranium-contaminated subsurface sediments. *EnvSci and Technol*, 42, 12, 4384-4390
9. Mohanty S R, Bodelier P E, Floris V and Conrad R. 2006. Differential effects of nitrogenous Fertilizers on methane consuming microbes in rice field and forest soil. *Appl. Environ. Microbiol* 72: 1346-1354.
10. Mohanty S R, Bodelier P E and Ralf Conrad. 2007. Effect of temperature on composition of the methanotrophic community in rice field and forest soil. *FEMS Microbial Ecology*, 370, 1-8.