

Workshop on Geomicrobiology and Microbe-Sediment Interaction – A Report R. Baskar and Sushmitha Baskar, Guru Jambheshwar University of Science and Technology, Hisar, Haryana

A DST sponsored workshop on Geomicrobiology and Microbe-Sediment interaction was held on 19th August 2010 by the Department of Microbiology and Biotechnology Centre, Maharaja Sayajirao University of Baroda, Vadodara, Gujarat at Hotel Revival, Lords Inn. The workshop was presided by Prof. Ramesh K. Goyal, Vice Chancellor, M.S. University of Baroda. In his address he stressed on the importance of this new upcoming field. In his inaugural address by Prof. V. Rajamani, Chief Guest, School of Environmental Science, JNU he highlighted the importance and potential applications of the subject and gave an introduction to the DST SSS program.

The welcome address was given by Prof. Nikhil Desai, Dean Faculty of Science, MS University of Baroda. The DST perspective on such workshops was given by Dr Manoranjan Mohanty, Principal Scientific Officer, SERC Division, DST, Govt. of India, New Delhi. Dr G Archana, the co-ordinator of the workshop spoke about the reasons for organizing the same. The lead talk was delivered by Prof. V. Purnachandra Rao, National Institute of Oceanography, Goa. There were 19 presentations at this workshop. There were four technical sessions followed by a panel discussion.

The first session, was Chaired by Prof D. Madamwar SP University. Prof. T. Satyanarayana, University of Delhi South Campus, New Delhi spoke about the diversity of bacteria and archaea in Hot water springs; Dr S. Wann, Biotechnology Division, CSIR North East Institute of Science and Technology, Jorhat, Assam spoke on the useful properties of bacterial strains for bioremediation from Assam in the vicinity of oil refineries, tea gardens; Dr Muhibul Islam, Department of Life Science, Dibrugarh University, Assam spoke on microfungus diversity in coal mine spoils and their application for reclamation; Dr Bragadish Iyer, Department of Bio-

technology, Charotar University of Science and Technology Education, Changa-Gujrat spoke on the bacterial communities associated with mangroves and their role. Dr P. Barua, CSIR North East Institute of Science and Technology, Jorhat, Assam spoke on aquatic fungal communities of ground water sources of the Brahmaputra valley and their ; It was witnessed by a large number of participants from various Universities, Institutes and Research organizations.

In the second session, Chaired by Dr V. Purnachandra Rao, NIO, Goa three talks were on rock-microbe interaction. Dr R Baskar from GJUST, Hisar spoke on geomicrobial processes occurring in cave ecosystems and their role in mineral precipitation. Dr M Krishna Mohan, BISR, Jaipur spoke on microbial activity in granitic rocks. Dr Sinha Roy, BSIR, Jaipur spoke on microbe-soil-landform relationships.

In the third session, Chaired by Prof A.J. Desai, MSU, Baroda there were five speakers. Prof S. R. Dave from GU, Ahmedabad spoke on microbial profiling of Ambamata mines and its relevance for sustainable ecosystem. Dr Srinivas Murthy from Gujrat Vidhyapeeth spoke on anaerobic bacterial community from mangrove sediments of Kutch. Dr Dhruva Kumar Jha from GU, Assam spoke on the bio-chemical properties of bio-surfactants produced by thermophilic microbes from oil-rich areas of Assam. Dr G Archana, MSU Baroda spoke on Nutrient cycling and microbial activity in Great Rann of Kutch. Prof. L. Venkateshwar Rao, OU, Hyderabad spoke on the application of thermo tolerant yeasts for hydrocarbon degradation.

In the fourth session, Chaired by Prof. G. Naresh Kumar, NU, Gandhinagar, there were six speakers. Dr. A.A. Mohamed Hatha, CUST, Cochin spoke on diversity of heterotrophic bacteria in Arctic Ocean sediment with special reference to

phosphate solubilisers. Dr Haresh Keharia, SPU, Gujarat spoke on microbial diversity associated with mangroves in Kutch region. Dr Vivek Upasani, MG Science Institute, Ahmadabad spoke on exploring microbes from saline soil environments. Dr Chand Pasha, OU, Hyderabad spoke on detoxification of water using enzymes derived from yeast. Dr Sanjay Ingle, MSU Gujarat spoke on Microbes and their role in rare earth enrichment. Dr Sudha Rani, PU, Pondicherry spoke on bacteria and their products in alluvial soils and sediments from Cauvery River delta.

Panel discussion was held by Prof . V Rajamani, Dr M Mohanty, Prof L.S. Chamyal, Dr VP Rao, Prof AJ Desai, Prof D Madamwar, Prof G Naresh Kumar and Dr G Archana along with the workshop participants.

The recommendations made were: (1) Geomicrobiology should be recognized as a thrust area. (2) In every proposal there should be geology and a biology component. (3) It is important to characterize the microbial diversity and its products in subsurface niches. (4) Understanding geomicrobiological processes in biological hotspots, springs, mangroves, caves, saline soils, alluvial deltaic plains. (5) Study of microbial role and their processes in biomineralization and their applications in bioremediation in industries and mine degraded land. (6) Understanding rocks-landforms-minerals-soils and microbe interactions. (7) Understanding microbe-mineral interactions *in vitro*. (8) Application of geomicrobiological processes in mineral beneficiation. (9) Understanding microbial role in the Kutch region which is important in nutrient cycling. (10) Application of metagenomics in saline soils.

Dr Archana, the Co-ordinator of the workshop and Dr R Baskar from GJUST, Hisar were asked to make a vision document for DST in the field of Geomicrobiology, in consultation with other participants.