

Special Section

*

Microorganisms in Sustainable Agriculture

Guest Editor

D J Bagyaraj

PREFACE

Microorganisms in Sustainable Agriculture

Green revolution in India during 1970s no doubt brought about self-sufficiency in food production. However, excessive use of inorganic fertilizers and plant protection chemicals for maximizing crop yields resulted in deterioration of physical, chemical and biological health of cultivated land. Consequently, we are now worried about sustainable agriculture. Sustainability refers to productive performance of a system over time. It implies use of natural resource to meet the present needs without jeopardizing the future potential. Due to the excessive use of inorganic fertilizers and plant protection chemicals, sustainability in agricultural production has emerged as one of the most significant concerns. Therefore, alternate sources of fertilizers and pesticides are being looked for. Organic wastes and microorganisms are alternate sources for meeting the nutrient requirements and controlling pests and diseases of crop plants to bridge the future needs.

Microorganisms can be harnessed to produce more biofertilizers, to decompose organic wastes more efficiently and combat plant diseases and pests with greater efficiency than ever before. Hence, the National Committee for International Union of Microbiological Societies (IUMS) held a Brainstorming Session on *Microorganisms in Sustainable Agriculture* on 13 September 2011 at INSA. The programme comprised of presentations by Ten Resource Persons working on different groups of microorganisms and four Discussants, with lively discussion after each presentation.

This Special Section on *Microorganisms in Sustainable Agriculture* includes presentations at this meeting by the Resource Persons, who are specialists in the group of microorganisms they are working with.

The different articles provide information about recent advances in the various groups of microorganisms like nitrogen fixers, phosphate solubilizers, plant growth promoting rhizomicroorganisms, mycorrhizal fungi, mycorrhiza-like fungi, microorganisms for biocontrol of plant pathogens and insect pests, microorganisms for conversion of agricultural wastes to compost, and mass production and quality control of microbial inoculants. Thus this collection of reviews provides a comprehensive coverage of different groups of microorganisms important in agriculture for sustainable productivity of crop plants. The main objective is to present quality work in an accessible medium for use in teaching and further research in microbial inoculants for sustainable agriculture.

I am grateful to the Indian National Science Academy for inspiration and support to organise the Brainstorming Session and to publish the presentations as a Special Section in the *Proceedings of Indian National Science Academy*. I acknowledge the support given by Prof. S C Lakhota, Editor-in-Chief of the Journal in bringing out this Special Section.

D J Bagyaraj

Guest Editor

Microorganisms in Sustainable Agriculture
NASI Sr. Scientist & Chairman
Centre for Natural Biological Resources and
Community Development
41 RBI Colony, Anand Nagar
Bangalore 560 024
djbagyaraj@gmail.com