Workshop on

Mycorrhizal Wonders in Nature

Friday, 20 December 2019

TERI, India Habitat Centre, New Delhi

I. BACKGROUND

The Mycorrhiza Network at TERI has been actively involved in development and application of mycorrhizal biofertiliser, technology development and its transfer; and information dissemination activities. The Network functions with the objective of helping scientists carry out research in the field of Mycorrhiza and promoting communication among mycorrhiza scientists. The Centre for Mycorrhizal Culture Collection of the Network provides opportunity to researchers to obtain specific cultures of interest; preserve germplasm available in India and elsewhere; procures strains of both ecto- and arbuscular mycorrhizal fungi from India and abroad; multiplies and maintains these fungi in pure culture; and provides starter cultures. The network publishes a quarterly newsletter in order to promote communication among mycorrhiza scientists in India and other countries; and caters to the needs of the mycorriza researchers.

As part of the Mycorrhiza Network Programme, TERI organized a one day workshop on "Mycorrhizal Wonders in Nature" at TERI, New Delhi on Friday, 21 December 2019. The event was sponsored by the Department of Biotechnology, Government of India Government of India. The objective of the workshop was to familiarize the participants with the mycorrhiza fungi and their application including technology; procedures involved in the production of mycorrhizal inoculum and their utility as biofertilizer; and application of mycorrhizal inoculum in agriculture and forestry; facilitate interaction between different scientific working groups to discuss the state of mycorrhiza research around the world, and sharing experiences; and make awareness generation amongst students, faculty and researchers for mycorrhiza research.

The workshop started with the opening remarks by Dr Alok Adholeya, followed by Prof. C Manoharachary. The panel of experts included Prof C Manoharachary, NASI Senior Scientist, Prof A Manjunath, Prof. Rupam Kapoor, University of Delhi, Dr Ankit Kumar, Area Convenor, Centre for Mycorrhizal Research, TERI. During the interactive session, the participants have raised the questions on suitability of AM fungi for different crops, the role of soil conditions, nutrient status of the soil, and effective bio inoculants, purity of inoculum, quality and shelf life of commercialized mycorrhizal product and on other related issues. The workshop witnessed the participation from

industrial, agricultural and academic institutions, as well as farmers, entrepreneurs and people from the research fraternity.

WORKSHOP TECHNICAL SESSION

Dr Alok Adholeya, rogramme Director, Sustainable Agriculture, TERI	**introduction to Mycorrhiza and their utility**
Dr C Manoharachary, NASI Senior Scientist	**Mycorrhiza – Future Vision**
Prof A Manjunath	**Vesicular arbuscular mycorrhizal symbiosis - A unique plant-microbe association**
Dr Ankit Kumar, Area Convenor, Centre for Mycorrhizal Research, TERI	**Mycorrhiza as a role model for plant growth**
Prof. Rupam Kapoor, Department of Botany, University of Delhi	**Arbuscular Mycorrhiza in cultivation of medicinal plants**
Prof. Rupam Kapoor, Department of Botany, University of Delhi	**Arbuscular Mycorrhiza in cultivation of medicinal plants**

Interactive session

During the important interactive session, the participants have raised the questions on suitability of AM fungi for different crops, the role of soil conditions, nutrient status of the soil, and effective bio inoculants, purity of inoculum, quality and shelf life of commercialized mycorrhizal product and on other related issues. The panel of experts included Prof. C Manoharachary, Prof. A Manjunath, Dr Rupam Kapoor, Dr Ankit Kumar who have given suitable answers to the queries and also provided necessary practical solutions for the problems faced by the users.

KEY MESSAGES AND RECOMMENDATIONS

The key messages and recommendations that emerged out from the workshop for the participants and policy makers are:

- The current agricultural practices involving overuse of chemical for producing crops is not sustainable;
- Most of the chemical fertilizers become converted into forms that are not available to the plants;
- Mycorrhizae increase the absorbing area of the roots 100 to 1000 times also make unavailable and other tightly bound soil essential nutrients available to the plants thereby facilitate the ability of the plants to utilize soil resources more efficiently;
- In addition to their role of increasing absorption and translocation of nutrients from soil to plants, mycorrhiza also improve the tolerance of plants towards varied stresses (high soil temperature, drought, heavy metal toxicity, salinity etc.) and build up macro-porous structure of soil through their extraradical hyphae that allow penetration of water as well as air and prevents erosion. Mycorrhizae are thus a viable alternative to current agro-chemicals and can play a vital role in sustainable agriculture;
- It has been recommended that short duration (2-3 days/one week) training workshop on mycorrhiza to be organized by TERI, where researchers can be given training on different aspects of mycorrhiza research so that they can conduct mycorrhiza research at their respective institutes.

Workshop Glimpses