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Ammani Kandru

Acharya Nagarjuna University, India

Arbuscular mycorrhizae - A natural biofertilizer

Arbuscular mycorrhizal fungi (AMF), a group of obligate biotrophs, belonging to phylum Glomeromycota, represent a vital link between plant and soil mineral nutrients. These fungi form a mutualistic symbiosis with higher plants including agricultural and medicinal plants. These fungi play a crucial role in nutrient acquisition, particularly phosphorus and also water uptake. The extra matrical mycelium that extends several centimeters in the soil can acquire nutrient and water from the soil that are inaccessible to roots. Thus, this is the only fungal system that acts as a natural biofertilizer, thereby improving the ability of plants to utilize the natural resources in a sustained manner. In addition to these nutritional benefits these AM fungi play a pivotal role in preventing soil erosion, alleviating plant stress, drought and disease resistance and hence can be considered as a bioprotector also. Also they improve the soil structure and aggregation by producing a soil protein, glomalin. Further these fungi play a critical role in the mitigation of climate change by reducing N₂O emissions, an important green house gas. Hence research on Arbuscular mycorrhizae led to a gaint step forward in Agricultural Microbiology as this association is improving the production of agricultural crops with minimum inputs, improving the soil structure, aggregation and soil health and also targeting environmental pollution.

Working on AM fungi for the past 33 years on several agricultural and medicinal crops and established their positive role as a biofertilizer. The nature, occurrence, distribution and identity of these fungi was studied in detail. The present lecture summarizes the uses of AMF, the biofertilization experiments and also focuses on the economic and environmental benefits.

Biography

Ammani Kandru is the Coordinator for the department of Botany & Microbiology, Acharya Nagarjuna University. She has published 74 articles in reputed National & International journals and presented more than 140 research papers in national & international conferences. Presented research articles at John Hopkins University, Maryland USA, SriLanka and gave an invited lecture at Nepal and chaired sessions. Produced 12 Ph.D's & 9 M.Phil's in the fields of Botany, Biotechnology, Biochemistry, Microbiology & Nutrition. Life member for more than 15 reputed Scientific societies and Fellow member of Indian Botanical society, International society of Biotechnology and Eurasian Academy of Environmental Sciences. Also she has been serving as editorial board member for 4 reputed journals.

ammani1960@gmail.com