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Association of arbuscular mycorrhizas in plants: future perspectives of biofertilizer in Bangladesh

Tanzima Yeasmin

University of Rajshahi, Bangladesh

Food production is increased more than three times. This success is due to high yielding crop varieties, agrochemicals, irrigation system and chemical fertilizers. High input use has led to increased land degradation, pest resistance, loss of soil fertility, nutrient imbalance and depletion of soil organic matter etc. In the light of these problems, the use of organic fertilizers, biofertilizers i.e. microbial products are crucial to make the agriculture industry a viable component of a healthy and pleasant ecosystem. Thus, incorporation of the natural roles of beneficial microorganisms in maintaining soil fertility and plant productivity is gaining importance and may be an important approach. To identify mycorrhizal occurrence and association among different plants in Rajshahi university campus, mycorrhizal association was observed and percentage of root colonization were varied from 10-90%. Symbiotic association of about 85% plants with arbuscular mycorrhizal (AM) fungi plays an essential role in plant growth, plant protection. AMF improve phosphate intake for the plants when phosphate availability is limited; and hence, beneficial to plant growth. The frequency of mycorrhizal infection was significantly correlated with soil pH, moisture, water holding capacity, texture, total nitrogen, organic, calcium, magnesium, potassium etc. This investigation showed that especially phosphorus and nitrogen in the soil greatly influenced the plant root infection by AM. Vesicular arbuscular mycorrhizal spores were extracted from rizhosphere soils using sucrose density gradient centrifugation, wet sieving method. *Codiaeum variegatum* could be considered as the initial natural source of AM and used as the stock plant to provide inoculum of AM for biofertilizer. Inoculation with AMF improves plant growth and productivity, nutrient profile, and thereby crop improvement. AMF could be used as a biofertilizers in the future towards sustainable agriculture in reducing problems associated with the use of chemicals.

Biography

Tanzima Yeasmin completed his PhD, Master's degree and BSc in Biochemistry at Rajshahi University, Bangladesh in 2002, 1991 and 1986 respectively. He has extended his valuable service as a Professor in 2008 and has been a recipient of many award and grants. Currently, he is working as a Professor in Department of Biochemistry and Molecular Biology at University of Rajshahi, Bangladesh. His international experience includes various programs, contributions and participation in different countries for diverse fields of study. His research interests as a Professor reflect in his wide range of publications in various national and international journals.

yeasmin_bio@yahoo.com

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