

Editorial

Mycobiofertilizers

It is known that tropical soils are deficient in phosphorus. It is presumed that in most tropical soils, 75% super phosphate applied is fixed and only 25% is available for the growth of plants. Some fungi such as *Aspergillus awamori*, *Penicillium digitatum* etc. are able to solubilize unavailable form of phosphorus to convert the same to available form. It is estimated that there is about 250 mt of rock phosphate deposits in India. This cheaper source of rock phosphate like Mussoorie rock phosphate and Udaipur rock phosphate can be used commercially with phosphate solubilizing microorganisms.

Vesicular-arbuscular mycorrhizal (VAM) fungi make endomycorrhizal association with roots of several crop plants, They are zygomatous fungi belonging to the genera *Glomus*, *Gigaspora*, *Acaulospora*, *Sclerocystis* etc. These are obligate symbionts and can not be cultured on synthetic media. They help plant growth through improved phosphorus nutrition and protect the roots against pathogens. Approximately 25-30% of phosphate fertilizer can be easily saved through inoculation with efficient local VAM fungi.

In case of ectomycorrhizal fungi, basidiospores, chopped basidiocarps, sclerotia, pure mycelial culture, fragmented mycorrhizal roots, or soil from mycorrhizosphere area may be used as inoculum. The inoculum is thoroughly mixed with nursery soil and seeds and are sown thereafter. The Institute of Mycorrhizal Research and Development, USA and Abbot Laboratories, USA, have developed a mycelial inoculum of *Pisolithus tinctorius* in mycelial vermiculite-peat moss substrate with trade name *Mycorhiz* which is commercially available on large quantities throughout the world.

On the other hand VAM fungi can be produced on large scale by pot culture technique. The host plants used are sudan grass, strawberry, sorghum, maize, onion, etc. The starter inoculum of VAM can be isolated from soil by wet sieving and decantation procedure. The commonly used pot substrates are sand: soil (1:1, w/w) with little amount of moisture.

There are two methods of applying the inoculum: (1) by applying a dried spore-root soil to plants by placing the inoculum several centimeter below the seeds or seedlings; and (2) by applying a mixture of soil-roots and spores in soil pellets and spores are adhered to seed surface with adhesive.

Various type of VAM inocula are now commercially produced by Native Plants Inc. (NPI), Saltlake City. In India, Tate Energy Research Institute (TERI), New Delhi and Forest Research Institute, Dehradun, have established mycorrhizae bank commercially

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Indian Mycological Society thankfully acknowledges the financial assistance received from the Department of Science and Technology, Govt. of India for printing this Journal.

Abbreviated form of Journal of Mycopathological Research : ***J. Mycopathol. Res.***

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