

Bio fertilizers for tree cultivation

A.KARTHIKEYAN
N. KRISHNAKUMAR
August 31, 2011

Excessive use of chemical fertilizers has generated several environmental problems. To overcome these, bio fertilizers can be used as they are natural, beneficial, eco friendly and user friendly. They are considered important in growth improvement and establishment of forest tree seedlings as the media used to raise seedlings in nursery as well as planting sites are generally low in nutrients and beneficial microbial populations. It is very essential to improve the seedling health and quality planting stock of every forest tree species at the nursery level for successful establishment in the field. The following group of bacteria and fungi are major bio fertilizers being used in tree cultivation. *Arbuscular mycorrhizal* (AM) fungi are symbiotic associations between tree roots and soil fungi that play a key role in nutrient cycling in the ecosystem and also protect plants against environmental stress.

Nitrogen fixing bacteria

Some bacteria are capable of nitrogen fixation from the atmospheric Nitrogen pool. The major types of N₂ fixing bacteria are *Azospirillum*, *Rhizobium*, and *Frankia*. *Azospirillum* is free living in soils so that it can be cultured and produced in artificial medium only. It can be used at the rate of 5 gm / tree seedlings of all tree crops. *Rhizobium* is host specific nitrogen fixing bacteria normally associated with leguminous trees. About 5g of *rhizobium* /tree seedlings of leguminous tree crops is required for nitrogen fixation and growth improvement.

Phosphate solubilising

Most of the Indian soils are deficient in phosphorus and its requirement is met by the addition of phosphate fertilizers in the form of aluminium phosphate or iron phosphate. But these fertilizers are becoming costly and may have adverse effect on forest trees. Hence,

phosphate solubilising bacteria have to be used. PSB also can be used at the rate of 5gm to all tree seedlings and are capable of solubilising 50-60 per cent of rock phosphorus in the soil. Care should be taken while using biofertilizers. They should not be mixed with chemical fungicides or insecticides and are to be used with prolonged shelf life forms. *The writers are from Institute of Forest Genetics and Tree Breeding, Coimbatore, Tamil Nadu*

Keywords: [biofertilizers](#), [tree plantation](#), [environmental concerns](#)

Source: <http://www.thehindu.com/sci-tech/agriculture/bio-fertilizers-for-tree-cultivation/article2415364.ece>