

Research Paper :

## Status of AM fungi on some important leguminous plants of Mercara in Karnataka

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### SUMMARY

Legumes are important members belonging to the family Fabaceae. In the present study fifteen important leguminous plants were selected in Mercara to assess the per cent of mycorrhizal colonization. The results revealed that both per cent colonization or spore number could not be correlated with each other. Higher per cent of root colonization was recorded in *Vigna mungo* and least colonization was observed in *Vicia faba*. Similarly, highest numbers of spores were recovered in *Macutyloma uniflorum*, least number was in *Acacia planiformis*. AM Fungi are important root symbionts which play an important role in phosphorus absorption. Therefore it can be concluded that presence of mycorrhizal fungi on these legumes could sustain in drier or tropical soils with low phosphorus.

**Key words :** AM fungi, Legumes, Colonization, Spore number

AM Fungi interact with the wide range of other micro flora present in the roots, the rhizosphere and bulk soil. The interactions that occur between mycorrhizal fungi and soil microflora would be largely restricted to that of soil bacteria, actinomycetes fungi, those involving nitrogen fixing organisms and plant pathogens (Filter and Garbaye, 1994). Arbuscular mycorrhizal fungi occur in nearly all soils on earth and form a symbiotic association with roots of most terrestrial plants. (Lakshman, 2009). The AM fungal microbial interactions takes place at all stages of AM life cycle, i.e. spore population, root colonization and internal extension and hyphal growth and root nodule formation. They effect the host plant physiology that could change root morphology, physiology and thus patterns of exudation into the mycorrhizosphere. AM fungi help in the growth of plants under adverse physical soil conditions such as extremely low soil pH, alkalinity, salinity and high concentration of toxic elements such as Al, Fe and Mn.

Legumes are flowering plants that produce pods with two distinct halves. The legume family contains more than 20,000 species making it the third most populous family of flowering plants. Legume plants are notable for ability to fix atmospheric nitrogen. Growing legumes can help to restore nitrogen to the surrounding soil which is used up by other

crops. Legumes are used by drug companies in many pharmaceuticals applications and are finding new uses continuously. Legumes are rich sources of fibre, protein, essential micronutrients and low glycemic index carbohydrates. They also contain other beneficial compounds, including essential fatty acids, folate, magnesium, potassium. By replacing food in ones diet that is high in saturated fats with legumes, one can lower the risk of developing type 2 diabetes and cardiovascular disease. Since the legumes are good income generation source for farmers and also help in maintaining good health, they are being cultivated in many parts of India. Therefore, in the present study, screening of AM fungi were documented and the importance of AM fungi on legumes have been discussed.

### MATERIALS AND METHODS

#### Collection of sample:

Rhizospheric soil and roots were collected from fifteen leguminous plants growing in natural conditions of Mercara in Karnataka.

#### Experimental site:

Mercara is located at 12.42° N and 75.73° E. It has an elevation of 1525 meters (5003ft) above sea level. Mercara lies in western ghat region of Karnataka. The temperature ranges from 8.6° C in December

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