**Abstract**

Arbuscularmycorrhizal colonization in the roots and spore numbers in the rhizosphere of thirty five different grasses from Anamalai Hills, Tamilnadu, India were investigated. Percentage of fungal infection in the roots was analyzed by a staining method of Phillip and Hayman. Quantity of mycorrhizal spores was determined by employing wet-sieving and decanting technique.The results indicated that all the grasses examined during the study, exhibited the presence of arbuscularmycorrhizal association. The percentage of root colonization by AM fungi varied from 14% to 68%. *Perotisindica* had maximum percentage of colonization (68%). The presence of greater number of spore in soil was always associated with the incidence of abundant mycelia. Number of mycorrhizal fungus spores ranged between 172 to 475 per 100g air dried soil. A total of 26 arbuscularmycorrhizal fungal spores were isolated from the grasses represented by four genera, namely 6 species of *Acaulospora*, 4 species of *Gigaspora*, 14 species of *Glomus* and 2 species of *Scutellospora*. The frequency of mycorrhizal fungus infection showed positive correlation with soil pH, moisture, water holding capacity, texture, total nitrogen, phosphorus, calcium, potassium, and magnesium. Especially phosphorus and nitrogen in the soil greatly influenced the plant root infection by AM fungi.