

Seasonal dynamics and relative abundance
of AM fungi in rhizosphere of rice
(*Oryza sativa* L. cv. Basmati Supper)

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Abstract

Seasonal spore dynamics and relative abundance of five *Glomus* species (*Glomus mosseae*, *G. fasciculatum*, *G. monosporum*, *G. aggregatum*, *G. microaggregatum*) and one *Acaulospora* species (*A. bireticulata*) was studied in the field throughout the growing season of rice. Maximum number of spores per 10g sample soil was recorded for *G. fasciculatum* at the end of growth period. The pattern for highest values of propagule number in rhizosphere soil was variable for rest of the AM species. Maximum spore abundance for *G. mosseae*, *G. microaggregatum* and *G. aggregatum* was noticed at the time of crop harvest. However figures close to the peak values were observed even during the growth period. The presence of *A. bireticulata* was recorded only rarely. Lowest propagule number for *G. microaggregatum*, *G. mosseae*, *G. fasciculatum* and *G. aggregatum* was in the months of June to July. The difference between highest and lowest spore densities was statistically significant for all the AM species observed at 5% level. In relative abundance pattern it was observed that for a particular *Glomus* sample higher number of propagules of one species was associated with significantly lower values of spore number of some other species. The AM hyphae, number of arbuscules, and vesicles decreased with crop maturation while the spores increased dramatically. Spores covering a wide size range were recorded in degenerating roots and sheathing leaf bases which were lying buried in the soil. Hyphal mats and clumps were extensively observed. Mycelium often became beaded in the sheathing leaf bases. Arbuscules were not seen in the moribund roots. An innumerable number of other non-AM Dark Septate Endophytic Fungi were occasionally seen.

Keywords: Relative abundance, sheathing leaf basis, dark septate endophytic fungi, arbuscular mycorrhiza.