

PREFACE

The acceleration of species' loss is such that understanding relationships between biodiversity and ecosystem function is a crucial aspect of ecology. Plant community composition and distribution has been thought, for a long time, to be a matter of aboveground interactions such as plant – plant feedbacks, plant – herbivores and/or parasites relationships, disturbance creating new patches for plant colonization, ... Due to relevant advances in our understanding of plant and soil ecology, particularly in the investigation of rhizosphere (that is the soil biologically active compartment where root – root and root – microbes communications occurred), several findings provide evidence that plant – soil microbes feedbacks, particularly those with mycorrhizal fungi, are of great importance in determining plant species competitive performance and, could thus contribute to regulate plant community structure. Indeed, mycorrhizal symbioses are involved in plant nutrient mobilization and acquisition strategies, in plant health promotion, in interactions between plant and other biotic and/or abiotic factors, ... As plants differ in their specificity with mycorrhizal symbionts, plant host – mycorrhizal symbiont feedback would result in plant species' differential fitness and abilities when colonizing soil patches. Moreover, mycorrhizal hyphal network is known to interconnect conspecific as well as interspecific plants, and nutrient exchange may occur *via* this route to support subordinates. Consequently, mycorrhizal associations may be considered as an important biological mediator for plant coexistence and diversity.

This review presents some of the recent research work implemented on the involvement of soil microbial community in regulating plant community composition and distribution. The authors particularly focus on the implication of mycorrhizal symbioses in promoting multi-species assemblages in plant communities.