



Arbuscular Mycorrhizal Fungal Mediation of Plant-Plant Interactions in a Marshland Plant Community

Qian Zhang, Qixiang Sun, Roger T. Koide

6

Abstract

Obligate aerobic AMF taxa have high species richness under waterlogged conditions, but their ecological role remains unclear. Here we focused on AM fungal mediation of plant interactions in a marshland plant community. Five cooccurring plant species were chosen for a neighbor removal experiment in which benomyl was used to suppress AMF colonization. A *Phragmites australis* removal experiment was also performed to study its role in promoting AMF colonization by increasing rhizosphere oxygen concentration. AMF colonization was positively related to oxygen concentration. *P. australis* increased oxygen concentration, enhanced AMF colonization, and was thus indirectly capable of driving positive neighbor interactions for subdominant plant species, that AM fungi may be ecologically important even under waterlogged conditions.

AMF taxa have high species richness under waterlogged conditions, but their ecological role remains unclear. Here we focused on AM fungal mediation of plant interactions in a marshland plant community. Five cooccurring plant species were chosen for a neighbor removal experiment in which benomyl was used to suppress AMF colonization. A *Phragmites australis* removal experiment was also performed to study its role in promoting AMF colonization by increasing rhizosphere oxygen concentration. AMF colonization was positively related to oxygen concentration. *P. australis* increased oxygen concentration, enhanced AMF colonization, and was thus indirectly capable of driving positive neighbor interactions for subdominant plant species, that AM fungi may be ecologically important even under waterlogged conditions.