



Plant epiphytism in semiarid conditions revealed the influence of habitat and climate variables on AM fungi communities distribution

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In semiarid Mediterranean ecosystems epiphytic plant species are practically absent and only some species of palm-trees can support epiphytes growing in their lower crown area, such as *Phoenix dactylifera* L. (date palm). In this study we focused in *Sonchus tenerrimus* L. plants growing as facultative epiphytes in *P. dactylifera* and its terrestrial forms growing in adjacent soils. Our aim was to determine the possible presence of AMF in these peculiar habitats and to relate AMF communities with climatic variations. We investigated the AMF community composition of epiphytic and terrestrial *S. tenerrimus* plants along a temperature and precipitation gradient across 12 localities. Epiphytic roots were colonized by AM fungi as determined by microscopic observation, all epiphytic and terrestrial samples analysed showed AMF sequences from taxa belonging to the phylum Glomeromycota, which were grouped in 30 AMF OTUs. The AMF community composition was clearly different between epiphytic and terrestrial root samples and this could be attributable to dispersal constraints and/or the contrasting environmental and ecophysiological conditions prevailing in each habitat. Across sites, the richness and diversity of terrestrial AMF communities was positively correlated with rainfall amount during the most recent growing season. In contrast, there was no significant correlation between climate variables and AMF richness and diversity for epiphytic AMF communities, which suggests that the composition of AMF communities in epiphytic habitats appears to be largely determined by the availability and dispersion of fungal propagules from adjacent terrestrial habitats.