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Microbial activities and arbuscular mycorrhizal fungi colonization in the rhizosphere of gypsophytes in a gypsisol from Spain

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Randomly points have been selected to evaluate the microbial activity in a Gypsisol (WRB, 1998) from Alicante (Spain). The main aim is to improve the revegetation efficiency, using mycorrhization as a key-instrument to restore a rubbish dump located in a semiarid soil landscape of Villena (Alicante).

Four endemic species exclusively grow on gypsisols (Gypsophytes), have been selected: *Gypsophila struthium (Caryophyllaceae)*, *Helianthemun squamatum (Cistaceae)*, *Ononis tridentata (Fabaceae)*, *Teucrium libanitis (Lamiaceae*). Root samples were taken and stained to determinate mycorrhizal colonization. Rhizosphere and no rhizosphere soil were sampled to analyze enzyme activities (deshydrogenase, protease-BAA, acid phosphatase and β-glucosidase), AM fungi propagules and aggregate stability.

First results from this study show significantly higher enzyme activities on rhizhophere soil where acid phosphatase stands out, and also the mycorrhizal potential. These results have been supported by the enhancement on aggregate stability in rhizosphere samples. Thereby, this preliminary study confirms the effectiveness of microbial activity improving the growing of the gypsophytes, their establishment, and their role in the gypsum soil revegetation.

Keywords: AMF, enzyme activities, aggregate stability, gypsophytes, gypsisol