

TITLE: EFFECTS OF INOCULATION WITH ARBUSCULAR MYCORRHIZAL FUNGI ON MORPHOLOGICAL PARAMETERS OF *Mimosa scabrella*.

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ABSTRACT:

Degraded soils are highly susceptible to erosion and loss of yield potential, what is frequently related to low levels of organic matter and reduced microbial populations. In order to restore this type of soils, it is imperative to think about mitigating erosion along with improving chemical attributes related to soil fertility. In this context, the species *Mimosa scabrella* is commonly used due to its properties of fast soil covering, quick generation of organic matter and rapid nutrient cycling. When this species is associated to arbuscular mycorrhizal fungi (AMF), it may even increase its benefits once these microorganisms contribute to better root and development, which in turn improve physical and chemical soil attributes. Hence the aim of this study was to evaluate morphological parameters (height and diameter) of *M. scabrella* seedlings submitted to different inoculation treatments with AMF. The experiment was conducted under nursery conditions in the city of Curitibanos – SC, in a completely randomized design with seven treatments and thirteen repetitions. Treatments were: T1) control; T2) inoculation with *R. clarus* SCT720A, T3 – inoculation with *R. clarus* RJN102A, T4 – coinoculation with *R. clarus* SCT720A and *R. clarus* RJN102A, T5 – inoculation with *G. margarita* MGR275A, T6 – inoculation with *G. margarita* RRM344B, T7 – coinoculation with *G. margarita* MGR275A and *G. margarita* RRM344B. In each experimental unit we used 82ml of substrate and 4.1ml of inoculum and four dormancy-broken seeds were placed. Thinning was done seven days after sowing. Evaluations included plant height and diameter and data were collected 30 days after sowing. Results were submitted to the ANOVA and Duncan test at 5%. Among the seven tested treatments, T6 was the only one to affect plant height (mean of 11.33cm) when compared to T1 (8.45cm). Treatment 7 had the lowest mean (only 7.43cm) compared to T1. Values of plant diameter were not different among treatments. Based on our findings, we may conclude that inoculation of *M. scabrella* with the fungus *G. margarita* RRM344B is benefic to seedlings at their early development stage and might be recommended as a routine practice in plant nurseries.

Keywords: bracinga, mycorrhiza, symbiosis, environmental recovery.

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