



ADDITION OF GLUCOSE AS CARBON SOURCE IMPROVES THE *Glomus fasciculatum*-*Trichoderma harzianum*-*Leucaena leucocephala* INTERACTIONS.

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Key words: microbial antagonism, legume symbiosis, *Leucaena leucocephala* growth and development.

Introduction.

Leucaena leucocephala is a forage legume widely used in the tropics. In addition is a versatile model organism for the study of plant-microbe interactions. Mutualistic symbiosis between plants and microorganisms have been extensively studied because some microbe species may benefit the crop systems by several mechanisms such as the increase in the plant nutrient uptake, they may produce phytohormones increasing plant growth and development and induce defenses against plant pathogens between others. These beneficial effects may reduce the use of synthetic chemical products that cause health and environmental damage. However some microorganisms may show antagonistic effects between them decreasing their potential agricultural use.

This work had as the main objective to study the interaction between the plant *Leucaena leucocephala* when inoculated with strains from the fungi *Trichoderma harzianum* and *Glomus fasciculatum* with different glucose doses.

Methods.

This work was carried out in the greenhouse and laboratory facilities at Universidad Nacional de Colombia sede Medellín (6°15'N, 75°35'W, located at 1495 masl). To evaluate the effect of the tested microorganisms, *L. leucocephala* plant biometric variables were measured such as biomass, height, diameter to the base of the stem and mycorrhizal colonization (1) and foliar phosphorus content (2). The *Glomus fasciculatum* mycorrhiza strain was obtained from the microorganisms bank from Universidad Nacional de Colombia sede Medellín. For the fungus *Trichoderma harzianum*, a commercial product was used (Biotropical S.A ®). Seedlings were planted in an autoclaved Andisol soil with standard conditions (0,02 P in solution, pH: 5.6, humidity: 50%, fertilized with P-free Hoagland solution). As carbon source glucose at three doses was used (0, 1 and 2 g/Kg of dry soil). Data was recorded for three months.

Results.

Results obtained in this work suggest that simultaneous inoculation with *G. fasciculatum* and *T. harzianum* on *L.*

leucocephala, induce antagonism at some extent reflected in the observed plant growth and mycorrhiza colonization percentage decrease. When glucose was applied at doses of 1 or 2 g/Kg of dry soil *L. leucocephala* plant growth and development was significantly improved suggesting a positive effect from the interaction. On the contrary when glucose was applied to the plants inoculated only with the *G. fasciculatum* mycorrhizal strain an adverse effect was observed (Figure 1).

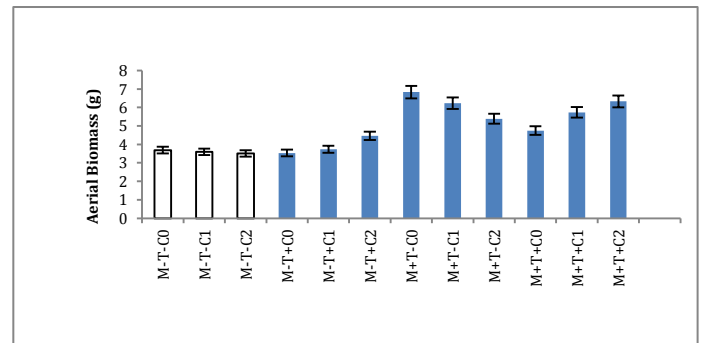


Figure 1. Aerial biomass accumulation of *Lecaena leucocephala* plants under the different treatments.

Conclusions.

Glucose additions at a concentration of 1 and 2g/Kg of dry soil, significantly improve the *L. leucocephala*-*G. fasciculatum*-*T. harzianum* interaction. Glucose applied together with the mycorrhiza *G. fasciculatum* adversely affects *L. leucocephala* growth and development.

Acknowledgements.

This work was financed by Universidad Nacional de Colombia sede Medellín. Authors are very grateful with people at Soil microbiology laboratory from Universidad Nacional de Colombia.

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