

**Title: BACTERIA AND FUNGI ISOLATES IN ASSOCIATION WITH ARBUSCULAR MYCORRHIZAL FUNGI ON THE GROWTH OF EUCALYPTUS MINI-CUTTINGS**

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**Abstract:**

The forest species cultivation in Brazil increases the Gross National Product, favors the rural workers, employs and trains specialized companies for the wood production. Furthermore, land degraded areas can be used for this target reducing the environmental degradation. *Eucalyptus* is one of the trees most used for reforestation in Brazil and has a considerable economic importance in the country due to its different uses in agroindustry. Vegetative propagation by cutting is a widespread method which allows the production of plants in large quantities, quickly and in different seasons. The inoculation of plant growth promoting microorganisms in association with arbuscular mycorrhizal fungi (AMF) in mini-cuttings can maximize its growth, optimize the establishment in nursery and maximize the development and nutrition of the plants. This work aimed to evaluate the effect of bacteria and fungi isolates inoculated in association with AMF on the growth of eucalyptus mini-cuttings. Eight plant growth promoting microorganisms with ability of producing auxins and solubilizing phosphates were inoculated ( $10^8$  CFU mL<sup>-1</sup>) on the collar of each plant (3 mL plant<sup>-1</sup>). The seedlings were grown in tubetes (330 cm<sup>3</sup>) containing the commercial substrate Bioplant<sup>®</sup> and inoculated with a monospecific culture of AMF (*Glomus clarum*). At 185 days after inoculation, the plants were evaluated for height, and root and shoot dry matter. The inoculation of the fungi FSF1 in association with *G. clarum* reduced plant height. Any positive effect of interaction between microorganisms x *G. clarum* was observed. The inoculation of microorganisms did not stimulate any growth parameters. The absence of inoculation effect was probably due to the incompatibility between the microorganisms tested. Another reason could be the too long time to measure the plant growth parameters, since the seedling were grown under high stressful conditions. Further studies are necessary in order to know better the microorganism's behavior under nursery conditions aiming to increase their establishment, survival and colonization after inoculation in the substrates.

**Keywords:** rhizosphere, mycorrhiza, P-solubilizing microorganisms

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