

## INITIAL DEVELOPMENT AND MYCORRHIZAL ROOT COLONIZATION OF SEEDLINGS OF *Jatropha curcas* L. GROWING IN SOIL FERTILIZED WITH INDUSTRIAL BIOSOLIDS

Authors: Silva, A.P.V.<sup>1</sup>, Albuquerque, A.S.<sup>1</sup>, Rodrigues, V.A.<sup>1</sup>, Souza, A.M.<sup>1</sup>, Cury, J.C.<sup>1</sup>

Institution: <sup>1</sup>Laboratório de Microbiologia Molecular - Departamento de Ciências Exatas e Biológicas (DECEB) - Universidade Federal de São João del-Rei (UFSJ), *Campus* de Sete Lagoas, Rua Sétimo Moreira Martins, 188, Itapoã II, CEP:35702031, Sete Lagoas, Minas Gerais - Brazil

The searching for alternative sources of energy in order to replace fossil oil makes the biodiesel obtained from plants a feasible option. The plant called pinhão-manso (*Jatropha curcas* L.) is a promising tree for the biodiesel production. Therefore, studies are needed with the aim to increase the development of the *Jatropha curcas* L. crop. Biosolids (sewage sludge) of urban or industrial origin are frequently used for fertilization of some crops, among them the *Jatropha curcas* L., including seedling production phase. It is known that the inoculation of mycorrhiza in the rhizosphere of plants during the production of the seedlings can improve their growth and subsequent field establishment. However, there are no studies showing the effects of the biosolids application mycorrhizal formation during the production of the *Jatropha curcas* L. seedlings. The aim of this study was to evaluate the initial growth and mycorrhization of *Jatropha curcas* L. seedlings growing in soil with the application of increasing doses of two types of industrial biosolids, one from textile industry and one from brewing industry. The doses utilized were related to 0, 5, 10, 15 and 20 Mg.ha<sup>-1</sup>. The soil of the seedling bags were inoculated with soil containing spores of the mycorrhizal fungi *Scutellospora heterogama*, *Glomus clarum*, *Glomus etunicatum* and *Acaulospora* sp. The experiment were conducted carrying out five replicates. After the growth period of 61 days, dry mass of the shoots were measured. Furthermore, it was determined the percentage of mycorrhizal colonization of the plant roots using the checkered plate method. The results showed that the mycorrhizal colonization of the roots of the plants growing in soil amended with 10, 15 and 20 Mg.ha<sup>-1</sup> of textile biosolid was statistically (Scott & Knott test at 5% of probability) higher than the others treatments, varying between 78.8% to 81.8%. However, the dry mass production were statistically higher (Scott & Knott test at 5% of probability) for plants that grown in soil amended with 15 and 20 Mg.ha<sup>-1</sup> of brewing biosolid. Thus, we concluded that the textile biosolid promote more root colonization by mycorrhizal fungi but this fact was not reflected in higher growth of shoots of the *Jatropha curcas* L. if we consider that the higher growth of shoots were obtained with the application of the higher doses of the brewing biosolid, whose presented the lower capacity to promote micorrhizal colonization.

Keywords : *Mycorrhiza*, *Jatropha curcas* L., *sewage sludge*

Funding agencies: UFSJ / FAPEMIG