

EFFECT OF BACTERIAL INOCULUM CONCENTRATION OVER EUCALYPTUS SEEDLINGS DEVELOPMENT

ARAÚJO, M. S.; FONSECA, E. S.; RACHID, C. T. C. C.

INSTITUTO DE MICROBIOLOGIA PAULO DE GÓES, CENTRO DE CIÊNCIA DA SAÚDE, UNIVERSIDADE FEDERAL DO RIO DE JANEIRO (RIO DE JANEIRO - RJ, BRAZIL)

Forest plantations are the planting of native or introduced species, aiming to supply raw materials for society. *Eucalyptus* is one of the most extensively planted genus worldwide. In Brazil, 5.6 out of the 7.84 million hectares of forest plantations are from *Eucalyptus*. This shows its great economic relevance, representing 6% of the Brazilian gross domestic product. Due to the ability to improve plant development, there is a great interest in the use of microorganisms as plant inoculum. In previous studies, four bacterial lineages were selected and assembled in a bacterial consortium and tested in its capacity to improve the development of *Eucalyptus* seedlings. The present study investigated the influence of different concentration of this microbial consortium in *Eucalyptus* seedling development parameters. To analyze the response of the plant development to the concentration of the microbial consortium, seedlings were inoculated with the consortium and monitored in greenhouse conditions during 28 days. To evaluate the effect of different concentrations, the following treatments were implemented (replicated 36 times): i. control; ii. 1x concentration; iii. 10x concentration; iv. 100x concentration. Plant development parameters such as height, root biomass and root formation were evaluated. Results showed that the average height of *Eucalyptus* at 1x and 10x concentrations were higher than the control. Comparing root formation, 10x concentration obtained a 100% survival rate, with the lowest incidence of callus formation, in relation to 86% of the control. In addition, the consortium concentration affected the average biomass of the root, with the 10x concentration means being higher than the others, but without statistical significance. Therefore, this work identified that root formation, height and survival rate were influenced by the consortium concentration, having better results at the 10x concentration, but requiring more future studies to better elucidate the performance of the consortium.

KEYWORDS: microbial consortium, forest plantations, *Eucalyptus*.

DEVELOPMENT AGENCY: Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPQ), Fundação de Amparo à Pesquisa do Estado do Rio de Janeiro (FAPERJ).