

## TRICHODERMA ENDOPHYTE PROMOTES PLANT GROWTH ON YERBA MATE

I Simpósio de Microbiologia de Rondônia: Saúde, Ambiente e Inovação., 1ª edição, de 23/03/2021 a 25/03/2021  
ISBN dos Anais: 978-65-86861-91-4

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### RESUMO

Argentina is the world's largest producer of yerba mate, with a total crop area of 169.633 hectares in the northeast region of the country. This tree is a very valuable regional crop because its leaves are processed into a traditional beverage called mate, consumed as an alternative to coffee by millions of South Americans due to its stimulant effects. Several approaches to improve productivity in yerba mate plantations have been evaluated, but the role of native microbes has not been studied yet as a more sustainable strategy to promote growth and health of yerba mate crops. There are limited studies on yerba mate endophyte microorganisms working as biofertilizers and/or biocontrollers to improve yerba mate crop.

The aim of this work was to study the promotion on yerba mate seedlings of different formulations based on *Trichoderma* endophytes from yerba mate roots. The strains used belong to *T. asperelloides* LBM 193 and *T. sp.* LBM 202. *Trichoderma* was grown on rice substrate, dried and processed with an electric grinder. This inoculum obtained as dust was used to be applied on yerba mate plants. In addition, a spore suspension was prepared from *Trichoderma* grown on PDA plates. The assays were conducted in a nursery of the Fundación Alberto Roth in Santo Pipó, Misiones. We used 5 treatments to inoculate yerba mate plants which consist of LBM 193 and LBM 202 dust, LBM 193 and LBM 202 suspension, and control. The assay conducted used a random block design, with 3 blocks each one with ten experimental units (yerba mate plants). Each block was placed on different sites of the nursery. The plants were inoculated 3 times at the beginning of the assay, at day 15 and 45 of the assay started. It was evaluated different parameters of plant growth as: chlorophyll of one leaf, height and diameter of aerial part and general aspect of the plants. The end of the assay was at seventh month, in which apart from the named parameters, dry weight was measured. The results shown higher height, chlorophyll and dry weight of plants treated with LBM193. LBM202 showed that it has the ability to protect yerba mate plants since plants treated with this microorganism showed better overall appearance. In conclusion, LBM193 and LBM202 are a new good eco-friendly alternative to improve yerba mate crops.

**PALAVRAS-CHAVE:** yerba mate, Trichoderma, plant growth.

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