

# PRODUCTION OF POTATO SEED TUBERS UNDER THE INFLUENCE OF A MICROBIAL CONSORTIUM IN TROPICAL CONDITIONS

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## RESUMO

Potato (*Solanum tuberosum* L.) is one of the main crops in the Andean region and due to environmental aspects, the use of biocontrol agents is considered a safe way to produce potato seed tubers. The objective of the study was to verify the efficacy of *Trichoderma* sp. and rhizobacteria on the growth of potato seedlings grown *in vitro*, for the production of seed tubers in the greenhouse. The inoculation of *Trichoderma* sp., *Bacillus simplex*, and *Azotobacter* sp. was carried out in pots of five potato genotypes under a mesh-house in Huacho, Peru. A completely randomized design with 4 repetitions was used, under a factorial arrangement. The inoculation treatments were: control (without inoculants), *Trichoderma* sp., *Trichoderma* sp. + *Azotobacter* sp., *Trichoderma* sp. + *Bacillus simplex*, T5: *Trichoderma* sp. + *Bacillus simplex* + *Azotobacter* sp. The potato genotypes were cv. 'Unica' (CIP392797.22), the advanced clones CIP 396311.1, CIP 399101.1, and the experimental clones UH-09 and UH-24 from the Universidad Nacional José Faustino Sánchez Carrión. All inoculant treatments exceeded the control in number and weight of tubers per plant as well as in size (diameter) of the tuber. Inoculations of *Trichoderma* sp. alone or with *Azotobacter* sp. increased plant height, number of leaves per plant, and vegetative uniformity; inoculations with the *Trichoderma* sp. + *Bacillus simplex* + *Azotobacter* sp. consortium, improved the dry weight of the foliage, number of shoots per plant and vegetative vigor. For the fresh weight of foliage, there were no statistical differences. There were significant interactions between potato genotypes and inoculant treatments in uniformity and vegetative vigor and fresh and dry weight of the foliage. Inoculation with *Trichoderma* sp. and some bacterial strains promote the growth from *in vitro* cultured potato seedlings, increasing the size and weight of the seed tubers.

**PALAVRAS-CHAVE:** *Trichoderma*, *Azotobacter*, *Bacillus*, potato seed tubers

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