

Short Article

EVALUATION OF MICRONUTRIENTS EFFECTS ON PRODUCTION AND ACTIVITY OF CHITINASE ENZYME OF SOME *Trichoderma* SPECIES *

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Abstract

Trichoderma species are used in plant disease control due to secretion of some chitinase enzymes as a strong factor involves in biological control. In recent years, application of microelements fertilizers has been a common practice that can impact on biological control efficacy of microorganisms. In this study, the specific activity of the chitinase enzyme of *Trichoderma* species was evaluated in SM liquid medium containing 100 ppm of manganese, copper micronutrients and 100 and 500 ppm of iron micronutrient. The results revealed that all *Trichoderma* species were able to produce chitinase and chitinase activity significantly varied in different species grown on media containing different micronutrients. The highest specific activity of the enzyme was found in isolates belonging to *T. brevicompactum* and *T. koningiopsis* grown in medium containing manganese micronutrient equivalent to 0.0048 U/mg protein and 0.0045 U/mg protein, respectively. The lowest activity was found in isolate belonging to *T. arundinaceum* in medium containing 500 ppm iron micronutrient with 0.0018 U/mg protein and in isolate belonging to *T. atroviride* in medium containing 500 ppm iron micronutrient and isolate belonging to *T. brevicompactum* in medium containing copper micronutrient. As a result, manganese micronutrient increased the production of chitinase in some *Trichoderma* species and can be used in biological control application. Conversely, iron and copper micronutrients showed a negative effect on the activity of the enzyme.

Keywords: *Trichoderma*, Biocontrol, Fertilizers, Microelements.

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