

Abstract

Fungal pathogens including *Verticillium longisporum* which causes verticillium wilt are among the serious diseases of crops that easily spread worldwide. One of the ways to prevent fungal infection is to use fungal biocontrol agents applied as a seed coating. This control agent, the non-pathogenic oomycete *Pythium oligandrum*, enters the soil together with the seed and acts symbiotically in the plant's root system. On the one hand, it stimulates the plant's defence mechanism by secreting elicitors, and on the other hand, by providing tryptamine, it stimulates growth and increases the plant's fitness with auxin. In this work we studied the effect of seed treatment of *Solanum lycopersicum* L. cv. Micro-Tom with three different isolates of the genus *Pythium* (including the commercially used isolate M1 and two yet unused isolates X42 and X48) on the activities of antioxidant and NADP(H)-dependent enzymes in the leaves of plants infected with fungal pathogen *V. longisporum*. Two weeks after pathogen inoculation, no significant difference was found in the studied enzymes except for increased glucose-6phosphate dehydrogenase and NADP-malate dehydrogenase (oxaloacetate decarboxylation) activity in plants treated with X42 isolate and increased shikimate dehydrogenase activity and antioxidant capacity in plants treated with M1. The antioxidant enzymes catalase and superoxid dismutase, for which the isoenzyme composition was also determined, were not statistically significantly induced at the time of the infection development.

Key words

fungal pathogens, *Verticillium longisporum*, *Pythium*, *Solanum lycopersicum* L., dehydrogenases, oxidative stress, ROS, SOD

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