Polyphenol oxidases (PPOs) are ubiquitous copper containing enzymes that catalyze the oxidation of phenolic compounds using molecular oxygen. PPOs have been described to play an important role in food industry, in physiological functions in plant growth and development and they are most generally believed to play important roles in plant defense responses. Root-knot nematodes, Meloidogyne spp. are sedentary endoparasites and are among the most damaging agricultural pests attacking a wide range of crops. The root-knot nematode M. javanica, is a common plant parasite in agricultural soil in Turkey, it can severely damage growing plants, including tomato (Solanum lycopersicum). Arthrobotrys spp. are a well-known nematode-trapping fungus with high biocontrol potential against root knot nematodes. These fungi capture nematodes by using special hyphae which forms a three dimensional networks.

This study was carried out to compare the levels of PPO enzyme activity in the roots of tomato (cv. Panda F1) infested with indigenous isolates of Arthrobotrys (CEA-1, CEA-2, CEA-3, CEA-4 and CEA-5) and M. javanica. To evaluate the activity of PPO, root samples were taken on seven continuous days starting from the next day after inoculation with M. javanica. Results of this study show that inoculation of tomato roots by individually Arthrobotrys spp. and nematode also significantly increased activity of PPO in comparison to combination treatments. The results suggest that the inhibitory effect of Arthrobotrys spp. on the root-knot nematode (M. javanica) may be related to its ability to enhance defense responses in the tomato roots.

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