Polyphenol oxidases (PPOs) are enzymes, belonging to a group of copper-containing metalloproteins and widely distributed throughout microorganisms, plants and animals. There are mainly three types of PPOs classified according to their substrate specificities and mechanism of actions. These are: tyrosinase (EC 1.14.18.1), catecholase (EC 1.10.3.1) and laccase (EC 1.10.3.2). PPOs are enzymes that are well known to be involved in the enzymatic browning reaction of fruits and vegetables. In addition, PPOs have been described to play an important role in food industry, in physiological functions in plant growth and development and in plant defense against pests and pathogens.

Root-knot nematodes (Meloidogyne spp.) that are distributed in all over the world, cause economically reduction in agricultural crops. Among the Meloidogyne species, M. hapla is the mostly disseminated in Turkey soils, where they parasitize several crops of economic value. Arthrobotrys spp. are a well known nematode-trapping fungus with high biocontrol potential against root knot nematodes.

In this study, the experiment was carried out with four treatments: (1) tomato (Solanum lycopersicum cv. Ceren F1) plants pre-inoculated with isolates of Arthrobotrys (CEA-1, CEA-2, CEA-3, CEA-4 and CEA-5), (2) tomato plants pre-inoculated with isolates of Arthrobotrys and then inoculated with M. hapla, (3) tomato plants inoculated with M. hapla, and (4) tomato plants without any of the two microorganisms (control). The activity of PPO enzyme was determined in roots of tomato plants. The roots samples were taken on seven continuous days starting from the next day after inoculation with M. hapla. PPO enzyme activity was detected in the roots of inoculated and uninoculated control tomato plants. The highest levels of PPO enzyme activity in treatments were observed four days after nematode inoculation. The authors are indebted to the Ministry of Food, Agriculture and Livestock, the General Directorate of Agricultural Research and Policies (TAGEM), Project No. TAGEM/ 14 / AR-GE / 07.