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Enzymatic Activities of Two Iranian Wheat Cultivars Infected with Fusarium Culmorum

Authors : Parastoo Motallebi, Vahid Niknam, Hassan Ebrahimzadeh, Majid Hashemi

Abstract : Wheat, the most strategically important worldwide crop, is widely grown in various countries. Based on international wheat production statistics (FAOSTAT database), the total production of wheat in 2012 was 13.8 in Iran. Fusarium culmorum is one of the principal causative agents of Fusarium crown rot (FCR), an overwhelming disease of wheat and barley which is in the early stages causing yield losses, stand reductions and rotting of root and lower stem tissues. In this study inoculation of two wheat seedlings of the susceptible cultivar Falat and the partially field-resistant cultivar Pishtaz were carried out in greenhouse conditions and root samples were taken for 6 days. The activity of peroxidase (POX) and polyphenoloxidase (PPO) enzymes were analyzed to identify possible relations between resistance and enzymatic activities. Although the POX and PPO activities in both geno types increased, this significant increase was more dominant in Pishtaz. The results showed an earlier elevation in the activity of these defense related enzymes in semi-resistant cv. Pishtaz after inoculation, suggested that the activities of POX and PPO in wheat geno types play an important role in the induction of resistance to this disease.

Keywords : Defense responses, Fusarium culmorum, Wheat
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