Research Article

Induction of Defense Response in Tomato Plant Against *Ralstonia solanacearum*

D Sharma and Y Singh

Department of Plant Pathology, GB Pant University of Agriculture and Technology, Pantnagar-263 145, Uttarakhand, India; E-mail address:divyasharma521@gmail.com

Abstract

Plants can be induced to develop enhanced resistance to pathogen infection by treatment with a variety of abiotic and biotic inducers. Five chemical inducers *i.e.* Dichloroisonicotinic acid (INA), Benzo-(1,2,3)-thiadiazole-7-carbothioic acid S-methyl ester (BTH), Salicylic acid (SA), Jasmonic acid (JA) and L-Histidine were investigated to determine the effect on bacterial wilt of tomato caused by *Ralstonia solanacearum* under glass house conditions. The increase in PAL activity of tomato roots by all the chemical inducers was significantly higher than the control. L-Histidine showed the highest catalase activity after 48 hours of inoculation, there was a rapid fall in the activity of the enzyme reaching the control level at 96 hours after inoculation. Total phenolic content in tomato was found to increase starting from 24 hours after inoculation under the influence of the chemicals after 96 hours of inoculation. Polyphenol oxidase activity also increased sharply and peak was observed at 24 hours after inoculation in case of all treatments. The results indicate that all five chemical inducers induced effective defense responses in tomato plants against *R. solanacearum*. This was evident from reduced vascular browning and wilting symptoms of tomato plants treated with all the five chemical inducers and challenged subsequently with *R. solanacearum*.

Key words: Jasmonic acid, L-Histidine, polyphenol oxidase (PPO), *R. solanacearum* and salicylic acid

Citation: Sharma D and Singh Y. 2020. Induction of defense response in tomato plant against *Ralstonia solanacearum. J Mycol Pl Pathol* 50(4): 347-353