

Title Defense response of tomato fruit at different maturity stages to salicylic acid and ethephon
Author Yu-Ying Wang, Bo-Qiang Li, Guo-Zheng Qin, Li Li and Shi-Ping Tian
Citation Scientia Horticulturae, Volume 129, Issue 2, 10 June 2011, Pages 183-188
Keywords Tomato fruit; Defense response; Maturity stage; Salicylic acid; Ethephon

Abstract

In order to elucidate whether fruit maturity stage influence the induced resistance of exogenous elicitors in tomato and the involved mechanisms, we investigated the defense responses of tomato fruits against *Botrytis cinerea*, ethylene production and internal quality following treatments of fruit with salicylic acid (SA) or ethephon (ET) at mature green (MG) and breaker (BR). SA significantly suppressed decay and disease incidence in tomato fruits at both MG and BR stages, along with higher expression level of *PR1* gene after 2 days of treatment. All fruits treated by SA had lower contents of ethylene and lycopene. The ET-treated fruit at both maturity stages showed lower disease incidence and higher level of *PR2* and *PR3* expression compared with the control fruit. ET treatment significantly enhanced ethylene and lycopene contents, and accelerated fruit ripening. Our results suggest that SA and ET induced disease resistance in fruits by mediating the expression of different pathogenesis-related genes and have different effects on fruit ripening, which in turn influences the disease resistance of tomato fruits.