

Role of Salicylic Acid in Tomato Defense against Cotton Bollworm, *Helicoverpa armigera* Hubner

Jinying Peng, Xiaojun Deng, Jianhua Huang, Shihai Jia, Xuexia Miao, and Yongping Huang*

Institute of Plant Physiology and Ecology, Shanghai Institute for Biological Sciences,
The Chinese Academy of Sciences, Graduate School of the Chinese Academy of Sciences,
300 Fenglin Road, Shanghai, 200032, China. Fax: 86-21-54924047.
E-mail: yongping@iris.sipp.ac.cn

* Author for correspondence and reprint requests

Z. Naturforsch. **59c**, 856–862 (2004); received June 21/August 20, 2004

We investigated the role of the salicylic acid (SA) signaling pathway in defense responses of tomato plants to the herbivore, cotton bollworm. After exposure to the cotton bollworm, tomato leaves rapidly accumulated a high level of SA. The transcription of *PR1* and *BGL2* genes, the marker genes of SA pathway, was up-regulated. An enhanced endogenous SA level was accompanied by an increase in the endogenous H₂O₂ level as compared with controls. Spraying tomato plants with a solution containing either SA or methyl salicylic acid (Me-SA), the H₂O₂ level dramatically increased. These data proved that the SA pathway was involved in the tomato plant defense responses to the herbivore.

Key words: *Lycopersicon esculentum*, Salicylic Acid Pathway, Plant Defense Response