PpHOS1, a RING E3 ubiquitin ligase, interacts with *PpWRKY22* in the BABA-induced priming defense of peach fruit against *Rhizopus stolonifer*

Chunhong Li, Jing Wang, Nana Ji, Changyi Lei, Daxiang Zhou, Yonghua Zheng and Kaituo Wang

Postharvest Biology and Technology, Volume 159, January 2020, 111029

Abstract

The priming resistance induced by β-aminobutyric acid (BABA) is a cost-effective strategy to protect postharvest fruit from pathogen infection. The cross-linking underlying E3 ubiquitin ligases, WRKY transcription factors (TFs) and priming defense in peaches, however, remains poorly researched. In the present study, 50 mmol L^{-1} BABA could induce disease resistance at least by priming peach fruit for an accumulation in H_2O_2 content following subsequent *Rhizopus stolonifer* incubation, accompanied by a suppression of the disease incidence and lesion diameter during the incubation at 20 °C. Meanwhile, a WRKY TF (*PpWRKY22*) and an E3 ubiquitin ligase (*PpHOS1*) were identified specifically based on analysis and summarization of the differentially expressed genes and proteins in the transcriptome and proteome database of peaches, respectively. Moreover, the putative characterization of *PpWRKY22*, a Group IIe WRKY TF, and *PpHOS1*, a RING-type E3 ubiquitin ligase, was expounded. The expression of *PpWRKY22* and *PpHOS1* was up-regulated in the priming resistance of peach fruit against *R. stolonifer*, and the two nucleus-localized proteins physically interacted in vivo. Taken together, these findings bring new insights into the functional link between E3 ubiquitin ligases and WRKY TFs in priming resistance, and they enable new perspectives on enhancing the disease resistance of peaches.