Cloning of superoxide dismutase from post-harvest Hami melon and quantitative expression analysis before and after disease

C.H. Shan1,2, F.X. Tang2, W. Chen1 and W.R. Ma2

1School of Science and Technology, Jiangnan University, Wuxi, Jiangsu, China
2Food College of Shihezi University, Shihezi, Xinjiang, China

Corresponding author: W. Chen
E-mail: shan771128@163.com

Received August 31, 2015
Accepted October 2, 2015
Published December 23, 2015
DOI http://dx.doi.org/10.4238/2015.December.23.10

ABSTRACT. Primers were designed according to the Cu/Zn-SOD gene sequences of cloned Cucurbita plants (cucumbers and watermelons) available in NCBI. Total RNA from Hami melon pulp was used as a template. Following RT-PCR amplification, a 403-bp fragment of the Hami melon Cu/Zn-SOD gene was obtained. According to alignment in BLAST and phylogenetic tree analysis, the cloned gene fragment was confirmed to be the Hami melon Cu/Zn-SOD gene sequence. Real-time fluorescence quantitative expression analysis indicated that there were differences in the expression of SOD mRNA expression before and after infection by blue mold. mRNA expression was maximal 24-h after infection, indicating that the product of the SOD gene plays an important role in the rotting and degeneration of Hami melons as a consequence of bacterial infection during the preservation period.

Key words: Hami melon; Superoxide dismutase; Gene cloning; Real-time fluorescence quantitative PCR