

PB-105

Powdery Mildew Resistance Phenotype Test & Genotype Test in *C. moschata*

Jong-Gyu Park^{1*}

¹Department of Plant Life & Environmental Science, Hankyong National University

[Abstract]

Powdery mildew is known to be one of the serious diseases in *C. moschata* cultivation. Plants infected with powdery mildew cause damage to cultivation areas such as occurrence of deformity fruit and decrease in quantity. also, it has been reported that many farms have difficulties in controlling powdery mildew due to the outbreak under various conditions throughout the year. Therefore, this study intends to perform a phenotype test and a genotype test for *C. moschata* 60 lines grown in Jenong S&T. *Podospareaxanthii*, known as a pathogen that causes powder mildew disease in pumpkins in Korea, was collected and used as an inoculation source. phenotype test was performed by examining the infection area rate(%) of powdery mildew disease that occurred in leaves 25 days after inoculation. It was determined that 0% of the infection area rate was in the first stage, 1 to 5% in the second stage, 6 to 15% in the third stage, 16 to 30% in the fourth stage, and 31% or more in the fifth stage, The first and second stages were judged as resistance, the third as moderate resistance, and the fourth and fifth stages as sensitivity. As a result of the phenotype test, it was confirmed that the resistance was 21 points, moderate resistance was 14 points, and sensitivity was 25 points. After searching for the genes related to powdery mildew resistance resistance, *pm-0*, *CmbHLH87*, and *LOC111453072*, 21 points of resistance and 9 points of moderate resistance identified through phenotype tests were identified through gel electrophoresis after polymerase chain reaction(PCR) using 5 primers related to 3 genes. As a result of genotype testing of a total 30 points, the *CmbHLH87* and *LOC111453072* gene were found to be resistant bands in all points, PMR1 was identified as 20 points for resistance, 4 points for moderate resistance, and 6 points for sensitivity, PMR2 was not identified in the entire band, and PMR5 was identified as 18 point for resistance, 3 points for moderate resistance, and 9 points for sensitivity. As a result, when comparing the phenotype test results and genotype test results, *CmbHLH87* and *LOC111453072* genes was 100% consistent in resistance and moderate resistance, PMR1 was 95.2% in resistance, 44.4% in moderate resistance, and PMR5 was 90% in resistance and 33.3% in moderate resistance, PMR2 was not consistent in resistance and moderate resistance. Therefore, it is expected that more accurate PMR test will be possible by using molecular markers(PMR1, PMR5) and by developing *CmbHLH87* and *LOC111453072* gene-related molecular markers.

Keywords: *C. Mostchata*, Powdery mildew, phenotype test, genotype test, *Podospareaxanthii*

*Corresponding author: E-mail, parkjg@jenong.co.kr Tel,*** - **** - ****