

## Comparison of the Apple Rootstock Cultivar with the MR5 Resistance Traits of Fire Blight Resistance

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### 과수화상병 저항성 사과대목의 MR5보유 대목별 비교

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Fire blight, caused by *Erwinia amylovora*(Burrill), is a destructive disease of apple that damages blossoms, shoots, and woody plant organs. The fire blight disease is a worldwide problem for pome fruit growers because all popular apple cultivars are susceptible to the disease. Recently, fire blight of apple rootstocks has become a serious economic problem in high-density orchard systems in Korea. The most commonly used dwarfing root stocks, M.9 and M.26, are highly susceptible to *E. amylovora*. The objective of the apple rootstock-breeding program has been to develop pomologically excellent rootstocks with resistance to abiotic and biotic stresses, including fire blight. Budagovsky 9 (B.9) apple rootstock is reported to be highly susceptible when inoculated with *E. amylovora*, although results from multiple trials showed that B.9 is resistant to rootstock blight infection in field plantings.

So we tried to collect the apple rootstocks traits of fire blight resistance. The apple genotype Malus Robusta 5 (MR5) represents an ideal donor for fire blight resistance because it was described as resistant to all currently known European strains of the pathogen. The PCR for detecting the MR5 gene using the primers Md\_MR5\_FL\_F/Md\_MR5\_FL\_R.

The results of these experiments confirmed some apple rootstocks traits of fire blight resistance showed the MR5. Furthermore, this gene is confirmed to be the resistance determinant of Mr5 as the transformed lines undergo the same gene-for-gene interaction in the host-pathogen relationship MR5-*E. amylovora*.

**Key words:** Fire blight, Apple rootstocks, Malus Robusta 5, PCR

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