

Characteristics of Potato Virus Y (PVY) Mutant Isolated from PVY Resistance Breeding Line in Korea

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An isolate of Potato virus Y (PVY) mutants was occurred in PVY resistance breeding line KF0402 (TC1146×KF117) showing vein necrosis at Suwon in Korea. This isolate, PVY-SWM, was differentiated from other PVY isolates based on biological properties and nucleotide sequence analyses of coat protein gene. PVY-SWM caused typical symptoms on 11 indicator plants as compared to the PVY-N. Remarkably, the PVY-SWM induced distinctly different symptom of systemic vein necrosis on tobacco cultivars V. SCR, PBD6, TN86, TN90, Virgin A Mutant, Wislica, NC744, KB108 and KB111, which were reported to have the recessive potyvirus resistance gene *va*. In RT-PCR assays with specific primers for detection of PVY, a single band of about 800bp in length was produced. The amplified DNA was cloned and the nucleotide sequence was determined. The coat protein gene of PVY-SWM showed 88.4~99.0% and 92.5~98.5% identities to the 11 different PVY isolates of Genbank Database at the nucleotide and amino acid, respectively. Multiple alignments as well as cluster dendrograms of PVY-SWM isolate revealed close phylogenetic relationship to the PVY^{NTN} subgroup.