

EVALUATING PVY RESISTANCE AND AGRONOMIC TRAITS OF PROMISING BACKCROSS (BC1) PROGENIES BETWEEN SOMATIC HYBRIDS AND CULTIVATED POTATOES

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Summary

This study demonstrated the result of evaluation of agronomical traits and virus resistance of backcross (BC1) hybrids between somatic hybrids and cultivated potato varieties as the pollen donor. Somatic hybrids were produced by fusing protoplast between cultivated potatoes and wild-type potatoes which consist genes ($R_{y_{sto}}$) for extreme resistance to PVY. According to results of all backcross (BC1) hybrid clones being resistant to PVY, it can be indicated that BC1 hybrids were heritated PVY resistance gene from wild -type potatoes. BC1 hybrids were also evaluated their abilities for resistance to PVY by mechanical, only 4 out of 5 clones carrying the resistance gene ($R_{y_{sto}}$) exhibited non infected sample and 01/ 05 lines (1303.22) showed moderate resistance to PVY (25% of infected samples). This study confirmed that protoplast fusion was successful in transferring PVY resistance gene from the wild type potato to the somatic hybrids, and the resistance was maintained in the BC1 progeny. In addition, the BC1 hybrids also carried several desirable agronomical characteristics of cultivated potatoes, some of which had higher productivity and yield components. So that, the breeding pathway to select PVY-resistant and valuable agronomic traits potatoes via proplast fusion between cultivar and wild-type potatoes, and then backcross between somatic hybrids and cultivar potatoes is possible.

Keywords: *Potato, PVY resistance, backcross (BC1).*