

through an ABI3730xl capillary electrophoresis platform. A total of 384 cultivars were screened with the TG689 marker. The cultivars assessed genotypically included all that had undergone the phenotypic screen. With the co-incident cultivars, there was 98% congruence between the phenotypic and genotypic data. Three cultivars displayed false negative results (resistant phenotype, TG689 *HI* band absent) and two cultivars exhibited false positive results (susceptible phenotype, TG689 *HI* band present). The high level of congruence between phenotype and genotype data suggests, provided pedigree is taken into consideration, that the optimised TG689 marker assay can be used for diagnostic screening of PCN resistance.

Characteristics of Potato Somatic Hybrids Between *Solanum Michoacanum* (Bitter.) Rydb. Resistant to *Phytophthora Infestans* and *S. Tuberosum* L.

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The objective of this work was to produce interspecific somatic hybrids resistant to *Phytophthora infestans* (Mont.) de Bary by means of protoplast fusion of the wild potato species *Solanum michoacanum* (2x, 1EBN, source of resistance) and *S. tuberosum* (2x, 2EBN; 4x, 4EBN). *S. michoacanum* is reproductively isolated from *S. tuberosum* and cannot be crossed directly with potato. In cooperation with Julius Kühn Institute, Germany, somatic hybrids were produced by protoplast electrofusion of two accessions of *S. michoacanum*, with three diploid clones of *S. tuberosum* and the cultivar Rywal, which are susceptible to late blight. For eight genotype combinations somatic hybridization was achieved and viable calluses and shoots obtained. The hybrid nature of 169 regenerated plants obtained from the fusion of *S. michoacanum* with two diploid breeding clones was confirmed by three SSR markers (ST13ST, STI057, STM1049). Using flow cytometry tetraploid, hexaploid and octoploid plants were identified among the 41 somatic hybrids. From this material more than 1000 plants (1 plant per callus) were regenerated from all fusion combinations in Poland. Two in vitro copies were preserved for each of them.

Greenhouse grown plants were characterized in terms of their phenotypic traits, like vigour, habit, shape of leaves, flowering and pollen fertility. The ploidy level was estimated by counting the chloroplast number in guard cells. Fifty of the 160 plants analysed were identified as hybrids based on two CAPS markers (C2_At5g51970, C2_At2g14260) and three RAPD markers (OPA03, OPA09, OPA11). Simultaneously, 300 plants were evaluated for resistance to foliage blight using the detached leaflet assay (scale 1–9, 9=the most resistant). One somatic hybrid was resistant to foliage blight. The work is to be continued. This work was supported by project PBZ-MNiSW-2/3/2006/28.