SOMATIC HYBRIDIZATION TO OVERCOME CROSSING BARRIERS BETWEEN 2X(1EBN) SOLANUM BRACHISTOTRICUM, S. BULBOCASTANUM, S. CARDIOPHYLLUM AND 2X(2 EBN) S. TUBEROSUM

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*Solanum brachistotricum* (bst), *S. bulbocastanum* (blb) and *S. cardiophyllum* (cph) are Mexican wild diploid relatives of the cultivated potato *S. tuberosum* (tbr). They are highly resistant to several stresses, including late blight. However, due to post-zigotic barriers, bst, blb, cph are sexually isolated from tbr at 2x level. To overcome the existing crossing barriers, somatic fusion between bst, blb and cph and two tbr haploids (COI 25, DEI 23) was carried out. Parental genotypes were combined complementing their protoplast plating efficiency or regeneration rates, in order to exclude at least one of two non- and homo-fused parents from regeneration of the fusion products. In all, 102 regenerated calli were obtained from four fusion-combinations: bst (+) COI 25, bst (+) DEI 23, blb (+) DEI 23, cph (+) DEI 23, with regeneration frequency ranging from 0% in bst (+) DEI 23 to 3.4% in cph (+) DEI 23. Identification of somatic hybrids was carried out by ISSR markers. ISSR primers, that generated genotype-specific bands within each parent combination, were used to analyse regenerants and to select interspecific hybrids. Results on molecular, cytological and morphological analysis of hybrid material is reported.