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Poster Abstract - C.24

CHARACTERIZATION OF PROGENIES FROM INTER-PLOIDY, INTER-EBN CROSSES IN *SOLANUM*

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A ploidy bridge strategy was followed to overcome isolation barriers due to EBN differences between wild *Solanum commersonii* (*2n=2x=24*, 1EBN) and S. *tuberosum* haploids (*2n=2x=24*, 2EBN). Genetic materials generated was interesting not only for variety development but also for basic research. In fact, the ploidy levels produced (triploid, pentaploid, aneuploid) are hardly available and they can provide important information on evolution, reproduction and EBN in potato and other polysomic polyploids. In this study, we present the cytological and molecular characterization of progenies obtained for *3x*(2EBN) *x 2x*(2EBN), *5x*(4EBN) *x 2x*(2EBN) and *4x*(4EBN) *x 2x*(2EBN) crosses. Cytological analysis of *3x*(2EBN) *x 2x*(2EBN) progenies provided evidence that chromosome number ranged from *2n*=29 to *2n*=36, and that trisomics were not obtained. It is possible to hypothesize that in these crosses the EBN incompatibility system favoured gametes of triploid parent with a high number of extra-chromosomes. This would generate a 2:1 maternal to paternal EBN ratio in the hybrid endosperm, that is the necessary condition for normal endosperm development. Cytological analysis of progenies obtained from *5x*(4EBN) *x 2x*(2EBN) and *4x*(4EBN) *x 2x*(2EBN) crosses underlined the production of haploid, euploid and aneuploid genotypes. Meiotic restitution mechanisms and exceptions to the EBN model are probably the basis of these results, as also supported by molecular analysis with ISSR markers. Our findings confirmed the importance of the EBN system in predicting success of inter-ploidy, inter-EBN crosses in potato and provided genetic material useful for interspecific gene flow.