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Poster Abstract - C.28

MOLECULAR AND ISOENZIMATIC CHARACTERIZATION OF A DIHAPLOID POPULATION DERIVED FROM ANTHER CULTURE OF THE SOMATIC HYBRID *S. MELONGENA + S. AETHIOPICUM* gr. *GILO*

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Solanum melongena, Solanum aethiopicum, somatic hybridization, Fusarium oxysporum f.sp. melongenae, ISSR

Solanum aethiopicum gr. *gilo* is a close wild relative species of *S. melongena* which show resistance to *Fusarium oxysporum* f. sp. *melongenae* and to some strains of *Ralstonia solanacearum,* two soil borne and very destructive diseases of eggplant. In order to access wild germplasm by overcoming the sexual barriers between this species and eggplant, a tetraploid somatic hybrid [*S. aethiopicum* (+) *S. melongena* cv Dourga] was obtained by electrofusion of protoplasts. Five fully resistant somatic hybrids, grown in glasshouse, were used as anther donors to obtain diploid androgenetic plants that potentially could be backcrossed with the cultivated eggplant (Rizza et al, 2002). The resulting dihaploid progenies (DH) were submitted to bio-morphological characterization and the range of variation of the measured traits resulted distributed within the extreme values of the two fusion parents and around that one of the somatic hybrids. Moreover, new combination of traits were displayed in single dihaploid plants and the resistance to *Fusarium* segregated in the DH progeny. Qualitative and quantitative evidences suggest that genetic recombination between the genome of the two parental species occurred during meiosis and it is phenotypically expressed in the DH plants.

DH population was also subjected to biochemical characterization, testing 7 different isozyme systems, and to molecular study, through the analysis of data from amplification with 32 polymorphic ISSR primers.

Isozyme and ISSR molecular analyses demonstrate the hybrid condition of the fusion products and evidenced that recombination and segregation occurred in the dihaploid progenies. However, segregation ratio in the DH population was consistently different with respect to the expected values.

This result confirm that genetic recombination partially took place between homeologus chromosomes of the two species. The somatic hybrids, therefore, may be considered as segmental allopoliploid.

Reference

Rizza, F., G. Mennella, C. Collonnier, D. Sihachakr, V. Kashyap, M.V. Rajam, M. Prestera', G.L. Rotino, 2002 – Androgenetic dihaploids from somatic hybrids between *Solanum melongena* and *S. aethiopicum*

group *gilo* as a source of resistance to *Fusarium oxysporum* f.sp. *melongenae*. Plant Cell Report 20: 1022-1032.