

## **NUCLEAR AND CYTOPLASMIC CHARACTERIZATION OF CITRUS ASYMMETRIC SOMATIC HYBRIDS BY MEANS OF ISSR-PCR AND CAPS**

M.-T. SCARANO\*\*\*, N. TUSA\*\*, L. ABBATE\*\*, S. LUCRETTI\*\*\*, S. FERRANTE\*\*

\*) Dipartimento S.A.V.A., Università degli Studi del Molise, Via De Sanctis, 86100 Campobasso

\*\*) Istituto Genetica Vegetale sez. di Palermo - C.N.R., Corso Calatafimi 414, 90129 Palermo –  
niciasio.tusa@igv.cnr.it

\*\*\*) ENEA C.R. Casaccia, Sezione Genetica e Genomica Vegetale (026) Via Anguillarese 301,  
00060 S.M. di Galeria (Roma)

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In order to obtain new somatic hybrids for genetic improvement of mandarin, several protoplast fusion experiments have been carried out. Isozyme banding pattern analysis and flow cytometry were used for early nuclear characterization. DNA of the hybrids was then extracted and subjected to ISSR-PCR using different primers anchored at 5' and 3' ends. 'Murcott' tangor + 'Duncan' grapefruit genotype resulted to be diploid, with morphological traits very similar to 'Duncan' (leaf parent) and displayed only the banding pattern of 'Duncan' grapefruit. Successively, for cytoplasmic characterization of the hybrids, CAPs using universal mtDNA and cpDNA primers were carried out; PCR products were digested with different restriction enzymes and resolved on 3% Metaphore agarose gel. All the hybrids presented the mtDNA banding pattern of the 'Murcott' tangor (callus parent); as for cpDNA, among the 10 analyzed genotypes, 2 showed the same banding pattern of 'Duncan' grapefruit (leaf parent) and 8 the banding pattern of 'Murcott' tangor. Our results showed that these new genotypes are nevertheless cybrids resulting asymmetric hybrids, in which the nucleus is inherited from the leaf parent and mitochondria from callus parent.