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DEVELOPMENT OF MOLECULAR MARKERS LINKED TO THE RESISTANCE TOWARDS *FUSARIUM OXYSPORUM* F. SP. *MELONIS* RACE 1,2W IN MELON

S. SESTILI*, G. CAMPANELLI*, V. FERRARI*, A. BELISARIO***, R. PAPA**, N. FICCADENTI*

*) CRA Research Institute for Vegetable Crops, Section of Ascoli Piceno, Via Salaria 1, 63030 Monsampolo del Tronto (AP), Italy - nadiaf@insinet.it

**) Dipartimento di Scienze degli Alimenti, Università Politecnica delle Marche, Via Brecce Bianche, 60131 Ancona, Italy

***) CRA Plant Pathology Research Institute, Via C.G. Bertero 22, Rome, Italy

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Fusarium oxysporum f.sp. *melonis* (FOM) causes serious economic losses for melon (*Cucumis melo* L.). Two dominant resistance genes have been identified, *Fom-1* and *Fom-2*, which confer high levels of resistance to races 0 and 2 and races 0 and 1, respectively. However, FOM race 1,2 overcomes these resistance genes. Race 1,2 was further subdivided into two pathotypes, one that causes wilting (FOM 1,2w) and one that causes yellowing (FOM 1,2y). No genes have been identified in melon which can provide resistance to either race 1,2y or race 1,2w. However, a partial resistance to FOM race 1,2, which is under polygenic control, has been found in some Far East accessions. Recently, the identification of nine QTLs involved in FOM 1,2 resistance in melon was reported for the first time. The aim of the present work was to develop molecular markers linked to resistance towards *Fusarium oxysporum* f.sp. *melonis* race 1,2w in the DH melon lines to be used in plant breeding. For the molecular analysis, DNA was extracted from 192 F2 plants of the two segregant populations developed by hybridization between the resistant genotype Nad-1 (N) and the susceptible genotype Charentais-T (C) using reciprocal crossing.

A modified bulk segregant analysis was carried out using 75 AFLP primer combinations to screen the parents and each of three bulks of 7 resistant plants, assuming that all the F2 plants that originated the F3 families showing 100% resistance were homozygous for the resistant genes. Forty out of 75 AFLP primer combinations were chosen on the basis of fragments present in the susceptible genotype and absent in the bulks and the resistant parent, and they were used to test each of the individual F2 resistant plants of the three bulks previously described. Ten out of 40 AFLP primer combinations were than selected to score the parental genotypes and the 60 F2 individual plants of the two segregant populations. Significant linkage association (P<0.01) of the developed AFLPs with the resistance to race 1,2w of *Fusarium oxysporum* f.sp. *melonis* was found for four fragments.