Poster Abstract - C.57

FINGERPRINTING OF ANEMONE CORONARIA CULTIVARS BY AFLP MARKERS

M. LAURA*, A. ALLAVENA*, S. LANTERI**, F. MAGURNO**, E. PORTIS**

*) C.R.A - Experimental Institute of Floriculture, Corso Inglesi 508, 18039 Sanremo (IM), Italy **) Di.Va.P.R.A. – Plant Genetics and Breeding, University of Turin, Via L. da Vinci 44, 10095 Grugliasco (TO), Italy

breeding strategies, genetic variation, molecular markers, ornamental crops

The genus *Anemone* (*Ranuncolaceae*) includes many ornamental species, cultivated as garden plants or for cut flower production. Among them, *A. coronaria* is one of the most commonly grown. The species, in nature, is cross-pollinated by insects; self-pollination is practicable but progenies suffer inbreeding depression. Commercial seed is usually produced by crossing selected and highly heterozygous plants. Seed stocks of a sub-cv. are thus set up of a mixture of seeds obtained from a few crosses, and originate a population of plants showing phenotypic variation and poor uniformity.

Aims of this work were: (i) to define the conditions that yield distinct and repeatable AFLP profile in *A*. *coronaria*, which posses a wide genome (1C content = 8,45 pg); (ii) to assess the genetic variation among and within diploid and tetraploid cvs and sub-cvs.

Restriction was performed combining one eight base cutter (SbfI) with a four base cutter (MseI) enzymes. Six primer combinations, with 5 selective nucleotides, were chosen on the basis of clearness and reproducibility of electrophoretic patterns. A total of 152 polymorphic bands (37.0% of the total amplified bands), ranging from 80 to 700 bp, were scored. The average number of polymorphic bands per primer combination was 25.3 ranging from 19 to 32 per priming pair. The UPGMA dendrogram, generated using the Simple Matching Coefficient, grouped the A. coronaria genotypes in three main branches: A, which included the cv Cristina; B, which embodied two main clusters: B1 (Monalisa) and B2 (Mistral). Similarly, branch C included clusters C1 (Wicabri) and C2 (Tetraelite). The co-phenetic correlation coefficient (r-value) between the data matrix and the co-phenetic matrix for AFLP data was 0.91, suggesting a very good fit between the dendrogram and the similarity matrix from which it was derived. The hierarchical analysis of variance (AMOVA) showed a high degree of differentiation within sub-cultivars (approximately 42% of total variation,); comparable levels of variation were found among sub-cultivars (approximately 27%) and among cultivars (approximately 30%). AFLP data and phenotypic observations confirm the high level of variation in commercial seed lots. In order to improve commercial product uniformity, without run into inbreeding depression, the most suitable strategy is the production of F1 hybrid seeds. For this reason a protocol for the production of doubled-haploid lines by anther culture has been set up at the Experimental Institute of Floriculture (Sanremo).