

ABSTRACT

INVESTIGATION OF SOME POLLEN GRAIN FEATURES OF BLOOD ORANGES AND DETERMINATION OF HYBRIDS IN CLEMENTINE × BLOOD ORANGE CROSSES WITH SRAP MARKERS

Gökhan ORUÇ

M.Sc. Thesis, Department of Horticulture

Supervisor: Assist. Prof. Dr. Zeynel DALKILIÇ

2012, 83 pages

Hybridizations between ‘Clementine’ mandarin (*Citrus reticulata* Blanco) and different genotypes of blood oranges (*Citrus sinensis* Osbeck) have been conducted in 2010 and 2011 years. While ‘Clementine’ was used as female parent, ‘Moro’ (M), ‘Sanguinello’ (S), ‘Tarocco’ (T) cultivars, and A1, A2, A3, H1, H2, H3, K1, K2 local genotypes used as male parents. Before hybridization, anther count, pollen count, viability and germination tests were performed in 11 parent blood oranges parents in 2011. The highest pollen viability was found in S variety with 22.15% within three varieties (M, S, T) and that of in H3 genotype with 43.38% followed by A3 with %36.96 within other eight genotypes. According to germination tests, the highest germination was obtained at H3 genotype followed by A3 genotype on 1% agar+ 25% sucrose media. While the highest anther count was found in T variety with 22.17, the highest total pollen count of one flower was found in A1 with 139421 on the hemasitometric lam. At hybridization results, 1397 flowers were crossed, and 27 fruit and 86 seeds were obtained in 2010. The 580 flowers were crossed, and 43 fruit and 348 seeds were obtained in 2011. These 86 and 348 seeds were sown in vials in a greenhouse and obtained 42 and 161 hybrid plants, respectively. The 13 hybrids and 2 parents (C, K1) from the crosses in 2010 were used to obtain similarity and diversity between male and female parents, and hybrids with SRAP molecular markers. From the total 66 bands, 24 of which were polymorphic. Polymorphism ratio was 36.4%.

Key words: *Citrus sinensis*, *C. reticulata*, ‘Clementine’, hybridization, SRAP markers