



SELF- AND GRAFT- INCOMPATIBILITY ON A F1 APRICOT PROGENY



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ABSTRACT:

Self- and graft- incompatibility are important agronomic traits for apricot production. Graft incompatibility can occur months to years after grafting wasting time and resources, and causing major economic losses to growers and nurseries. Selfincompatibility is also a not desirable trait for apricot cultivation since it limits productivity and breeding efficiency because of low fruit set. However, whether the two traits (self- and graft-incompatibility) are genetically dependent or not is still unknown. In this study, phenotypic and molecular analysis were integrated to acquire new information related with these important agronomical traits in the same genetic background. As a model system, we used a F1 apricot progeny from a cross between self- and graft- incompatible, 'Moniqui' (Mo) and self- and graft-compatible, 'Pavio' (Pa) cultivars. Phenotypic parameters linked to graft incompatibility (necrotic line, wood discontinuity, bark discontinuity and cell tissue organization) were evaluated in 92 F1 individuals grafted onto the plum rootstock 'Marianna 2624' (*P. cerasifera* L. x *P. munsoniana* L.) at two time points, one month and one year after grafting. On the other hand, the same F1 apricot individuals, together with the 'Mo' and 'Pa' progenitor cultivars, were genotyped for S-allele composition. Using the Pearson correlation test, strong and significant correlations were detected between anatomical and cytomorphological traits that may reduce the number of characters for screening genotypes or progenies for graft compatibility in segregating crosses. However, correlations between self-incompatibility trait and phenotypic parameters linked to graft incompatibility were negative suggesting that no correlation exist between these traits. Thus, screening large number of progenies independently is required for pyramiding these traits in breeding.



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