

Determination of Suitable Pollinizers for Almond (*Prunus dulcis*) Cultivars and Genotypes “Shahrood 12”, “Shokoufeh” and “K-4-10” Using Specific Amplification of S-alleles

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Abstract

In this study, S-alleles of 16 almond cultivars and genotypes were determined using allele-specific and consensus primers. Likewise, the flowering coincidence among these cultivars and “Shahrood 12”, “Shokoufeh” and “K-4-10” were determined. Twelve different S-alleles were distinguished in studied cultivars. Using allele-specific primers five S-alleles S₁, S₂, S₇, S₈ and S₉, and compatibility allele, S_f, were amplified. In five cultivars both S-alleles, in seven cultivars only one S-allele and in four cultivars no S-allele were amplified. Using second intron consensus primers 31 out of 32 S-alleles of studied cultivars were identified. In 15 cultivars both S-alleles and in “Genotype 7” only one S-allele (S₅) were distinguished. S₁ and S₃ were the most frequent S-alleles and found in eight and five cultivars, respectively. Beginning of flowering, full bloom and end of flowering of cultivars and genotypes were recorded and their flowering coincidence with “Shahrood 12”, “Shokoufeh” and “K-4-10” were determined. Considering S-allele genotype and flowering coincidence of cultivars, suitable pollinizers were determined. For “K-4-10” genotypes “K10-11”, “K14-12”, “K-16-30”, “K16-25”, “K12-4” and cultivars “Shahrood 12” and “Marcona”; for “Shahrood 12” genotype “K4-10” and “Marcona”; and for “Shokoufeh” cultivars “Supernova”, “Sahand”, “Touno”, and “Genotype 8”, “Genotype 7”, and “K16-25” are recommended as suitable pollinizers.

Keywords: pollination, self-incompatibility, PCR, stone fruit

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