

ABSTRACT

DETERMINATION OF MORPHOLOGICAL, PHENOLOGICAL POMOLOGICAL CHARACTERISTICS IN SOME JUJUBE GENOTYPES AND INVESTIGATION OF HYBRIDIZATION POSSIBILITIES

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This study was conducted in a fruit orchard located in Kızılcaköy, Aydın in 2012 and 2013. There are three different fruit size, namely small (H_K), medium (H_O) and large (H_B), jujube (*Ziziphus jujuba* Mill.) genotypes were used. For morphological observations, the values were as follows: tree height 4.0 m (H_K)-5.7 m (H_B), circumference 26 cm (H_O)-36 cm (H_B), diameter 8.3 cm (H_O)-11.5 cm (H_B); root sucker distance 5.8 m (H_K)-8.0 m (H_B) and 56.3 cm (H_O)-62.2 cm (H_B); one-year-old branch length 46.00 cm (H_K)-86.50 cm (H_O), diameter 5.00 cm (H_K)-12.32 cm (H_O), and number 5.67 adet (H_K)-10.50 adet (H_O); side shoot length 23.85 cm (H_K)-28.94 cm (H_B) and diameter 4.61 cm (H_K)-5.02 cm (H_B), leaf number 4.00 adet (H_K)-6.47 (H_O), and thorn number 1.70 adet (H_B)-2.00 (H_K ve H_O); leaf length 6.81 cm (H_B)-18.20 cm (H_K), diameter 1.54 cm (H_B)-1.73 cm (H_O), and leaflet number 4.42 adet (H_B)-14.46 adet (H_K); leaflet length 32.79 mm (H_K)-47.20 mm (H_B) and width 17.46 mm (H_K)-27.05 mm (H_B), and thickness 0.23 mm (H_B)-0.59 mm (H_O); axillary leaf length 51.27 cm (H_O)-62.39 cm (H_B) and width 30.94 cm (H_O)-34.36 mm (H_B), and thickness 0.28 mm (H_B)-0.31 mm (H_O); thorn number at the node 0.16 adet (H_K)-1.70 adet (H_O); closed flower bud height 1.55 mm (H_K)-2.03 mm (H_O), width 2.36 mm (H_K)-3.49 mm (H_B); open flower height 1.60 cm (H_K)-2.60 mm (H_B), width 5.51 mm (H_K)-7.21 mm (H_B); Chlorophyll amounts in upper- and lower-side of leaves did not differ in different jujube genotypes (58.50 (H_O)-69.82 (H_K)). For phenological observations, flowering occurred between 30 April and 09 July in 2012. Veraison date was 20 August 2013. For pomological measurements, the fruit values are as follows: width 24.02 mm (H_K)-37.35 mm (H_B), length 29.47 mm (H_K)-43.73 mm (H_B), and weight 8.21 g (H_K)-28.85 g (H_B). Fruit firmness (3.49 (H_K)-3.89 (H_O)), L, a, b values, TSS (25.73 (H_B)-32.00 (H_K)), TA (11.57 (H_B)-12.13 (H_O)), pH (4.64 (H_O ve H_B)-4.87 (H_K)) did not significantly different among jujube genotypes. The taste of the fruit resembles to apple according to panelists. The values for seeds were width 8.18 mm (H_K)-9.43 mm (H_O) and length 15.99 mm (H_K)-25.38 mm (H_O), and weight 0.68 g (H_K)-1.16 g (H_B). The flower buds, flowers, and fruit can be observed at the same time on the tree. The number of anthers per flower is five in three jujube genotypes. The number of pollens per anther was changed 171.85 (H_O)-760.00 (H_K) and that of per flower was changed 859.25 (H_O)-3800.00 (H_K). The pollen viability with IKI test was 85.59% (H_K)-92.26% (H_B) in 2012 and 64.94% (H_O)-89.78% (H_B) in 2013. The highest pollen germination was obtained as 1.92% (H_O)-24.48% (H_B) with 1% agar+15% saccharose. In open-pollination, fruit set was found 18.81% (H_O)-42.39% (H_B) in 2012 in three jujube genotypes. In $H_B \times H_K$ hybrid combination, six fruit were obtained.

Key words: *Ziziphus vulgaris*, branch, leaf, flower and fruit characteristics, pollen number, viability and germination, hybridization