



Morphological Evaluation and Classification of Melon Genotypes in Khorasan Provinces (Razavi, North and South)

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Introduction: Melon is a tropical species that originates from Iran or Africa and Iran, Afghanistan, Turkey, Russia, Saudi Arabia, India and China are the most important centers of genetic diversity of cultivated varieties (1). The original area for cantaloupe and melon is Iran. Dry and warm climate is the best condition for Melon. This plant needs heat and light for good grows. Cloudy and rainy weather at the time of fruit ripening may affect melon taste and quality (2). According to the FAO statistics in 2012, the total area devoted to melon was 1,339,006 hectares with an average yield of 23.8 tons per hectare and 31,925,787 tons production. The highest production belonged to China (55% of world production). Iran produces about 5.4 percent of world production which is about 1450000 tons from 80,000 hectares (2).

Recently, a great number of studies have studied the correlation between melon yield and its components. The first branch (5), the number of primary branches, the number of fruits per plant and fruit weight per plant (6), length and width of fruit and fruit shape index were the most important melons traits which have been evaluated by other studies (4). Fruit yield has significant positive correlation with the length of the stem, primary branches, the date of the first appearance of female flowers and fruit weight. Studies revealed that there is a negative correlation between the number of fruits per plant and the average fruit weight.

Materials and Methods: This study was conducted in 2008 with 17 landrace seeds collected from different locations of Khorasan provinces included Kashmar, sarakhs, Boshrooye, Sabzevar, Dargaz and Bajestan. Experiment was designed based on randomized complete block design with three replications at agricultural Research Station of Khorasan Razavi.

Results and Discussion: The cultivars did not show any different in the time of emergence as all of them emerged 4 to 7 days after the first irrigation. The comparison showed that melon cultivars were significantly different in all traits except of number of stems per plant. Melon cultivars KohsorkhKashmar, Abbasshori, Haji Mashallah and Jafarabadi were similar in yield and showed greater yield than other cultivars. In this experiment, Khatooni with maximum area in khorasan had highest yield in compare with other cultivars. Khatooni yield was 28.72 tons per hectare. The lowest yield belonged to ghanat s Boshrooye (equal to 18.83 tons per hectare), chahPaliz (17.4 tons per hectare) and kharmanarakhs (with 16.94 ton per hectare). Jafarabadi cultivar had the biggest fruits and ghanatboshrooye and bakharmanarakhs had the smallest fruits. The average weight of a melon fruit Jafarabadi was 3.50 kg in white ghanat Boshrooye or bakharman sarakhs was 1.93 kg. kohsorkh kashmar and abbasshory with 3.4 fruits per plant and mahali boshrooye and zinabad with 2 fruits per plant had the highest and lowest number of fruits respectively.

Cluster analysis for all of traits put 17 melon cultivars into four groups, first group consists of a ghasri, zemestani Mashhad, the second group consisted of ghanat Boshrooyeh, Jabbari, mahali sarakhs, Jafarabadi, chah Faliz, mahalli Boshrooyeh, Dargazi, zinabadi, Bakharman sarakhs, the third group were included Abbaspoor and KohsorkhKashmar and finally Haj Masha Allah, khatoni and bandi were placed in fourth.

Cluster Analysis for yield put melon genotypes into 4 groups, first group consisted of dargazi, zinabadi, zemestani mashhad, mahalli boshrooyeh, mahalli sarakhs, ghasri and khaghani with average yield of 24.7 t/ha and the second group consisted of bakharman sarakhs, chah faliz and ghanat boshrooyeh genotypes with average yield of 23.6 t/ha, Jabbari and khatoni put in third group with average yield of 29.2 t/ha and the other genotypes put in 4th group with average of 30 t/ha yield.

Cluster Analysis for number of fruits divided melon genotypes to 4 groups, First group with highest number of fruit consisted of dargazi, zinabadi, zemestani mashhad, mahalli boshrooyeh, bakharman sarakhs, chah faliz, ghanat boshrooyeh with average of 2.5 fruits.

Factor analysis showed that traits used in this experiment covered 73 percent of variation in melon genotypes and traits were divided to 4 components the first one consisted of yield, fruit weight, fruit number,

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fruit length, fruit width, seed weight and dry weight which covered 16 percent of variations. The second component included length of plant with covering 11.7 percent of variation, fruit Hole diameter and fruit width were put in third and fourth component with covering 10 and 7 percent of variation respectively.

Keywords: Correlation, Dendograph, Diversity, Grouping, Sugar percent

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