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Research Article

REVEALING MORPHOLOGICAL VARIABILITY IN SOME S1 LEVEL MELON GENOTYPES

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ABSTRACT. This study was carried out in the greenhouses of Konya Food and Agriculture University in order to determine the diversity of 192 melon lines in the S1 level and to progress the stage. Leaf shape in the study; it was determined as 66.1% deep five-lobed, 26.5% five-lobed, 7.2% entire, leaf color 25% dark green, 75% green. The development of leaf lobes was found 66.1% deep, 25% medium and 8.8% shallow. Leaf length; it was determined as 90% wide and 8% medium and leaf width 63.02% medium, 31.25% wide and 5.7% narrow. As a result of selfing programs, fruit set occurred in 166 genotypes and the fruit shape was determined as 74.6% round, 18% elliptical and 3.01% flattened from the observations made on them. Fruit ground color; 6.02% dark green, 1.2% pale green, 20.4% light yellow, 35.5% orange, and 35.5% dark yellow; The secondary colors seen on the rind was determined as 2.4% black green, 4.2% light yellow, 39.15% green, and 39.7% dark green. Color of the rind pattern 9.6% absent and 84.9% spotted; fruit surface was determined as 1.8% veined, 59.6% superficially wrinkled, 35.5% smooth. Fruit tip shape was determined as 63.8% round and 3.6% pointed. Secondary fruit skin color pattern was 9.6% absent and 84.9% spotted; fruit surface was determined as 1.8% wavy, 59.6% finely wrinkled, and 35.5% smooth. Fruit tip shape was determined as 63.8% round and 3.6% sharped. The data were analyzed by Principal Component Analysis (PCA) and factor analysis.

Keywords: *melon, Cucumis melo L., PCA, selfing programs, inbred*

INTRODUCTION

Melon (*Cucumis melo* L.) is one of the most important species cultivated worldwide and has an economic importance in the Cucurbitaceae family [1]. The primary gene centre for melon is not known. Melon, which was thought to have an Asian origin according to recent studies, was domesticated at least twice in Asia and Africa [2]. It has also been reported that the Eastern Anatolia region and especially the Van region is an important micro gene center [3]. Turkey is the second leading country after China in melon production, with 28.467.920 tons of melon grown [4]. In Turkey; Adana province with 202,233 tons, Konya with 148,026 tons, Antalya with 110,064 tons, Ankara with 109,625 tons and Manisa with 99,637 tons are among the provinces with the highest melon cultivation [5]. Due to the geographical location and climate conditions of Turkey, it is possible to cultivate melons in each region. Melon cultivation is often done in the open land but is often done in the Mediterranean Region in the form of under-cover agriculture.

There are many wild and cultivated melon types defined from different geographical regions [6]. These types include a high level of morphological diversity in terms of leaves, plants and fruit characters. Morphological variations have great importance in plant breeding studies. Because it is very important to know the variations of the species that have been cultured and to apply this variety of conditions in breeding programs.

[7]. Varieties were defined according to fruit characteristics in different species belonging to the Cucurbitaceae family in Turkey, and the existing morphological variations were presented in detail [8-11]. In a study conducted, a morphological characterization study was conducted in 64 melon varieties, and a large variation was determined between the various types [9]. In a study to determine the morphological diversity of 43 melon populations obtained from different regions,, it was determined that there was a significant variation in the light of morphological and phenological data [8]. In another study, 68 genotypes were selected from melon genetic sources; average plant length, main stem diameter, the number of internode on main stem, fruit weight, size of pistil scar, flesh thickness of fruit, rind thickness of fruit, with total soluble solid content (TSSC) and pH (power of hydrogen), they found 77.31 cm, 4.58 mm, 6.35 pcs/ fruit, 673.29 g, 8.06 mm, 12.66 mm, 6.68 mm, %6.98 briks, 5.85 pH. [12]. Some morphological and agronomic features of 83 melon hybrid lines were analyzed according to UPOV parameters. As a result of the study, there were some differences in terms of morphological features in leaves, flowers, fruits and seeds [10].

In our study, 192 melon genotypes that were previously selfed and brought to the S1 level, were selfed again and staged (S2), some morphological and pomological features were determined in this stage, and it was aimed to be a step of future breeding program.

MATERIALS AND METHODS

The 4700 lines belonging have been Beta Agriculture and Trade Inc.'s pre-observed and reduced to 1200 in the field conditions in 2018. In line with the measurements and observations made on these materials, inbreed working was carried out in 305 genotypes, which were promising in the preliminary studies, and the study was started with 192 lines. The research was carried out in 2019 in the research and application greenhouse of Konya Food and Agriculture University in Çumra. The work started in the greenhouse with seed planting on 02.07.2019. After the soil preparations the planting processes of the plants that were transformed into seedlings in pots on 29.07.2019, melons were planted in the morning hours, 90x50cm distances from each genotype, next to the drippers. The first hoeing was done 7-10 days after the planting, and the second hoeing was done one week after the first hoe. About three weeks day after sawing the seedlings, the plants were roped and wrapped. In addition, with the beginning of the flowering period, selfing was done and S2 stage was reached. In the study, measurements and observations were made using 21 UPOV (The International Union for the Protection of New Varieties of Plants) parameters, which were determined in accordance with our purpose.

These measurements and observations; the number of internode on main steam, internode length, leaf blade, leaf color, leaf development of lobes, leaf length, leaf width, petiole hairiness, fruit shape, fruit ground color, secondary color seen on rind, color of the rind pattern, fruit surface, fruit shape of apex, size of pistil scar, fruit lenghth, fruit diameter, flesh thickness of fruit, fruit flesh color, TSSC and Ph. The distribution ratios of the criteria belonging to morphological and pomological characteristics are given as percentage (%) in all genotypes.

RESULTS AND DISCUSSION

Morphological characterization studies were examined in terms of 21 criteria that are determined from the UPOV criteria in accordance with our purpose. The distribution ratios of the criteria belonging to the morphological characteristics are given as percent (%) in all genotypes.

Table 1. *Plant and Leaf Observations from S1 level genotypes*

NO	A	B	C	D	E	F	G	H
1(7b)	High	Medium	Five Lobed	Dark Green	Medium	Wide	Wide	Hairy
3(1b)	High	Long	Five Lobed	Dark Green	Medium	Wide	Wide	Hairy
4(14b)	Medium	Medium	Five Lobed	Green	Medium	Wide	Medium	Hairy
6(2b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
8(12b)	Medium	Medium	Deeply Five Lobed	Green	Medium	Wide	Medium	Hairy
9(5b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
9(15b)	High	Medium	Five Lobed	Green	Medium	Wide	Wide	Hairy
10(1b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
12(4b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
13(7b)	Few	Short	Deeply Five Lobed	Green	Deep	Medium	Narrow	Hairy
14(2b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
15(3b)	High	Medium	Deeply Five Lobed	Green	Medium	Wide	Medium	Hairy
15(14b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
16(7b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Wide	Hairy
16(14b)	Medium	Medium	Five Lobed	Green	Deep	Wide	Wide	Hairy
22(9b)	Medium	Medium	Five Lobed	Green	Deep	Wide	Medium	Hairy
24(6b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
24(10b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
27(8b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
28(14b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
28(1b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
32(3b)	High	Medium	Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
33(13b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
34(6b)	High	Medium	Entire	Green	Shallow	Wide	Wide	Hairy
37(1b)	High	Medium	Deeply Five Lobed	Green	Deep	Medium	Medium	Hairy
40(13)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Wide	Hairy
41(6b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
43(14b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
43(17b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
45(2b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
46(4b)	High	Medium	Deeply Five Lobed	Green	Deep	Medium	Medium	Hairy
47(11b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
48(7b)	High	Medium	Deeply Five Lobed	Dark Green	Medium	Medium	Medium	Hairy
50(16b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Wide	Hairy
53(19b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Wide	Hairy
54(9b)	High	Medium	Deeply Five Lobed	Green	Medium	Wide	Medium	Hairy
56(1b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Narrow	Hairy
57(4b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Narrow	Hairy
59(14b)	High	Medium	Five Lobed	Dark Green	Medium	Wide	Wide	Hairy
60(10b)	High	Medium	Five Lobed	Dark Green	Medium	Wide	Wide	Hairy
60(16b)	Medium	Medium	Deeply Five Lobed	Dark Green	Deep	Medium	Medium	Hairy
61(10b)	High	Medium	Five Lobed	Dark Green	Medium	Wide	Wide	Hairy
63(19b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Wide	Hairy
65(5b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
66(4b)	High	Short	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
68(9b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
69(2b)	High	Medium	Deeply Five Lobed	Green	Medium	Wide	Wide	Hairy
67(5b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
68(9b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy

Table 1. *continued*

69(2b)	High	Medium	Deeply Five Lobed	Green	Medium	Wide	Wide	Hairy
71(5b)	Medium	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
72(1b)	Medium	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
73(12b)	High	Medium	Five Lobed	Dark Green	Medium	Wide	Medium	Hairy
74(8b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Narrow	Hairy
74(11b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
75(12b)	Medium	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Narrow	Hairy
78(11b)	High	Medium	Five Lobed	Dark Green	Medium	Wide	Medium	Hairy
79(8b)	High	Medium	Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
80(1b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
80(8b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
81(4b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
81(13b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
82(8b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
82(7b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
84(9b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Medium	Medium	Hairy
86(4b)	High	Long	Five Lobed	Green	Medium	Wide	Wide	Hairy
87(10b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Narrow	Hairy
90(16b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
91(7b)	High	Medium	Five Lobed	Dark Green	Medium	Wide	Wide	Hairy
93(1b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
94(3b)	Medium	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
96(5b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Wide	Hairy
97(9b)	Medium	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
98(8b)	High	Long	Deeply Five Lobed	Dark Green	Deep	Wide	Wide	Hairy
98(6b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
99(1b)	High	Medium	Entire	Green	Shallow	Wide	Wide	Hairy
102(3b)	High	Short-Medium	Five Lobed	Dark Green	Medium	Wide	Medium	Hairy
102(5b)	Medium	Short	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
104(15b)	Medium	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
105(5b)	High	Medium	Deeply Five Lobed	Green	Deep	Medium	Medium	Hairy
107(9b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
107(11b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Wide	Hairy
112(7b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Wide	Hairy
112(12b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Wide	Hairy
114(6b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
115(8b)	Medium	Long	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
116(8b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Wide	Hairy
117(14b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
117(9b)	High	Medium	Five Lobed	Green	Medium	Wide	Wide	Hairy
119(1b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
131(4b)	High	Long	Five Lobed	Green	Medium	Wide	Wide	Hairy
132(1b)	High	Medium	Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
132(3b)	High	Medium	Five Lobed	Dark Green	Medium	Wide	Wide	Hairy
133(11b)	High	Medium	Five Lobed	Dark Green	Medium	Wide	Wide	Hairy
134(1b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
135(16b)	High	Medium	Five Lobed	Green	Medium	Wide	Wide	Hairy
137(1b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
137(8b)	High	Medium	Five Lobed	Green	Deep	Wide	Medium	Hairy
138(8b)	High	Long	Five Lobed	Green	Shallow	Wide	Wide	Hairy
139(7b)	High	Medium	Five Lobed	Dark Green	Medium	Wide	Medium	Hairy
141	High	Medium	Five Lobed	Dark Green	Medium	Wide	Wide	Hairy
144(16b)	High	Medium	Entire	Green	Shallow	Wide	Wide	Hairy
146(4b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Wide	Hairy
147(16b)	Medium	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
148(4b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
151(3b)	High	Medium	Five Lobed	Green	Deep	Wide	Medium	Hairy
159(17b)	High	Medium	Entire	Green	Shallow	Medium	Medium	Hairy
161	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
163(12b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy

Table 1. *continued*

166(2b)	Medium	Medium	Entire	Green	Shallow	Wide	Wide	Hairy
168(4b)	High	Medium	Entire	Green	Shallow	Wide	Wide	Hairy
169(6b)	Medium	Medium	Deeply Five Lobed	Green	Medium	Wide	Medium	Hairy
169(4b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Wide	Hairy
170(4b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
171(8b)	Medium	Medium	Five Lobed	Green	Deep	Wide	Medium	Hairy
172(12b)	High	Medium	Entire	Green	Shallow	Wide	Wide	Hairy
176(9b)	Medium	Short-Medium	Deeply Five Lobed	Green	Deep	Medium	Medium	Hairy
177(4b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
177(6b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
178(1b)	Medium	Medium	Five Lobed	Green	Deep	Wide	Medium	Hairy
180(10b)	Medium	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
181(10b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
184(13b)	Medium	Long	Five Lobed	Green	Medium	Wide	Wide	Hairy
184(17b)	Medium	Medium	Five Lobed	Green	Shallow	Wide	Wide	Hairy
190(6b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Medium	Medium	Hairy
192(7b)	Medium	Medium	Five Lobed	Green	Deep	Wide	Medium	Hairy
193(5b)	Medium	Medium	Five Lobed	Green	Deep	Wide	Medium	Hairy
193(7b)	Medium	Medium	Five Lobed	Green	Medium	Wide	Medium	Hairy
194	High	Medium	Five Lobed	Green	Medium	Wide	Wide	Hairy
195(8b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
199(1b)	Medium	Medium	Five Lobed	Green	Deep	Wide	Medium	Hairy
199(2b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
201	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
203(15b)	High	Medium	Entire	Green	Shallow	Wide	Wide	Hairy
205(1b)	High	Medium	Five Lobed	Green	Shallow	Wide	Wide	Hairy
206(3b)	Medium	Medium	Five Lobed	Green	Medium	Wide	Wide	Hairy
211	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
213	Medium	Medium	Five Lobed	Green	Medium	Wide	Wide	Hairy
214(10b)	Medium	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
215(4b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Narrow	Hairy
218(10b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
219(2b)	High	Medium	Entire	Green	Shallow	Wide	Wide	Hairy
221(7b)	Medium	Medium	Entire	Green	Shallow	Wide	Wide	Hairy
221(9b)	Medium	Medium	Entire	Dark Green	Shallow	Medium	Medium	Hairy
222(6b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
224(2b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
226(1b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
227(12b)	High	Long	Deeply Five Lobed	Dark Green	Deep	Wide	Wide	Hairy
229(8b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Medium	Medium	Hairy
230(3b)	High	Medium	Deeply Five Lobed	Dark Green	Deep	Wide	Medium	Hairy
230(3b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Narrow	Hairy
232(7b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
234(2b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Medium	Wide	Hairy
234(5b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
235(5b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
236(1b)	Medium	Medium	Deeply Five Lobed	Green	Medium	Medium	Medium	Hairy
237(6b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
240(10b)	Medium	Medium	Five Lobed	Green	Medium	Wide	Medium	Hairy
241(2b)	Medium	Medium	Five Lobed	Green	Medium	Wide	Wide	Hairy
242(8b)	High	Medium	Five Lobed	Green	Medium	Wide	Wide	Hairy
245(11b)	High	Medium	Five Lobed	Green	Medium	Wide	Medium	Hairy
245(10b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
246(5b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
247(8b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
248(8b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Wide	Hairy
249(4b)	High	Long	Deeply Five Lobed	Green	Deep	Wide	Wide	Hairy
250(11b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
253(1b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Dar	Narrow	Hairy
255(9b)	Medium	Medium	Deeply Five Lobed	Green	Medium	Wide	Medium	Hairy

Table 1. *continued*

257(3b)	Medium	Medium	Five Lobed	Green	Medium	Wide	Medium	Hairy
258(4b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
259(8b)	High	Medium	Entire	Green	Shallow	Wide	Wide	Hairy
262(3b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
263(1b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
264(12b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
266(3b)	High	Medium	Five Lobed	Green	Medium	Wide	Wide	Hairy
268(7b)	Medium	Medium	Entire	Green	Shallow	Wide	Wide	Hairy
269(2b)	High	Medium	Deeply Five Lobed	Green	Medium	Wide	Medium	Hairy
269(10b)	High	Medium	Deeply Five Lobed	Green	Medium	Wide	Medium	Hairy
271(1b)	High	Medium	Entire	Green	Shallow	Wide	Wide	Hairy
271(6b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Medium	Dar	Hairy
275(9b)	Few	Short	Deeply Five Lobed	Green	Deep	Dar	Dar	Hairy
278(9b)	Medium	Medium	Five Lobed	Green	Medium	Medium	Medium	Hairy
280(10b)	Medium	Medium	Deeply Five Lobed	Green	Medium	Wide	Medium	Hairy
281(5b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
282(16b)	High	Medium	Five Lobed	Green	Medium	Wide	Medium	Hairy
282(7b)	Medium	Medium	Five Lobed	Green	Medium	Wide	Wide	Hairy
282(8b)	High	Medium	Five Lobed	Green	Medium	Wide	Wide	Hairy
282(11b)	Medium	Medium	Five Lobed	Green	Medium	Wide	Wide	Hairy
283(3b)	High	Medium	Five Lobed	Green	Medium	Wide	Wide	Hairy
292(9b)	High	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy
293(7b)	Medium	Medium	Deeply Five Lobed	Green	Deep	Wide	Medium	Hairy

Acknowledgement: *A (The number of internode on main steam), B (İnternode Lenght), C (Leaf Blade), D (Leaf Colur), E (Leaf of Lobes), F (Leaf Length), G (Leaf Width), H (Petiole Hairiness)*

The number of internode on the main stem and the internode length on the main stem differed at different rates according to the genotypes. The number of nodes on the main stem in all genotypes; 1.04% few, 59.8% high, 39.06% medium. Internode length on the main stem was 93% medium, 2.08% short, 4.6% long for all genotypes.

Leaf-blade in all genotypes in the study; 66.1% deep five-lobed, 26.5% five-lobed, 7.2% entire. Leaf color was determined as 25% dark green and 75% green in all genotypes. The leaf development of lobes was in all genotypes; 66.1% deep, 25% medium, and 8.8% shallow. Leaf-blade length; was 90% wide and 8% medium and the leaf width was 63.02% medium, 31.25% wide, and 5.7% narrow. As a result of morphological observations made with 75 lines and 3 commercial cultivars in his study, [13], determined that the plant strength of Alibey and Pandora commercial control cultivars was "Strong" and that of Sürmeli cultivar "Very strong. In terms of plant power, hybrid individuals are generally 45% Strong, 35% Very strong; In terms of leaf color, it was determined that the leaf color was “Green” in all plants. Zhang and Pratap [14], leaf characteristics of Asian melon and cucumber genotypes, five types of leaf blade as whole; entire, triangular, reniform and pentalobate were recorded. Erdoğan [15], leaf shape in 94 local genotypes; 67% entire that they were complete, 5.3% three-lobed, 8.5% five-lobed, 16% deep three-lobed and 3.2% other groups. Dal and Kayak [12], in his study of 68 melon genotypes, fruit the ground color of skin was 9.4% light green, 45.2% green, 41.5% brown, 1.8% light yellow and 1.8% black green. They determined that 92.4% of the shell pattern colors were green and 7.5% were yellow.

As a result of the selfing in 192 melon genotypes, the fruit set was achieved in 166 genotypes and the observations were made in all those fruit set plants.

Table 2. *Fruit Observations from Inbred Genotypes at S1 Level*

No	A	B	C	D	E	F	G
1(7b)	Elliptical	Light-Yellow	Black Green	Spotted	Finely Wrinkled	Round	Round
1(7b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
3(1b)	Elongated	Dark Yellow	Light-Yellow	Spotted	Finely Wrinkled	Round	Round
8(12b)	Acorn	Light-Yellow	Orange	Short Striped	Smooth	Round	Round
9(15b)	Round	Light-Yellow	Pale Green	Short Striped	Smooth	Round	Round
15(3b)	Round	Light-Yellow	Black Green	Spotted	Smooth	Round	Round
15(14b)	Round	Light-Yellow	Orange	Spotted	Finely Wrinkled	Round	Round
22(9b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
24(10b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
24(10b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
28(1b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
28(1b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
32(3b)	Round	Light-Yellow	Pale Green	Spotted	Finely Wrinkled	Round	Round
33(13b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
34(6b)	Round	Light-Yellow	Black Green	Spotted	Finely Wrinkled	Round	Round
40(13b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
41(6b)	Round	Light-Yellow	Black Green	Spotted	Finely Wrinkled	Round	Round
43(17b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
43(14b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
45(2b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
46(4b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
47(11b)	Round	Orange	Light-Yellow	Spotted	Smooth	Round	Round
48(7b)	Round	Light-Yellow	Black Green	Spotted	Finely Wrinkled	Round	Round
50(16b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
53(19b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
54(9b)	Round	Light-Yellow	Pale Green	Spotted	Smooth	Round	Round
56(1b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
57(4b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
59(14)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
60(16b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
61(10b)	Round	Orange	Pale Green	Short Striped	Finely Wrinkled	Round	Round
63(19b)	Round	Light-Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
65(5b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
66(4b)	Round	Light-Yellow	Pale Green	Spotted	Finely Wrinkled	Round	Round
68(9b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
69(2b)	Round	Light-Yellow	Black Green	Spotted	Finely Wrinkled	Round	Round
72(1b)	Round	Orange	Light-Yellow	Spotted	Smooth	Round	Round
73(12b)	Round	Light-Yellow	Pale Green	Spotted	Smooth	Round	Round
74(11b)	Round	Dark Green	Dark Green	Spotted	Finely Wrinkled	Round	Round
75(12b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
78(11b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
79(8b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
80(1b)	Round	Light-Yellow	Black Green	Short Striped	Wavy	Round	Round
81(4b)	Round	Light-Yellow	Pale Green	Spotted	Finely Wrinkled	Round	Round
81(13b)	Round	Orange	Light-Yellow	Spotted	Smooth	Round	Round
82(8b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
86(4b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
87(10b)	Round	Orange	Light-Yellow	Spotted	Finely Wrinkled	Round	Round
90(16b)	Elliptical	Dark Yellow	Green	Spotted	Finely Wrinkled	Round	Round
91(7b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
93(1b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
94(3b)	Round	Orange	Black Green	Short Striped	Smooth	Round	Round
96(5B)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
97(9b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
98(6b)	Flattened	Pale Green	Orange	Spotted	Finely Wrinkled	Round	Round
99(1b)	Round	Light-Yellow	Orange	Spotted	Finely Wrinkled	Round	Round
102(3b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
102(5b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
104(15b)	Elliptical	Pale Green	Dark Green	Spotted	Smooth	Round	Round
105(5b)	Elliptical	Orange	Pale Green	Spotted	Smooth	Round	Round
107(11b)	Elliptical	Green	Green	Spotted	Smooth	Round	Round
112(12b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
114(6b)	Round	Orange	Pale Green	Spotted	Wavy	Round	Round
115(8b)	Round	Orange	Black Green	Spotted	Wavy	Round	Round
117(14b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
117(9b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round

Table 2. *continued*

119(1b)	Priform	Orange	Pale Green	Spotted	Smooth	Round	Round
131(4b)	Round	Orange	Light-Yellow	Spotted	Finely Wrinkled	Round	Round
132(1b)	Round	Light-Yellow	Light-Yellow	Spotted	Smooth	Round	Round
133(11b)	Round	Orange	Black Green	Short Striped	Smooth	Round	Round
134(8b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
135(16b)	Round	Light-Yellow	Pale Green	Spotted	Smooth	Round	Round
137(8b)	Round	Orange	Pale Green	Short Striped	Smooth	Round	Round
139(7b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
141(11b)	Acorn	Light-Yellow	Pale Green	Short Striped	Smooth	Round	Round
144(16)	Round	Light-Yellow	Pale Green	Spotted	Finely Wrinkled	Round	Round
146(4b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
148(4b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
151(3b)	Round	Orange	Black Green	Spotted	Low Netted	Round	Round
159(17b)	Round	Light-Yellow	Pale Green	Spotted	Finely Wrinkled	Round	Round
161(6b)	Round	Orange	Pale Green	Spotted	Smooth	Round	Round
161(4b)	Round	Orange	Pale Green	Spotted	Smooth	Round	Round
161(7b)	Round	Light-Yellow	Pale Green	Spotted	Smooth	Round	Round
161(9b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
166(2b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
168(4b)	Elliptical	Light-Yellow	Green	Spotted	Smooth	Sharp	Round
169(7b)	Elliptical	Green	Green	Spotted	Smooth	Round	Round
170(4b)	Round	Dark Green	Black Green	Short Striped	Finely Wrinkled	Sharp	Round
176(9b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
177(6b)	Round	Dark Yellow	Black Green	Spotted	Smooth	Round	Round
178(1b)	Flattened	Dark Yellow	Dark Green	Spotted	Smooth	Round	Round
180(10b)	Flattened	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
184(13b)	Priform	Light-Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
192(7b)	Elliptical	Dark Yellow	Dark Green	Spotted	Smooth	Round	Round
193(7b)	Round	Light-Yellow	Green	Spotted	Finely Wrinkled	Round	Round
196(12b)	Round	Light-Yellow	Black Green	Spotted	Smooth	Round	Round
199(1b)	Elliptical	Dark Yellow	Dark Green	Spotted	Smooth	Round	Round
201(13b)	Elliptical	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
203(15b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
206(3b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
211(3b)	Round	Dark Yellow	Pale Green	Spotted	Finely Wrinkled	Sharp	Round
213(9b)	Elliptical	Light-Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
214(10b)	Round	Dark Yellow	Black Green	Spotted	Finely Wrinkled	Sharp	Round
215(4b)	Elliptical	Light-Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
218(4b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Round	Round
219(2b)	Priform	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
221(9b)	Flattened	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
222(6b)	Round	Dark Yellow	Dark Green	Spotted	Yüzeysel Dalgalı	Sharp	Round
224(2b)	Round	Dark Yellow	Green	Spotted	Finely Wrinkled	Sharp	Round
226(1b)	Elliptical	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Round	Round
226(1b)	Elliptical	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Round	Round
227(12b)	Elliptical	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
229(8b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
230(4b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
231(3b)	Round	Dark Yellow	Dark Green	Spotted	Smooth	Sharp	Round
232(7b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
234(2b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
235(5b)	Elliptical	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Round	Sharp
237(6b)	Flattened	Light-Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
241(2b)	Elliptical	Dark Green	Dark Green	Spotted	Smooth	Sharp	Round
242(8b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
245(11b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
246(5b)	Elliptical	Dark Green	Dark Green	Spotted	Smooth	Sharp	Round
246(5b)	Elliptical	Dark Green	Dark Green	Spotted	Smooth	Sharp	Round
246(5b)	Elliptical	Dark Green	Dark Green	Spotted	Smooth	Sharp	Round
247(8b)	Round	Dark Yellow	Black Green	Spotted	Finely Wrinkled	Sharp	Round
247(8b)	Round	Dark Yellow	Black Green	Spotted	Finely Wrinkled	Sharp	Round
247(8b)	Round	Dark Yellow	Black Green	Spotted	Finely Wrinkled	Sharp	Round
248(8b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Round	Round
248(8b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Round	Round
248(8b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Round	Round
250(11b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
250(11b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round

Table 2. *continued*

253(1b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
253(1b)	Round	Orange	Black Green	Spotted	Finely Wrinkled	Round	Round
255(9b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Round	Round
257(3b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
257(3b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
257(3b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
258(4b)	Elliptical	Light-Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
259(8b)	Elliptical	Light-Yellow	Green	Spotted	Finely Wrinkled	Sharp	Round
259(8b)	Elliptical	Light-Yellow	Green	Spotted	Finely Wrinkled	Sharp	Sharp
262(3b)	Elliptical	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
262(3b)	Elliptical	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
262(3b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
264(12b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
264(12b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
264(12b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Round	Round
266(3b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Round	Round
266(3b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
266(3b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Round	Round
268(7b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
268(7b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
268(7b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
268(7b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
269(2b)	Elliptical	Dark Green	Dark Green	Spotted	Smooth	Sharp	Round
269(2b)	Elliptical	Dark Green	Dark Green	Spotted	Smooth	Sharp	Round
269(2b)	Elliptical	Dark Green	Dark Green	Spotted	Smooth	Sharp	Round
269(10b)	Elliptical	Dark Green	Dark Green	Spotted	Smooth	Sharp	Round
271(1b)	Priform	Light-Yellow	Pale Green	Spotted	Smooth	Sharp	Round
275(9b)	Round	Orange	Black Green	Spotted	Smooth	Round	Round
281(5b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
281(5b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
281(5b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
283(3b)	Elliptical	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Sharp	Round
283(3b)	Round	Dark Yellow	Dark Green	Spotted	Finely Wrinkled	Round	Round

Acknowledgement*: A (Fruit Shape), B (Fruit Ground Color), C (Secondary Colors Seen on Rind), D (Color of The Rind Pattern), E (Fruit Surface), F (Fruit Shape of Apex), G (Size of Pistil Scar)*

From the findings in Table 2, the fruit shape was determined as 74.6% round, 18% elliptical, 3.01% flattened. Fruit ground color, was determined as 6.02% dark green, 1.2% pale green, 20.4% light yellow, 35.5% orange, and 35.5% dark yellow. Secondary color on rind in all genotypes was determined as 2.4% black green, 4.2% light yellow, 39.15% green and 39.7% dark green. Secondary colors on the rind in all genotypes; were 2.4% black green, 4.2% light yellow, 39.15% green, and 39.7% dark green. Color of the rind pattern in all genotypes were 9.6% absent and 84.9% spotted. Fruit surface was determined as 1.8% wavy, 59.6% finely wrinkled, 35.5% smooth in all genotypes. The fruit shape of the apex was determined as 63.8% round and 3.6% sharp in all genotypes. Size of pistil scar was found to be round in all genotypes (100%). In a study conducted with 58 melon accessions, the ground color intensity of the fruit before maturity was 70.68% medium, 1.72% light, and 12.06% dark; they found that the secondary skin color was 71% absent, 29% present [16]. In a study conducted to determine the yield and quality characteristics of five melon varieties, the fruit shape was 100% round, the mature fruit ground color was 100% yellow, the wrinkle on the fruit surface was moderate in two genotypes, more in two genotypes and less in one genotype [17].

In the study, fruit length, fruit width, flesh thickness of fruit, fruit core house size, TSSC, and pH ratios were 13.09 cm, 11.51 cm, 27.62 mm, 61.83 mm, 8.5 brix° and 6.7 pH, respectively.

Table 3. *Fruit Observations from Inbred Genotypes at S2 Level*

No	A	B	C	D	E	F
1(7b)	15	12	25.96	67.43	10.2	7.1
1(7b)	12	12.5	24.14	67.38	12.9	7.1
3(1b)	11.5	12	22.5	65.7	9.6	6
8(12b)	13.5	11	25.51	62.53	13	7.3
9(15b)	12.5	10.5	29.43	76.3	10.7	7.3
15(3b)	11.5	11	23.46	57.34	13	7.1
15(14b)	13	11	20.25	56.77	11.9	6.9
22(9b)	11.5	10	28.15	57.2	11.9	7.8
24(10b)	11.5	10	25.59	52.67	14.6	7.2
24(10b)	10	9	23.28	62.47	14.3	7
28(1b)	14.5	13.5	30.36	82.88	12.1	7
28(1b)	12	10.5	32.44	60.36	13.3	7
32(3b)	12	10.4	26.25	58.05	9.6	5.8
33(13b)	13.5	11	27.45	69.2	11.06	6.2
34(6b)	13.5	11	30	68.86	11.6	5.5
40(13b)	13	11	27.5	55.95	8.4	5.4
41(6b)	15	13.5	24.77	79.53	6.3	11.2
43(17b)	10.5	10	19.95	54.65	13.1	7.4
43(14b)	10.5	10	26.67	49.93	12.4	7.1
45(2b)	11	10	25.34	54.01	14	7.4
46(4b)	11.5	10.5	31.26	56.97	8.4	7.6
47(11b)	11	10	25.21	55.57	8.8	7.1
48(7b)	10.5	11	26.75	53.22	12	7.2
50(16b)	11.5	11.5	27.9	65.98	10.4	6.7
53(19b)	11.5	10	29.28	60.12	12.6	7.1
54(9b)	11	9	25.31	57.21	11	6.8
56(1b)	8	8.5	21.7	45.6	13.1	6.1
57(4b)	11	10.5	28.51	72.62	7.6	6.8
59(14)	14.5	13	32.91	64	10.06	5.2
60(16b)	14	13	33.87	66.6	11	6.6
61(10b)	14	13	40.53	63.79	9.8	6.3
63(19b)	14	13	24.41	69.07	7.6	5.8
65(5b)	13.5	12.5	29.83	78	11.6	5.9
66(4b)	11.5	12	22.22	56.29	12	6.9
68(9b)	13	11	24.94	60.71	12	7.4
69(2b)	12	11.5	22.16	56.87	12.3	6.6
72(1b)	13.5	10	25.05	59.12	12.8	6
73(12b)	13.5	10	28.41	63.02	10.3	5.3
74(11b)	13	11	18.54	74.21	8.7	5.74
75(12b)	13	11.5	38.25	78.05	11.8	6.1
78(11b)	11	10	28.26	60.16	13.3	6.4
79(8b)	12	11.5	22.92	55.94	8.5	5.7
80(1b)	14.5	13.5	33.28	76.58	10.2	5.8
81(4b)	17.5	11	15.17	55.7	4.4	5.9
81(13b)	14.5	9	26.6	71.18	8	5.8
82(8b)	13	12.5	32.89	60.14	5.11	6.1
86(4b)	14.5	12.5	33.41	75.57	6.5	6.5
87(10b)	13.5	12	28.65	68.93	11.8	5.9
90(16b)	14	12	26.37	55.87	6.1	5.72
91(7b)	16	14	20.58	31.21	7.5	5.9
93(1b)	13.5	11.5	30.67	63.1	6.3	10
94(3b)	11.5	11.5	33.62	68.23	9.7	6.2
96(5B)	15	13	34.59	59.65	14.5	5.9
97(9b)	12.5	12	25.22	63.68	5	5.5
98(6b)	12	13	40.45	73.62	13.2	6.2
99(1b)	15	12	29.5	81.88	9.6	6.8
102(3b)	10.5	10	23.35	59.07	7.2	6.5
102(5b)	11.5	12	22.5	65.7	9.6	6
104(15b)	15	11.5	25.48	69.3	2.1	5.4

Table 3. *continued*

105(5b)	14	9	21.45	55.98	9.5	6.6
107(11b)	15	9	22.24	55.6	8.2	6
112(12b)	11.5	12	22.5	65.7	9.6	6
114(6b)	14	13.5	37.95	65.33	5.7	6
115(8b)	11	11	22.67	58.94	8.7	6.1
117(14b)	13	11	25.22	56.57	11.6	7.8
117(9b)	13	11	32.23	53.22	10.7	7.2
119(1b)	12	10.5	24.35	57.13	11.6	6.1
131(4b)	16	13	34.5	73.74	9.7	5.5
132(1b)	10	10.5	22.88	62.67	6.6	5.4
133(11b)	13	12	26.6	71.44	11	5.6
134(8b)	15	13	26.34	84.43	6.1	5.6
135(16b)	14	10.5	20.61	56.7	8	5.7
137(8b)	15	12	29.2	54.21	10	6.4
139(7b)	13.5	12	25.65	65.56	8.7	5.6
141(11b)	17	14	34.84	70.71	8	6.3
144(16)	13.5	11.5	23.41	66.54	8.4	5.8
146(4b)	13	13	21.59	78.86	11.7	7.1
148(4b)	11.5	11	19.23	66.37	11.7	7.1
151(3b)	14.5	11	20.04	66.86	9.7	5.5
159(17b)	14.5	11	14.39	70.31	10.06	5.8
161(6b)	13.5	11	31.25	50	8.2	5.5
161(4b)	15	14.5	41.25	61.28	9.3	6.3
161(7b)	13	11	30.74	55.88	10.7	6.1
161(9b)	13	11.5	34.7	56.21	11.1	6.2
166(2b)	14	14.11	22.09	65.53	8.4	5
168(4b)	12.5	10	32.01	56.51	6.6	5.8
169(7b)	16	12	29.03	56.8	8.6	6.7
170(4b)	14.5	11	28.58	57.31	5.9	10.5
176(9b)	12	10	31.34	46.44	7.9	5.6
177(6b)	16	14	29.01	82.04	6.3	5.6
178(1b)	12	10	21.47	53.7	6.3	11.2
180(10b)	11	11	30.06	57.01	6.1	9.5
184(13b)	12.5	12.5	29.24	63	6	8.7
192(7b)	12	10	27.69	60.93	6.3	11.3
193(7b)	14.5	9	21.81	59.87	6.2	9.7
196(12b)	14	10	25.76	63.7	6.7	13
199(1b)	13.5	11.5	28.8	51.46	6.6	13.7
201(13b)	13	10	25.34	55.94	6.1	11
203(15b)	16	12	25.3	72.3	8	6.3
206(3b)	11	10.5	20.78	58.55	12.3	6.8
211(3b)	14	12	32.37	61.86	6.3	11.6
213(9b)	16.5	13	28.42	69.1	7	11
214(10b)	12.5	10	25.35	54.79	6.5	10.2
215(4b)	14.5	12	27.19	44.69	6.2	12.1
218(4b)	13	12.5	29.4	62.19	6.4	13.4
219(2b)	14.5	12.5	28.5	67.5	6.8	12.1
221(9b)	17	11	17.13	74.34	6.2	8.3
222(6b)	13	11.5	28.47	72.99	6.4	9.9
224(2b)	12	11	24.46	66.63	4.5	5.9
226(1b)	13	11	26.97	66.35	6.5	12.5
226(1b)	14.5	11.5	27.04	85.84	6.1	10.4
227(12b)	13	12.5	31.7	56.74	5.6	10.2
229(8b)	11	11	27	54.37	6.6	12.1
230(4b)	12.5	14	15.46	64.67	6.7	11.6
231(3b)	11.5	9.5	28.41	58.4	6.5	11.3
232(7b)	14.5	10.5	24.23	60.47	6.4	10.3
234(2b)	13	10.5	24.06	58.06	6.1	11.1
235(5b)	14	11	23.78	57.68	7	13.1
237(6b)	12	14.5	22.35	72.85	6.9	9.8

Table 3. *continued*

241(2b)	13.5	15	26.27	71.92	6.4	11.7
242(8b)	12.3	11	28.56	58.59	6	13
245(11b)	13	10.5	23.5	29.2	6.2	12.5
246(5b)	15	12	38.33	53.52	9	6.2
246(5b)	14	12	30.64	66.87	11.8	6.5
246(5b)	14	12	24.71	72.99	8.6	6.4
247(8b)	14	12.5	30.95	68.03	7	11.1
247(8b)	13	12	28.07	60.09	6.2	10.8
247(8b)	15	11	21.35	72.91	6.1	12
248(8b)	14	12	28.61	62.84	5.8	10
248(8b)	13.5	12	34.5	71.84	5.9	12
248(8b)	12	12	30.92	68.99	6.4	12.14
250(11b)	13	10	27.33	51.21	6.3	12.4
250(11b)	13.5	10.5	22.71	56.57	6.7	10.9
253(1b)	8.5	8	23.8	54.07	12.4	7
253(1b)	10	9	25.38	56.81	11	6.8
255(9b)	13.5	10	24.81	57.5	6.2	12.1
257(3b)	13.5	12	25.7	60.61	6.6	11.1
257(3b)	11	13.5	19.71	74.5	6.2	5.4
257(3b)	13	13.5	20.1	71.06	6.2	5.4
258(4b)	15.5	12	22.4	77.01	6	11.7
259(8b)	12	16	18.02	76.32	6.1	7
259(8b)	13	16	23.02	71.02	6.2	8.9
262(3b)	12	10	28.97	47.13	6.9	10.2
262(3b)	11	11	32.06	52.92	6.7	11.3
262(3b)	16	9	27.12	52.24	6.6	10.1
264(12b)	14	12.5	24.08	67.03	10.6	6.5
264(12b)	15.5	12.5	26.4	62.92	6.2	6.6
264(12b)	14	11	22.82	56.66	8.7	6
266(3b)	13	12	21.95	69.8	6.7	11.7
266(3b)	11	11	26.81	60.98	6.3	11.8
266(3b)	11.5	11	34.24	56.37	6.1	8.6
268(7b)	15	13	32.61	85.61	6.2	5.2
268(7b)	14.5	14	29.5	78.39	5.8	8.4
268(7b)	13.5	13	23.43	62.8	6.3	9.2
268(7b)	13	13	27.58	76.82	6.9	10.1
269(2b)	16	12	24.07	67.5	8.9	6.3
269(2b)	14	12.5	24.08	67.03	10.6	6.5
269(2b)	15.5	12.5	26.4	62.92	6.2	6.6
269(10b)	14	11	22.82	56.66	8.7	6
271(1b)	13	10	28.4	55.4	5.6	6.2
275(9b)	10.5	9.5	22.37	52.61	9.3	6.8
281(5b)	14	12	28.9	66.36	6	8.1
281(5b)	11	12	26.97	54.33	5.9	10.6
281(5b)	12.5	11.5	26.53	63.28	5.9	10.8
283(3b)	14	12	35.33	55.65	6.3	10.2
283(3b)	14	13.5	31.82	73.33	6.6	9

Acknowledgement*: Fruit Lenght (A), Fruit Diameter (B), Flesh Thickness of Fruit (C), Core House Size (D), TSSc (E), Ph (G)*

Nasrabadi and Nemati [18], reported that 10 local Persian melons were evaluated interms of fifteen morphological characters. According to these results; It was determined that the minimum and maximum fruit length was 22.64-48.10 cm, and the fruit diameter was 15.15-19.56 cm. The lowest and highest fruit flesh thickness in all genotypes was determined as 24.92-36.54 cm, respectively. The lowest and highest water-soluble dry matter ratio was determined as 10.09-13 brix°, respectively. The lowest and highest total soluble solid content was determined as 10.09-13 brix°, respectively. Rad and Allahdoo [19], revealed that; the lowest and highest values of fruit

length and fruit diameter were determined as 10-34.25 cm and 8.75-16.25 cm. The highest and lowest values fruit flesh thickness of fruit were determined as 1.69-4.15 cm. They determined the total soluble solid content as 4.25-8.25% brix°.

As a result of the morphological characterization data, the quantitative data were evaluated by PCA and clustering analysis using the JUMP software.

Fruit characteristics measurements obtained from inbred lines in melons were subjected to PCA (Table 4). As a result of PCA, the study explained a high rate of 73.73% in three components. Studies have reported that in order to use PC analysis, more than 25% of the first two components of the study should be disclosed [20]. The strong disclosure of PCA is clear that this analysis will yield important conclusions about the usability and parameters being looked at. In the graph showing the interaction between the features, % PC1 (33.31%) % PC2 (24.3%) and % PC3 (16.0%) are explained. It is seen that these three components are calculated as 73.7% in total. Biplot graphs are asked to have PC1%, PC2%, and PC3% as high as possible. In biplot graphs, %PC1, %PC2 and %PC3 values are desired to be as high as possible. Because the high value of this total percentage indicates that the level of importance of interaction is high in the subjects covered [21]. For this reason, it is expected that the sum of the percentage values PC1, PC2 and PC3 be at least 50%. In the study, the sum of PC1, PC2 and PC3 percentage values was found to be 73.7%, allowing the graph to be interpreted reliably.

Table 4. *Eigenvalue, variation and principal component axes of the properties examined as a result of principal component analysis*

	PC1	**PC2**	**PC3**
Eigenvalue	1,99	1.45	0.96
Variance%	33.31	24.3	16.0
Total variance %	33.31	57.65	73.7
Eigenvectors			
Fruit length	0,52069	-0,00597	-0,07827
Fruit diameter	0,56915	0,16521	-0,03261
Fruit thickness	0,20168	0,15827	0,94781
Core house width	0,47880	0,30658	-0,24094
SSC	-0,35901	0,59720	0,08336
pH	0,07834	-0,70497	0,17165

Using PC1 and PC2 components, a loading plot chart was created to examine the mutual relationship between fruit characteristics (Figure 1). It has been reported that there is a positive relationship if the angle between the vectors in the figure is 90°, and if the angle between the vectors is 90°, there is no significant relationship [22, 23]. When the figure is examined, the highest positive correlation was found between fruit length and diameter. On the other hand, the highest negative correlation was found between pH and TSSC.

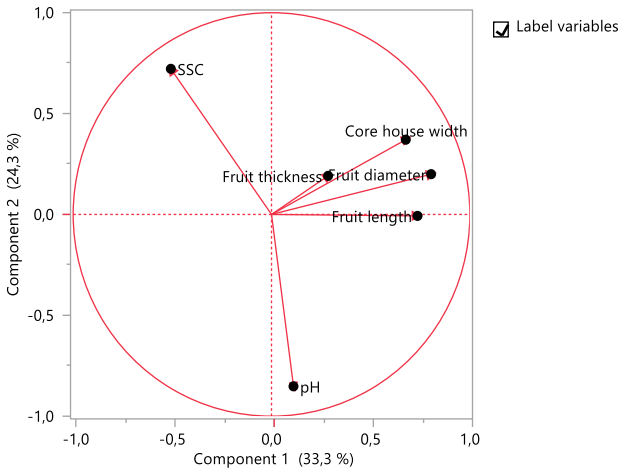

Fig. 1. *Loading plot plot obtained from PCA result from fruit characteristics PC1 and PC2*

A score plot graph was created to evaluate 166 inbred melon lines using PC1 and PC2 components (Figure 2). Kayak and Dal [10] reported that the G39 genotype, located in the positive region of both components, showed superior characteristics in terms of yield and fruit quality and could be a promising cultivar candidate in their melon study. Similarly, Seymen [24], reported that the hybrid cultivar candidates 31x34, 23x28, 13x23, 38x40, 29x37, 30x31 and 23x29 and 40x29, located in the positive region of both components, are promising.

The basic method in variety breeding studies is to select plants with desired characteristics by creating a wide genetic variation. Genetic materials with these characteristics specified as a result of the analysis; it will help in the creation of a heterogeneous gene pool in the planning of melon breeding programs.

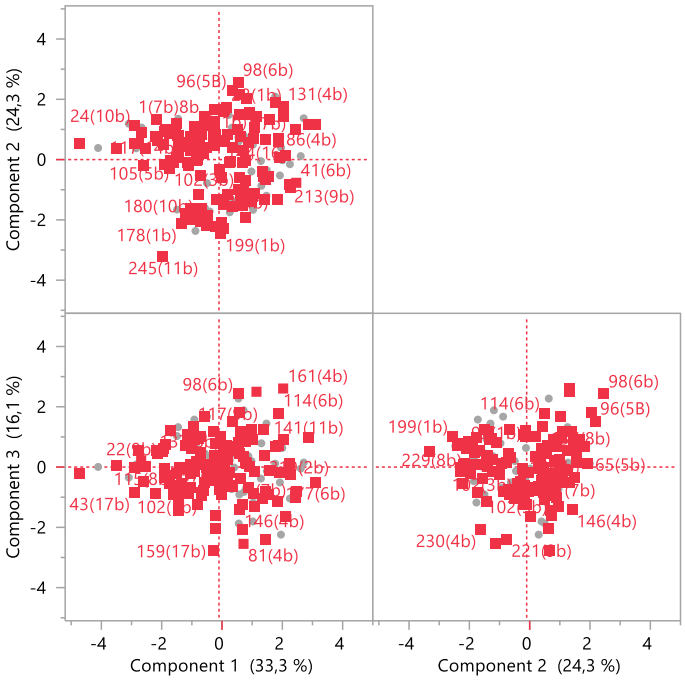

Fig. 2. *Score Plot plot drawn from PC1, PC2 and PC3*

CONCLUSION

Considering this study, it is thought that genetic diversity may be sufficient. It is foreseen that the breeding program can be created with the materials available, provided that molecular supports are made. Detection of genetic diversity in existing germplasm collections and revealing their distribution in terms of traits among genotypes will provide important benefits in the formation of breeding strategies.

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