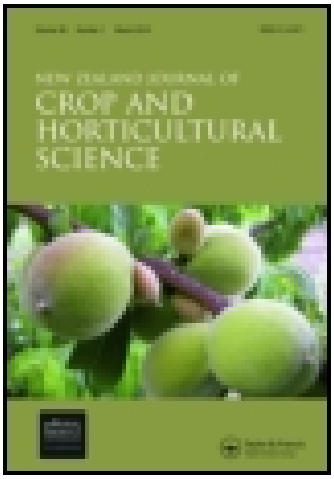

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Fruit characteristics of table fig (Ficus carica) cultivars in subtropical climate conditions of the Mediterranean region

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Fruit characteristics of table fig (*Ficus carica*) cultivars in subtropical climate conditions of the Mediterranean region

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Abstract Fig (*Ficus carica*) is one of the most important fruit species of Mediterranean countries. Turkey is one of top countries in the world for the production of various cultivars of fig. In this study, fruit quality characteristics of some fresh fig cultivars ('Bursa Siyahi', 'Yediveren', 'Sari Zeybek', 'Göklop', 'Morgüz', 'Yeşilgüz') and 01-IM-02 genotype were determined in Kirikhan County, Hatay, Turkey, which has a Mediterranean climate. Several pomological characteristics of the genotype and cultivars were determined on 5-year-old trees during the 2001–03 growing season. Averaged over the 3 years, fruit weight was determined between 30.0 and 52.4 g; fruit width between 35.8 and 48.4 mm; fruit length between 36.2 and 48.3 mm; neck length between 3.1 and 7.2 mm; ostiole width between 0.8 and 2.4 mm; total soluble solid contents (TSS) between 22.7 and 27.2%; pH between 4.8 and 5.3; titratable acidity between 0.20 and 0.38%; and TSS/acidity between 75.4 and 139.0. Yield values ranged from 0.42 to 2.83 kg/tree. 'Yediveren', 'Göklop', and 'Bursa Siyahi' cultivars and 01-IM-02 genotype produced the largest fruits in terms of fruit weight and fruit dimensions. 01-IM-02, 'Bursa Siyahi', and 'Yediveren' scored the highest in overall quality according to the weighted ranked method. The objective colour measurements determined the differences between fruit skin colour and flesh colour of fig cultivars and genotype. According to data obtained, 01-IM-02, 'Bursa Siyahi', and 'Yediveren' were found to be promising for both export markets and local consumption.

Keywords *Ficus carica*; fruit colour, fruit quality; table fig; subtropical climate

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INTRODUCTION

Fig (*Ficus carica* L.) is among the older fruits and is known to humans from time immemorial (Aksoy 1998). It is one of the most important fruit species of Mediterranean countries. The fig tree is also widely spread in Turkey—the Black Sea, Marmara, Aegean regions and the Mediterranean coast, southern Anatolia, and the interior valleys of central Anatolia. Turkey's production of 285 000 t is 27% of total world production and Turkey's 177 900 t of fig exports represents 52% of total world fig exports (Anon. 2005a). However, Turkey's fresh fig has not yet fulfilled its export potential. Since table figs are not as demanding as dried figs in terms of climate and soils, they can also be economically grown in other regions of Turkey. The shores of Mediterranean and south-east Anatolia have especially suitable conditions for fresh fig production (Kaşka et al. 1990). It is necessary to increase overall fig production, extend harvesting period by planting in diverse ecological regions, and use cultivars that are different in their harvest period, and finally increase the quality of fig fruits produced.

Recently, there is increasing interest in exotic fruits from world markets (Aksoy et al. 1992). Table figs are accepted as exotic fruits in western and northern European countries where they cannot be cultivated. Nevertheless, these countries are developing an increasing interest in fresh figs (Özeker & Isfandiyaroğlu 1998). Therefore, there is competition not between fig production countries but between fig importing countries (Çalişkan 2003).

Figs are adaptable to various climatic conditions, but prefer total yearly rainfall of 500–550 mm, especially 40–45% humidity for the drying period

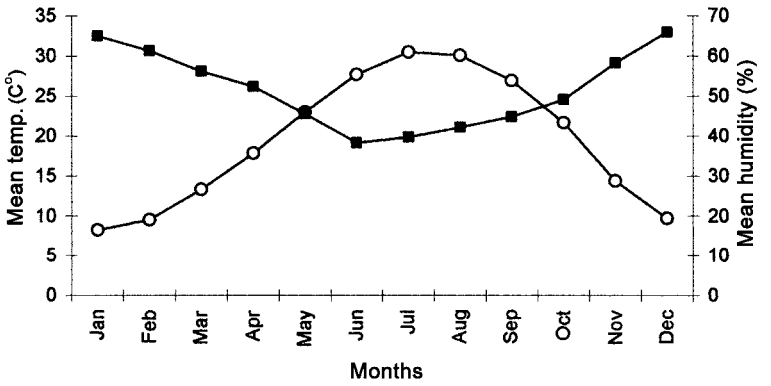

Fig. 1 Means of temperature and humidity in the Kirikhan county, Turkey (means of 1983–2003). (Open cirlces, temperature; closed squares, humidity.)

between July and September, average temperatures of 18–20°C and 20°C yearly between May and October (Kabasakal 1990). Fig is well adapted to the Mediterranean climate. Fig cultivation on the coastal region of the Mediterranean in Turkey has a long history and a promising future. Fresh fig production in Turkey is seldom found in dedicated orchards except in the regions of Bursa, İçel (Mut), Manisa (Turgutlu-Salihli), and Hatay. Hatay province is located on the eastern Mediterranean region in Turkey. There are 223 345 fig trees in this region, producing 5403 t of figs. Kirikhan County produces 5.7% (285 t) of the total production of Hatay (Anon. 2005b).

The objective of this study was to evaluate quality and other characteristics of Turkey's most important fig cultivars in the ecological conditions of Kirikhan, Hatay (in the Mediterranean region).

MATERIAL AND METHODS

The study was conducted on the Mustafa Kemal University, Agriculture Faculty, Kirikhan Research Station in Hatay, Turkey, during 2001 and 2003. Kirikhan Research Station is located 36°28′N, 36°19′E and 18 m a.s.l. Kirikhan has a typical Mediterranean climate; yearly average temperatures are 19.4–26.6°C between May and October, with 556 mm precipitation which primarily falls during winter and spring, and average yearly 46.5% humidity (Fig. 1) (Anon. 2004).

Six cultivars ('Bursa Siyahi', 'Yediveren', 'Sari Zeybek', 'Göklop', 'Morgüz', 'Yeşilgüz') and 01-IM-02 genotype were included in the study. The cultivars are the most widely grown and the genotype was selected from the Mediterranean region of Turkey described in a previous study (Kaşka et al.1990). All cultivars and 01-IM-02 genotype were propagated by cuttings and the experimental orchard was established in 5 replicates of 6 □ 6 m in 1997.

Pomological characteristics were determined for mature summer crop fruits. From each fig cultivar, 30 fruit were randomly selected from the fig trees. Harvested fruit were immediately transferred to ice boxes and then stored at 0°C. The fruit were then evaluated for pomological properties. There were 3 replicates each consisting of 10 fruit.

Fruit weight was measured with a scale which is sensitive to 0.01 g (Precisa XB 2200 C). Fruit size (length and width), neck length, and ostiole width were measured by a digital compass (BTS, 0–15 mm). Soluble solids were determined with a hand-held refractometer (N.O.W., 0–32% Brix) and pH was determined by a pH meter. Acidity (expressed as % citric acid) was determined by titrating with 0.1*N* NaOH to an endpoint of pH 8.10. Soluble solid/acidity ratio was calculated. The fruit index was calculated by dividing the width by the length. Yield values were measured per tree (kg/tree). Abscission of the stalk from the twig, ease of peeling, fruit skin cracks, fruit shape, the shape of the fruit stalk, fruit ribs, the thickness of the fruit skin, the texture of skin, and the fruit internal cavity were determined based on the fig descriptor developed by Aksoy (1996). Fruit quality characteristics of cultivars were determined according to table fig characteristics in this descriptor. Colour was determined using a colour meter CR-300 (L*a*b*). The L* value represents lightness (L* 0 for black, L* 100 for white), whereas the a* scale represents the red/green dimension, with positive values for red and negative ones for green. The b* scale represents the yellow/blue dimension, with positive values for yellow and negative ones for blue. L*, a*, and b* values were measured on three different spots in each of three samples for fruit

skin and two different spots each of three samples for flesh. The results were recorded as the mean of these measurements. Chroma ($(a^{*2} + b^{*2})1/2$) and hue angle ($(\tan)^{-1}$ b*/a*) were also calculated. The Mediterranean region where we conducted this research is not suitable for dried fig growing because of weather and soil conditions (i.e., high relative humidity). Therefore, it is not possible to study cultivars for commercial dried fig production. To compare overall performance of each cultivar studied, an evaluation scale was developed based on weighting fruit characteristics considering both local and global consumer preferences (Table 1).

The data were subjected to analysis of variance using SAS (SAS 1990). The means were separated by Tukey's HSD multiple comparison test at 0.01.

RESULTS

Harvesting period, yield/tree, and some fruit quality characteristics

In general, the cultivars were harvested between 1 and 15 August, although 01-IM-02 had harvest windows from 15 to 30 August. Averaged over the 3 years, yield values ranged from 0.42 to 2.83 kg/tree.

Table 1 Weighted classification and its point system for the fig (*Ficus carica*) genotypes (Polat & Özkaya 2005).

Character	Weighting factor	Classification	Points
Fruit size	20	<20.0 g	0
		20.1–30.0 g	2
		30.1–40.0 g	4
		40.1–50.0 g	6
		50.1–60.0 g	8
		>60.0 g	10
Maturity period	20	<20 Jul	8
		20–30 Jul	6
		1–15 Aug	2
		15–30 Aug	6
		>30 Aug	8
Fruit shape	9	<0.9	8
		0.9–1.1	10
		>1.1	6
Neck length	6	<5 mm	0
		5.1–10 mm	10
		10.1–15 mm	6
		>15 mm	2
Fruit skin cracks	10	None	10
		Scarce	6
		Minute	0
Ease of peeling	10	Easy	10
		Intermediate	6
		Hard	0
Ostiole width	5	0.0–2.0 mm	10
		2.1–4.0 mm	8
		4.1–6.0 mm	6
		>6.1 mm	2
Soluble solids	10	<13.0%	2
		13.1–16.0%	4
		16.1–20.0%	10
		20.1–25.1%	8
		>25.1%	6
Acidity	10	<0.050%	0
		0.051–0.12%	6
		0.126–0.225%	8
		0.226–0.300%	10
		>0.301%	4
Total	100		

'Bursa Siyahi' (2.83 kg/tree) had the highest yield, followed by 'Yediveren' and 01-IM-02 (1.97 and 1.87 kg/tree, respectively). The lowest yield values were observed for 'Sari Zeybek' (0.42 kg/ tree) and 'Yeşilgüz' (0.55 kg/tree) (Table 2).

Some fruit quality characteristics of cultivars are presented in Table 2. Analysis of variance showed that there were statistically significant differences among cultivars for all traits. Averaged over the 3 years, 01-IM-02 genotype had the highest fruit weight (52.4 g), followed by 'Yediveren' (43.9 g). The lowest fruit weight values were observed on 'Sari Zeybek' (29.6 g) and 'Yeşilgüz' (30.0 g). The average fruit width for 'Göklop' was 48.4 mm, whereas fruit width was 46.4 mm for 01-IM-02 and 43.2 mm for 'Yediveren' (Table 2). For fruit length, the highest values were observed for 'Bursa Siyahi' (48.3 mm) and 01-IM-02 (47.8 mm) whereas the lowest were from 'Sari Zeybek' (36.2 mm). Neck length was longest on 01-IM-02 (7.2 mm) and 'Bursa Siyahi' (7.0 mm) (Table 2).

Ostiole width was greatest on 01-IM-02 (2.4 mm) and 'Göklop' (2.3 mm) whereas the lowest was from 'Bursa Siyahi' (0.8 mm) (Table 2). In this study, in terms of total soluble solid (TSS) contents, 'Morgüz' and 'Yeşilgüz' cultivars had the highest values at 27.2% and 26.7%, respectively (Table 2). The pH of the fruit juice was highest in 'Morgüz' (5.3), whereas it was lowest in 'Yeşilgüz' (4.8). Juice acidity was highest in 'Yeşilgüz' (0.38 %). Acidity was lowest for 'Morgüz' (0.20%). In our study, the highest sugar/acid ratio was observed in 'Morgüz' (139.0). The lowest ratio was recorded from 'Yeşilgüz' (75.4) (Table 2).

Table 2 Harvesting period, yield/tree, and some fruit quality characteristics of experimental Turkish fig (*Ficus carica*) cultivars (average of years 2001–03). (Means within a column followed by different letter are significantly at the 1% by Tukey's HSD test.)

Cultivars	Fruit weight (g)	Fruit diam. (mm)	Fruit length (mm)	Neck length (mm)	Ostiole width (mm)	Soluble solids (%)	pH	Acidity (%)	Soluble solids/ acidity	Harvesting period	Yield/tree (kg/tree)
Bursa Siyahi	40.0 bc	38.8 cd	48.3 a	7.0 ab	0.8 c	24.6 ab	5.0 ab	0.28 b	92.8 bc	1–15 Aug	2.83 a
Yediveren	43.6 b	43.2 a-c	41.7 b	4.5 bc	1.9 ab	24.9 ab	5.1 ab	0.25 b	103.5 bc	1–15 Aug	1.97 b
Göklop	40.3 bc	48.4 a	39.7 bc	4.3 c	2.3 a	25.8 ab	5.1 ab	0.28 b	93.9 bc	1–15 Aug	1.23 bc
Morgüz	33.5 cd	39.6 b-d	37.0 cd	3.1 c	1.4 bc	27.2 a	5.3 a	0.20 b	139.0 a	1–15 Aug	0.86 cd
Yeşilgüz	30.0 d	37.6 cd	36.7 cd	4.2 c	1.0 c	26.7 a	4.8 b	0.38 a	75.4 c	1–15 Aug	0.55 cd
Sari Zeybek	29.6 d	35.8 d	36.2 d	4.6 bc	1.0 c	23.9 ab	5.2 ab	0.24 b	109.1 ab	1–15 Aug	0.42 d
01-IM-02	52.4 a	46.4 ab	47.8 a	7.2 a	2.4 a	22.6 b	5.1 ab	0.24 b	100.9 bc	15–30 Aug	1.87 b
Means±SE	38.5±8.2	41.4±5.0	41.1±5.0	5.5±2.9	1.6±0.8	25.1±1.9	5.1±0.2	0.3±0.1	102.1±20.9		1.4±0.9
D (1%)	8.6	7.3	3.4	2.6	0.7	3.9	0.4	0.06	28.5		0.75

Fruit shape, fruit stalk, and fruit skin characteristics

The fruit shape index of the cultivars was found to be between 0.80 and 1.22 and the fruit shape was oblong, oblate, and globose (Table 3). 'Bursa Siyahi' was oblong whereas 'Göklop' was oblate and the rest were globose. Shape of the fruit stalk was short and thick for almost all of the cultivars tested. Abscission of the stalk from the twig was easy for 'Bursa Siyahi' and 01-IM-02 and medium for other cultivars; all of the genotypes were easy to peel (Table 3). Skin cracking was found to be intermediate for 'Morgüz', 'Yeşilgüz', and 'Sari Zeybek', but others had no skin cracking. The skin thickness was thick or intermediate, whereas the skin ribs were absent or intermediate. The skin textures were soft, intermediate, and firm, and fruit internal cavities were either small or very small (Table 3).

Table 3 Fruit shape, fruit stalk, and fruit skin characteristics for some Turkish fig cultivars (*Ficus carica*).

Cultivars	Fruit width/length	Fruit shape	Shape of stalk	Abscission of stalk from twig	Ease of peeling	Fruit skin cracks	Thickness of fruit skin	Texture of skin	Fruit ribs	Fruit internal cavity
Bursa Siyahi	0.80	Oblong	Short and thick	Easy	Easy	None	Thick	Firm	None	Small
Yediveren	1.04	Globose	Short and thick	Medium	Easy	None	Intermediate	Intermediate	None	Small
Göklop	1.22	Oblate	Short and thick	Medium	Easy	None	Intermediate	Intermediate	Intermediate	Very small
Morgüz	1.07	Globose	Short and thick	Medium	Easy	Scarce longitudinal	Intermediate	Soft	Intermediate	Small
Yeşilgüz	1.03	Globose	Short and thick	Medium	Easy	Scarce longitudinal	Intermediate	Soft	Intermediate	Small
Sari Zeybek	0.99	Globose	Short and thick	Medium	Easy	Scarce longitudinal	Intermediate	Soft	Intermediate	Very small
01-IM-02	0.97	Globose	Short and thick	Easy	Easy	None	Thick	Firm	Intermediate	Small

Fruit skin and flesh colour measurements

Fruit skin L* values were the lightest followed by 'Yediveren', 'Göklop', 'Sari Zeybek', and 'Yeşilgüz' (67.88, 67.86, 66.35, and 64.17, respectively) (Table 4). Fruit skin a* values indicating red colour, were positive for 01-IM-02 (10.20) and 'Bursa Siyahi' (5.20), whereas were negative (green colour) for 'Göklop', 'Yediveren', 'Sari Zeybek', 'Yeşilgüz', and 'Morgüz' (–16.53, –16.00, –15.61, –18.62, and –2.25, respectively). Skin b* values were highest for 'Yediveren' (65.67) and 'Göklop' (62.07), whereas 01-IM-02 (9.48) and 'Bursa Siyahi' (5.06) had the lowest skin b* values (Table 4). Hue angle values (H°, the lowest values are redness) were 44.55 and 42.74 for 01-IM-02 and 'Bursa Siyahi', respectively. The clearest fruit was recovered from 'Morgüz' with –87.09. Similarly, to Chroma values (C, lowest values are most density) were found highest for 'Bursa Siyahi' (7.34) and 01-IM-02 (14.16), whereas clear colour was found for 'Yediveren' (67.59) and 'Göklop' (64.24).

Fruit flesh L* values were the lightest followed by 'Göklop' (42.20) and 'Yediveren' (44.58). Fruit flesh a* values indicating red colour, were positive for 'Yeşilgüz' (18.70) (Table 4). Flesh b* and Chroma values were not significant. Hue angle values were highest for 'Sari Zeybek', 'Morgüz', 'Yediveren', and 'Göklop' (69.64, 62.37, 66.95, and 67.42, respectively).

Weighted characterisation

When all of the characteristics were evaluated together using the weighted analysis, 01-IM-02 was calculated as having the highest fruit quality (850 points) followed by 'Bursa Siyahi'(682) and 'Yediveren' (680) (Table 5). The lowest values were observed on 'Yeşilgüz' (480) and 'Morgüz' (560).

DISCUSSION

Turkey leads the world in fig production and trade (Aksoy et al. 2003b). Both dried and fresh Turkish figs are accepted as "Number one" in the world, because of the big size of Turkish figs. A number of cultivated and wild forms of fig can be found in Turkey with a great diversity of colour, shape, and flavour, primarily for fresh consumption (Özbek 1978). The Mediterranean shore and south-east Anatolia have especially suitable conditions for fresh fig production (Kaşka et al. 1990).

In the study in general, yield values were lower than usually reported (Table 2), but this can be

Table 4 Fruit skin and flesh colours values of some Turkish fig cultivars (*Ficus carica*). (Means within a column followed by different letter are significant at the 1% by Tukey test. NS, not significant.)

	Fruit skin colour					Fruit flesh colour				
Cultivars	L	a	b	H	C	L	a	b	H	C
Göklop	67.86 a	−16.53 c	62.07 ab	−75.09 b	64.24 ab	42.20 ab	12.01 b	28.93	67.42 ab	31.33
Yediveren	67.88 a	−16.00 c	65.67 a	−76.31 b	67.59 a	44.58 a	12.38 b	29.13	66.95 ab	31.66
Sari Zeybek	66.35 a	−15.61 c	56.74 bc	−74.62 b	58.84 bc	37.13 abc	11.95 b	32.24	69.64 a	34.41
Yeşilgüz	64.17 a	−18.62 c	53.47 c	−70.78 b	56.62 c	29.47 c	18.70 a	30.79	58.78 b	36.07
Bursa Siyahi	29.10 c	5.20 a	5.06 e	42.74 a	7.34 f	39.11 abc	15.05ab	26.57	60.54 b	30.55
Morgüz	57.85 b	−2.25 b	44.27d	−87.09 b	44.33 d	33.27 bc	15.42ab	29.55	62.37 ab	30.38
01-IM-02	23.32 d	10.20 a	9.48 e	44.55 a	14.16 e	39.89 abc	15.14ab	26.27	59.85 b	33.34
Means±SE	53.79±18.3	-7.66±11.4	42.39±23.7	42.37±56.2	44.73±23.2	37.95±5.6	14.38±2.5	29.07±2.8	63.62±4.6	32.53±2.7
D (1%)	4.73	6.17	5.57	21.73	6.60	11.24	3.77	NS	9.07	NS

explained to be a result of the young age of plants. Şahin et al. (2001) explained that fig plants produce optimum yields at 7 years old. In fresh production, the marketing season can be extended with varieties having longer ripening periods and by growing varieties ripening at different periods, including Breba varieties (Aksoy et al. 2003a). Under the climatic conditions prevailing in the Mediterranean region, ripening started for harvest between 1 and 15 August, although genotype 01-IM-02 had harvest windows from 15 to 30 August. Aksoy et al. (2001) reported that 'Bursa Siyahi' is harvested from August to September.

Fruit weight is very important for fresh consumption in figs (Aksoy et al. 1992). In this study, averaged over 3 years, fruit weight values ranged from 29.6 to 52.4 g. All pomological characterictics were significant at the 1% level. In similar studies of fig cultivars, fruit weights ranged between 22.2 and 50.0 g under Dörtyol conditions (Çalişkan 2003). Kaska et al. (1990) found fruit weight to be 62.2 g for 01-IM-02, 50.8 g for 'Göklop', and 66.1 g for 'Bursa Siyahi'. Our results concerning fruit weight are similar to the results obtained by Çalişkan (2003) but lower than those of Kaşka et al. (1990). The relatively young age of trees (Botti et al. 2003) in this study may have further depressed fruit size.

To quantify the length, width and fruit size were measured as well as fruit weight (Aksoy et al. 1992). For all three evaluation methods, 01-IM-02, 'Yediveren', 'Göklop', and 'Bursa Siyahi' were among the largest. Averaged over 3 years, fruit width was determined between 35.8 and 48.4 mm. These values are similar to the results of other studies carried out on the same cultivars (Kaşka et al. 1990; Aksoy et al. 1992; Çalişkan 2003) and local figs (Koyuncu et al. 1998; Koyuncu 2004) but lower than those of Bostan et al. (1998) and Polat & Özkaya (2005). Fruit index (width/length) is of great importance in packing and transportation. Fruit length of the cultivars studied was determined to be between 36.2 and 48.3 mm. Our results concerning fruit length are similar to the results obtained from the same cultivars (Kaşka et al. 1990; Çalişkan 2003) and local figs (Özeker & İsfandiyaroğlu 1998) but lower than those of Aksoy et al. (1992), Bostan et al. (1998), Koyuncu et al. (1998), and Polat & Özkaya (2005). In our study, fruit neck length values ranged from 3.1 to 7.2 mm (Table 2).These results are in agreement with the findings of previous reports (Özeker & İsfandiyaroğlu 1998; Çalişkan 2003; Polat & Özkaya 2005) but lower than those of Ilgin & Küden (1997) and Aksoy et al. (2003a).

A large ostiole on the fig is an undesirable characteristic as pests and pathogens enter the fruit. Our results concerning ostiole width are also in accordance with the results of other studies carried out on the same cultivars (Çalişkan 2003) and local figs (Bostan et al. 1998; Koyuncu et al. 1998). However, in our results the widths of ostiole were lower than these earlier reports (Aksoy et al. 1992; Ilgin & Küden 1997; Aksoy et al. 2003a; Polat & Özkaya 2005).

In our study, TSS, titrable acidity, and pH were determined between 22.68 and 27.2%, 0.20 and 0.38%, and 4.8 and 5.3, respectively. These results concerning TSS are similar to the results obtained from the same cultivar (Çalişkan 2003) but higher than Kaşka et al. (1990), Aksoy et al. (1992), Bostan et al. (1998), and Koyuncu et al. (1998). Results on titrable acidity are similar to the results of the studies carried out on the same cultivars (Aksoy et al. 1992) and local figs (Koyuncu et al. 1998) but higher than those of Özeker & İsfandiyaroğlu (1998), Bostan et al. (1998), Çalişkan (2003), and Polat & Özkaya (2005). Our pH values are in agreement with the findings of previous reports (Özeker & İsfandiyaroğlu 1998; Bostan et al. 1998; Koyuncu et al. 1998; Çalişkan 2003).

Differences in sugar content of fruits and vegetables depend on cultivar, maturity, storage conditions, and crop year (Matthews et al. 1987). Matthews et al. (1987) reported that fresh figs and dried figs contain 3.7–28.6 g glucose and 2.8–26 g fructose in a 100 g edible portion, respectively. Their high natural sugar content makes them especially desirable as a food for children (Tyler 1997). In fruit, most of the dry matter is in a soluble form which is largely composed of sugars. The organic acid composition of fig fruit is dominated by citric acid and acidity together with sugars that make up the taste (Karaçali 2002). But preferences in flavour change according to the demand of consumers. Cultivars which have high sugar concentrations are in demand in domestic and Middle Eastern markets. On the contrary, cultivars low in sugar concentrations are requested in European markets (Ozeker & İsfendiyaroğlu 1998).

The sugar/acidity ratio is one of the most important factors in fruit taste (Karaçali 2002) and is efficiently approximated in figs through the soluble solids/acidity ratio. The preferred ratio will vary with the use of fig fruits, but ratios will provide guidance in selecting cultivars for specific uses. In our study, the highest sugar/acid ratio was observed in 'Morgüz' (139.0). Our sugar/acid ratios are similar to the results obtained by Çalişkan (2003).

The colour of fruit skin and flesh was different among the cultivars (Table 4). Hue angle is the relation of Hunter a* (redness) to Hunter b* (yellowness) (Setser 1984). Tsantili (1990) found the fruit skin a* values 9.8 (1983) and 10.5 (1984). Gözlekçi et al. (1999) recorded fruit skin L*, a*, and b* values for 'Bursa Siyahi' (28.60/34.47, 2.97/3.58, –0.93/–1.47, respectively) and 'Sarilop' (61.56/64.86, –14.26/–15.27, 41.86/45.54, respectively). Our results concerning fruit colour are similar to these results. But fruit skin and flesh colours ranged for cultivars, harvest times, light density, and seasonal differences (Gözlekçi et al. 1999). Fruit shape is very important for packaging and transportation. The most suitable fruit shape is usually globose. Therefore, most of the cultivars in the present study have an acceptable fruit shape and easy peeling. Ease of peeling is critical for local and global customer preferences. Aksoy et al. (2003a) reported skin peeling of 'Bursa Siyahi', 'Yediveren', and 'Göklop' as easy.

Experts would agree that these are the most desirable cultivars for Turkey; 'Bursa Siyahi' is the

Table 5 Results of weighted characterisation for some Turkish fig cultivars (*Ficus carica*).

Genotype	Fruit size	Harvest period	Fruit shape	Neck length	Fruit skin cracks	Ease of peeling	Ostiole width	Total soluble solids	Acidity	Total
Bursa Siyahi	80	40	72	60	100	100	50	80	100	682
Yediveren	120	40	90	0	100	100	50	80	100	680
Göklop	120	40	54	0	100	100	40	60	100	614
Morgüz	80	40	90	0	60	100	50	60	80	560
Yeşilgüz	40	40	90	0	60	100	50	60	40	480
Sari Zeybek	40	40	90	0	100	100	50	80	100	600
01-IM-02	160	120	90	60	100	100	40	80	100	850
Means±SE	91±45	51±30	82±14	17±29	89±20	100±0	47±5	71±11	89±23	638±12

most commonly grown table fig cultivar in Turkey (Aksoy et al. 2003b). Also, differences in fruit quality parameters such as ripening period and sugar/acidity ratio among the entries could help selections fill different market niches. Therefore, we suggest that 01-IM-02, 'Bursa Siyahi', and Yediveren' should be strongly considered when planting new table fig orchards in the Mediterranean region. 01-IM-02 should be tested on multi locations with high fig production. Besides, the harvest time of 'Bursa Siyahi' is 1 month earlier from the Marmara region. For this reason, the Mediterranean region is very important for export table figs.

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