



An Ethnobotanical Research on Plants Used for Food Purposes in Bigadiç (Balıkesir-Turkey)

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Abstract: In this study, the ethnobotanical properties of the plants used by the local people for food in Bigadiç province were investigated. The study was carried out in fifteen rural neighborhoods and two district markets. A total of 104 resource persons, 76 male and 28 female, were interviewed. These plants, which are used among the people, were also identified and collected in their natural environments and their herbariums were made. As a result of the research, it was determined that a total of 51 taxa belonging to 26 families in the region were used for food purposes. The first five families of plants used as food are as follows: Rosaceae (18%), Lamiaceae (12%), Cucurbitaceae (7%), Fabaceae (7%), Moraceae (7%) and others (%41). The first five genera, which are most commonly used by the public, are listed as follows: *Triticum* (21), *Sesamum* (19), *Origanum* (17), *Portulaca* (14) and *Vitis* (14). Mostly fruit/seed (32), leaf (17) and root/stem (3) parts of these plants are used by the public. In the study, the plants that people use as food mostly; eating in the kitchen (22), fruit and fruit juice (21), spice (7), medicinal tea (5), oil (4) and molasses/jam (3). As a result of the study, more diversity was observed in the use of wild plants as food, especially in rural.

Bigadiç (Balıkesir-Türkiye)'te Gıda Amaçlı Yararlanılan Bitkiler Üzerine Etnobotanik Bir Araştırma

Anahtar Kelimeler

Balıkesir,
Bigadiç,
Etnobotanik,
Geleneksel
kullanım,
Gıda bitkileri

Öz: Bu çalışmada, Balıkesir ili Bigadiç ilçesinde yerel halkın gıda amaçlı kullandığı bitkilerin etnobotanik özellikleri araştırılmıştır. Çalışma, Bigadiç ilçesindeki on beş kırsalda bulunan mahalle ve merkezde iki semt pazarında gerçekleştirilmiştir. 76'sı erkek ve 28'i kadın toplam 104 kaynak kişi ile görüşülmüştür. Halk arasındaki kullanımı belirlenen bitkiler doğal ortamlarında tespit edilerek toplanmış ve herbaryum materyali haline getirilmiştir. Araştırma sonucunda bölgede 26 familyaya ait toplam 51 taksonun gıda amaçlı kullanıldığı tespit edilmiştir. Gıda olarak kullanılan bitkilerin familyalara göre dağılımında ilk 5 familya şu şekildedir: Rosaceae (%18), Lamiaceae (%12), Cucurbitaceae (%7), Fabaceae (%7), Moraceae (%7). Halk arasında en çok kullanımı belirlenen ilk beş cins ise *Triticum* (21), *Sesamum* (19), *Origanum* (17), *Portulaca* (14) ve *Vitis* (14)'tir. Bu bitkilerin daha çok meyve/tohum (32), yaprak (17) ve kök/gövde (3) bölümleri kullanılmaktadır. Çalışmada halkın gıda olarak yararlandığı bitkileri daha çok; yemek (22), meyve ve meyve suyu (21), baharat (7), tıbbi çay (5), yağ (4) ve pekmez/reçel (3) olarak değerlendirdikleri belirlenmiştir. Çalışma sonucunda, yabani bitkilerin gıda olarak kullanımında özellikle kırsalda daha fazla çeşitlilik görülmüştür.

1. INTRODUCTION

How plants affect people's culture and accumulation, how people use plants, how they are applied and how

they are transferred to future generations have always been a matter of curiosity for researchers. However, studies on this subject have mostly been for the medicinal use of plants [1].

Table 1. Demographics of Informants.

Gender	N	%	Rural Neighborhoods Visited	Neighbourhood	Origin
Male	76	73.08		Alfatalan	Manav
Female	28	26.92		Bademli	Manav
				Balatli	Manav
				Cagis	Mixed
				Ceribasi	Manav
				Dagarcık	Manav
				Durasilar	Manav
				Ilyaslar	Manav
				Iskele	Manav
			Kargin	Manav	
			Meyvalı	Manav	
			Panayır	Yörük	
			Salmanli	Manav	
			Yagcilar	Mixed	
			Yukarigocek	Yörük	
Age	N	%			
29-50	33	31.73			
51-65	45	43.27			
Over 65	26	25.00			
Education Status	N	%			
Reader-Writer	3	2.88			
Primary school	37	35.58			
High school	58	55.77			
University	6	5.77			

(N: Number of people)

2.4. Interview Methods

In the interviews with the informants (Figure 2A); Unstructured Interview, Semi-Structured Interview and Focus Group Interview methods were used.

**Figure 2.** A-Interview with source people, B-Market research.

2.5. The Market Research

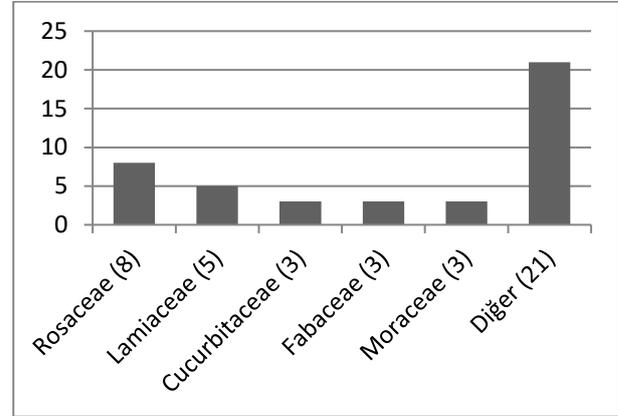
Hanimeli and Thursday markets in Bigadiç, which is our research area, were visited periodically at different times and products that were sold and consumed as food were determined (Figure 2B).

2.6. Field Research and Plant Diagnostics

In the study, in order to see and identify the plants used as food on site, they went to the land together with the source people. Photographs of the plants seen in their natural habitats were taken and the collected specimens were turned into herbarium material. Herbarium specimens it has been preserved in the herbarium of the BAUN Faculty of Arts and Sciences with the number GT1001-1103. In the identification of plants, especially "Flora of Turkey and the East Aegean Islands" [25-26] were used in flora and ethnobotanical researches [7, 19, 27].

3. RESULTS AND DISCUSSION

As a result of the study, 51 taxa belonging to 26 families used as food by the Bigadiç people were determined. The family order of these taxa is Rosaceae (18%), Lamiaceae (12%), Cucurbitaceae (7%), Fabaceae (7%), Moraceae (7%) and other (41%) (Figure 3).

**Figure 3.** Distribution of taxa whose usage was determined according to families.

The plant species identified as a result of the study; family, Latin name, vernacular name, used part, usage pattern and herbarium number are given in Table 2.

Table 2. Ethnobotanical characteristics of plants used as food in Bigadiç District.

Family	Taxon	Vernacular name	Used Part	Usage	Herbarium No
Amaranthaceae	<i>Spinacia oleracea</i> L.	Ispanak	Leaf	Food	GT1081
Anacardiaceae	<i>Rhus coriaria</i> L.	Somak	Fruit	Spice	GT1020
Anacardiaceae	<i>Pistacia terebinthus</i> L.	Çitlembik, çetlemik	Fruit	Oil	GT1105
Apiaceae	<i>Anethum graveolens</i> L.	Günmem, dere otu	Leaf	Spice	GT1040
Asparagaceae	<i>Asparagus acutifolius</i> L.	Kuşkonmaz	Exile	Food	GT1095
Asteraceae	<i>Cichorium intybus</i> L.	Hindiba, acı hindiba	Leaf	Food	GT1111
Asteraceae	<i>Taraxacum microcephaloides</i> Soest	Karahindiba	Leaf	Food	GT1067
Brassicaceae	<i>Brassica oleracea</i> L.	Dürülgen, kelem, lahana	Leaf	Food	GT1019
Brassicaceae	<i>Raphanus raphanistrum</i> L.	Turp otu	Leaf	Food	GT1096
Cucurbitaceae	<i>Cucurbita pepo</i> L.	Aşkabağı	Fruit	Food	GT1049
Cucurbitaceae	<i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai	Çömez karpuz	Fruit	Food	GT1044
Cucurbitaceae	<i>Cucumis melo</i> L.	Serkele, topatan, kavun	Fruit	Food	GT1043
Ebenaceae	<i>Diospyros kaki</i> L.	Cennet hurması	Fruit	Food	GT1035
Elaeagnaceae	<i>Elaeagnus angustifolia</i> L.	İğde	Fruit	Food	GT1012
Fabaceae	<i>Phaseolus vulgaris</i> L.	Ak fasulye, Ayşe kadın, Şeker fasulye, Sırık fasulye	Fruit	Food	GT1060
Fabaceae	<i>Vicia faba</i> L.	Bakla	Fruit	Food	GT1100
Fabaceae	<i>Vigna unguiculata</i> subsp. <i>sesquipedalis</i> (L.) Verdc.	Börülce, Çatak börülçesi	Fruit	Food	GT1051
Fagaceae	<i>Castanea sativa</i> Mill.	Kestane	Fruit	Food	GT1091
Juglandaceae	<i>Juglans regia</i> L.	Ceviz	Fruit	Food	GT1030
Lamiaceae	<i>Mentha aquatica</i> L.	Delî nane	Leaf	Spice	GT1077
Lamiaceae	<i>Sideritis perfoliate</i> L.	Antalya adaçayı, Ballıbab, Minare otu	Flower Leaf	Tea	GT1031
Lamiaceae	<i>Origanum onites</i> L.	Taş kekiği, Kekik, Dağ kekiği, Akbaş kekik	Leaf Trunk	Tea, Spices	GT1112

Lamiaceae	<i>Mentha longifolia</i> subsp. <i>typhoides</i> (Briq.) Harley	Nane	Leaf	Tea, Spices	GT1045
Lamiaceae	<i>Origanum vulgare</i> L. subsp. <i>hirtum</i> (Link) letsw.	Nuz otu, Nuzlu ot, Kekik	Flower Leaf	Tea, Spices	GT1026
Malvaceae	<i>Abelmoschus esculentus</i> (L.) Moench	Bamya	Fruit	Food	GT1075
Malvaceae	<i>Malva sylvestris</i> L.	Ebegümeci	Leaf	Food	GT1086
Moraceae	<i>Morus nigra</i> L.	Karadut	Fruit	Food, Juice	GT1046
Moraceae	<i>Morus alba</i> L.	Dut	Fruit	Food	GT1036
Moraceae	<i>Ficus carica</i> L.	İncir	Fruit	Food	GT1011
Padalaceae	<i>Sesamum indicum</i> L.	Susam	Seed	Oil, Bigadiç Halva	GT1078
Papaveraceae	<i>Papaver somniferum</i> L.	Afyan, Ayfan, Haşhaş	Seed	Oil, Pastry	GT1037
Papaveraceae	<i>Papaver rhoeas</i> L.	Gelincik	Leaf	Food	GT1042
Poaceae	<i>Zea mays</i> L.	Mısır Darı	Fruit	The Fruit Is Boiled, Fame	GT1025
Poaceae	<i>Triticum durum</i> Desf.	Karakılıç buğdayı, Kılıçlı	Seed	Food, Flour, Keskek	GT1076
Polygonaceae	<i>Rumex patientia</i> L.	Alabada, efelek	Leaf	Food	GT1064
Polygonaceae	<i>Rumex acetocella</i> L.	Kuzu kulağı	Leaf	Food	GT1088
Portuguese	<i>Portulaca oleracea</i> L.	Semiz otu, Semizlik	Leaf	Food	GT1089
Ranunculaceae	<i>Nigella sativa</i> L.	Bayır otu, Çörek otu, Çör otu	Seed	Oil, Spices, Pastry	GT1072
Rhamnaceae	<i>Ziziphus jujuba</i> Mill.	Hünnap	Fruit	Food	GT1024
Rosaceae	<i>Rosa phoenicia</i> Boiss.	Kuşburnu	Fruit	Marmalade, Tea, Food	GT1058
Rosaceae	<i>Prunus armeniaca</i> L.	Kayıt	Fruit	Juice, Food	GT1004
Rosaceae	<i>Cydonia oblonga</i> Mill.	Ayva	Fruit	Food	GT1014
Rosaceae	<i>Prunus spinosa</i> L.	Güvem, Keçi eriği	Fruit	Food, Juice	GT1055
Rosaceae	<i>Rubus sanctus</i> Schreb.	Bayır kırantısı, Böğürtlen kırantısı	Fruit	Food, Juice	GT1104
Rosaceae	<i>Prunus domestica</i> L.	Mürdüm eriği, Mürdümük	Fruit	Sherbet, Dried and Eaten	GT1050
Rosaceae	<i>Malus sylvestris</i> (L.) Mill.	Ağa alma, Almat, Saray elması, Şer elması, Şeytan elması, Elma	Fruit	Food	GT1057
Rosaceae	<i>Prunus divaricata</i> Ledeb	Hırsız almaz, Yeşil erik	Fruit	Food	GT1056
Solanaceae	<i>Solanum tuberosum</i> L.	Kumpur, Patates	Body	Food	GT1032
Solanaceae	<i>Lycopersicon esculentum</i> Mill.	İyişibalcan, Domates	Fruit	Food, Salad	GT1073
Urticaceae	<i>Urtica dioica</i> L.	Gırgiren, İstirgan, İstirgan otu, Çıgırgiren	Leaf	Food	GT1003
Vitaceae	<i>Vitis vinifera</i> L.	Üzüm	Fruit	Molasses, Food	GT1059

In Bigadiç district, the existence of rich forest, the fact that 70% of the people live in rural areas and the meeting of different ethnic origins have led to diversity in the use of plants as food. As a result of the study, a total of 51 taxa were determined that the Bigadiç people used as food. Among them, *Triticum* (21), *Sesamum* (19), *Origanum* (17), *Portulaca* (14) and *Vitis* (14) are the most widely used taxa. Mostly fruit/seed (32), leaf (17) and root/stem (3) parts of these plants are used. The people mostly benefited from these food plants as food (22), fruit and fruit juice (21), spice (7), medicinal tea (5), oil (4) and molasses/jam (3) (Figure 4).

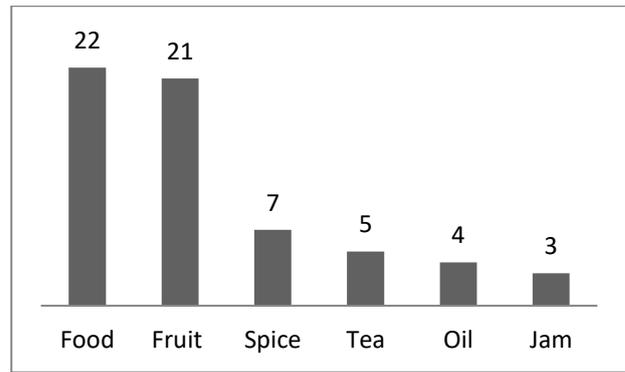


Figure 4. Distribution of taxa according to their usage patterns.

When we compare the Bigadiç data with similar studies conducted in the near vicinity, it is striking that the fruit and seed parts of the plants are used more (Table 3). The fruits and seeds of the plants used in our research area are used to make food, juice, salad, pastry, molasses, oil, spices and tea. In addition, the fruit and seed parts of the plants are eaten raw, fresh or dried.

Table 3. Comparison of the findings of our study area with the studies conducted in the immediate environment.

	Bigadiç [28]	Kazdağı [7]	Bandırma [18]	Burhaniye-Havran [19]	Yenişehir [14]	Alaçam Mountains [21]
Leaf	17	33	12	42	5	10
Fruit/Seed	32	52	15	50	32	28
Root/Stem	3	-	7	12	5	3
Spice	7	15	3	12	4	4
Tea	4	25	-	30	5	12
Plant Extract	-	13	-	-	2	-
Mushrooms	-	8	-	-	-	-
Above Ground	-	-	9	-	26	-
Total	51	153	41	140	70	41

It is seen that people from Manav and Yörük origin generally live in Bigadiç district. In the field of food, samples of these two origins were found in Bigadiç district. It has been observed that one of the two important values of the district, the keskek belongs to the Manav culture, and the halvah belongs to the Yörük culture. The traditionality of some plants used as food has been a cultural value of the district unlike others. In order to continue the traditions that have been going on for years; Wheat (*Triticum durum*), Sesame (*Sesamum indicum*) and Grape (*Vitis vinifera*) Food products obtained from plants are still obtained by traditional methods in the region.

Wheat Keskek dish, which is made using Turkish cuisine, is an example of an important tradition in the region. It is a deep-rooted legacy from the Ottoman period to these days. Keskek, a traditional dish, is served to guests at charity events, weddings, funerals or readings in our research area, Bigadiç (Figure 5).



Figure 5. Keskek and traditional village goodness.

In our study area, sesame plant is extensively used by the public. Sesame is consumed both raw and roasted and for breakfast by removing its oil. In addition, the sesame plant is used in the production of Bigadiç's famous halva. For this purpose, sesame seeds are roasted twice, then kneaded with celandine water and sweetened with sugar. Thus, a local halva is made, which is unique to the Bigadiç district. It has been done with the same method since the 1860s (Figure 6).



Figure 6. Bigadiç's famous tahini halva.

Grapes, another traditional plant widely used in the region, are squeezed by hand or with presses made from trees. It is boiled only in cauldrons used for making molasses. Especially in mountain villages, local people come together for a few days and produce molasses (Figure 7).



Figure 7. Traditional grape molasses making.

There is a need for national or international gastronomy organizations in order to transfer this rich plant usage culture of Bigadiç to future generations. Although there is currently an event called "Roasting Festival" by Bigadiç Municipality, it is insufficient to reflect Bigadiç's food culture. In this regard, there is a need for more professional organizations in cooperation with the Provincial Tourism Directorate of local administrations and the University. In addition, it is important that this

rich plant usage culture is recorded and recorded as soon as possible.

4. CONCLUSION

In this study, we found edible 26 families and 51 plants have been determined. The present study showed of wild food plants as a sign of the cultural identity of local peoples and also reveals the importance of wild plants in building different methods of preparing and eating food. In our study, it is observed that uses of several of the food plants used are as stated in the literature.

Ethnobotanical studies with wild food plants are few. Therefore, this study may be an important source for further ethnobotanical studies in Turkey.

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