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## Traditional Uses of Some Food Plants in Suruç (Şanlıurfa, Turkey)

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Abstract: This research was carried out throughout a period of approximately two years between 2019-2020 and aimed to identify wild food plants frequently used by people living in Suruç district (Sanliurfa) and some of its surrounding villages. 64 taxa belonging to 27 families were identified through these interviews that we conducted with 44 people. The demographic information of the interviewees, both the local and scientific names of the plants they use for food purposes, the parts of the plants used and the methods of preparing the plants were recorded. The plants used by the habitants of the region were scientifically diagnosed at Harran University herbarium and were recorded as herbarium material. The families of the plant taxa, their scientific and local names, their patterns of use and use value (UV) of the plants were calculated and presented in a table. The families with the widest taxa discovered in our research throughout the region are Asteraceae with 10 taxa (16%), Lamiaceae with 10 taxa (16%), Malvaceae with 5 taxa (8%), Brassicaceae with 4 taxa (6%), Fabaceae with 4 taxa (6%), Apiaceae with 3 taxa (5%) and Rosaceae with 3 taxa (5%); while genus discovered to have the widest taxa are Mentha L. with 3 taxa, Crocus L., Euphorbia L., Malva L., Papaver L., Salvia L. with 2 taxa. Food plants are usually consumed as food after their stems are peeled, their leaves are used to make salads; they are cooked by adding tomato paste, rice or egg, used as a spice and brewed like tea. Most common plant parts used for food purposes are above ground, leaf, stem, root and fruit. Some cultivated and natural plants in Suruc district are used for food purposes. Our literature review has revealed that the food plants used in Suruç district are also used both for food and medicinal purposes in different regions of our country.

## Suruç'ta (Şanlıurfa-Türkiye) Bazı Gıda Bitkilerin Geleneksel Kullanımları

Anahtar Kelimeler Suruç, Gıda bitkileri, Geleneksel kullanım, Etnobotanik, Şanlıurfa, Türkiye

Öz: Bu araştırma 2019-2020 yılları arasında yaklaşık iki yıllık bir sürede, Suruç ilçesi (Şanlıurfa) ve çevresindeki bazı köylerinde yaşayan insanların kullandığı yabanı gıda bitkilerin tespit edilmesi için yapılmıştır. 44 kaynak kişi ile yapılan görüşmelerde 27 familyaya ait 64 takson tespit edilmiştir. Görüşme yapılan kişilerin demografik bilgileri, gıda amaçlı kullandıkları bitkilerin yerel adları ve bilimsel adları, kullanılan bitki kısımları ve bitkileri hazırlama yöntemleri kayıt edilmiştir. Bölge halkının kullandığı bitkilerin Harran Üniversitesi herbaryumunda teşhisleri yapılmış ve herbaryum materyali haline getirilmiştir. Bitki taksonların familya, bilimsel ve yöresel adları, bitkilerin kullanım şekilleri ve kullanım değerleri (UV) hesaplanarak tablo halinde sunulmuştur. Bölgede yaptığımız araştırmada en çok takson içeren familyalar şöyledir; Asteraceae 10 takson (% 16), Lamiaceae 10 takson (% 16), Malvaceae 5 takson (% 8), Brassicaceae 4 takson (% 6), Fabaceae 4 takson (% 6), Apiaceae 3 takson (% 5), Rosaceae 3 takson (% 5), en çok takson içeren cinsler ise; Mentha L. 3 takson, Crocus L., Euphorbia L., Malva L., Papaver L., Salvia L. ise 2 takson içermektedir. Gıda bitkileri en çok gövdesi soyulduktan sonra yenilir, yaprakları salata yapımında kullanılır, salçalı, pirinçli, yumurtalı yemeği yapılır, baharat olarak kullanılır ve çay olarak demlenip içilir. Gıda amaçlı en çok kullanılan bitki parçaları; toprak üstü, yaprak, gövde, kök ve meyve gibi organlardır. Suruç ilçesinde bazı kültür ve doğal yetişen bitkiler gıda amaçlı kullanılmaktadır. Literatür araştırmamızda, Suruç ilçesinde kullanılan gıda bitkileri ülkemizin farklı bölgelerinde gıda ve tıbbi amaçlı kullanıldığı görülmüştür.

#### 1. INTRODUCTION

Our plants, which naturally grow in spring, are widely used in many regions of our country, particularly in Eastern Anatolia and the Aegean region for food purposes besides being a source of medication. Wild plants used for food purposes may either be consumed raw, or by adding eggs or yogurt, may be boiled or cooked by adding rice; they are also widely used in salads [1-4]. Wild food plants were also essential in ancient times for human survival. For example, people in besieged settlements during the war in Bosnia and Herzegovina benefited from plants to survive. The World Health Organization (WHO) has specified that wild plants consumed for food purposes will meet the daily vitamins (particularly A and C) and mineral needs of individuals [5].

Ethnobotany refers to the relationships of people in human societies with plants. In this context, "ethno" is used for human studies whereas "botany" refers to plant research or plant science. Ethnobotanical information has been compiled by trial and error methods over a long period of time and has reached the present day. It is inevitable that the culture of benefiting from plants will eventually disappear before it can be transferred to the younger generations due to the increase in migration to cities and the development of technology. Therefore, it is an extremely important requirement to record this knowledge before it is completely lost [6-7].

When our country is examined in terms of plant existence, it is possible to mention that it is among the richest countries in the world. According to the information included in the book titled 'Türkiye Bitkileri Listesi'' there are 167 plant families, 1320 genera and 11707 taxa of plants in Turkey. Among the 11707 taxa in our country, 3649 are endemic [8-11]. This study aimed to record the use of wild plants for food purposes in Suruç district and its surrounding villages and to shed light on future research on wild food plants.

## 2. MATERIALS AND METHODS

Our research was carried out by interviews held with local people living in Suruç district of Şanlıurfa province (Figure 1) and some of its surrounding villages (Aybastı, Bahçe, Yalınca, Zeyrek and Ziyaret) over a period of about two years (2019-2020). The villages we researched were further transformed into neighborhoods by law [12].

#### 2.1. Study of Area

Suruç, a district of Şanlıurfa province, is located in the southwest of the province and is 45 km from the city center. Surrounded by the Güvercik, Devres and Cudi mountains, the altitude of the district is 537 m. Syria is located to the south of the district. The population of the district has approached 103.000 and its surface area is 706 km2. The region is located in a semi-arid climate zone. The annual average temperature is 18 °C and the average precipitation is 457 mm. The summer months

are hot and dry while winter months are warm. The hottest period of the region is experienced in July and August [13-15].

90% of the total surface area of the district comprises of agricultural lands whereas remaining 10% is meadow, pasture, forest and non-agricultural areas. Cotton, wheat, barley, legumes and corn are grown in the district. In addition, although not much, olives, pistachios, sesame, chickpeas, vegetables, fruits, especially pomegranates are grown in the district [16].

#### 2.2. Plants Materials

For the purpose of this study we have interviewed 44 people using food plants in the region. Personal information such as age, educational background, profession of these people were recorded. In addition to Kurdish, limited Arabic and Zazaki are spoken around the Suruc district. During our trips in the region, we asked local people to show us the plants they used for food purposes; we recorded the local names of the plants they used, the parts of the plant they used and how they prepared it for food. We collected the plants used in the region and took photographs of some of them. The plants we diagnosed were scientifically named and were recorded as herbarium material at Harran University. The plants are currently preserved in the Herbarium of Harran University (HUH). The plants we recorded at the end of the research are exhibited in the table on the basis of family names (Table 1). Family names, scientific and local names of plants, plant parts used for food, patterns of use and use value (UV) each plant are exhibited respectively in the table 1. The book titled "Flora of Turkey and the East Aegean Islands" were used for scientific naming of the plants we recorded [17-20].

#### 2.3. Calculations

Use value indicating the degree of relative importance of native species is a quantitative method [21]. and is calculated according to the formula below and exhibited in the table accordingly (Table 1).

Use Value (UV) = T / K

T: The number of citations to each taxon

K: Indicates the number of people providing information

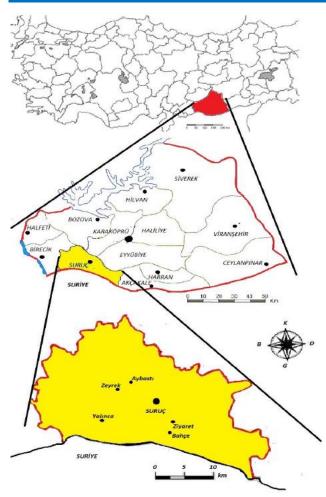


Figure 1. Maps of the study area

## 3. RESULTS AND DISCUSSION

Our interviews, held within the scope of our research in Suruç district, were conducted face-to-face with the people providing information (Figure 2).

# 3.1. Demographic Characteristics of Study Participants

Mean age of the people who provided us information was 49. Examining the educational background of 44 people who provided us information, 10 were found out (23%) to have received no education at all, 19 (43%) were found out to be primary school graduates, 2 (4%) were secondary school graduates, 3 (7%) were high school graduates and 10 (23%) were university graduates. Elder people have been observed to be more experienced and acquainted about plants.



Figure 2. Interviews with local people (Suruç)

#### 3.2. Interviews with Locals and Literature Review

Examining the profession of 44 people who provided us information, 30% were found out to be farmers, 19% were tradesmen, 17% were workers, 9% were housewives and 25% were from other professions.

For the purpose of the ethno-botanical study we conducted around Suruç district, it was recorded that local people of the region used 64 taxa belonging to 27 families of plants for food purposes (Table 1). No study have been conducted specific to wild food plants within the scope of our research area, however there are a few studies conducted in the immediate vicinity [22-23]. We have concluded in our study that the plant families with the widest taxa were Asteraceae (16%) and Lamiaceae (16%) with 10 taxa each. Among other plant species available in the research area, Malvaceae has 5 taxa (8%), Brassicaceae has 4 taxa (6%), Fabaceae has 4 taxa (6%), Apiaceae has 3 taxa (5%) and Rosaceae has 3 taxa (5%) (Figure 3). The genera of plants with the widest taxa discovered in our research area are Mentha L. with 3 taxa, Crocus L., Euphorbia L., Malva L., Papaver L., Salvia L. with 2 taxa each (Figure 3).

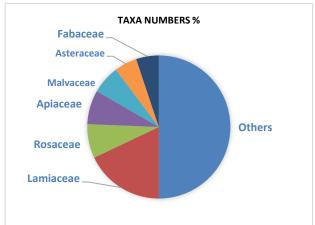


Figure 3. Plant families with the widest taxa

Most common food plants that we have identified throughout our research are; *Allium sativum* L., *Mentha longifolia* (L.) L. subsp. *typhoides* (Briq.) Harley, *Mentha x piperita* L. *Glycyrrhiza glabra* L., *Gundelia tournefortii* L., *Juglans regia* L., *Nigella sativa* L., *Thymus fallax* Fisch. & C.A. Mey. *Portulaca oleracea* 

L., Thymbra spicata L., Urtica dioica L. and Vitis vinifera L.

Local people have been determined to either peel the stems of the food plants and consume them raw (7 use-report), use the leaves to make salads (6 use-report), cook them by adding tomato paste (7 use-report), rice or eggs (7 use-report), use them as a spice to flavor their meals (3 use-report) or brew them to serve as tea (18 use-report). The above-ground, leaves, stems, roots and fruits of some cultivated and naturally grown plants in Suruç district are used for food purposes. Plants are generally consumed fresh, however there are also examples where they are either dried and/or frozen for further consumption in the winter season.

Some plants that are traditionally used for food purposes in Suruç district have been reported to show different activities in studies carried out in the laboratory environment. For instance; Rosa canina is recorded to have antidiabetic, antioxidant, anti-inflammatory and antinociceptive activity; Rhus coriaria and Salvia species are recorded to have antioxidant activity and gastrointestinal diseaces, Malva species are recorded to have antioxidant and antiulcerogenic activity; Urtica dioica are recorded to have anti fungal, anti analgesic, immunomodulatory, antimicrobial, antidiabetic, anti ulcer activity, depurative, diuretic and Helichrysum is reported to have antinociceptive and anti-inflammatory activity [24-34]. Local names of plants available in Turkey vary according to dialect and local languages [35]. As the local people around Suruç speak Kurdish, the plants are also known by their Kurdish names.

Literature review revealed that food plants used throughout the district are used for therapeutic purposes in many different parts of our country [36-39]. "Use value" (UV) has been calculated in many ethnobotanical studies [40-42]. The plants with the highest use value (UV) identified in the research area are as follows (Table 1); Mentha x piperita (0.44), Allium sativum (0.43), Thymus fallax (0.43), Glycyrrhiza glabra (0.39), Urtica dioica (0.39), Nigella sativa L. (0.38), Mentha longifolia subsp. typhoides (0.37), Gundelia tournefortii (0.36), Juglans regia (0.36), and Polygonum cognatum (0.36).

It has been determined in studies that Euphorbia and Equisetum taxa, which are used by the people of the region, show toxic effects [43-44]. People do not know about the toxic effects of these plants.

#### 4. CONCLUSION

64 wild and cultivated plant taxa belonging to 27 families determined as a result of face-to-face interviews held with local people in and around Suruç district are used for food purposes.

Most common plant parts used in the region for food purposes are above ground, leaves, stem, root and fruits. Food plants are usually consumed as food after their stems are peeled, their leaves are used to make salads, their above-ground parts are cooked by adding tomato paste, rice or egg or used as a spice and brewed like tea.

Some cultivated and natural plants in Suruç district are used for food purposes. Our literature review has revealed that the food plants used in Suruç district are also used both for food and medicinal purposes in different regions of our country.

The studies carried out in the Eastern and Southeastern Anatolia Regions revealed that the local names of the plants used in this region for food purposes are similar to the local names of the plants used in Suruç.

It was recorded that the food plant with the highest calculated use value was *Mentha* x *piperita* with 0.44. Other plants with the highest use value are It was recorded that the food plant with the highest calculated use value was *Mentha* x *piperita* with 0.44. Other plants with the highest use value are *Allium sativum*, *Thymus fallax*, *Glycyrrhiza glabra*, *Urtica dioica*, *Nigella sativa*, *Mentha longifolia*, *Gundelia tournefortii* (0.36), *Juglans regia* (0.36), and *Polygonum cognatum* respectively.

The traditional use of plants in the region is decreasing day by day due to migration. In addition, the vegetation of the region is being destroyed due to agricultural activities and herding. Plant protection measures should be implemented urgently in the region.

Consumption of food plants by human raises the question of whether these plants are safe. We think that the wild plants that we have reported will be a resource for those working on food safety. We believe that ethnobotanical studies carried out in provinces and districts of the region where this kind of research has not yet been carried out will be rather beneficial.

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**Table 1.** Food plants used in the region

Familya	Scientific name / voucher specimen	Vernacular name(s)	Use parts	Place and form of use	UV
Amaryllidaceae	*Allium sativum L. SY-	Sarımsak	Fruit	Used to flavor food	0.43
Anacardiaceae	Rhus coriaria L. SY -	Sumak	Fruit	Used as a spice	0.22
Apiaceae	Eryngium creticum Lam. SY 1099	Cistok	Leaves,	The stem is consumed after peeling; the	0.04
1 ipiacoac		<del>,</del>	Stem	leaves are used to make salads	
Apiaceae	Ferula orientalis L. SY 1051	Kingor	Root	It is cooked by adding tomato paste; it is brewed and served like tea	0.23
Apiaceae	Malabaila secacul (Mill.) Boiss. SY 1100	Harık	Aerial parts	The plant is boiled and cooked by adding rice and consumed with yoğurt; the leaves are used in salads	0.02
Asparagaceae	Ornithogalum narbonense L. SY 1096	Akbandır	Leaves	Cooked with eggs	0.02
Asteraceae	Achillea oligocephala DC. SY 1088	Civanperçemi	Aerial parts	Brewed and served like tea	0.02
Asteraceae	Carduus pycnocephalus L. SY 1101	Kerbeş	Stem	The stem is consumed raw after peeling	0.02
Asteraceae	Carthamus tinctorius L. SY 1020	Aspir, Diken, Zafur	Flower	Added to soups and local rice pudding called "zerde"	0.04
Asteraceae	Centaurea iberica Trevir. ex Spreng. SY 1118	Hesteriyezer, Çakırdiken	Aerial parts	It is cooked by adding tomato paste	0.03
Asteraceae	Echinops orientalis Trautv SY 1010	Şekerok	Stem	The stem is consumed raw after peeling	0.04
Asteraceae	Gundelia tournefortii L. var. armata Freyn & Sint. SY 1119	Kereng, kenger	Stem	The stem is consumed raw after peeling; cooked with eggs	0.36
Asteraceae	Helichrysum orientale (L.) Vaill. SY 1041	Ölmez çiçek	Aerial parts	Brewed and served like tea	0.05
Asteraceae	Matricaria chamomilla L. SY 1009	Papatya	Aerial parts	Brewed and served like tea	0.04
Asteraceae	Notobasis syriaca (L.) Cass. SY 1120	Kerbeş, Kırbeş	Stem	The stem is consumed raw after peeling	0.02
Asteraceae	Onopordum carduchorum Bornm. & Beauverd SY 1125	Kulındor, Qulındor	Stem	The stem is consumed raw after peeling	0.07
Boraginaceae	Alkanna orientalis (L.) Boiss. SY 1140	Mıtmıtok, Fısfiso	Flower	Its flowers are absorbed by children	0.05
Boraginaceae	Anchusa azurea Mill. SY 1139	Guriz	Leaves, Stem	Cooked with eggs; consumed by adding it to rice	0.28
Brassicaceae	Alyssum strictum Willd. SY 1137	Nanieçuçuka	Aerial parts	Consumed by adding it to rice	0.09
Brassicaceae	Capsella bursa-pastoris (L.) Medik. SY 1049	Çobançantası, Kuş otu, Kuşkuş otu	Aerial parts	Brewed and served like tea	0.06
Brassicaceae	Lepidium draba L. SY 1126	Kıniberk	Aerial parts	It is cooked by adding tomato paste	0.02
Brassicaceae	Thlaspi perfoliatum L. SY 1121	Nanieçuçuka	Aerial parts	Used in salads	0.02
Cannabaceae	Celtis australis L. SY 1124	Dağdağan	Fruit	Consumed as a fruit	0.14
Equisetaceae	Equisetum arvense L. SY 1061	Atkuyruğu, Kırkkilitotu	Aerial parts	Brewed and served like tea	0.02
Ericaceae	Erica vulgaris L. SY 1076	Taşakcılotu	Leaves, Flower	Brewed and served like tea	0.02
Euphorbiaceae	Euphorbia cheiradenia Boiss. & Hohen. SY 1098	Heşül	Branch, Flower	Used to add a pleasant smell and taste to molasses	0.05
Euphorbiaceae	Euphorbia falcata L. SY 1097	Heşül	Branch, Flower	Used to add a pleasant smell and taste to molasses	0.02
Fabaceae	Astragalus aleppicus Boiss. SY 1130	Gunpisik	Fruit	Consumed as a fruit	0.08
Fabaceae	Glycyrrhiza glabra L. SY 1019	Meyan, Biyan, Biyam balı	Roots	The roots are boiled and drunk as juice	0.39

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Fabaceae	Prosopis farcta (Banks & Sol.) J.F.Macbr. SY 1134	Hurnif, Çeti	Fruit	Consumed as a fruit	0.02
Fabaceae	Pisum sativum L. SY 1111	Bezelye	Seed	Fresh seeds are consumed raw	0.04
Iridaceae	Crocus cancellatus Herb. subsp. damascenus (Herb.) B.Mathew SY 1103	Pivok	Bulb	Eaten raw	0.03
Iridaceae	*Crocus sativus L. SY 1032	Zahferan, Safran	Stylus	Sprinkled on top of the local pudding named "zerde" to add a pleasant smell and color	0.06
Juglandaceae	*Juglans regia L. SY -	Ceviz, Koz, Goz	Seed	Consumed as an appetizer; used in making cakes and desserts	0.36
Lamiaceae	Clinopodium congestum (Boiss. & Hausskn.) Kuntz SY 1107	Pungietehta	Aerial parts	Used in salads	0.05
Lamiaceae	Melissa officinalis L. SY 1085	Melisa, oğulotu, Acem otu	Leaves	Brewed and served like tea	0.04
Lamiaceae	Mentha longifolia (L.) L. subsp. typhoides (Briq.) Harley SY 1117	Nane, Pung	Aerial parts	Brewed and served like tea	0.37
Lamiaceae	*Mentha x piperita L. SY 1028	Nane, Pung	Aerial parts	Brewed and served like tea	0.44
Lamiaceae	Mentha pulegium L. SY 1064	Kaya yarpuzu, Punge tahte, Tüylü nane	Aerial parts	Brewed and served like tea	0.21
Lamiaceae	Rosmarinus officinalis L. SY 1006	Kuşdili, Biberiye	Leaves	Brewed and served like tea	0.11
Lamiaceae	Salvia fruticosa Mill. SY 1026	Adaçayı	Leaves	Brewed and served like tea	0.19
Lamiaceae	Salvia multicaulis Vahl SY 1104	Rehan	Aerial parts	Brewed and served like tea	0.20
Lamiaceae	Thymbra spicata L. SY 1033	Zahter, Yalancı kekik	Aerial parts	Used as a spice; brewed and served like tea	0.35
Lamiaceae	Thymus fallax Fisch. & C.A. Mey. SY 1046	Kekik	Aerial parts	Used as a spice	0.41
Malvaceae	*Abelmoschus esculentus (L.) Moench SY -	Bami	Fruit	The fruits are consumed by boiling	0.02
Malvaceae	Althaea officinalis L. SY 1069	Hatmi, Hiro	Flower, Leaves	Brewed and served like tea	0.10
Malvaceae	*Hibiscus sabdariffa L. SY -	Narçiçeği	Flower	Brewed and served like tea	0.12
Malvaceae	Malva parviflora L. SY 1116	Tollik	Aerial parts	Cooked with adding tomato paste and eggs	0.14
Malvaceae	Malva sylvestris L. SY 1067	Kömeç, Tollik, Ebegümeci	Aerial parts	Cooked with adding tomato paste and eggs	0.19
Moraceae	Morus nigra L. SY 1082	Karadut	Fruit	Consumed as a fruit; used in making fruit juice and molasses	0.27
Oleaceae	*Olea europaea L. SY-	Zeytin	Fruit	Fruit is eaten	0.24
Papaveraceae	Papaver dubium L. SY 1141	Zingılzava	Whole plant	Cooked with adding tomato paste and eggs	0.16
Papaveraceae	Papaver somniferum L. SY 1081	Haşhaş	Leaves, Seed	Sprinkled on the cake	0.12
Pedaliaceae	*Sesamum indicum L. SY -	Susam, Küncü	Seed	Sprinkled on cakes, breads and pastries	0.29
Poaceae	Triticum aestivum L. SY 1144	Gennim	Seed	Used as flour	0.25
Poaceae	*Zea mays L. SY -	Mısır	Seed	Consumed as an appetizer; used in making cakes and desserts	0.32
Polygonaceae	Polygonum cognatum Meisn. SY 1142	Tırşok	Aerial parts	Used in salads	0.36
Portulacaceae	Portulaca oleracea L. SY 1024	Semizotu, Parpar	Leaves	Used in salads	0.28
Ranunculaceae	Nigella sativa L. SY 1030	Çörekotu, Kara çörek	Seed	Sprinkled on cakes, breads and pastries	0.38
Rosaceae	Amygdalus communis L. SY 1147	Beivf	Fruit, Seed	Consumed as a fruit; consumed as an appetizer	0.32
Rosaceae	Crataegus monogyna Jacq. SY 1047	Alıç, Guviç	Flower, Fruit	Consumed as a fruit; brewed and served like tea; used for producing vinegar	0.37
Rosaceae	Rosa canina L. SY 1008	Kuşburnu	Fruit	Consumed as a fruit; jam is made	0.29
Urticaceae	Urtica dioica L. SY 1021	Isırgan	Leaves	Cooked with adding tomato paste and eggs	0.39
Vitaceae	*Vitis vinifera L. SY -	Üzüm, Tiri	Fruit	Consumed as a fruit; used for producing vinegar	0.35

<sup>\*</sup>Cultivated plants