

ETHNOBOTANICAL KNOWLEDGE ON THE PLANTS USED BY PEOPLE ON THE DATÇA PENINSULA (MUĞLA, TURKEY)

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Abstract. This study aims to document the traditional uses of plants in the district of Datça peninsula in Turkey. Ethnobotanical data on 85 plants from a total of 67 informants were collected between February 2018 and June 2019. Demographic characteristics of the informants, vernacular names of the plants, their used parts, and preparation methods were investigated and recorded. The data was analysed using quantitative indices of use-value (UV), information consent factor (ICF), and fidelity level (FL). The plants were used for different purposes, mainly for medicinal, food, and handicraft. *Origanum onites* L. (FL: 100, UV: 0.50), *Salvia fruticosa* Mill. (FL: 100, UV: 0.50), and *Sideritis leptoclada* O.Schwarz & P.H.Davis (FL: 100, UV: 0.50) have been determined as the taxon most commonly used for medicinal purposes. If *Olea europaea* L. var. *europaea* (FL: 96, UV: 0.50) has been determined as the taxon most used for handicrafts. The highest ICF was cited for rheumatism (0.80), followed by respiratory diseases (0.79) and diabetes (0.74). Additionally, different uses and purposes of some plants were observed in the study, some medicinal uses of *Drimys maritima* (L.) Stearn, *Rumex amarus* Rech.f., and *Opopanax hispidus* (Friv.) Griseb. were recorded for the first time.

Keywords: ethnobotany, folk remedies, medicinal plant, traditional uses

Introduction

Plants like humans migrate and adapt to various habitats of the world in a variety of ways. People also have a significant role in this process. Traditional societies all over the world have enriched their social and cultural values accumulated through prolonged interaction with the world. One of these accumulated values is traditional botanical knowledge. For generations, biologists and anthropologists have studied various aspects of human knowledge on plants. They put forward vast data on how plants were used, managed, and perceived by different societies (Cotton, 1996). Thus, ethnobotany, which is an interdisciplinary field that studies the relationships between plants and humans, was born. Its purpose is to compile all local information on plants utilized in various ways. Approximately 5000 years ago, with the emergence of writing, information on cultivated plants and medicinal plants began to be recorded. People needed to record the information and recipes of these plants and transfer them to the next generations (Ertug, 2014). Ethnobotanical studies reflect very precious knowledge that has been learned through experience and inherited from generation to generation.

Anatolian territories, where both biological diversity and cultural richness are present, are a prominent center of ethnobotany (Sadıkoğlu, 1998; Güner et al., 2000; Akbulut and Özkan, 2014; Erşen-Bak and Çifci, 2020). Also, geographic position, climate diversity,

natural resources, the possibility of hosting agriculture and livestock, and its location at the intersection of trade routes can be listed as other factors (Uyanık and Yenigün, 2016). For this reason, Anatolia has become a center of attraction for many ethnobotanists and anthropologists, and much research has been done on the traditional and medicinal uses of herbs to date (Lyle-Kalças, 1974; Bottema and Woldring, 1990; Ertuğ, 2000). The oldest book on medicinal plants in Anatolia is the work named "Materia Medica" written by Dioscorides in the middle of the 1st century (Baytop, 1999).

In this context, Datça, which is a research area, has become an important center for an ethnobotanical study due to its 861 plant taxa (2.9% of which are endemic) (Tuzlacı, 2002) and its history dating back to the 2000s BC (Sertkaya-Doğan, 2008).

Materials and Methods

Study area

Datça Peninsula is situated in the South-west of Turkey. Datça, which is within the borders of Muğla province, is a narrow peninsula extending 70 km in the east-west direction. Its total area is approximately 418 km² and located between 36°42'26" north latitude and 27°33'07" east longitude. Datça Peninsula is hot in summers and has a relatively mild climate in other seasons, with an annual average temperature of 19 °C and an annual rainfall of 836 mm (Özalp, 1993). Datça Peninsula belongs to the Mediterranean flora region and falls within the southeast part of the C1 grid square according to the grid system (Davis, 1965).

Pinus brutia Ten. and *Cupressus sempervirens* L. are the dominant forest tree species in the region. The important vegetation type in Datça is maquis. The maquis community has been destroyed in the region and major species are *Laurus nobilis* L., *Quercus coccifera* L., *Q. ilex* L., *Arbutus andrachne* L., *Juniperus oxycedrus* L., *Nerium oleander* L., *Erica arborea* L., *Myrtus communis* L., *Ceratonia siliqua* L., *Olea europaea* L., *Pistacia lentiscus* L. Another type of vegetation seen in the region is garrigue. The main species of this vegetation type formed because of the destruction of maquis vegetation are *Cistus creticus* L., *Lavandula stoechas* L., *Euphorbia acanthothamnus* Heldr. & Condition. ex Boiss., and *Spartium junceum* L. *Medicago marina* L., *Alkanna tinctoria* (L.) Tausch, *Eryngium maritimum* L. These are the dominant species in the dunes on the southern coast of the peninsula (Özalp, 1993; Taşlıgil, 2008).

Data collection

Ethnobotanical data were obtained from February 2018 to June 2019. A total of 67 informants were interviewed in the study area. Informants were selected using the snowball method from people living in 10 villages in the Datça Peninsula (Table 1, Figure 1). Traditional knowledge is hardly known to the younger generation. The Snowball method focuses on finding people who know about the subject. This sampling method includes a primary data source that nominates other potential data sources that can participate in research studies. The sample continues entirely based on references. In this way, it is possible to reach the sources that have information on the subject (Wegner, 2007). While choosing the informants, care was taken to have local expert-witness on the history and culture of the region. The ages of them were middle and older and were ranged from 36 to 87. Especially crowded places such as bazaars and tea houses were selected for the survey interviews (Figure 2).

Table 1. Number of questionnaire and study locations

Study area	Locations	Number of participants
Datça Peninsula (Muğla province)	Yazıköy	8
	Cumalı	3
	Yaka	8
	Sındı	11
	Mesudiye	5
	Karaköy	6
	Hızırşah	6
	Reşadiye	3
	Kızlan	3
	Emecik	14



Figure 1. The geographical location of Datça Peninsula



Figure 2. Informant interviews

In the villages visited, people were interviewed face to face, and a questionnaire was applied. Prior Informed Consent (PIC) was taken orally recently beginning each questionnaire. Ethical rules were taken from the Code of International Society for Ethnobiology (International Society of Ethnobiology, 2008). Informants were asked questions about their demographic characteristics, the plants they use, the purpose of use, and the way of using the plants (*Appendix*). The Informants were asked to show the plants they used, and samples were collected from these plants. Also, each plant was photographed. During this time 85 plant taxa used by local people were collected and defined. All voucher specimens were collected from their natural habitat. No samples were taken from cultural areas and gardens. Voucher specimens and photographs were identified and confirmed according to the Flora of Turkey by the authors (Davis 1965-1985; Davis et al., 1988). Identified plants were made of herbarium materials, and they were deposited in the Karadeniz Technical University Forest Faculty Herbarium (KATO) in Turkey. In the study, the taxonomic order was given alphabetically.

Data analysis

Data analyses were made based on ethnobotanical information provided by the informants and used various statistical methods. Use-value (UV), informant consensus factor (ICF), fidelity level (FL) of plants in the study area were calculated and their importance to the community was evaluated.

UV is a method used to determine how often local people actively use plants in their daily lives. In calculating the UV, the *equation (Eq.) 1* was (Trotter and Logan, 1986):

$$UV = \frac{U}{N} \quad (\text{Eq.1})$$

where “U is the number of use citations by informants for any species, N is the number of informants”.

ICF is a method used to determine the level of homogeneity between a specific disease and the plants used in its treatment and the effectiveness of the plants. In calculating the ICF, the *Eq. 2* was (Trotter and Logan, 1986; Heinrich et al., 1998):

$$ICF = \frac{Nur - Nt}{Nur - 1} \quad (\text{Eq.2})$$

where “Nur is the number of citations in each category and Nt is the number of species used”.

FL refers to the specificity of the plant species of choice for the diseases most frequently reported by informants. In calculating the FL, the *Eq. 3* was (Friedman et al., 1986):

$$FL(\%) = \frac{I_p}{I_u} \times 100 \quad (\text{Eq.3})$$

where “Ip is the number of informants that suggested the use of a plant for a specific ailment and Iu is the total number of informants who mentioned that a species is used to treat any ailment”.

Results and discussion

Demographic characteristics of the informants

The distribution of informants by gender, educational level, age groups, and occupation were given in *Table 2*.

Table 2. Demographic profile of informants

Indicator		Number of Informants	Percentage (%)
Gender	Male	26	39
	Female	41	61
Educational level	Illiterate	1	1
	Primary school	63	94
	High school	3	5
Age groups	31-50	18	27
	51-70	32	48
	>70	17	25
Occupation	Farmer	24	36
	Retired	2	3
	Housewife	41	61

According to *Table 2*, a total of the 67 informants consists of 41 females, 26 males. Their age ranged from 36 to 87 years old, and the average age was 60. All female informants were housewives. Out of the 26 male informants, 24 were farmers and 2 were retired. Most informants (94%) have primary education.

Ethnobotanical knowledge and uses of plants

Data on the ethnobotanical use of a total of 85 plants belonging to 41 families were given in *Table 3*. Data on the traditional use was compared with primarily ethnobotanical studies in Turkey's Mediterranean and Aegean. Mediterranean countries were also considered in the comparison. It has been determined that plants were mostly used for medicinal (45) and food (44) purposes. These were followed respectively by handicrafts (11), fodder plants (8), building materials (7), cosmetics (5), spices (4), dyestuffs (3), and other purposes (toothpick, equipment, adhesive, superstition, silkworm care, cleaning materials, ornament, insect damage prevention) (18) (*Figure 3*).

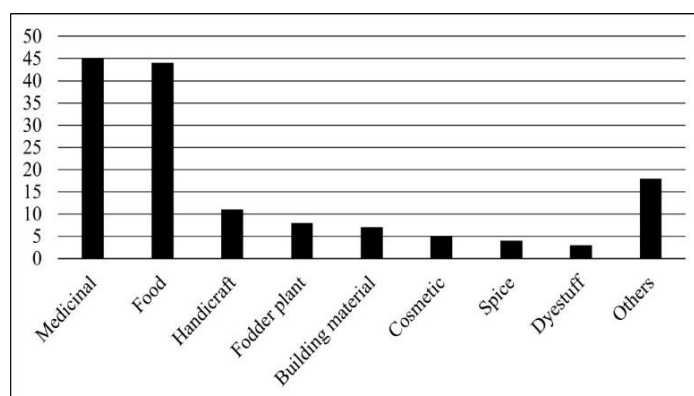


Figure 3. Use purposes of the plants

Table 3. Ethnobotanical uses of plants in Dağça (Muğla, Turkey)

Plant species (voucher specimen)	Vernacular names	Parts used ^a	Purposes	Preparations	Traditional uses	UV
Amaranthaceae						
<i>Amaranthus viridis</i> L. (KATO 19670)	Sirken	L	food	cooking	It is eaten after roasting and added to pastries and omelets.	0.44
Amaryllidaceae						
<i>Allium ampeloprasum</i> L. (KATO 19671)	Çayır Soğanı, Körmen, Kördem	Ap	food	fresh, cooking	It is added to herbs roasting or pastries and is eaten raw with soups.	0.47
Anacardiaceae						
<i>Pistacia lentiscus</i> L. (KATO 19672)	Sakızlık, İlki, İlkicik	Br, St, Tw	handicrafts, building materials, food	boiling, drying	A garlic salad is made after boiling thin fresh twig. Branches are used to make arbors, baskets, and brooms. Since its wood is hard, it is used in making various hand tools.	0.15
Apiaceae						
<i>Berula erecta</i> (Huds.) Coville (KATO 19673)	Su Kazayağı, Karabaldır Otu	Ap	food	boiling	It is eaten after roasting and added to pastries.	0.23
<i>Crithmum maritimum</i> L. (KATO 19674)	Genevir, Kaya Koruğu, Kereviz Otu	Ap	food	boiling, pickle	It is boiled and consumed with hot oil and cheese, or with garlic yogurt. It is pickled.	0.38
<i>Daucus carota</i> L. (KATO 19675)	Diş Otu, Engin Otu	Fl, P	medicinal, toothpick	decoction	Its inhalation is used to treat inflammation in the mouth. Dried pedicels are used as a toothpick.	0.02
<i>Ferula communis</i> L. (KATO 19676)	Şavşır, Gabuş, Gamış, Kamış Otu	Ap	fodder plants, handicrafts, building materials	fresh, drying	Fresh is fed to goats for twin calving. When it is dried and ground, it is used as a plaster in fractures. Children make a toy out of the dried stem.	0.10
<i>Foeniculum vulgare</i> Mill. (KATO 19677)	Isıra, Arapsacı, Rakı Otu, Rezene, Anason Otu	Ap	food, medicinal	cooking	It is eaten after roasting and added to pastries. When consumed as food, it is appetizing, strengthening, expectorant, digestive, curing diarrhea, and anthelmintic. It is used externally in the treatment of wounds and boils.	0.19
<i>Opopanax hispidus</i> (Friv.) Griseb. (KATO 19678)	Sariot	Ap	food, medicinal	cooking	It is consumed as food to remove intestinal parasites from the body.	0.46

Plant species (voucher specimen)	Vernacular names	Parts used ^a	Purposes	Preparations	Traditional uses	UV
Apocynaceae						
<i>Nerium oleander</i> L. (KATO 19679)	Zakkum, Ağcı Çiçeği	L	medicinal, equipment	drying, crushed	In the past, dried branches were used to string tobacco. The sap obtained from the oleander leaf is mixed with lime and aerolite. The mixture is used externally to treat scabies. (The mixture is kept in a container for 2 days)	0.14
Asparagaceae						
<i>Asparagus acutifolius</i> L. (KATO 19680)	Tilkicik, Tilki, Dilkicek, Tilkişen, Tilkimen	Tw	food, medicinal	cooking	Fresh shoots are roasted and then added to the omelet. It is also used externally for the treatment of scalp wounds.	0.47
<i>Drimia maritima</i> (L.) Stearn (KATO 19681)	Natarış Avusu, Pampampiyak, Tatayış Avusu	Bu, L	medicinal, adhesive, superstition	fresh	Bulbs are used externally for rheumatism pain. It is applied to the body against colds (caustic). Glue is made from the bulb. Used as an amulet. Olive oil is rubbed on the heated leaves and wrapped in the ear to treat mumps.	0.21
Asteraceae						
<i>Achillea cretica</i> L. (KATO 19682)	Civan Perçemi	Tw, Fl	medicinal	infusion	Infusion of flowers and twigs is used for the treatment of hemorrhoids and colds.	0.04
<i>Anthemis altissima</i> L. (KATO 19683)	Beyaz Papatya, Şifalı Papatya, Mayıs Papatyası	Fl	medicinal, cosmetics	infusion, decoction	Infusion of flowers is used to relieve the gas pains of babies and the treatment of stomach disorders. It is also used for eye drops in eye diseases. Decoction of flowers is used to nourish the hair and lighten the hair color.	0.23
<i>Artemisia arborescens</i> (Vaill.) L. (KATO 19684)	Pelin	L, Fl	medicinal	infusion	Infusion of flowers and leaves is used for blood pressure-lowering, appetizer, and diabetes treatment.	0.01
<i>Calendula arvensis</i> (Vaill.) L. (KATO 19685)	Aynısafa	Ap	medicinal	fresh	It is used externally for wound treatment.	0.07
<i>Carlina gummifera</i> (L.) Less. (KATO 19686)	Sakız Dikeni, Sakız Keyganası	R	medicinal, adhesive	latex	Gum of root is used for the treatment of teeth and gum diseases.	0.10
<i>Chrysanthemum coronarium</i> L. (KATO 19687)	Dallama	St, Fl	food	cooking	It has an appetizing feature. A salad is made with garlic and lemon.	0.36

Plant species (voucher specimen)	Vernacular names	Parts used ^a	Purposes	Preparations	Traditional uses	UV
<i>Cynara cardunculus</i> L. (KATO 19688)	Peynir Otu, Mayaotu, Dikenli Enginar	Fl	food	drying	Used as rennet.	0.13
<i>Glebionis segetum</i> (L.) Fourr. (KATO 19689)	Sarı Papatya, Alimeç	St	food	fresh	It is eaten raw with meals.	0.30
<i>Helichrysum stoechas</i> subsp. <i>barrelieri</i> (Ten.) Nyman (KATO 19690)	Ayna Çiçeği, Sarı Çiçek	Fl	medicinal, cosmetics, superstition	infusion, fresh	Infusion of flowers is used to reduce kidney stones and relieve urinary tract disorders. It is added to bathwater to nourish hair and add vitality. Fresh flowers are hung on the door of houses in bunches to ward off snakes.	0.25
<i>Notobasis syriaca</i> (L.) Cass. (KATO 19691)	Yaban Kengeri	St	food	fresh	The stem is eaten fresh after the peel.	0.30
<i>Scolymus hispanicus</i> subsp. <i>hispanicus</i> (KATO 19692)	Kenger, Künger, Dikenkökü, Şevketibostan, Könger	Ap	food	fresh, cooking	The stem is eaten fresh or cooked after the peel. It is also eaten fresh when it is young.	0.36
<i>Sonchus asper</i> subsp. <i>glaucescens</i> (Jord.) Ball (KATO 19693)	Düdüklen	St	food	cooking	It is cooked after roasting in a pan.	0.10
<i>Tragopogon dubius</i> Scop. (KATO 19694)	Teke Sakalı	Ap	food	cooking	It is roasted by mixing with various herbs.	0.13
Brassicaceae						
<i>Raphanus raphanistrum</i> L. (KATO 19695)	Kızıl Turp, Turp Otu	L	food	cooking	It is roasted by mixing with various herbs.	0.38
<i>Sinapis arvensis</i> L. (KATO 19696)	Hardal Turpu, Turp Otu	L	food	fresh	Lemon and olive oil are added to the leaves and consumed as a salad.	0.38
Cactaceae						
<i>Opuntia ficus-indica</i> (L.) Mill. (KATO 19697)	Diken İnciri, Frenk İnciri, Fri İnciri, Mısır İnciri	Fr, L	food, medicinal	fresh, boiling	Fruits are eaten fresh. Boiled leaves are used externally for wound healing and rheumatism pain.	0.35
Capparaceae						
<i>Capparis spinosa</i> L. (KATO 19698)	Gebere, Kapari, Kebere, Sülük Dikeni	B, St, R	food, medicinal, superstition	pickle, fresh, decoction	Pickles are made from buds. In the past, the stem was used to extract leeches from animals' mouths. Decoction of roots is used for the treatment of the prostate.	0.42

Plant species (voucher specimen)	Vernacular names	Parts used ^a	Purposes	Preparations	Traditional uses	UV
Caryophyllaceae						
<i>Paronychia argentea</i> Lam. (KATO 19699)	Dirfil	Ap	fodder plants	drying	It is used as livestock fodder in winter.	0.10
<i>Silene vulgaris</i> (Moench) Garcke (KATO 19700)	Kışyak, Gışyak, Gavşık Otu	L	food	cooking, fresh	It is eaten by adding to the omelet or by adding garlic yogurt after cooking. Fresh leaves are also used in salads.	0.40
Cistaceae						
<i>Cistus creticus</i> L. (KATO 19701)	Pamuklan	L	medicinal	crushed	Crushed leaves are used externally in the treatment of tomies and wounds.	0.29
<i>Cistus salviifolius</i> L. (KATO 19702)	Pamuklan	L	medicinal	crushed	Crushed leaves are used externally in the treatment of tomies and wounds.	0.29
Cucurbitaceae						
<i>Ecballium elaterium</i> (L.) A.Rich. (KATO 19703)	Acı Kavun	Fr	medicinal	fruit juice	The fruit juice is mixed with olive oil and used in the treatment of sinusitis. It is also used externally in the treatment of jaundice.	0.31
Ericaceae						
<i>Erica manipuliflora</i> Salisb. (KATO 19704)	Piren, Püren	Fl, Ap	medicinal, dyestuffs, silkworm care	infusion, drying	Infusion of dried flowers is used as a sedative. The yellow paint obtained from the aerial parts is used in carpet and rug dyeing. It is also used in preparing a natural environment for silkworms to make cocoons.	0.10
Euphorbiaceae						
<i>Euphorbia acanthothamnus</i> Heldr. & Sart. ex Boiss. (KATO 19705)	Gavur Kefeni	Ap	Silkworm care	drying	It is used in preparing a natural environment for silkworms to make cocoons.	0.26
Fabaceae						
<i>Anagyris foetida</i> L. (KATO 19706)	Keçi Gevişi	Fl, Fr, Se	food, medicinal, superstition	fresh, drying	Seeds are divided into four and consumed internally by diabetics. When consumed orally, flowers leave a sweetish taste. Dried fruits are strung on a rope and hung as amulets on the shoulders of the kids.	0.13
<i>Ceratonia siliqua</i> L. (KATO 19707)	Keçi Boynuzu, Harnup	Fr, Br	food, medicinal, fodder plants,	fresh, drying, crushed	Fruits are eaten fresh or dried. A kind of dessert called "Gölemez" is made by adding crushed fruit and sugar to milk. This dessert	0.45

Plant species (voucher specimen)	Vernacular names	Parts used ^a	Purposes	Preparations	Traditional uses	UV
			building materials, cleaning materials		is used to cure diarrhea and antitussive. Fruits are also used as livestock fodder. Branches are used in arbor construction. Leaves and branches are used in dishwashing.	
<i>Lotus edulis</i> L. (KATO 19708)	Konçalak	Fr	food	fresh	When consumed orally, fruits leave a sweetish taste.	0.24
<i>Spartium junceum</i> L. (KATO 19709)	Çalgılık, Katır Tırnağı, Katırkuyruğu	Ap	handicrafts, building materials	drying	It is used in making a fence, arbor, broom, and basket.	0.10
<i>Trifolium nigrescens</i> Viv. (KATO 19710)	Dirfil	Ap	fodder plants	drying	It is used as livestock fodder in winter.	0.10
<i>Vicia faba</i> L. (KATO 19711)	Bakla	Ap, Fr	food, fodder plants	cooking, drying	Various dishes with olive oil are made from fresh and dried fruits. Aerial parts are used as livestock fodder in winter.	0.16
Fagaceae						
<i>Quercus coccifera</i> L. (KATO 19712)	Kara Pınar	L	fodder plants	fresh	It is used as livestock fodder.	0.33
Geraniaceae						
<i>Erodium cicutarium</i> (L.) L Hér. (KATO 19713)	Beyaz Çiçekli İğnelik	L	food	cooking	It is eaten after roasting and added to pastries.	0.41
<i>Erodium moschatum</i> (L.) L Hér. (KATO 19714)	Pembe Çiçekli İğnelik	L	food	cooking	It is eaten after roasting and added to pastries.	0.41
<i>Pelargonium quercetorum</i> Agnew (KATO 19715)	Mis Çiçeği, İtır	L, Fl	food, medicinal	infusion, drying	Infusion of leaves is used to diabetes. It is used to flavor milk desserts. Dried flowers are used in making the dessert called Pelize. It is also used as a sweetener in making sherbet.	0.10
Hypericaceae						
<i>Hypericum triquetrifolium</i> Tura (KATO 19716)	Kızılçırık, Kızılcaerik, Zihircirik, Kılıçotu,	L, Br	medicinal, handicrafts	essential oil, decoction, drying	The essential oil of leaves is used for the treatment of wounds, burns, and tomies. Decoction of branches is used for the treatment of stomach disorders. It was used as a threshing broom in the past.	0.46
Iridaceae						

Plant species (voucher specimen)	Vernacular names	Parts used ^a	Purposes	Preparations	Traditional uses	UV
<i>Gladiolus illyricus</i> W.D.J.Koch (KATO 19717)	Delikanlı Çiçeği	Ap	Ornament	fresh	It is used in ceremonial decorations and as an ornamental plant in homes. Youngsters used to present this plant to their loved ones as an expression of their feelings.	0.26
Juncaceae						
<i>Juncus acutus</i> L. (KATO 19718)	Gova, Govan, Süpürgelik	Ap	handicrafts, building materials	fresh, drying	It is used for local equipment such as the arbor, broom, basket, and rope production.	0.13
Lamiaceae						
<i>Lavandula stoechas</i> subsp. <i>stoechas</i> (KATO 19720)	Karabaş Otu, Karağan, Garanı, Karan	Fl	food, medicinal, insect damage prevention	infusion, drying	Jam is made from flowers. Infusion of flowers is used for the treatment of cardiovascular diseases, stomach pain, shortness of breath, hemorrhoids, and lowering blood fats. Incense is used for asthma treatment. It is put between woolen clothes against moth.	0.42
<i>Mentha pulegium</i> L. (KATO 19721)	Narpuz, Narpız	L	food, medicinal	infusion, fresh	Infusion of leaves is used for the treatment of colds, flu, and stomach pain. Fresh leaves are added to the salad.	0.24
<i>Micromeria myrtifolia</i> Boiss. & Hohen. (KATO 19722)	Kırkboğum Otu	L	medicinal	infusion	Infusion of leaves is used for the treatment of sore throat and stomach pain.	0.16
<i>Origanum majorana</i> L. (KATO 19723)	Mercanköşk, Sept Suyu	Fl, L	medicinal	infusion	Infusion of flowers and leaves is used for the treatment of stomach pain, menstrual pain, kidney and urinary tract diseases, and cough.	0.10
<i>Origanum onites</i> L. (KATO 19724)	İncir Kekiği, Bilyalı Kekik, Peynir Kekiği	Fl, L	medicinal, spice	infusion	The dried herb is used as a spice. Infusion of flowers and leaves is used for the treatment of colds, flu, and cough. It is also used as an antifatulent.	0.50
<i>Salvia fruticosa</i> Mill. (KATO 19725)	Adaçayı, Ekmek Elması, Elmacık, Almecik	L	medicinal	infusion	Infusion of leaves is used in stomach disorders, shortness of breath, and as a diuretic. It is used as a mouthwash for gum and tonsil problems.	0.50
<i>Satureja thymbra</i> L. (KATO 19719)	Oğul Kekiği, Kara Kekik	L, Fl	medicinal, spice	infusion, drying	Dried flowers and leaves are used as a spice in meat dishes. Infusion of flowers and leaves	0.10

Plant species (voucher specimen)	Vernacular names	Parts used ^a	Purposes	Preparations	Traditional uses	UV
					is used for the treatment of stomach disorders.	
<i>Sideritis leptoclada</i> O.Schwarz & P.H.Davis (KATO 19726)	Dağ Çayı, Kırkboğum Otu, Kızlan Çayı	Ap	medicinal	infusion	Infusion of aerial parts is used for the treatment of cold and stomach pain.	0.50
<i>Teucrium polium</i> L. (KATO 19727)	Tavşan Ütmeği, Pir Yavşağı,	Ap	medicinal, cosmetics	decoction	Decoction of aerial parts is used for the treatment of stomach pain, malaria, diabetes, anorexia, blood pressure, and as an anthelmintic in children. It is added to bathwater to nourish hair and add vitality.	0.33
<i>Thymbra capitata</i> (L.) Cav. (KATO 19728)	Eşek Kekiği	Fl, L	spice, medicinal	infusion, drying	Dried flowers and leaves are used as a spice in meat dishes. Infusion of flowers and leaves is used for the treatment of a cold.	0.27
Lauraceae						
<i>Laurus nobilis</i> L. (KATO 19729)	Defne, Çıbıklık	L	spice, cosmetics, insect damage prevention	drying	Leaves are used as a spice in fish and meat dishes, and as a fragrance in bathwater. It is placed among dried figs to prevent bug infestation.	0.24
Liliaceae						
<i>Asphodelus aestivus</i> Brot. (KATO 19730)	Çirgiş, Kirgiş, Ganlık	R, St	medicinal, handicrafts, building materials	crushed, drying	The crushed roots are used externally in the treatment of bee stings and wounds after the addition of olive oil. The liquid obtained from the crushed roots is used for the treatment of stomach pain, and as an adhesive in shoemaking. Toys and weathercock are made from their stems.	0.20
<i>Lilium candidum</i> L. (KATO 19731)	Dağ Zambağı	Fl	Ornament	fresh	It is used in ambient decorations.	0.25
<i>Smilax aspera</i> L. (KATO 19732)	Silcan	Tw	food	cooking	Fresh twigs are roasted and then added to the omelet.	0.10
Malvaceae						
<i>Alcea heldreichii</i> (Boiss.) Boiss. (KATO 19733)	Gül Hatmi, Deve Gülü, Gülhatmi, Gül Fatma	Fl	medicinal	infusion	Infusion of flowers is used for the treatment of asthma and as an antitussive.	0.10

Plant species (voucher specimen)	Vernacular names	Parts used ^a	Purposes	Preparations	Traditional uses	UV
<i>Malva sylvestris</i> L. (KATO 19734)	Ebecik, Ebe Gümeçi	Ap	food, medicinal	cooking, decoction	Local dishes are made from fresh twigs and leaves. Decoction of aerial parts is used to pass kidney stones, prevent itching on the skin, and cough.	0.33
Myrtaceae						
<i>Myrtus communis</i> subsp. <i>communis</i> (KATO 19735)	Yaban Mersini	Fr, L, Br	food, medicinal, handicrafts, superstition	fresh, drying, infusion, powder	Fruits are eaten. Infusion of leaves is used for the treatment of diabetes. Leaves are put in between food stored for winter and inside olive bins. The powdered leaves are used for baby rash. Branches are used in making baskets and arbors, and to decorate coffins in funerals. Branches are added to the bathwater so that newborn children don't smell.	0.21
Oleaceae						
<i>Olea europaea</i> L. var. <i>europaea</i> (KATO 19736)	Zeytin	Fr, L	medicinal, handicrafts, cosmetics, dyestuffs, building materials	fresh, infusion, oil	Fresh leaves are chewed to treat aphtha and sore throats. The compress is applied to the place where the nail sinks. Infusion of the leaf is used for the treatment of diabetes and blood pressure. Used for skin, and hair care. Used to produce green carpet dye. It is used to temper with whitewash. The broom is made from leafy branches. Oil for lamps is made from its fruits. This oil is used to extract sea urchin thistle.	0.50
Orchidaceae						
<i>Serapias vomeracea</i> (Burm.f.) Briq. (KATO 19737)	Köpek Kulağı	Tu	food	fresh, drying	It is eaten raw while its tubers are fresh. When dried, is made salep.	0.04
<i>Oxalis pes-caprae</i> L. (KATO 19738)	Ekşicek, Ekşikulak	Ap	food, dyestuffs, fodder plants	fresh	Used in salads, and to make henna. It is used as animal fodder. Especially for increasing egg production in fowl. In the past, used to shine shoes.	0.29
Papaveraceae						

Plant species (voucher specimen)	Vernacular names	Parts used ^a	Purposes	Preparations	Traditional uses	UV
<i>Papaver rhoeas</i> L. (KATO 19739)	Zemperlik, Gelincik	L, Fl	food, medicinal	cooking, infusion	Leaves are eaten after roasting and added to pastries and omelets. Infusion of flowers is used for the treatment of cough.	0.36
Plantaginaceae						
<i>Plantago lanceolata</i> L. (KATO 19740)	Sinir Otu	Ap	medicinal	crushed	Crushed leaves are used externally on body aches and wounds.	0.21
Plumbaginaceae						
<i>Limonium sinuatum</i> (L.) Mill. (KATO 19741)	Deniz Otu, Mor Çiçek, Dilicek, Deniz Lavantası	Ap	food, superstition	fresh, boiling	Fresh or boiled aerial parts are added to garlic yogurt and pastries. Flowers are used in home decorations.	0.19
Poaceae						
<i>Arundo donax</i> L. (KATO 19742)	Çığ, Kargı	Ap	handicrafts, fodder plants	drying, fresh	The dried aerial parts are used in making baskets, arbor, end-blown flute, and locally for spinning wool and cotton. Fresh is also used as livestock fodder.	0.13
Polygonaceae						
<i>Emex spinosa</i> (L.) Campd. (KATO 19744)	Ispanak, İlaboda	L	food	cooking	Leaves are used in local dishes.	0.42
<i>Rumex amarus</i> Rech.f. (KATO 19745)	Labada, İlaboda	L, Se	food, medicinal	cooking, fresh	Leaves are used in local dishes. Fresh seeds are used to cure diarrhea.	0.15
<i>Rumex bucephalophorus</i> L. (KATO 19746)	Kuzukulağı	L	food	fresh	Fresh leaves are used as a garnish or in salads.	0.27
Portulacaceae						
<i>Portulaca oleracea</i> L. (KATO 19747)	Semiz Otu	Ap	food	fresh, cooking	Fresh leaves are used in salads and tzatziki. Also, an olive oil dish is made.	0.33
Rafflesiaceae						
<i>Cytinus ruber</i> (Fourr.) Fritsch (KATO 19748)	Gürlencik, Yer Narı, İnek Memesi, Kızılçık, Saya	Ap	food	fresh	Leaves are consumed fresh.	0.10
Rosaceae						
<i>Rubus sanctus</i> Schreb. (KATO 19749)	Böğürtlen, Orman Üzümlü	L, Fr, Tw	food, medicinal	fresh, boiling, cooking	Fresh fruits are used to cure diarrhea, throat infection, and aphonia. Jam is also made from its fruit. Infusion of leaves is used for the treatment of diabetes. A salad with oil	0.33

Plant species (voucher specimen)	Vernacular names	Parts used ^a	Purposes	Preparations	Traditional uses	UV
					and lemon is made after boiling thin fresh twigs. Fresh twigs are roasted and then added to the omelet.	
Santalaceae						
<i>Osyris alba</i> L. (KATO 19750)	Süpürge Çalısı	Ap	handicrafts	drying	Broom is made from leafy branches.	0.30
Solanaceae						
<i>Datura innoxia</i> Mill. (KATO 19751)	Zemberek, Boruçiçeği, Patlıcan Çiçeği, Sarhoş Çiçeği	Fl	medicinal	drying	Dried flowers are smoked as a cigarette in the treatment of asthma.	0.11
<i>Mandragora autumnalis</i> Bertol. (KATO 19752)	Adam Otu	Fr	superstition	fresh	It is believed to encourage chickens to brood. If the fruits are eaten, it causes short-term hallucinations.	0.10
Urticaceae						
<i>Urtica pilulifera</i> L. (KATO 19753)	Erkek Isırgan, Cızgan, Isırgan, Dalaygan, Dalayan	Ap	food, medicinal	cooking, fresh, decoction	It is eaten roasted and added to the pastries. It is used externally in the treatment of rheumatism. Decoction of aerial parts is used for the treatment of urinary tract diseases.	0.30
<i>Urtica urens</i> L. (KATO 19754)	Dişi Isırgan, Cızgan, Isırgan, Dalaygan, Dalayan	Ap	food, medicinal	cooking, fresh, decoction	It is eaten roasted and added to the pastries. It is used externally in the treatment of rheumatism. Decoction of aerial parts is used for the treatment of urinary tract diseases.	0.30
Verbenaceae						
<i>Vitex agnus-castus</i> L. (KATO 19755)	Hayıt	L, Se, Br	medicinal, handicrafts, other	infusion, decoction, crushed, drying	Infusion of leaves is used to prevent itching. Crushed leaves are used to treat fungus on the fingers. Crushed seed is used against snake and scorpion bites, and rheumatism pain. Decoction of seeds is used for infertility in women. Seeds are put into shoes against bad odors. Branches are used to make baskets.	0.29

^a Parts used: Ap-Aerial parts, B-Bud, Br-Branch, Bu-Bulb, Fl-Flower, Fr-Fruit, L-Leaf, P-Pedicel, R-root, Se-Seed, St-Stem, Tu-Tuber, Tw-Twig

The most common traditional preparation method of plants material was fresh (34 taxa), followed by drying (26 taxa), cooking (23 taxa), infusion (20 taxa), decoction (9 taxa), crushing (7 taxa), boiling (6 taxa), oil (2 taxa), pickle (2 taxa), powder (1 taxon), latex (1 taxon), fruit juice (1 taxon) (*Figure 4*). The infusion method is mostly preferred for the preparation of plants used for medicinal purposes, followed by decoction.

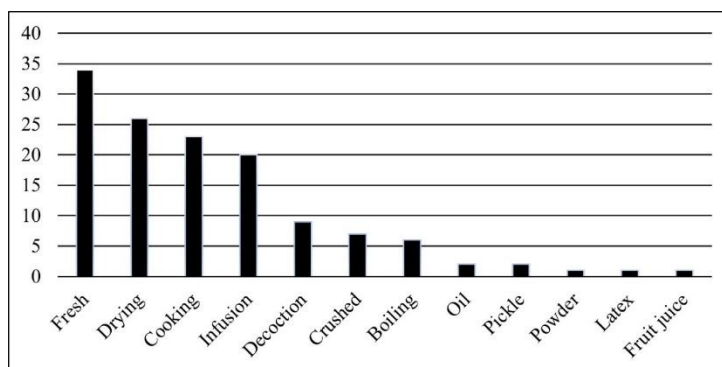


Figure 4. Traditional preparation methods

The most used families were Asteraceae (13 taxa), Lamiaceae (10 taxa), Apiaceae (6 taxa), and Fabaceae (6 taxa) (*Figure 5*). Similar results were obtained in studies in districts close to the research area (Bruni et al., 1997; Agelet and Vallès, 2003; Ertuğ, 2004; Ugulu et al., 2009; Bulut and Tuzlaci, 2013; Gürdal and Kültür, 2013; Fakir et al., 2016; Kawarty et al., 2020). While Lamiaceae ranked first in Greece, Asteraceae ranked first in Spain and Italy, which were among other Mediterranean countries (Guarrera and Lucia, 2007; Cornara et al., 2009; Benítez et al., 2010; Axiotis et al., 2018; Tsioutsiou et al., 2019).

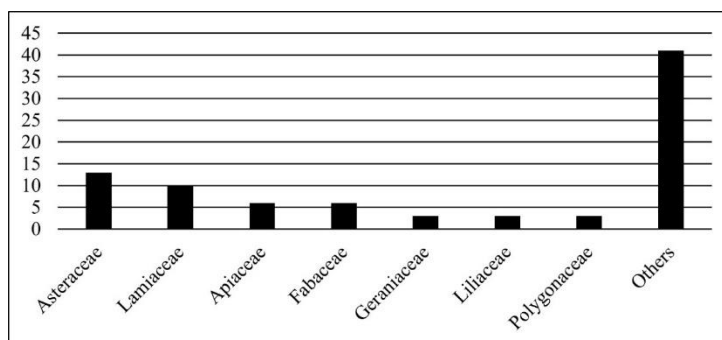


Figure 5. Most preferred families

Commonly used parts of plants for different purposes were leaves (31 taxa), aerial parts (29 taxa), flowers (19 taxa), fruits (10 taxa), and other parts such as seeds, branches, stems, tubers, bulbs, buds, branches, roots, pedicels (*Figure 6*). In many studies, the leaves and aerial parts of the plants were ranked in the 1st and 2nd ranks. The main reason for this is that they are easily collected and can be stored for a long time without deterioration (Sargin, 2015; Rehman et al., 2017; Chaachouay et al., 2019a; Polat, 2019).

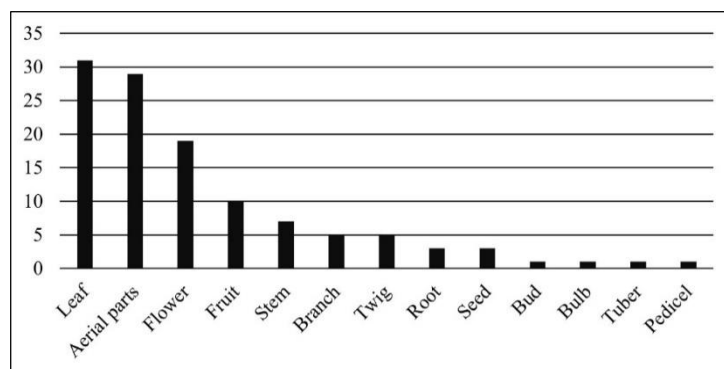


Figure 6. Plant parts used

Plants used as food mostly belonged to the Asteraceae family (7 taxa). The same result was obtained in a similar study conducted in Anatolia (Ertuğ, 2000; Pieroni, 2000; Rivera et al., 2005; Dogan, 2012; Saraç, 2013; Yeşil and İnal, 2019; Yeşil et al., 2019; Demir, 2020). Of the other plants used in food, 4 belonged to Apiaceae, 4 to Fabaceae, and 3 to Geraniaceae.

As in Anatolia, most of the plants used in handicrafts are used to make items such as baskets, brooms, arbors (10 taxa). In general, the stem or branches of these plants used in handicrafts are used. *Olea europaea* var. *europaea* was determined as the most used plant. *Pistacia lentiscus*, *Spartium junceum*, *Juncus acutus*, *Myrtus communis* subsp. *communis*, *Arundo donax*, and *Vitex agnus-castus* were also other plants that were frequently used in handicrafts such as baskets, broom, and arbor making.

Eight different plant taxa were used as animal fodder. Some forage crops such as *Vicia faba*, *Oxalis pes-caprae*, which are cut and dried during summer and fall and used as winter fodder, are also consumed by local people as fresh.

There were more than 100 plants that were used as dyes in handicrafts in Turkey (Doğan et al., 2003; Özgökçe and Yılmaz, 2003). Among these plants, *Erica manipuliflora* and *Olea europaea* var. *europaea* were used for carpet and rug dyeing in Datça.

Spice plants in the region (*Origanum onites*, *Satureja thymbra*, *Thymbra capitata*, and *Laurus nobilis*) were like the Mediterranean countries and other regions of Turkey (Ertuğ, 2004; Özgökçe and Özçelik, 2004; Kendir and Güvenç, 2010; Gürdal and Kültür, 2013; Yeşilyurt et al., 2017; Kizilarıslan-Hançer et al., 2020). However, local people widely use these spice plants in meat dishes.

The use of *Drimia maritima* leaves in the treatment of mumps has been recorded for the first time. Bulbs were also used for medical purposes such as a diuretic, cardioactive, headache, expectorant, and rheumatic pain relief in Turkey (Baytop, 1999; Comlekcioglu and Karaman, 2008; Eşen, 2008; Akan et al., 2018).

Aerial parts of *Opopanax hispidus* were consumed as food to remove intestinal parasites from the body. Similar usage has not been found in the literature. In the literature, it was found that *O. hispidus* was used for different purposes such as antiseptic (Amiri and Joharchi, 2016), infertility in women (Tuzlacı and Erol, 1999), hemorrhoids (Gürhan and Ezer, 2004), and epilepsy (children) (Sahranavard et al., 2014).

Two endemic plant species have been identified in the study area. One of those was *Sideritis leptoclada* and the other was *Rumex amarus*. The use of *R. amarus* seeds to cure diarrhea has not been mentioned in the literature.

Data analysis

In the study, it was determined that 45 plants were used for medicinal purposes. According to the information obtained from informants, the ailments were classified into 8 categories and the ICF values of each were indicated in *Table 4*.

Table 4. Informant consensus factor (ICF) for each ailment

Ailment categories	Number of citations (Nur)	Number of taxa (Nt)	ICF ^b
Cardiovascular disease	57	13	0.79
Diabetes	24	7	0.74
Gastrointestinal disease	87	27	0.70
Kidney disease	23	9	0.64
Respiratory disease	113	26	0.78
Rheumatism	21	5	0.80
Skin disease	102	33	0.68
Urinary tract diseases	17	8	0.56

^bInformant consensus factor has been shown as ICF or FIC in previous studies (Polat and Satıl, 2012; Madani et al., 2017; Hossain and Rahman, 2018; Chaachouay et al., 2019a; Karaköse et al., 2019)

Local people mentioned medicinal plants most commonly for the treatment of respiratory diseases, followed by skin diseases, gastrointestinal diseases, cardiovascular diseases, diabetes, kidney diseases, rheumatism, and urinary tract diseases respectively. Rheumatism has the highest ICF value (0.80). Plants reported to be used by informants for the treatment of this disease are *Drimys maritima*, *Opuntia ficus-indica*, *Urtica pilulifera*, *Urtica urens*, and *Vitex agnus-castus*. Cardiovascular diseases have the 2nd highest ICF value (0.79), respiratory diseases have the 3rd highest ICF value (0.78), followed by diabetes 0.74 ICF, gastrointestinal diseases 0.70 ICF, skin diseases 0.68 ICF, kidney diseases 0.64 ICF. The lowest ICF value with 0.56 belongs to urinary tract diseases.

When the studies from west of Turkey in which the informant consensus factor (ICF) was calculated were examined, it was seen that in the study in Balıkesir by Polat and Satıl (2012), anorexia and hypertension stabilizer have the highest 0.87 ICF, followed by hemorrhoids 0.80 ICF. In the study in Turgutlu (Manisa) by Bulut and Tuzlacı (2013), the digestive system has the highest 0.73 ICF, followed by the skin and subcutaneous tissues 0.70 ICF and the respiratory system have 0.64 ICF. In the study in Marmaris (Muğla) by Gürdal and Kültür (2013), rheumatism has the highest 0.73 ICF, followed by diabetes 0.57 ICF and urinary disease have 0.56 ICF. In the study in İzmir by Ugulu et al. (2009), cold and flu have the highest 0.82 ICF, followed by respiratory tract diseases 0.73 ICF and stomach disorders have 0.68 ICF.

When looking at ICF values in neighboring Mediterranean countries; Tsioutsios et al. (2019), the highest ICF value in Greece was found to be 0.85 for respiratory diseases. Chaachouay et al. (2019b), the highest ICF value in Morocco was found to be 0.98 for rheumatism. These results were like the current study. The high ICF values, that was, close to one, suggest that the medicinal plants used in the treatment of certain diseases were more effective.

The fidelity level (FL) of the 14 most important plant taxa was between 61 to 100% (*Table 5*). The high FL of a plant indicates the prevalence of a specific disease in a country

and the utilization of plants by the local people to treat it (Srithi et al., 2009; Bibi et al., 2014; Umair et al., 2017).

Table 5. Medicinal species for the most frequently reported ailment categories based on the fidelity level (FL) index

Taxa	Uses	FL (%)
<i>Origanum onites</i> <i>Salvia fruticosa</i> <i>Sideritis leptoclada</i>	Respiratory disease	100
<i>Olea europaea</i> var. <i>europaea</i>	Diabetes	96
<i>Asparagus acutifolius</i>	Skin disease	90
<i>Opopanax hispidus</i>	Intestinal parasites	88
<i>Hypericum triquetrifolium</i>	Wounds, burns, and tomies	84
<i>Ceratonia siliqua</i>	Antitussive	84
<i>Capparis spinosa</i>	Prostate	82
<i>Lavandula stoechas</i> subsp. <i>stoechas</i>	Asthma	79
<i>Malva sylvestris</i>	Kidney stones	67
<i>Ecballium elaterium</i>	Jaundice	63
<i>Urtica pilulifera</i> <i>Urtica urens</i>	Rheumatism	61

The plants in the study area with a high FL were *Origanum onites*, *Salvia fruticosa*, *Sideritis leptoclada* for respiratory disease (100), *Olea europaea* var. *europaea* for rheumatism (96), *Asparagus acutifolius* for skin disease (90), *Opopanax hispidus* for intestinal parasites (88), *Hypericum triquetrifolium* for wounds, burns, and tomies (84), *Ceratonia siliqua* for antitussive (84), *Capparis spinosa* for prostate (82), *Lavandula stoechas* subsp. *stoechas* for asthma (79), *Malva sylvestris* for kidney stones (67), *Ecballium elaterium* for jaundice (63), and *Urtica* spp. for rheumatism (61) (Table 5). Another *Origanum* species in northeastern Turkey (*Origanum vulgare* FL:90) has been reported to be used for similar purposes (Eminağaoğlu et al., 2017). In another study, *Origanum onites* with the highest FL value was reported to be used against gastralgia disorders (Dogan and Ugulu, 2013).

Origanum onites (0.50), *Salvia fruticosa* (0.50), *Sideritis leptoclada* (0.50), *Olea europaea* var. *europaea* (0.50), *Allium ampeloprasum* (0.47), *Asparagus acutifolius* (0.47), *Opopanax hispidus* (0.46), *Hypericum triquetrifolium* (0.46), *Ceratonia siliqua* (0.45), *Amaranthus viridis* (0.44), *Capparis spinosa* (0.42), *Lavandula stoechas* subsp. *stoechas* (0.42) had the highest UVs (Table 3). The results showed that the medicinal plants in the region were widely used by local people to treat various ailments and were the first species that come to mind by local people in the treatment of a particular disease. It was seen that the plants with the highest UV values were medicinal plants and those used for food purposes. The lowest UV of *Daucus carota* (0.02), *Achillea cretica* (0.04), and *Serapias vomeracea* (0.04) maybe because they were less common in the region and therefore, they low ethnobotanical use. UV results of the study were comparable with those previously reported from Turkey. It has been reported that *Origanum onites* was used in the treatment of abdominal ache, toothache, headache, diabetes, high cholesterol, and itching (Polat and Satıl, 2012; Gürdal and Kültür, 2013; Akbulut et al., 2019). *Salvia fruticosa*, another type with high FL value, has been reported to exhibit hair tonic, anti-dandruff, weight loss, memory improvement, colic rates (Abdelhalim et al., 2017).

Another medicinal plant, *Olea europaea* var. *europaea* has been studied against diabetes (Bulut and Tuzlaci, 2013), hypotensive, ripe pimples, constipation, small burns, astringent (Passalacqua et al., 2007), cholesterol, cardiovascular problems, and dental care (Mechchate et al., 2020). When the results of the study were evaluated, it was understood that plants with high FL values and plants with high UV values overlap. These results confirmed the high FL and UV of these species in the study area.

Conclusion

Research on traditional botanical knowledge provides first-hand information about the use and management of natural resources of cultures. Recording of most unwritten traditional information is essential for the continuity of cultural heritage. Datça is one of the transit ports from the Mediterranean to Anatolia and even to Asia. Therefore, it is a favorable resource area for ethnobotanical research.

A total of 85 plant taxa traditionally used in the peninsula have been identified and recorded. The medicinal plant category, together with the edible plant category, constitutes the highest percentage among useful plants. The fact that Datça peninsula is a more virgin area compared to its surroundings encouraged the local people to use plants for food purposes.

When the traditional uses of plants are considered one by one; the prominent taxa are *Origanum onites*, *Salvia fruticosa*, *Sideritis leptoclada* for medicinal purposes, *Asparagus acutifolius*, *Chrysanthemum coronarium*, *Crithmum maritimum* for food purposes, *Olea europaea* var. *europaea* for handicrafts, *Erica manipuliflora* for coloring, and *Teucrium polium* for cosmetic purposes. If *Olea europaea* var. *europaea* draws attention as the taxon that local people benefit the most with different uses such as medical, food, handicraft, building material.

The medicinal uses of *Drimys maritima*, *Rumex amarus*, and *Opopanax hispidus*, which were recorded for the first time in the current study, should be subject to new research. Local people should be informed about endemic plants (*Sideritis leptoclada* and *Rumex amarus*) in the region. Cultivation of these species for consumption and use should be encouraged.

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APPENDIX

Interview Questions

1. Name, surname, age, gender, occupation, educational level, permanent address.
2. What is the vernacular name of the plants?
3. For which purposes do you use the plants? (medicinal, food, construction material, equipment, etc.)
4. What plant do you prefer most for a particular disease?
5. How often do you use the plants?
6. What plants do you use for customs?
7. What plants do you use for livestock and fowl?
8. Which parts of the plant do you use? (aerial parts, leaf, fruit, flower, root, etc.)
9. How do you prepare the plants? (infusion, decoction, crushed, powder, fresh, drying, boiling, cooking, etc.)