Ethnobotanic features of plants used by inhabitants in Bozova (Şanliurfa-Turkiye)

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Research

Abstract

Background: This study aims to determine the intended purpose underlying the usage of plants by the inhabitants of Bozova (Şanlıurfa), and to demonstrate significance of such plants regarding ethnobotanical features.

Methods: Reference person research, survey study and field studies for picking up the plants during certain vegetation periods were carried out.

Results: 133 general and 171 taxa (2 genera, 110 species, 38 subspecies, 21 varieties) belonging to 50 families were identified as result of the research on the field. 1 of the plants belongs to Fungi kingdom, Ascomycota divisio; the others belong to Plantae kingdom, Spermatophyta divisio, Gymnospermae (1 taxon) and Angiospermae (169 taxa) subdivisio. By number of taxa they contain, top families in the area were Fabaceae (31), Asteraceae (24), Lamiaceae (14), Apiaceae (10), Brassicaceae (10), and Poaceae (6). By number of species they contain, top species in the area were *Trifolium* (9), *Trigonella* (6), *Convolvulus* (4), *Astragalus* (3), *Centaurea* (3), *Euphorbia* (3) and *Medicago* (3). The taxa identified in the research area wereused for different purposes, for example; 61 for food, 48 for medical purpose, 35 as fodder, 9 for roofage, 8 as household goods, 7 for spice/flavoring, 5 for games, 5 for fuel, 5 for ornament, 4 as amulet/incense, handicraft (natural painting, broom, woodwork), 3 for fragrance, 2 for against evil eye, 2 for painting, and it is further observed that other taxa wereused for different purposes. Besides, 10 of these plants wereidentified as harmful, while 8 plants wereknown only by their names. Also, other ethnobotanical studies conducted in the surrounding neighbourhood of the study area were compared by using Jaccard Index.

Conclusions: New use methods of the plants determined in our study were revealed. We applied FIC to determine that all villagers use plants for the same purposes and informing each other, and as a result, we found that everyone in the study area uses the same taxa for the same disease groups with similar usage methods.

Keywords: ethnobotany, vernacular name, Jaccard Index, FIC, Bozova, Şanlıurfa, Türkiye

Background

Ethnobotany is a discipline that explores the direct relationships between biota and the human beings and is an integral part of the vast field of ethnobiology. Starting from mid-20th century, ethnobotany has been comprehended as the study of the relationships between primitive humans and plants (Albuquerqe *et al*., 2017). Ethnobotany, which existed since the dawn of the written history of the mankind, has been recognized as a scientific discipline only in the last 100 years (Schultes and von

Reis, 1995). Ethnobotany is "the local use of plants by the people in a certain geographical region, primarily as nutrition and medicinal purposes, and then as industrial plants, in brief, from all aspects" (Yıldırımlı, 2004). Today, the meaning of the term ethnobotany has been expanded further. The field of study of this discipline has also been expanded so as to address the relationships between traditional societies, such as the urban-industrial communities, and non-traditional societies, such as rural communities, i.e. the human communities and the botanical environment (Albuquerqe *et al*., 2017). Since the earliest ages of history, the mankind's interest in plants at almost every locate on in the world have always been rather in terms of utilization thereof, and the mankind have always wondered which plants are nutrient, medicinal and poisonous, and which trees are suitable for building structures or making weapons. When making such determinations, the instincts were more effective for the mankind rather than using the intellect in the early periods (Karamanoğlu, 1977). Furthermore, observation was also an effective tool for the primitive man in determining the benefits and harms of the plants. For instance, they discovered the therapeutic use of the herbs they used as food in time, or they started to use the herbs they discovered to have toxic effects for hunting based on their experience with such herbs (Mat, 1997). As we acquire more knowledge on various intended uses of plants in the recent past thanks to the increase in ethnobotanical research, we acquire our knowledge on the plants used by ancient societies for various purposes, on the other hand, by deciphering the inscriptions unearthed through discovery of the archaeological findings (Ertuğ, 2014). The remains of the Neanderthal man discovered in Shanidar Cave in Northern Iraq during the excavations performed between 1957 and 1961, as well as the items found in the grave, are considered to represent the first data regarding the onset of the relationship between plants and the mankind (Faydaoğlu and Sürücüoğlu, 2011).

Türkiye stands out with its diverse vegetation varieties and richness in plants that form such vegetation. Türkiye's position at the intersection points of three different phytogeographies (Irano-Turanian, Mediterranean and Euro-Siberian), the fact that the country acts as a bridge between two continents (Asia and Europe), and its position as the gene center for many taxa, as well as the diversity of topographic and soil structure plays an important role for this. These plants that make up such wealth of the flora have been utilized by the ancient societies that inhabited Anatolia as well as the people today for various purposes, and such utilization persists. In terms of intended purpose, food and medical use ranks first. The people residing especially at rural areas in Türkiye possess extremely valuable ethnobotanical information that such people learned by witnessing such use by their ancestors in person or through verbal communication, which they continue to practice. Endeavors are made to generate written records of such information during the ethnobotanical researche. This study aims to identify the traditional use of plants utilized by local community for various purposes in the county town and at the villages of Bozova district of Şanlıurfa province, and to compile such information into a written reference to prevent loss of information and to allow the future generations to benefit from such information.

Materials and Methods

The plants used for various purposes by the local communities in the county town and at the villages of Bozova district of Şanlıurfa province constitute the material of this study. To identify said plants, reference person research, survey study and field studies for picking up the plants during certain vegetation periods were carried out.

The studies by Davis (1965-1985), Davis et al. (1988) and Güner et al. (2000) were used as baseline for identification of the plants. The study compiled by Güner et al. (2012) was taken into consideration for current taxonomic status and names applicable for the identified plants. The author abbreviations of each taxon were stated by checking from the study by Brummitt and Powell (1992).

A list of plants identified in consequence of the study was compiled in alphabetical order. The plants are indicated by specifying the name of the family, the name of the genus, the name of the species and subspecies name, if any, including the names of the authors, respectively. Following such information, the vernacular name, the locality number, the intended use, part used, usage form and preparation and administration of the plant, respectively, are stated. An asterisk (*) is affixed in front of taxon names to indicate cultivated plants.

In the start-up phase of the study, endeavors were made to identify the reference individuals living in the county town and at the villages of Bozova district. The interviews with the reference individuals so identified were recorded using the questionnaire form. The questionnaire form includes information such as the name-surname, age, profession and educational status of the reference individuals, and the vernacular names of the plants, the intended use of the plants, the part of the plants used, usage form, and stories, beliefs etc. mentioned about such plants, if any. In line with the information on usage of the plants acquired during the second phase, the plants were picked up from the land during certain vegetation periods as accompanied by the reference individuals, designated, dried and converted into herbarium samples.

The data obtained in the study were analyzed using SPSS 18 Package Software. In this context, a non-parametric statistical study based on one-to-one and face-to-face survey data was conducted. This statistical study was carried out for demonstrating significant difference between intended use of each plant group for medicinal and food purposes by grouping all plant taxa identified within the scope of the study in the light of the rules on plant taxonomy. This analysis covers all plant taxa identified within the scope of the study, and the target population of the study includes 171 plant taxa, and during the

study, significance tests for the groups were performed for each group and Kruskal Wallis and Tamhane's T2 tests were used for measuring the difference between the groups.

The ICF or FIC (Informant Consensus Factor) factor was calculated to determine the diversity of plants, especially those with medicinal use, for which the intended usage was identified during the study (Trotter and Logan, 1986; Heinrich, 2000). The factor calculated was employed for checking the homogeneity of the information on how such plants are used. Accordingly, FIC value close to 1 denotes that an exchange of information exists among the informants residing in the study area, and that the informants are in consensus regarding the diseases for which such plants are used. On the contrary, FIC value close to 0 denotes that there is no exchange of information among the informants, or that the plants are selected and used at random.

Another index used in the study is the Jaccard Index (JI). This index was used for comparing the data from the study with other data. The data from this study and the data acquired from the studies conducted in the province where the study area is located as well as the neighboring provinces were analyzed using the Jaccard index in terms of the plants with medicinal usage, thereby endeavoring to identify any similar patterns in use of the medicinal herbs among the local populace in the study area and local people in other areas. The Jaccard index (JI) is calculated with the formula: c x 100 / (a+b-c) (González-Tejero et al., 2008); wherein “a” represents the number of species in region A; “b” represents the number of species in region B, and “c” represents the number of species common to both regions A and B.

The geographical information on Bozova district is stated using Sanlirfa Province Blog.

Brief description of the study area

Southeastern Anatolia Region, wherein the study area is located, is positioned between the outer edge of the Southeastern Taurus Mountains arc and Türkiye-Syria border and strikes the resemblance of a wide plateau in its entirety, and draws attention with the plainness and simplicity of the terrain features. The region constitutes the northern tip of the fertile crescent (Sözer 1984). Southeastern Anatolia is the most arid region of Türkiye with warmest summers. The region generally features steppe vegetation and oak barrens.

Bozova district of Şanlıurfa located in the Southeastern Anatolia Region is surrounded by Halfeti to the west, Birecik to the southwest, Suruç to the south, Karaköprü to the southeast and east, Hilvan to the northeast and Adıyaman to the north. The reservoir of Atatürk Dam, the largest dam in Türkiye and Europe, constitutes the northern border of the district. Located in the western part of Şanlıurfa province, the northern and eastern portions of the district feature mountainous terrain, while the southern portion features lowlands and plains. The extensions of Arat Mountain to the west, and Kaplan Mountain to the south, of the district present further mountainous terrains. The northeast section of the district is characterized as the extension of the Hilvan Plain (Sanlirfa Province Blog, 2020).

The finds unearthed during the archaeological excavations carried out in Bozova and the surrounding lands indicate presence of a settlement at this locality 7000 years ago. Agriculture and animal husbandry are the major economical means practiced in the district. Cattle, sheep and goats are bred at the mountainous and rugged terrains of the district. Oil, cheese, wool and hair production is very important (Sanlirfa Province Blog, 2020).

Steppe vegetation is the dominant vegetation throughout Bozova district. Unfortunately, the natural vegetation is under substantial pressure of the anthropogenic factors due to clearing fields for agriculture and the stress imposed due to excessive grazing, etc. The orchards-vineyards comprising of peanuts (*Pistacia vera*), olives (*Olea europae*) and grapes (*Vitis vinifera*) draw attention throughout the district. A small number of fig (*Ficus carica* subsp. *carica*), mulberry (*Morus alba*) and pomegranate (*Punica granatum*) orchards are also present.

Ethnobotanical features

The area of the study conducted for identifying the plants traditionally used by the local populace residing in Bozova town center and surrounding villages for various purposes for centuries, as well as the localities where the reference individuals reside are illustrated in Figure 1.

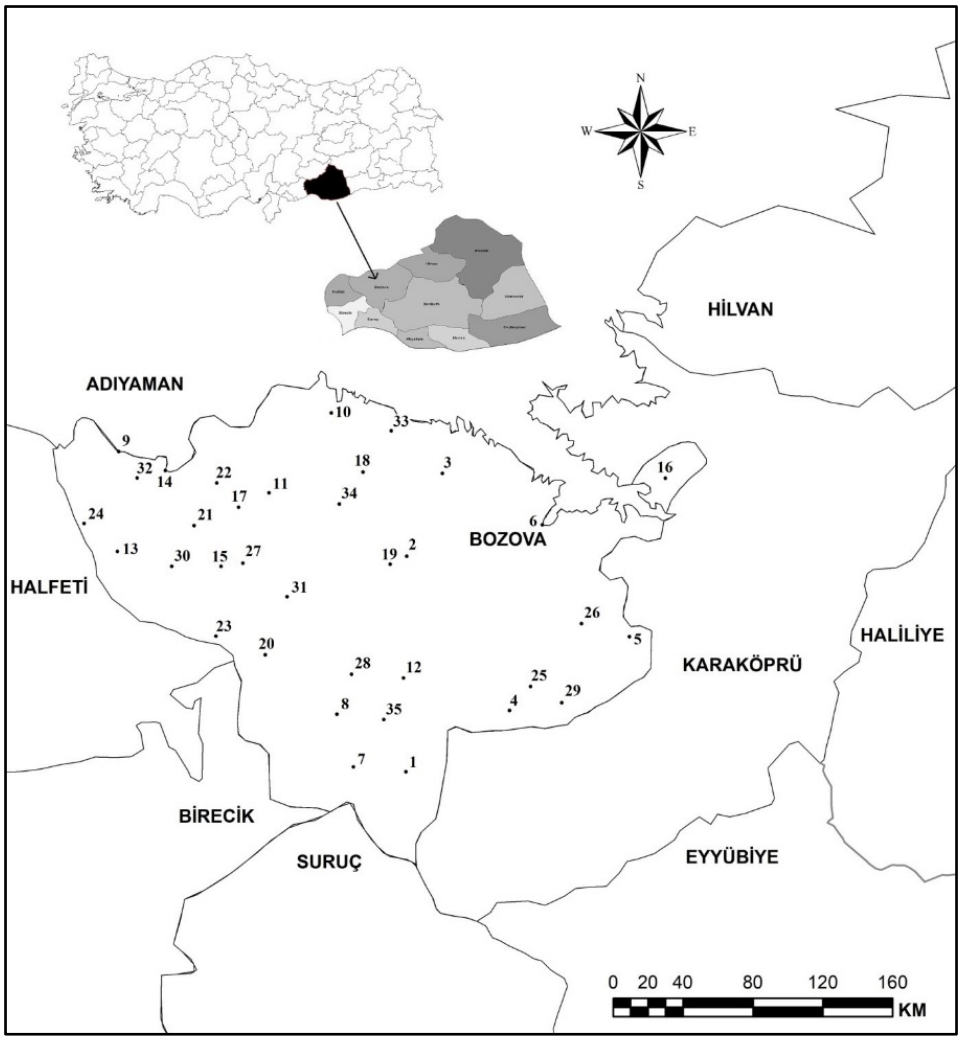

Figure 1. Study area (**1.** Akmağara, **2**. Argıncık, **3.** Arıkök, **4.** Arpalı, **5.** Baltaş, **6.** Bozova (center), **7.** Boztepe, **8.** Budaklı, **9.** Çatak, **10.** Dutluk, **11.** Gerdek, **12.** Gözenek, **13.** Irmakboyu, **14.** İncirli, **15.** Karaca, **16.** Kargılı, **17.** Kepirce, **18.** Kındırali, **19.** Kızlar, **20.** Koçhisar, **21.** Koçveran, **22.** Mağarcık, **23.** Örgülü, **24.** Pirhalil, **25.** Seyitören, **26.** Sığırcık, **27.** Sızan, **28.** Taşan, **29.** Türkmenören, **30.** Umutlu, **31.** Ürünlü, **32.** Yaslıca, **33.** Yaylak, **34.** Zivanlı

Results

One hundred and seventy one taxa (2 genera, 110 species, 38 subspecies, 21 varieties) from 50 families and 133 genera were identified in this ethnobotanical study. 1 of the taxa so identified was from Ascomycota division from Mycophyta (Fungi) kingdom, while the other taxa were from Gymnospermae (1 taxon) and Angiospermae (169 taxa) sub-division of Spermatophyta division of Plantae kingdom. The families that include most taxa in terms of the families they belong to are Fabaceae (31), Asteraceae (24), Lamiaceae (14), Apiaceae (12), Brassicaceae (10), and Poaceae (6) respectively. The genera that feature most taxa, on the other hand, can be listed as *Trifolium* L. (9), *Trigonella* L. (6), *Convolvulus* L. (4), *Astragalus* L. (3), *Centaurea* L. (3), *Euphorbia* L. (3) and *Medicago* L. (3), respectively.

The taxa identified in the research area were used for different purposes, for example; 61 for food, 48 for medical purpose, 35 as fodder, 9 for roofage, 8 as household goods, 7 for spice/flavoring, 5 for games, 5 for fuel, 5 for ornament, 4 as amulet/incense, handicraft (natural painting, broom, woodwork), 3 for fragrance, 2 for against evil eye, 2 for painting, and it is further observed that other taxa were used for different purposes. Besides, 10 of these plants were identified as harmful, while 8 plants were known only by their names. The ethnobotanical features of the plants identified in the study area were provided in Table 1.

Table 1. The ethnobotanical features of the plants identified in the study area

Family, Scientific name and, Voucher number	Vernacular name	Locality number	Intended use	Part used	Usage form	Preparation and administration
Apiaceae						
Artedia squamata L. EO 1012	Mayana	1, 2, 4, 5, 7, 8, 11, 14, 18, 23, 26, 31, 33, 34, 35	Food	All plant parts	Fodder	• It is fed to the calves as fodder to improve the milk yield.
Bunium paucifolium DC. var. *paucifolium* EO 1008	Kızlangoç	4, 5, 7, 8, 11, 14, 19, 22, 23, 33, 34, 35	Food	Root	Fresh	• The root portion of the fresh plant is consumed raw.
Eryngium campestre L. var. *virens* Link EO 1038	Gılı	1, 2, 4, 5, 7, 8, 9, 10, 11, 14, 18, 19, 22, 33, 34	Food	Stem	Fresh	• It is consumed as raw after the stem is peeled at plantlet phase.
Eryngium creticum Lam. EO 1120	Çistok, Kazan kulpu, Nehlik, Zivanok	3, 5, 6, 7, 8, 10, 14, 18, 19, 23, 33, 34, 35	Food	Stem	Fresh Salad	• It is consumed as raw after the stem is peeled at plantlet phase. • It is also used as salad dressing
Lagoecia cuminoides L. EO 1033	Yaban kemuni	3	Seasoning	All plant parts	Trituration	• The plant is dried and grounded and used as spice in meals.
Malabaila secacul (Mill.) Boiss. subsp. *secacul* EO 1022	Harık	11, 14, 19, 22, 23, 33, 34, 35	Food	Leaf	Salad	• Fresh leaves are used as salad dressing
Scandix pecten-veneris L. EO 1041 *S. stellata* Banks & Sol. EO 1039	Çor, Derziyi meağra	6	Food Harmful	All plant parts	Fodder	• Used as fodder for animals. • It is considered as weed because it reduces the crop yield of the crops.
Tordylium aegyptiacum (L.) Lam. EO 1136	Çetrik, Çiğrik, Davşan kulağı, Pis ot	18, 33	Aroma Medicinal	All plant parts	Trituration Tea	• Dried and grounded herb is added to rusks for flavoring purposes. • It is rumored to expel kidney stones if consumed as tea before meals.

Torilis arvensis (Huds.) Link subsp. *arvensis* EO 1117	Karaheci, Zellukok	2, 3, 4, 5, 6, 7, 8, 12, 15, 16, 18, 19, 21, 22, 23, 28, 33, 34, 35	Medicinal Harmful	All plant parts	Tea	• If the plant is dried as a whole and brewed into a tea and consumed, it is good for heart disease.• Causes discomfort when dried fruits stick to clothes.
Araceae						
Biarum carduchorum (Schott) Engl. EO 1003	Zilliki eraba	3, 7, 10, 18, 19, 26, 28, 29, 33, 34, 35	Food Medicinal	Leaf	Cooked	• After boiling in milk to remove the poison, it's added to rice and soups. • It is rumored to be good for cancer
Eminium rauwolffii (Blume) Schott var. *rauwolffii* EO 1061	Gardi, Zilliki eraba	6, 7, 9, 12, 18, 20, 22, 29, 33, 34	Food Cosmetics	Leaf Flower	Cooked Dye	After boiling in milk to remove the poison, it's added to rice and soups. • The flowers are used to get spirit (purple) colored paint for nail polish.
Aristolochiaceae						
Aristolochia bottae Jaub. & Spach. EO 1054	Guhei gura, Kundurkoşk	3, 6, 7, 8, 9, 10, 18, 19, 20, 26, 29, 31, 33, 34	Medicinal	All plant parts	Tea	• The plant is dried as a whole and the tea brewed from the plant is consumed to regulate blood sugar.
Asparagaceae						
Ornithogalum narbonense L. EO 1111	Akbandır	6, 7, 12, 13, 18, 19, 22, 23, 26, 29, 31, 33, 34, 35	Food	Leaf	Cooked	• It is boiled and fried with eggs.
Asteraceae						
Achillea aleppica DC. subsp. *aleppica* EO 1065	Çiçeki meağra, İlan otu	1, 8, 12, 18, 28, 29, 33, 35	-	-	-	• Just the name in ethnobotanical terms
Anthemis hyalina DC. EO 1047	Çiçeki mast	6, 10, 17, 22, 26, 29, 33, 34, 35	Medicinal	All plant parts	Tea	• If the brewed tea is consumed a glass per day, it relieves asthma, cold, stomach pain, and helps digestion.
**Artemisia vulgaris* L. EO 1049	Abetıran, Kâbe süpürgesi	6, 7, 29, 33, 34, 35	Ornamental Repellant	All plant parts	Scent Fly-repellent	• It is cultivated in pots due to ornamental features and fragrance. • Planted especially around the cotton fields as a mosquito repellent due to its smell
Carduus pycnocephalus L. subsp.*breviphyllarius* P.H.Davis EO 1057	Kerbeş	6, 7, 8, 11, 14, 18, 19, 22, 23, 26, 28, 29, 31, 33, 34, 35	Food	Stem	Fresh	• The thorns on the stem of the plant can be peeled and consumed as raw, and can be used as rice dressing and pancakes.
Carthamus lanatus L. EO 1077	Zilletir	10, 18, 33, 34	Harmful	All plant parts	Dried	• The name is given as it causes significant pain when pricks in hand.

Carthamus persicus Desf. ex Willd. EO 1115	Hıstiri zer	10, 14, 18, 19, 22, 23, 31, 33, 34	Aroma Food dye	Flower	Dried	• The flower of the plant is used as both colorant and aroma.
Centaurea iberica Spreng. EO 1044	Pıncari teal, Hıstiri keyğane, Hıstiri zer, Çakır diken	1, 2, 3, 5, 6, 7, 8, 10, 11, 14, 18, 19, 20, 28, 29, 31, 33, 35	Food Medicinal	Stem Leaf	Cooked Tea	• The outer bark of the fresh stem is peeled off and consumed raw. • After boiling, it is fried and used as rice dressing or used as pancake filling. • Fresh base leaves are brewed and consumed as tea for vasodilation.
Centaurea solstitialis L. subsp. *solstitialis* EO 1010	Çavbellok	1, 2, 6, 7, 10, 11, 14, 18, 19, 23, 33, 34, 35	-	-	-	• Just the name in ethnobotanical terms
Centaurea virgata Lam. EO 1080	Sıpırgeyi teal, Sıpırgeyi reş	2, 3, 4, 5, 7, 8, 11, 14, 18, 19, 24, 25, 26, 29, 30, 31, 34, 35	Household goods	All plant parts	Broom	• Used for outdoor cleaning as sweeper after the intact plant is picked, bundled and dried.
Cichorium intybus L. EO 1093	Şiro, Keklik otu	10, 18, 33, 34	Food	All plant parts	Fodder	• Used as fodder for animals. •This name is given because of the interest of the partridge bird to the plant.
Crepis sancta (L.) Bornm. EO 1091	Çiçeki zer	6, 10, 11, 14, 18, 19, 22, 23, 26, 29, 31, 33, 34, 35	Food	All plant parts	Fodder	• Used as fodder for animals.
Crupina crupinastrum (Moris) Vis. EO 1073	Gihayi sıpırge	6, 7, 8, 10, 11, 24, 27, 28, 29, 33, 34, 35	Household goods	All plant parts	Broom	• Bundled from the root potion, dried and used for sweeping the courtyard.
Echinops orientalis Trautv. EO 1119	Gihayi devva, Hıstiri devva, Hıstiri guppık, Şekrok	7, 8, 10, 11, 14, 18, 19, 22, 29, 33, 34, 35	Food Medicinal	Stem Flower Fruit	Cooked Fresh Dried	• After boiling in water and cooking, it's added to rice or it's fried or it's used as pancake filling. • After removing the flowers of the plantlet, the floral receptacle is consumed. • It is rumored that the ripe fruits are good for cough.
Gundelia tournefortii L. var. *armata* Freyn & Sint. EO 1059	Kereng	3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 18, 19, 22, 23, 28, 29, 33, 34, 35	Food	All plant parts	Fresh Cooked	• The new offshoots of the plant are consumed as raw, and also boiled and fried in oil with egg and onion. It is also used as rice dressing. It is also used as pancake filling.
Lactuca serriola L. EO 1200	Ğasi kera	18, 19, 22, 23, 33, 34, 35	Food	All plant parts	Fodder	• The name is given as it is consumed by the donkeys.
Notobasis syriaca (L.) Cass. EO 1203	Kerbeş, Kerbeşi kera, Kerbeşi belek	6, 8, 10, 14, 18, 19, 22, 23, 29, 33, 34,	Food	Stem	Fresh Cooked	• The hedgehogs at the stem portion of the plant are peeled and consumed raw, as well as used as rice dressing and pancake. • It is also consumed after boiling and frying in oil with onion and tomato paste.

Onopordum carduchorum Bornm. & Beauverd EO 1109	Kulındor	10, 18, 21, 29, 33, 34	Food Medicinal	Stem Fruit	Fresh Appetizer	• The surface layer of the stem is peeled and consumed raw when the plant is fresh. • The ripe fruits of the plant are also consumed as appetizers. • It is rumored that the ripe fruit is good for hemorrhoid when consumed.
Picnomon acarna (L.) Cass. EO 1018	Hıstiri mişk, Hoppal diken	2, 10, 19, 33, 34	Building material Fuel	All plant parts	Protect Firewood	• It is contemplated that when the intact plant is placed between the wooden timers used for constructing the roof scaffold during construction of the house protects the house from mice. • It is also used as fuel.
Senecio vernalis Waldst. & Kit. EO 1009	Çiçeki zer	4, 6, 18, 19, 25, 26, 33, 34, 35	Cosmetics Ornament	Flower	Hair dye Crown	• The flowers are boiled and the hair is washed with the boiled water to decolorize the hair. • Furthermore, the pedicles of the flowers are wrapped to make circlets.
Sonchus asper (L.) Hill subsp. *glaucescens* (Jord.) Ball EO 1204	Şiro	2, 11, 19, 34	Food	Leaf	Fresh Cooked	• The fresh leaves can be consumed as raw and can be added to pastries and salads. It is also fried.
Tragopogon buphthalmoides (DC.) Boiss. var. *buphthalmoides* EO 1250	Çalık, Pırça pirie, Şiro	2, 8, 12, 18, 19, 28, 33	Food	Leaf	Fresh Cooked	• The fresh leaves can be consumed as raw and can be added to pastries and salads. It is also fried.
Xanthium spinosum L. EO 1100	Hıstiri zer	6, 10, 18, 19, 23, 31, 33, 34, 35	Harmful	All plant parts	Fresh Dried	• Reduces yield especially at the cotton plantations. Furthermore, the fruits adhere to the sheep's wool and causes economic damages.
Xanthium strumarium L. var. *strumarium* EO 1090	Bıttırgan, Kerbeacan	5, 6, 10, 14, 15, 18, 19, 22, 23, 25, 26, 29, 32, 33, 34, 35	Harmful	All plant parts	Fresh Dried	• As this plant is harmful for the cotton plantations, it is considered as weed and removed.
Xeranthemum annuum L. EO 1135	Gihayi toka	2, 4, 7, 19, 20, 25, 28, 29, 33, 34, 35	Nicknack	Flower	Buckle	• The children stick the dried flower pedicles to the leaves of various plants in order to create hairpins to fasten to their hair when playing.
Berberidaceae						
Bongardia chrysogonum (L.) Spach EO 1245	Gihayi ğezzal	6	-	-	-	• Just the name in ethnobotanical terms
Boraginaceae						
Alkanna orientalis (L.) Boiss. var. *orientalis* EO 1233	Mıtmıtok, Fısfıso	10, 33, 34, 35	Food	Flower	Suction	• The children pick up and such on the bottom portion of the flowers of the plant due to its sweet flavor.
Alkanna tinctoria (L.) Tausch subsp. tinctoria EO 1131	Havajo	1, 2, 5, 6, 7, 8, 23, 29, 31, 33, 34, 35	Medicinal	Root	Ointment	• The crust on the plant root is transformed into ointment with a special mixture. This ointment is

						applied externally to the cracks and wounds and accelerates healing.
Anchusa azurea Mill. var. *azurea* EO 1005 *A. leptophylla* Roem. & Schult. subsp. *leptophylla* EO 1213	Guriz	6, 10, 14, 15, 17, 18, 19, 22, 23, 28, 29, 33, 34, 35	Food	All plant parts	Cooked	• Boiled parts of the plant are consumed as fried in oil or used as rice dressing or used as pancake filling.
Brassicaceae						
Alyssum strictum Willd. EO 1246	Nanieçuçuka	2, 10, 19, 21, 23, 33, 34, 35	Food	All plant parts	Cooked	• Boiled parts of the plant are consumed as fried in oil or used as rice dressing or used as pancake filling .
Capsella bursa-pastoris (L.) Medik. EO 1104	Nanieçuçukayi gevr, Pıncar	1, 6, 7, 10, 18, 19, 22, 28, 29, 33, 34, 35	Food	All plant parts	Cooked Salad	• Boiled parts of the plant are consumed as fried in oil or used as rice dressing or used as pancake filling. It can also be consumed as salad dressing.
Crambe tataria Sebeók var. *tataria* EO 1025	Daruk	19	-	-	-	• Just the name in ethnobotanical terms
Glastaria glastifolia (DC.) Kuntze EO 1124	Gihayi gerdanlık	6, 28, 35	Ornament	Fruit	Neckband	• As the fruits of the fresh plant resembles pearls, the fruits are shaped and used as pendants.
Isatis lusitanica L. EO 1007	Gihayi sarık, Ğerdele çuuk	6, 18, 33	Ornament	All plant parts	Crown	• The fresh fruit bearing fruits is weaved into loop and used as circlet.
Lepidium draba L. EO 1218	Kıniberk	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 22, 23, 28, 29, 33, 34, 35	Food Belief	All plant parts	Cooked	• Fried with onion and tomato paste and consumed. • There is a common belief that it is a good deed to consume this plant thrice per year.
Lepidium sativum L. subsp. *sativum* EO 1013	Dejink, Dejnik	1, 3, 6, 13, 14, 18, 19, 20, 21, 22, 23, 26, 30, 31, 33, 34, 35	Food	All plant parts	Fresh Salad	• The plant picked as plantlet is consumed with steak tartar a la turca or as salad dressing.
Microthlaspi perfoliatum (L.) F.K.Mey. EO 1019	Nanieçuçuka	10, 28, 29, 33, 34, 35	Food	All plant parts	Cooked Salad	• Boiled parts of the plant are consumed as fried in oil or used as rice dressing or used as pancake filling. It can also be consumed as salad dressing.
Crambe tataria Sebeók var. *tataria* EO 1025	Daruk	19	-	-	-	• Just the name in ethnobotanical terms
Sinapis alba L. EO 1228 *S. arvensis* L. EO 1224	Ğerdel	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27,	Food	Leaf	Fresh Salad	• The freshly picked stem and leaves can be consumed raw, and consumed after frying in oil with tomato paste and onion. It is also used as pancake filling.

		28, 29, 30, 31, 32, 33, 34, 35				
Cannabaceae						
**Celtis australis* L. subsp. *australis* EO 1114	Dara teğvi Dığdığan, Teğvi	10, 29, 33, 34, 35	Food	Fruit	Fresh	• Fruits are consumed. • Good for diabetes.
Capparaceae						
Capparis sicula Veill. subsp. *sicula* EO 1063	Keber	1, 3, 4, 5, 6 7, 8, 10, 11, 14, 18, 19, 22, 23, 28, 33, 34, 35	Medicinal	Fruit	Ointment Tea	• The dried fruits pounded into an ointment and then applied to the knee is good for rheumatism. • It is rumored to be good for cancer if the fruit is brewed as tea and consumed.
Caprifoliaceae						
Scabiosa rotata M.Bieb. EO 1030	Sıpırgeyi zer, Sıpırgeyi gevr, Zivan	6, 8, 11, 14, 18, 19, 22, 23, 28, 33, 34, 35	Household goods Harmful	All plant parts	Broom	• Especially used for cleaning the courtyard as sweeper after the intact plant is picked, bundled and dried • Has negative impact on the crop yield if present at barley and wheat fields.
Valerianella vesicaria (L.) Moench EO 1004	Çavei miya, Koyun gözü	28, 33, 34	Food	Fruit	Appetizer	• Ripe fruits are consumed as appetizers.
Caryophyllaceae						
Silene conoidea L. EO 1050	Şekrok, Gihayi manga	6, 8, 10, 11, 14, 18, 19, 22, 23, 33, 34, 35	Food	Flower	Suction	• The flowers have sweet taste, thus consumed as appetizers.
Vaccaria hispanica (Mill.) Rauschert EO 1108	Dımısko, Hışhışo	2, 6, 10, 14, 18, 19, 20, 28, 29, 33, 34, 35	Doddle	Fruit	Dried	• Used as toy by the children due to the rattling sound that the seeds inside the ripe fruits produce upon jiggling the entire plant.
Convolvulaceae						
Convolvulus arvensis L. EO 1239	Peçek	10, 18, 28, 29, 33, 34	Food	All plant parts	Fodder	• Used as fodder for animals.
Convolvulus betonicifolius Mill. subsp. *peduncularis* (Boiss.) Parris EO 1067	Peçek	28, 33, 34, 35	Household goods	All plant parts	Cover	• The plant is laid on the natural bed formed by superposing the bundles made from dried vine branches in order to keep the ambient air cool.
Convolvulus dorycnium L. subsp. *oxysepalus* (Boiss.) Rech.f. EO 1222	Lavlavık, Kızlevi	33, 34	Household goods	All plant parts	Saddle blanket Broom	• A broad bundle of the plant is laid over the pad on the beast of burden before placing the saddlebag.

						• The entire plant is tied from the root portion and dried as a bundle and used for sweeping the courtyard.
Convolvulus stachydifolius Choisy EO 1231	Peçek, Gula şıvana	19, 28, 34	Food	All plant parts	Fodder	• Used as fodder for animals.
Crassulaceae						
Sedum steudelii Boiss. EO 1252	Tıriyi halo, Tıriyi ruvi	3, 6, 10, 19, 28, 29, 33, 34, 35	Food	All plant parts	Fresh	• The entire plant is consumed raw when fresh.
Cucurbitaceae						
**Cucurbita pepo* L. EO 1020	Kundır	10, 28, 29, 33, 34, 35	Food	Fruit	Cooked	• Cooked as stuffed vegetables and as a regional dish called “oturtma”. • The fresh seeds are fried with onion and tomato paste and consumed.
Ecballium elaterium (L.) A.Rich. EO 1101	Ancurei kera	6, 10, 18, 19, 22, 23, 28, 29, 33, 34, 35	Medicinal	Fruit	Juice	• Helps curing sinusitis if the fruit extract is diluted and then snuffed into the nose. It is also rumored to be good for hepatitis.
Euphorbiaceae						
Euphorbia cheiradenia Boiss. & Hohen. EO 1116 *E. falcata* L. subsp. *falcata* var. *falcata* EO 1031	Ğeşul	2, 3, 4, 6, 7, 8, 12, 18, 19, 20, 25, 28, 29 33, 34, 35	Aroma	Flower	Fresh	• When the grape molasses is stirred using a bundle made of the intact plant, it prevents bubbling over and adds pleasant odor and flavor.
Euphorbia macroclada Boiss. EO 1035	Ğeşula devva	10, 28, 33, 34	Medicinal Tattoo erase Clarifying	Root Latex	Ointment Fresh	• An ointment is made from the plant root using a special mixture for curing wounds. • The milk is applied for removing the tattoos from the body, extracting the scorpion’s poison and relieving tooth aches. • One drop of the plant’s milk instilled into turbid water to clarify the water to drink.
Fabaceae						
Astragalus aleppicus Boiss. EO 1036	Gunpısik	6, 10, 18, 19, 22, 23, 28, 33, 34, 35	Food	Fruit	Appetizer	• Fresh fruits are consumed.

Astragalus hamosus L. EO 1037	Guni, Colliki meağra	2, 3, 4, 6, 5, 7, 8, 11, 14, 18, 19, 22, 23, 33, 34, 35	Medicinal Food	All plant parts	Mash Fodder	• The plant is boiled and the poultice cures the cracks at the nipple of the breastfeeding mother. • Used as fodder for animals.
Astragalus russelii Banks & Sol. EO 1152	Guni	1, 2, 3, 5, 6, 7, 8, 10, 11, 14, 18, 19, 22, 23, 33, 34, 35	Building material	All plant parts	Protect	• It is contemplated that when the intact plant is placed between the wooden timers used for constructing the roof scaffold during construction of the house protects the house from mice.
Glycyrrhiza glabra L. var. *glabra* EO 1211	Suus	2, 3, 4, 5, 6, 7, 8, 10, 11, 14, 18, 19, 20, 22, 23, 24, 25, 33, 34, 35	Beverage Medicinal	Root	Sherbet Suction	• The ice blocks planed on the roots of the plant are kept for approx. 2-3 hours. The fluid so produced is consumed as juice. • This juice is rumored to be good for the kidneys.
Hippocrepis unisiliquosa L. subsp. *unisiliquosa* EO 1016	Colliki meağra, Kızzın	6, 19, 28, 29, 33, 34	Food	All plant parts	Fodder	• The fruits of the plant are soaked in water overnight and fed to the cattle and sheep to improve the milk yield and to facilitate weight gain of the stock. The intact plant is used as fodder.
Lathyrus cicera L. EO 1241	Colliki hespa	2, 10, 19, 20, 28, 29, 35	Food	Seed	Appetizer	• The seeds of the fresh fruit are consumed raw.
Lathyrus sativus L. EO 1248	Nanei hespa	10, 18, 20, 33, 34	Food	Seed	Appetizer	• The seeds of the fresh fruit are consumed raw.
Lens culinaris Medik. subsp. *orientalis* (Boiss.) Ponert EO 1237	Niski kıreij	6, 10, 18, 19, 23, 28, 29, 33, 34, 35	-	-	-	• Just the name in ethnobotanical terms
Lotus gebelia Vent. var. *gebelia* EO 1249	Basur otu, Davşan topuğu Nefel	33, 34, 35	Medicinal	Flower Fruit	Tea Trituration	• It is rumored to be good for hemorrhoid if the intact plant picked and dried when bearing flowers and fruits is pulverized and brewed as tea and consumed one tea glass per day or if one pinch of dried extract is consumed with abundant water
Medicago monantha (C.A.Mey.) Trautv EO 1110	Nefel	10, 18, 19, 28, 29, 33, 34, 35	Food	All plant parts	Fodder	• Used as fodder for animals.
Medicago radiata L. EO 1024	Nefel, Gihayi sarık	10, 19, 28, 35	Food Nicknack	All plant parts	Fodder Necklace Bracelet	• Used as fodder for animals. • The children use the plant with fruit to produce jewelry such as bracelets, necklaces, etc. to wear as ornament.
Medicago rigidula L. (All.) var. *rigidula* EO 1240	Nefel	2, 3, 4, 6, 7, 8, 10, 12, 18, 19, 28, 33, 34, 35	Food	All plant parts	Fodder	• Used as fodder for animals.
Prosopis farcta (Banks & Sol.) J.F.Macbr. EO 1205	Hurnif	4, 5, 6, 7, 8, 10, 11, 14, 18, 19, 22, 23, 33, 34, 35	Medicinal Food	Fruit	Tea Appetizer	• It is rumored that the plant is good for stomach disorders and diarrhea if the fresh fruits (red colored) are boiled in water and consumed as tea, and good for diabetes is consumed on an empty stomach in the morning.

Spartium junceum L. EO 1207	Boruk	18, 33	Medicinal	Stem	Ointment	• The unripe fruits (green colored) are consumed as appetizer with salt either as raw or after boiling the fruits until they soften and then peeling off. • The offshoots of the plant are incinerated and the ash so produced is mixed with oil to produce an ointment which is good for mange.
Trifolium campestre Schreb. subsp. *campestre* var. *campestre* EO 1029 *T. cherleri* L. EO 1215 *T. hirtum* All. EO 1232 *T. pauciflorum* d'Urv. EO 1238 *T. pilulare* Boiss. EO 1161 *T. purpureum* Loisel. var. *purpureum* EO 1158 *T. scabrum* L. EO 1181 *T. stellatum* L. var. *stellatum* EO 1188	Nefel, Yonca	2, 3, 4, 5, 6, 7, 8, 10, 11, 14, 17, 18, 19, 22, 23, 28, 29, 33, 34, 35	Food	All plant parts	Fodder	• Used as fodder for animals.
Trifolium tomentosum L. var. *tomentosum* EO 1189	Nefel, Yoncai gulık	1, 2, 3, 5, 7, 8, 10, 11, 18, 19, 28, 33, 34, 35	Food	All plant parts	Fodder	• Used as fodder for animals.
Fagaceae						
Trigonella coelesyriaca Boiss. EO 1195 *T. coerulescens* (M.Bieb.) Halácsy subsp. *coerulescens* EO 1199 *T. filipes* Boiss. EO 1201 *T. foenum-graecum* L. EO 1056 *T. monspeliaca* L. EO 1242 *T. spruneriana* Boiss. var. *spruneriana* EO 1230	Nefel	2, 3, 4, 5, 7, 8, 11, 10, 14, 18, 19, 22, 23, 35, 33, 34, 6, 31, 27, 28, 29, 30	Food	All plant parts	Fodder	• Used as fodder for animals.
Pisum sativum L. subsp. *sativum* var. *sativum* EO 1103	Collik, Balma hatun, Hatun parmağı	1, 2, 3, 5, 7, 8, 10, 13, 14, 18, 19, 22, 23, 24, 29, 33, 34, 35	Food	Seed	Appetizer	• The seeds of the fresh fruit are consumed raw.
Vicia narbonensis L. var. *narbonensis* EO 1106	Collik, Cılban	2, 6, 7, 8, 10, 14, 15, 18, 19, 20, 22, 23, 29, 33, 34, 35	Food	Seed	Appetizer	• The seeds of the fresh fruit are consumed raw.
Quercus brantii Lindl. EO 1153	Dara berri, Palut	10, 33	Food Building material	Fruit Stem	Appetizer Ceiling joist	• Used as building material at the ceiling of the old rural houses.

						• The ripe fruit is boiled, peeled off and then consumed as appetizer.
Geraniaceae						
Erodium cicutarium (L.) L'Hér. subsp. *cicutarium* EO 1155	Kurıncok, Nikkuldik	2, 3, 4, 5, 6, 8, 10, 15, 18, 19, 22, 28, 29, 33, 34, 35	Food	All plant parts	Cooked	• Boiled parts of the plant are consumed as fried in oil or used as rice dressing or used as pancake filling. It can also be consumed as salad dressing.
Geranium libanoticum Schenk EO 1168 *G. tuberosum* L. EO 1071	Çavei ga, Cücük ekmeği	6, 33	Food	Tuber	Fresh	• The fresh tubers of the plant are consumed raw.
Hypericaceae						
Hypericum retusum Aucher EO 1186	Bahtof, Kızılcık	2, 3, 4, 5, 6, 7, 8, 10, 14, 18, 19, 23, 28, 29, 31, 33, 34, 35	Medicinal	All plant parts	Wash Vapour	• It is rumored that it is good for headache if the boiled water of the plant is kneaded with henna and applied on the head, and • It is also rumored that the vapor of the boiled water is good for acne.
Hypericum triquetrifolium Turra EO 1182	Bahtof	2, 3, 4, 5, 7, 8, 10, 11, 14, 18, 19, 20, 28, 29, 33, 34, 35	Medicinal	All plant parts	Mash Tea	• The intact plant is boiled and applied as poultice in order to remove the pain and edema at the aching parts, • It is rumored that the plant is good for cardiac veins if the dried plant is brewed as tea and consumed on empty stomach in the morning, and good for diabetes, headache and amygdale if consumed on full stomach.
Iridaceae						
Crocus cancellatus Herb. subsp. *damascenus* (Herb.) B. Mathew EO 1187	Pivok	1, 2, 3, 4, 5, 6, 7, 10, 11, 14, 15, 18, 19, 22, 23, 26, 27, 31, 33, 34, 35	Medicinal	Corm	Appetizer	• The bulbs are consumed raw.
Gladiolus atroviolaceus Boiss. EO 1140	Sırım	1, 6, 7, 10, 19, 20, 24, 27, 28, 33, 34, 35	Food	All plant parts	Cooked	• Boiled parts of the plant are consumed as fried in oil or used as rice dressing or used as pancake filling .
Ixioliriaceae						
Ixiolirion tataricum (Pall.) Schult. & Schult.f. var. *tataricum* EO 1175	Ancurok	10, 18, 29, 33, 34	Medicinal Food	Bulb	Fresh Appetizer	• It is stated that the fresh fruits of the plant have curative effect when consumed by cancer patients. Furthermore, it is also rumored to be beneficial for the persons suffering epilepsy if the fresh fruit of the plant is broken into two and sniffed.

						• The fresh bulbs are consumed.
Juglandaceae						
**Juglans regia* L. EO 1178	Dara guzei	10, 18, 29, 33, 34, 35	Medicinal Dye	Leaf Fruit	Tea Henna	• The plant is considered as cure-all if the fresh leaves are brewed as tea and consumed one glass per day. • The green portions of the raw fruit are dried, pulverized and added to henna in order to deepen the color of the henna, or the henna is mixed with water obtained by boiling these portions of the plant.
Lamiaceae						
Ajuga chamaepitys (L.) Schreb. subsp. *laevigata* (Boiss.) P.H.Davis EO 1171	Ğırtkesan	6, 10, 33, 35	Medicinal	All plant parts	Tea Trituration Ointment	• The intact plant is picked up and dried when the flowers bloom. It is rumored to be good for headaches, stomach aches, abdominal pain and rheumatism if the dried plant is brewed as tea and consumed, or if the dried plant is pulverized and ingested with tea spoon.
Ballota saxatilis Sieber ex C.Presl subsp. *brachyodonta* (Boiss.) P.H.Davis & Doroszenko EO 1129	Pungie tehta	6, 10, 19, 28, 29, 33, 34, 35	-	-	-	• Just the name in ethnobotanical terms
Clinopodium congestum (Boiss. & Hausskn.) Kuntz EO 1137	Pungie tehta	6, 33, 34	Medicinal	All plant parts	Tea Henna	• The intact plant is dried, pounded and pulverized and added to henna. If such henna is applied to the hair, it not only cures headache, but also strengthens hair. • It is rumored to be good for asthma If consumed as tea.
Marrubium parviflorum Fisch. & C.A.Mey. subsp. *parviflorum* EO 1210	Gihayi gevande	19	Doddle	All plant parts	Dried	• The children consider that the branches of this plant resembles a human being, and involves the plant in their games.
Mentha longifolia (L.) L. subsp. *typhoides* (Briq.) Harley EO 1206	Pung, Pungie çemma	6, 10, 16, 18, 19, 26, 28, 29, 33, 34, 35	Food	All plant parts	Fresh Salad Tea	• The fresh plant is used as salad dressing. The plant is consumed especially with steak tartar a la turca. Keeps the person energetic if consumed as tea one per day.
Phlomis kurdica Rech.f. EO 1208	Gihayi gunik, Guhbellok	1, 2, 3, 5, 6, 7, 8, 10, 11, 14, 18, 19, 22, 23, 33, 34, 35	Nicknack Harmful	Leaf	Buckle	• The hairpin made from the leaves of the plant is used as ornament on hair. • This plant reduces the crop yield if present especially at lentil fields.

**Rosmarinus officinalis* L. EO 1221	Biberiye	33, 34	Medicinal Seasoning	Leaf	Tea Dried	• If the dried leaves are brewed as tea and consumed, relaxes the person consuming it and relieves acid reflux. Furthermore, if the tea brewed from the plant is consumed in conjunction with linden, cures coughing. • The dried leaves are used as flavoring agent especially for the meat dishes.
Salvia multicaulis Vahl EO 1219 *S. viridis* L. EO 1214	Rehan	18, 33	Scent	All plant parts	Fresh	• The women hang the bundle made from this plant to their clothing in order to prevent bad odor when they are caring for the livestock.
Scutellaria orientalis L. subsp. *haussknechtii* (Boiss.) J.R.Edm. EO 1216	Kazımoti, Şeker otu	18, 33	Medicinal	All plant parts	Trituration	• If consumed once per day after meals at the size of a chickpea, regulates the blood sugar. However, if consumed in excessive amounts, the blood sugar might drop significantly. It also damages the kidneys. In some cases, swelling occurs at the mouth and eyes. It should not be used any further if diarrhea starts.
Sideritis libanotica Labill. subsp. *kurdica* (Bornm.) Hub.-Mor. EO 1247	Çekmereş	10, 33, 35	Medicinal	All plant parts	Tea	• Tea brewed from this plant is good for cold, coughing and stomach disorders.
Teucrium polium L. EO 1243	Tealik, Meryemhort	2, 5, 6, 9, 10, 12, 13, 14, 15, 18, 19, 22, 23, 24, 28, 29, 31, 32, 33, 34, 35	Medicinal	All plant parts	Tea Trituration	• The plant cures stomach ache and gas pains if the intact plant is dried, brewed and consumed as tea or if a teaspoonful of pulverized plant is ingested. It is used for curing diabetes and removing fear.
Teucrium pruinosum Boiss. EO 1083	Mıtemor, Korku otu	33	Medicinal	All plant parts	Tea	• It is rumored to be good for removing fear if half-teaspoonful dried plant or one or two pieces of fresh plant is put into a glass of water and consumed after 5-10 minutes.
Thymbra spicata L. var. *spicata* EO 1080	Cehteri	18, 28, 33, 34, 35	Medicinal Seasoning	All plant parts	Tea Dried	• The plant is good for diabetes and stomach disorders if the intact plant is brewed and consumed as tea. • The plant is used as spice to add flavor to the dishes.
Liliaceae						
Gagea reticulata (Pall.) Schult. & Schult.f EO 1081	Pivok	10, 28, 29, 34, 35	-	-	-	• Just the name in ethnobotanical terms
Linaceae						

Linum mucronatum Bertol. subsp. *mucronatum* EO 1088	Çekem	34	Medicinal	All plant parts	Ointment	• The plant is mixed with animal fat, producing an ointment. This ointment is used for relieving rheumatism pains.
Lythraceae						
**Punica granatum* L. EO 1255	Hennar	1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 14, 18, 19, 22, 23, 24, 25, 33, 34, 35	Food Belief	Seed Fruit	Vinaigrette Dried	• The seeds can be consumed fresh, and can be crushed and the extract obtained is boiled in order to obtain the pomegranate syrup used as salad dressing. • The dried fruits are hanged on the wall as an amulet at homes and sometimes at business places.
Malvaceae						
**Abelmoschus esculentus* (L.) Moench EO 1094	Bami	34, 35	Medicinal	Fruit	Mash	• It is rumored that the poultice produced by boiling the fresh or dried fruits of this crop plant and kneading with flour is good for relieving the pain when applied to the aching spots of the body.
Alcea striata (DC.) Alef. subsp. *striata* EO 1098	Hiro	3, 4, 5, 6, 8, 10, 11, 14, 18, 19, 22, 23, 28, 29, 33, 34, 35	Medicinal	Flower Stem	Tea	• The flowers of the plant are good for coughing and cold if soaked in boiling water or milk for 5 minutes and then consumed. • The barks of the plant stem are beneficial as anti-inflammatory and for menstruation pains if brewed in boiled water and consumed one glass per day for one week.
Malva parviflora L. EO 1150	Tollık	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 22, 23, 26, 27, 30, 33, 34, 35	Food Medicinal	Leaf	Cooked Mash	• Boiled parts of the plant are consumed as fried in oil or used as rice dressing or used as pancake filling. • The poultice obtained by boiling the plant is applied to the aching spots especially at the foot area. • It is rumored to have intestinal modulatory and anti-inflammatory properties.
Malvella sherardiana (L.) Jaub. & Spach EO 1156	Tollık	28, 33, 35	Food	All plant parts	Fodder	• Used as fodder for animals.
Moraceae						
Ficus carica L. subsp. *rupestris* (Boiss.) Browicz EO 1159	Heicir	10, 28, 29, 33, 34, 35	Ferment	Latex	Fresh	• The milk obtained from the plant is used for fermenting the milk for producing cheese and yogurt.

**Morus alba* L. EO 1069	Dara tu	6, 10, 18, 19, 29, 33, 34, 35	Food Building material	Leaf Fruit Stem	Fresh Pekmez Dried	• The fresh leaves of the plant are used for cooking stuffed vine leaves, and the fruits are consumed as fresh and dried. The extract from the fresh fruits is boiled and used for making molasses or dried fruit rollup. • The branches and stem of the plant are used as various building materials.
Nitrariaceae						
Peganum harmala L. EO 1125	Uzelik	3, 4, 5, 6, 8, 9, 10, 11, 12, 14, 18, 19, 20, 23, 27, 28, 29, 33, 34, 35	Belief Nicknack		Amulet Decoration	• The dried fruits are stringed and the amulet produced is hanged on the visible wall as luck charm. • It is also believed that the dried fruits should be burned to use as incense in the house for protection against evil eye.
Oleaceae						
**Olea europaea* L. subsp. *europaea* EO 1066	Dara zeytuna	28, 33, 35	Medicinal	Leaf	Ointment Tea	• The leaves of the plant are boiled in water and the poultice so obtained is applied to the itchy areas of the skin in order to remedy the itching. • The water boiled with the plant is used for gargling in order to relieve the toothache, or the fresh leave is placed on the aching tooth • It is rumored to regulate the blood sugar if one tea glass of its extract is consumed.
Orobanchaceae						
Orobanche aegyptiaca Pers. EO 1165 *O. mutelii* F.WSchultz EO 1157	Ğıllık	28, 29, 33, 34, 35	Harmful	All plant parts	Fresh Dried	• This plant reduces the crop yield especially at lentil fields and causes the crop to dry.
Papaveraceae						
Adonis aestivalis L. subsp. *aestivalis* EO 1183	Mamute	19, 33, 34	Food	All plant parts	Cooked	• The fresh plant is consumed as food either by frying or as pancake filling. • The intact plant is regarded as cure-all if one teaspoonful of dried extract is consumed with abundant water after meals. • The intact plant is boiled in water until solidifying and then natural dried under sun and mixed with flour in order to produced dumpling tablets.
Fumaria asepala Boiss. EO 1133	Yemi keva, Gövercin otu, Kılıç otu	6, 33	Medicinal Fodder	All plant parts	Trituration Dumpling	

Papaver dubium L. subsp. *dubium* EO 1123	Çiçeki bukuzava, Mamute, Mamute zırav, Şakşako, Zengıl zava	6, 8, 9, 10, 11, 12, 17, 18, 19, 22, 23, 26, 28, 29, 30, 31, 33, 34, 35	Food Medicinal Doddle	All plant parts	Cooked Fresh Tea	• This name is given as the plant is eaten especially by pigeons. • The fresh plant is consumed as food either by frying or as pancake filling. • The children upturn the plant, resembling the roots as hair and the flowers as skirt and play with the plant as dolls. • It is rumored that the plant cures coughing if the dried plant is brewed and consumed as tea.
Pinaceae						
**Pinus brutia* Ten. var. *brutia* EO 1015	Dara çamei	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 18, 19, 22, 23, 13, 33, 34, 35, 16, 31, 30, 26, 27, 28	Medicinal	Resin Pine cone	Scent Tea	• The resin scent of the pine is used in tuberculosis patients, while the tea brewed with the cones is used for curing diarrhea.
Platanaceae						
**Platanus orientalis* L. EO 1127	Dara çınara	6, 10, 33	Medicinal Building material	Leaf Stem	Tea Ceiling joist	• It is rumored that the plant prevents arthritis in the entire body, especially at the knees if the ripe leaves are brewed and consumed as tea. • The trunk of the tree is cut at certain lengths and used as ceiling beam when constructing houses.
Poaceae						
Avena sterilis L. subsp. *sterilis* EO 1299	Gihayi reş, Kenneç	10, 28, 29, 33, 34, 35	Medicinal Food	All plant parts	Tea Fodder	• The tea brewed for 10 minutes and consumed every other day for a period of one month is good for asthma. If the disorder persists, the process is suspended for one month and then resumed for another month. • Used as fodder for animals.
Bromus japonicus Thunb. subsp. *japonicus* EO 1229	Gihayi reş	3, 4, 5, 6, 10, 12, 18, 19, 23, 28, 33, 34, 35	Food	All plant parts	Fodder	• Used as fodder for animals.
Imperata cylindrica (L.) Raeusch EO 1223	Kındırge	34	Food	All plant parts	Fodder	• Used as fodder for animals.
Phragmites australis (Cav.) Steud. EO 1251	Kamış	2, 6, 7, 8, 9, 10, 11, 18, 19, 22, 26, 27, 28, 33, 34, 35	Canopy Household goods	All plant parts	Cover Basket	• The intact plant is used as intermediate material for the roofs of the adobe houses. The plant is sometimes used for constructing shades at the courtyard of the house or at the fields.

**Triticum sp.* EO 1257	Gennım	2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 22, 23, 26, 27, 28, 29, 30, 31, 33, 34, 35	Building material Food Fuel	Stem	Mortar Fodder	• The intact plant is used for knitting baskets of various sizes and patterns. • The plant is also mixed into the mortar in order to further tighten the grout when constructing adobe buildings. • The twines of the plant are used as fuel or grinded and used as forage for animals.
**Zea mays* L. subsp. *mays* EO 1254	Garıs	28, 35	Medicinal	Flower	Tea	• The tea brewed with the tassels on the corn fruit is consumed for extracting the renal calculi.
Polygonaceae						
Polygonum cognatum Meissn. EO 1258	Tırşok	3, 6, 33	Food	All plant parts	Fresh Salad	• Consumed fresh with steak tartar a la turca or as salad dressing.
Rumex acetosella L. EO 1058	Tırşok	6, 18, 33, 35	Food	Leaf	Fresh Salad	• Consumed fresh with steak tartar a la turca or as salad dressing.
**Portulaca oleracea* L. EO 1043	Pırpar, Pırpırım	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 22, 23, 26, 27, 28, 30, 31, 32, 33, 34, 35	Food	All plant parts	Fresh Salad Soup	• The fresh plant is used as salad dressing and for preparing tzadziki (diced cucumber garlic and mint in yoghurt). The fresh plant is also consumed as wrap with village bread. Furthermore, a soup is cooked using the plant, wherein the plant is fried in oil with onion and tomato paste and then rice is added.
Ranunculaceae						
Ranunculus arvensis L. EO 1260	Arişevei	3, 6, 19, 34	Belief	All plant parts	Abstention	• It is believed that fire will break out at the house of the individuals who harm this plant.
Rosaceae						
**Amygdalus communis* L. EO 1265	Beivf	18, 28, 33, 35	Food	Fruit	Fresh Appetizer	• The fresh fruit as well as the seeds of the ripe fruit are consumed as appetizers.
Amygdalus orientalis Mill. EO 1202	Beivf teal	3, 18, 19, 29, 33, 35	Medicinal	Fruit	Dried	• The seeds of the ripe fruit (2-3 seeds) have a bitter taste, and are consumed for lowering the blood sugar of the diabetes patients. It is also rumored that eating several seeds shall strengthen the visual acuity.
Crataegus monogyna Jacq. var. *monogyna* EO 1000	Dara gıvij	28, 29, 33, 35	Medicinal	Flower Fruit	Fresh	• The persons who suffer from tinnitus and heart condition consume the fruit and flowers of this plant. It is rumored that the fruits are beneficial for diabetes patients.
**Rosa sp.* EO 1095	Gul, Gula Muhamedi	10, 28, 29, 35	Food Beverage	Flower	Fresh Jam	• Consumed as rose sherbet. The flowers of the rose are used for making marmalade. Fresh and

			Seasoning		Sherbet	dried rose flowers are used as salad dressings or to add flavor to the stuffed grape leave filling.
Rubiaceae						
Galium tricornutum Dandy EO 1097	Zımanhunk	3, 10, 18, 19, 28, 29, 34, 35	Food Children's play	All plant parts	Fodder Rub	• Used as fodder for animals. The children play a game where they softly wipe the plant on their tongue to make it bleed.
Salicaceae						
**Populus nigra* L. subsp. *nigra* EO 1076	Dara gerzie	10, 34	Building material	All plant parts	Ceiling joist	• The trunk of this plant is used as ceiling beam when constructing the ceiling portion of the earth-sheltered houses, so-called the adobe houses in the region.
Scrophulariaceae						
Scrophularia xylorrhiza Boiss. & Hausskn. EO 1079	Gihayi meş	18, 33	Medicinal	All plant parts	Ointment	• The dried plant is burned and its ash is mixed with butter in order to produce an ointment and applied to the itchy areas in order to cure itching.
Verbascum kotschyi Boiss. & Hohen. EO 1191	Kali fisk, Keçelok	33, 34	Medicinal	All plant parts	Ointment	• The root portion boiled and turned into poultice (gives red color) is mixed with fat in order to produce an ointment. This ointment is good for cracks and wounds.
Terfeziaceae						
Terfezia boudieri Chatin EO 1001	Kimi	3, 5, 6, 7, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 22, 23, 26, 27, 28, 30, 31, 32, 33, 34, 35	Food	All parts	Cooked	• It is consumed by adding to rice or cooking with kebab.
Urticacea						
Urtica dioica L. subsp. *diocia* EO 1147	Gezgezok	6, 10, 18, 19, 28, 29, 33, 34, 35	Food Medicinal	All plant parts	Cooked Tea	• The fresh plant is boiled and consumed as dressing for broiled food, pancake or rice. • It is rumored that the plant is good for arthritis at the knees and for cancer if the intact plant is brewed and consumed as tea.

Vitaceae						
**Vitis vinifera* L. EO 1107	Arış, Meyv	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 19, 22, 23, 28, 29, 33, 34, 35	Food Fuel	All plant parts	Fresh Cooked Dried	• The leaves are used for cooking stuffed leaf dish. • The fruit can be consumed as fresh or as dried, and the fruit can also be used to make molasses and dried fruit rollup. • The dry branches of the plant are used as fuel.
Zygophyllaceae						
Tribulus terrestris L. EO 1227	Kuruncok	28, 33,	Medicinal	All plant parts	Tea	• The plant is beneficial for the urinary track if the intact plant is dried and brewed as tea and consumed in the morning on an empty stomach.

Quantitative Ethnobotany

The FIC values of the medicinal herbs identified are shown in Table 2. Accordingly, the highest FIC value in the study area was determined for the plants used as pain relievers and followed by the consensus in taxa used for hemorrhoids, urological disorders, rheumatism, cardiac diseases and diabetes. Two taxa used by the community in the study area for medicinal purposes were stated to be cure-all. Of these taxa, the first is *Fumaria asepala* Boiss., and the other is a cultivated plant, *Juglans regia* L. Furthermore, the taxa used most prevalently as pain reliever are *Malva parviflora* L. and *Abelmoschus esculentus* (L.) Moench, another cultivated plant.

Table 2. The categories of Disorders, Diseases or Problems and associated informant consensus factor (ICF or FIC) value

The Disorder, Disease or Problems Category	Number of Taxa	Use Citations	ICF (FIC)
Respiratory diseases (tuberculosis, cough, asthma, rhinitis or cold, etc)	10	69	0,87
Gastrointestinal disorders	10	56	0,83
Rheumatism	5	64	0,93
Cancer	4	32	0,9
Diabetes (blood sugar etc)	8	87	0,92
Cardiac diseases (vasodilator, etc)	4	46	0,93
Neurologic disorders (Tinnitus, epilepsy, headache, fear, etc)	7	63	0,9
Hemorrhoids	2	24	0,96
Urologic diseases (calculary, kidney gravel, urinary tract infections, etc)	4	85	0,96
Dermatologic disorders (wound, mange, itching, verruca, etc)	9	78	0,89
Painkiller	2	49	0,98
Nostrum (cure-all)	2	25	0,96

Apart from the foregoing, the taxa in other disease groups with highest FIC value are *Onopordum carduchorum* Bornm. & Beauverd consumed for hemorrhoid, and *Lotus gestationia* Vent. var. *gebelia*, also known as the hemorrhoid herb by the community, respectively. Once more, according to the FIC values, the community in the study area is also in consensus on *Tordylium aegyptiacum* (L.) Lam., *Tribulus terrestris* L., *Glycyrrhiza glabra* L. var. *glabra* and on another cultivated plant, *Zea mays* L. subsp. *mays*, which are consumed for urological disorders.

Platanus orientalis L., another cultivated plant, is frequently mentioned by and is distinguished for the local people especially for calcification, a type of rheumatism. The other taxa frequently used for rheumatic diseases are *Capparis sicula* Veill. subsp. *sicula*, *Linum mucronatum* Bertol. subsp. *mucronatum*, *Urtica dioica* L. subsp. *diocia*, and *Ajuga chamaepitys* (L.) Schreb. subsp. *laevigata* (Boiss.) P.H.Davis, respectively. The taxa frequently used for the cardiac diseases group, another group of diseases with high FIC value, are *Torilis arvensis* (Huds.) Link subsp. *arvensis*, *Hypericum triquetrifolium* Turra, *Centaurea iberica* Spreng. and *Crataegus monogyna* Jacq. var. *monogyna*.

The taxa used most frequently against diabetes are *Amygdalus orientalis* Mill., *Thymbra spicata* L. var. *spicata*, *Scutellaria orientalis* L. subsp. *haussknechtii* (Boiss.) J.R.Edm., *Crataegus monogyna* Jacq. var. *monogyna*, *Aristolochia bottae* Jaub. & Spach., *Prosopis farcta* (Banks & Sol.) J.F.Macbr. and *Hypericum triquetrifolium* Turra and *Teucrium polium* L., which were also mentioned above for the heart conditions.

Moreover, *Teucrium polium* L. is another plant used frequently by the community essentially for gastrointestinal conditions as well as for relieving sense of fear.

2 more taxa used by gargling for tooth or sore throat are also available in addition to the disease groups for which the FIC value is calculated, which are: *Rhus coriaria* L. and *Olea europaea* L. subsp. *europaea*, another cultivated plant. These two taxa were not included in the calculation as usage thereof was rarely mentioned by the people interviewed under the study.

The ethnobotanical knowledge presents significant variance among local communities due to differences in cultural and social behavior. Therefore, we aimed to reveal the differences in usage and knowledge between the communities through comparative analysis in terms of the acquired data. Hence, the Jaccard similarity index for the plants with medicinal usage was calculated in this study.

The Jaccard similarity index (JI) was calculated for the medicinal herbs that were identified during 9 other similar studies conducted within the provincial borders of Şanlıurfa, where the study area is located. As can be seen in Table 3, the JI value ranges from 3.84 to 39.34. Out of the mentioned 9 other ethnobotanical studies, the highest rate of similarity was observed in Kaya et al. (2020), while the lowest rate of similarity was observed in Akan et al. (2013). The reason for such high rate of

similarity appears to be the proximity of the initial study to Bozova district when compared to the other areas. Naturally, such proximity has induced more interaction between the local communities. On the other hand, the fact that the second study was conducted at the study area further away from Bozova may represent the justification for low rate of similarity due to scarcity in use of common medicinal herbs arising from restricted access and communication between both communities.

Table 3. Jaccard index comparing the present study with similar studies carried out in Şanlıurfa province

Reference	Location	Number of Informants	Total Medicinal Taxa	Common Medicinal Taxa	JI
Balos, M. M., and Akan, H., 2007	Zeytinbahçe and Akarçay (Birecik)	40	43	10	12,34
Akan, H., et al., 2008	Birecik (Arat Mountain)	74	17	8	14,03
Akan, H., Balos, M.M. and Tel, A.Z., 2013a	Birecik	Not specified	6	2	3,84
Akan, H., et al., 2013b	Kalecik Mountain	95	37	5	6,25
Akan, H. and Ayaz, H., 2015a	Gölpınar Picnic Area	10	15	8	14,54
Fidan, E.Ş., and Akan, H., 2019	Tek Tek Mountains	53	51	13	15,11
Aslan, S., Akan, H., and Pekmez, H., 2020	Yaslıca Town and Arıkök Village	31	53	18	21,68
Kaya, Ö. F., Dağlı, M., and Tosyagülü Çelik, H., 2020	Şanlıurfa Central district and attached villages	96	37	24	39,34
Yalçın, S., Akan, H. and Çakılcıoğlu, U., 2021	Suruç	50	78	20	18,86

Majority of the taxa identified during these ethnobotanical studies presents similarities in taxonomic terms as said taxa are located within the borders of the same province. However, there are differences in their usage from an ethnographic point of view. Any taxon identified for medicinal usage can be utilized as animal feed in another study and even as construction material in yet another study. For instance, *Ficus carica* L. subsp. *rupestris* (Boiss.) Browicz identified as foodstuff during this study is mentioned as a medicinal herb in the studies conducted by Akan et al. (2013b) and Fidan and Akan (2019). Yet another example is *Lens culinaris* Medik. subsp. *orientalis* (Boiss.) Ponert, is presented as medicinal herb according to the study conducted by Aslan et al. (2020) but is only known by its name and has no ethnobotanic usage in the region according to this study. Yet again, *Capsella bursa-pastoris* (L.) Medik. and *Mentha longifolia* (L.) L. subsp. *typhoides* (Briq.) Harley was identified to have medicinal uses in Suruç district in the study conducted by Yalçın et al. (2021), but this study has identified said herbs as foodstuff according to the local people.

This study was also compared with 10 similar other ethnobotanic studies conducted in provinces neighboring Şanlıurfa in terms of medicinal usage of the plants. Based on such comparison, the JI values were determined to vary in the range of 1.14 to 12.94 (Table 4). The similarity was highest with the study conducted by Şığva and Özcan (2009) in Gaziantep, the province most proximate to the study area in terms of distance, while the lowest JI value was from the study conducted by Kılıç et al. (2021) in Mardin, the province farthest from the study area.

Table 4. Jaccard index comparing the present study with similar studies carried out in provinces adjacent to Şanlıurfa

Reference	Location	Number of Informants	Total Medicinal Taxa	Common Medicinal Taxa	JI
Sürmeli, B. et al., 2000	Kilis	Not specified	76	10	8,77
Şığva, H. Ö. and Özcan, S., 2009	Işıklı (Çarpın), Dağdancık and Tokdemir (Gaziantep)	33	48	11	12,94
Kızıl, S. and Tonçer, Ö., 2014	Diyarbakır	Not specified	12	5	9,09

Akan, H. and Bakır Sade, Y., 2015b	Between Kâhta and Narince village (Adıyaman)	13	74	11	9,90
Bulut, G., Korkmaz, A. and Tuzlacı, E., 2017	Nizip (Gaziantep)	Not specified	27	7	10,29
Akgul, A., Akgul, A., Şenol, S. G., Yıldırım, H., Seçmen, Ö. and Doğan, Y., 2018	Midyat (Mardin)	123	32	5	6,67
Özer, H. and Türkmen, N., 2019	Rural areas of Gaziantep Province	Not specified	17	3	4,83
Yeşil, Y., Çelik, M. and Yılmaz, B., 2019	Yeşilli (Mardin)	62	17	4	6,55
Kılıç, M., Yıldız, K., and Mungan Kılıç, F., 2020	Artuklu (Mardin)	365	85	15	12,71
Kılıç, M., Yıldız, K., and Mungan Kılıç, F., 2021	Mardin central district and attached villages	183	40	1	1,14

Yet again, there are identical taxa among the taxa identified during the study as the provinces where all 10 ethnobotanical studies were carried out are located in the same geographical region, i.e., in Southeastern Anatolia. This comparison also revealed differences in terms of usage patterns of said taxa. Out of all taxa identified to have medicinal usage during other studies, 16 were identified in this study as well. However, our study has revealed that said taxa are used as foodstuff, as scent, as a token of faith or as animal feed in the region.

Discussion

Because of this study conducted in Bozova district and surrounding villages, an ethnobotanical study that illustrate the vernacular names of the natural and cultivated plants, the intended usage and applications thereof has been carried out on the basis of the flora of the region.

The demographic traits of the local people referred to as reference individuals for the study, such as age, gender, level of education and profession, are provided in Table 5.

Table 5. The demographic traits of the participants

Trait		**Quantity**	**N=100 (%)**	**Standard Deviation**
Age	10-19	2	2,20	7,089982873
	20-29	6	6,59	
	30-39	20	21,98	
	40-49	9	9,89	
	50-59	15	16,48	
	60-69	11	12,09	
	70-79	22	24,18	
	80-89	6	6,59	
	Total	91	100	0<
Gender	Female	51	56,04	7,778174593
	Male	40	43,96	
	Total	91	100	0<
Educational Status	Analphabet	13	14,29	15,53061493
	Primary School Graduate	44	48,35	
	Secondary School Graduate	4	4,40	
	High School Graduate	10	10,99	
	University Graduate	20	21,98	
	Total	91	100	0<

Occupation	Housewife	44	48,35	10,1539466
	Farmer	19	20,88	
	Engineer	6	6,59	
	Student	4	4,40	
	Teacher	3	3,30	
	Architect	1	1,10	
	Merchant	1	1,10	
	Artificer	1	1,10	
	Academic Member	1	1,10	
	Shepherd	1	1,10	
	Certified Public Accountant	1	1,10	
	Architect	1	1,10	
	Physiotherapist	1	1,10	
	Chemist	1	1,10	
	Biologist	1	1,10	
	Truck Driver	1	1,10	
	Physician	1	1,10	
	Pharmacist	1	1,10	
	Veterinarian	1	1,10	
	Business Administrator	1	1,10	
	Total	91	100	0<

When the participants in the study are classified based on their age (10-19, 20-29, etc.), it is observed that the ages of the participants presented standard deviation value of 0 < (7.08), therefore certain classes of participants demonstrated higher number of individuals when compared to other classes. The highest number of participants was in the age range of 70 - 79 (22 people), and the lowest number was in the age range of 10-19 (2 people) (Figure 2).

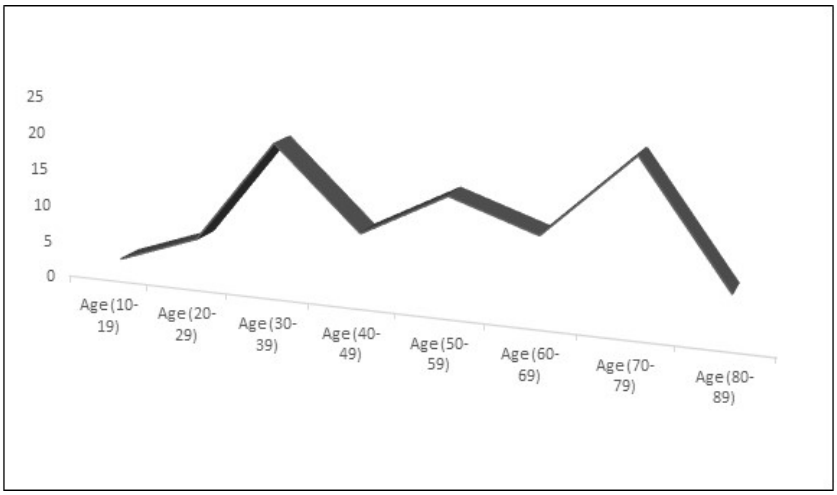

Figure 2. Number of Participants by Age

Such distribution is indicative of the fact that the individuals that possess knowledge on traditional use of the plants are generally individuals aged over 50 on average. The most significant factor leading to such outcome is the migration of the young population from rural areas to the urban areas, and the ability to access majority of the needs at the city centers. This, in turn, leads to loss of significant knowledge on traditional use of plants that might be needed in rural life over time due to failure to pass such knowledge on to future generations or to keep records thereof.

When the participants of the study are classified based on the educational status (primary school, secondary school, etc.), it is observed that the educational status of the participants presented standard deviation value of 0 < (15.53), therefore certain classes of participants demonstrated higher number of individuals when compared to other classes. The highest rate of participation was at the level of primary school graduates, and the lowest rate of participation was at the level of secondary school graduates. (Figure 3).

This outcome indicates that the level of education of the participants, that is, the people that possess knowledge on traditional use of the plants, are low. This is due to fact that such people discontinue their education after graduating from primary school, and continue their lives in rural settlements.

The reference individuals that offer contribution to the study are listed according to their profession as housewife (48.35%), farming (20.88%) and engineering (6.59%). Here, the fact that housewives ranks first by far can be shown as solid evidence that women are at the forefront for continuation of vital activities in rural settlements.

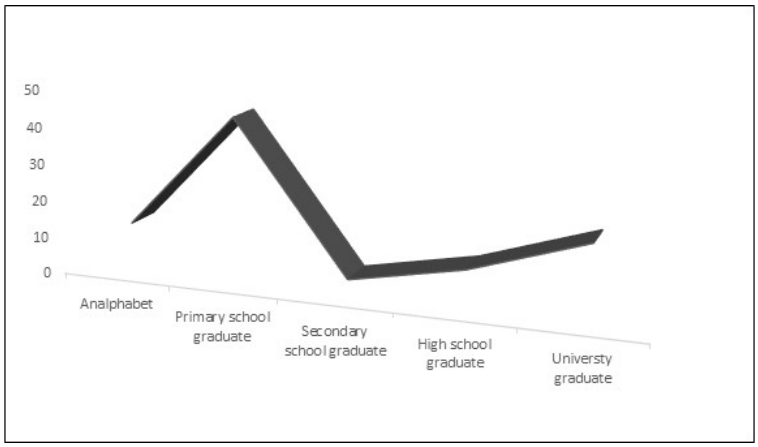

Figure 3. Learning Status of Participants

Homogeneity and Normality tests are implemented at the study depending on whether the plant families were used by the local populace for medicinal purposes and as food. The test results revealed that the factor group of the data did not show normal distribution over the dependent group, and was not distributed homogeneously (Table 6).

Table 6. Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Medicinal	4,813	25	121	,000
Food	5,402	25	121	,000

Analyzing the data with the Kruskal Wallis Test revealed that a significant difference (<0.01) is present between the plant taxa used by the local populace for medicinal purposes and as food depending on the plant families, and determination of the chi-square value of the data also revealed that such significant difference (<0.01) further exists between the plant families used by the local populace for medicinal purposes and as food (Table 7).

Table 7. Test Statistics [a, b]

	Medicinal	Food
Chi-square	44,572	45,200
Df	25	25
Asymp. Sig.	,009	,008

a. Kruskal Wallis Test, b. Grouping Variable: Plant Families

Tamhane's T2 test is implemented in order to determine the difference of the plant families based on the plant taxa used by the local populace for medicinal purposes (Table 8).

Table 8. Multiple Comparison for Medicinal plants

(I) Plant Family	(J) Plant Family	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Hypericaceae	Amaranthaceae	,66667	,33333	1,000	-25,8645	27,1978
	Anacardiaceae	,00000	,00000	.	,0000	,0000
	Apiaceae	,80000	,13333	,064	-,0274	1,6274
	Araceae	,50000	,50000	1,000	-2016,5058	2017,5058

Asteraceae	,83333*	,07771	,000	,4829	1,1838
Boraginaceae	,75000	,25000	1,000	-5,2592	6,7592
Brassicaceae	1,00000	,00000	.	1,0000	1,0000
Caprifoliaceae	1,00000	,00000	.	1,0000	1,0000
Caryophyllaceae	1,00000	,00000	.	1,0000	1,0000
Convolvulaceae	1,00000	,00000	.	1,0000	1,0000
Cucurbitaceae	,50000	,50000	1,000	-2016,5058	2017,5058
Euphorbiaceae	,66667	,33333	1,000	-25,8645	27,1978
Fabaceae	,83871*	,06715	,000	,5487	1,1287
Geraniaceae	1,00000	,00000	.	1,0000	1,0000
Iridaceae	1,00000	,00000	.	1,0000	1,0000
Lamiaceae	,42857	,13725	,929	-,2915	1,1487
Malvaceae	,40000	,24495	1,000	-2,9911	3,7911
Moraceae	1,00000	,00000	.	1,0000	1,0000
Orobanchaceae	1,00000	,00000	.	1,0000	1,0000
Papaveraceae	,33333	,33333	1,000	-26,1978	26,8645
Poaceae	,66667	,21082	1,000	-1,4769	2,8103
Polygonaceae	1,00000	,00000	.	1,0000	1,0000
Rosaceae	,50000	,28868	1,000	-6,4388	7,4388
Scrophulariaceae	,00000	,0000	.	,0000	,0000
Zygophyllaceae	,50000	,50000	1,000	-2016,5058	2017,5058

*. The mean difference is significant at the 0.05 level.

A significant (<0,05) difference is observed in the study between Hypericaceae, very frequently used by the local populace for medicinal purposes, and Asteraceae, Brassicaceae, Caprifoliaceae, Caryophyllaceae, Convolvulaceae, Fabaceae, Geraniaceae, Iridaceae, Moraceae, Orobanchaceae and Polygonaceae (Figure 4).

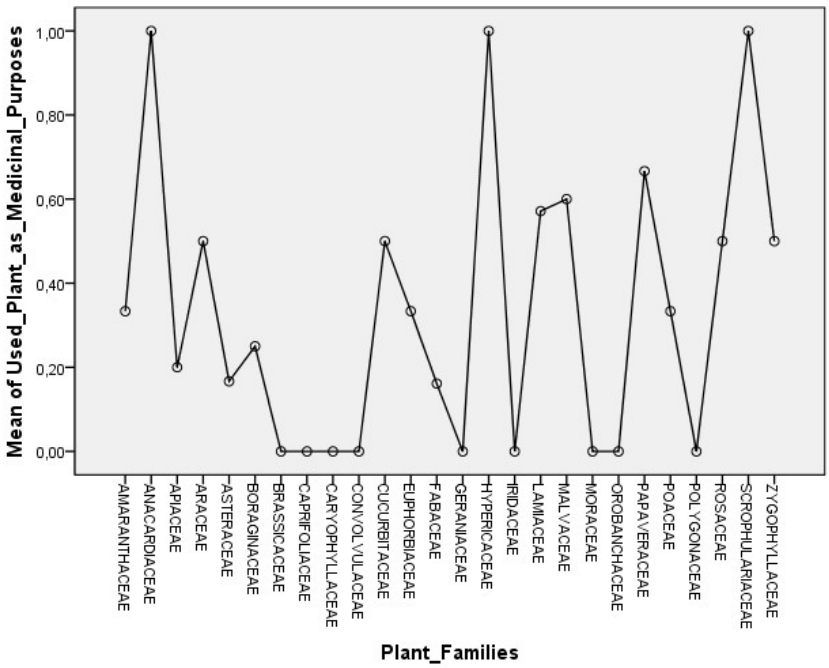

Figure 4. Diagram of Post Hoc Tests for Medicinal plants (*0,00: No medicinal use , **1,00: Used for medicinal purposes)

Furthermore, it is also determined that all taxa of Hypericaceae, Anacardiaceae and Scrophulariaceae are used for medicinal purposes by the local populace at very high rates like %100.

On the other hand, Tamhane's T2 test is implemented once more in order to determine the difference of the plant families based on the plant taxa used by the local populace as food (Table 9).

Table 9. Multiple Comparison for Food plants

(I) Plant Family	(J) Plant Family	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Geraniaceae	Amaranthaceae	,50000	,50000	1,000	-2016,5058	2017,5058
	Anacardiaceae	,00000	,00000	.	,0000	,0000
	Apiaceae	,60000	,16330	,811	-,4134	1,6134
	Araceae	,50000	,50000	1,000	-2016,5058	2017,5058
	Asteraceae	,66667*	,09829	,000	,2233	1,1100
	Boraginaceae	,50000	,28868	1,000	-6,4388	7,4388
	Brassicaceae	,30000	,15275	1,000	-,6479	1,2479
	Caprifoliaceae	,50000	,50000	1,000	-2016,5058	2017,5058
	Caryophyllaceae	,50000	,50000	1,000	-2016,5058	2017,5058
	Convolvulaceae	1,00000	,00000	.	1,0000	1,0000
	Cucurbitaceae	,50000	,50000	1,000	-2016,5058	2017,5058
	Euphorbiaceae	1,00000	,00000	.	1,0000	1,0000
	Fabaceae	,77419*	,07634	,000	,4445	1,1039
	Hypericaceae	1,00000	,00000	.	1,0000	1,0000
	Iridaceae	,00000	,00000	.	,0000	,0000
	Lamiaceae	,92857*	,07143	,000	,5538	1,3033
	Malvaceae	,80000	,20000	,995	-1,9688	3,5688
	Moraceae	,00000	,00000	.	,0000	,0000
	Orobanchaceae	1,00000	,00000	.	1,0000	1,0000
	Papaveraceae	,33333	,33333	1,000	-26,1978	26,8645
	Poaceae	,83333	,16667	,737	-,8613	2,5280
	Polygonaceae	,00000	,00000	.	,0000	,0000
	Rosaceae	,50000	,28868	1,000	-6,4388	7,4388
	Scrophulariaceae	1,00000	,00000	.	1,0000	1,0000
	Zygophyllaceae	1,00000	,00000	.	1,0000	1,0000

*. The mean difference is significant at the 0.05 level.

A significant (<0,05) difference is observed in the study between Geraniaceae, very frequently used by the local populace as food, and Asteraceae, Convolvulaceae, Euphorbiaceae, Fabaceae, Hypericaceae, Lamiaceae, Orobanchaceae, Scrophulariaceae and Zygophyllaceae (Figure 5).

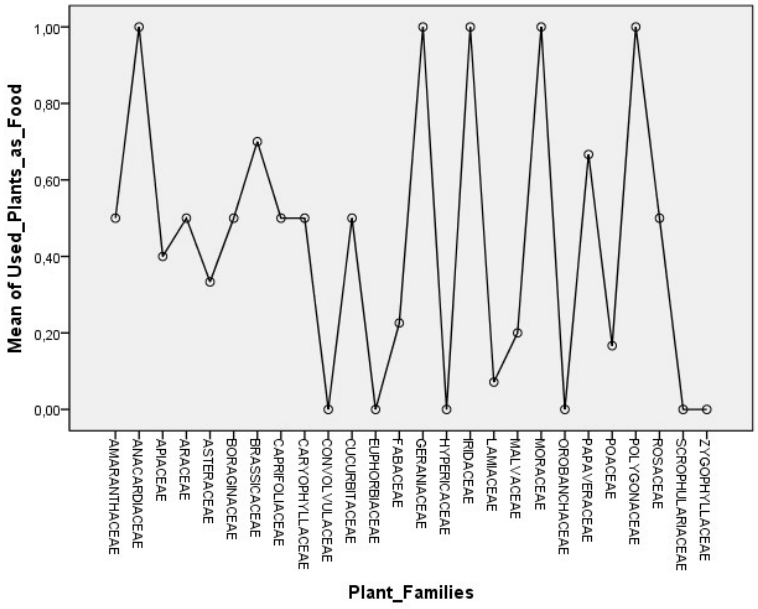

Figure 5. Diagram of Post Hoc Tests for Food plants (*0,00: No use as food , **1,00: Used as food)

In this study, it is determined that all taxa belonging to Anacardiaceae, Geraniaceae, Iridaceae, Moraceae and Polygonaceae are used as food at a very high level by the populace with a rate of 100%.

The local people make use of the information they have learned about the plants in their immediate vicinity from their ancestors through oral narratives or by observing the practices of their elders who have knowledge on the plants in their daily lives.

When we pay attention to the data furnished in Table 1, four localities, Dutluca, Yaslıca, Yaylak and Zivanlı, stand out for acquiring information on use of the plants in the region. Information on majority of the plants identified to be used by the locals acquired in the study is obtained from the reference individuals residing at aforementioned localities. This is because the reference individuals living at these localities are still actively picking up plants from the nature and utilize their knowledge on usage thereof to help themselves, their kith and kin, or the people in need. Majority of the reference individuals at other localities are those individuals who are knowledgeable about the plants rather than use of such plants.

On the other hand, there exists homogeneity in terms of the species that make up the vegetation in Bozova town center and the villages thereof, as the topographic structure generally features slightly rugged or flat areas. However, when we look at Table 1, we see that some plant species have multiple vernacular names or intended uses. This is because the fact that the local populace tends to name the plants differently, taking into account the characteristics such as their physical structure, the environment in which they grow, their smell or color, etc.

The plants used as food in the region are either picked up and used as fresh in their respective period, or such parts are desiccated and then fried or boiled for consumption. Some plants are consumed as spice to add flavor to meals and salads.

When compared to the past, use of plants as building materials and household items in the region seems very limited today. Here, it is particularly striking that multiple plants are used as brooms in the region as household items.

The medicinal plants used based on the information acquired by employing the trial and error method throughout years are picked up sometimes in the first and last phase of the vegetative (root, stem, leaf) stage and sometimes in the generative (flower and fruit) stage when the active ingredient is considered to be the most effective, desiccated and used in the form of teas, poultices and ointments, etc.

Furthermore, comparison of the taxa identified during this study and used for medicinal purposes with the data from the similar studies conducted in the Southeastern Anatolia Region, where the study area is located, in terms of JI index revealed variances regarding the intended use of such taxa. One can see that the ethnobotanical usage of the same taxa varies even if the difference in distance between the usage sites is small. For instance, while one taxon is used for medicinal purposes in any area, the same taxon is consumed as food, used as construction material or used as token of faith, etc. in another area. On the other hand, based on the FIC results from this study, a consensus is observed among the local communities in terms of medicinal herbs used as pain relievers, or used for treating hemorrhoids, urological diseases, etc. in the study area.

In general, an aspect that stands out during the ethnobotanical studies conducted in the region, including this one, is the indifference of the new generations growing up in rural settlements towards the herbs that are traditionally used for various purposes. Such indifference constitutes a major challenge in finding any individual who will act as a source of information in terms of collecting data. Moreover, factors such as emigration from the region due to employment, marriage or other reasons, passing of elderly people that generally possess the knowledge on traditional use of herbs without leaving any written references, etc. represent the other challenges encountered during the study. Therefore, increasing the number of ethnobotanical studies is extremely important to minimize such negative outcomes and to convert such knowledge into written sources.

Conclusion

This study endeavors to identify the plants utilized via traditional methods and to acquire new data for the ethnobotanical studies. 133 genera and 171 taxa (2 genera, 110 species, 38 subspecies, 21 varieties) belonging to 50 families were identified as result of the research on the field. New use methods of the plants determined in our study were revealed. We applied FIC to determine that all villagers use plants for the same purposes and informing each other, and as a result, we found that everyone in the study area uses the same taxa for the same disease groups with similar usage methods.

Declarations

List of abbreviations: FIC (IFC) - Informant Consensus Factor; (JI) - Jaccard Index

Ethics approval and consent to participate: This study was carried out with only participants who gave their full consent to provide their traditional knowledge for the research. All participants offered informed consent before the interviews.

Accordingly, each informant accepted the request and orally approved their consent before the interview. Therefore, informed consent was orally obtained from all individual informants included in the study.

Consent for publication: All participants gave oral approvement prior informed consent when provided with the questionnaire form to gather ethnomedicinal knowledge.

Availability of data and materials: Data is available from the first author.

Competing interests: The authors declare that they have no competing interests

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