

An ethnobotanical research in Şanlıurfa central district and attached Villages (Turkey)

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The objective of present study is to identify the plants traditionally utilized by local communities, who reside at the rural areas attached to Central District of Şanlıurfa located in Southeast Anatolia Region, for various purposes, and to reveal the significant of such use in terms of ethnobotany. The study conducted in this respect identified 137 taxa of 87 genera from 47 families (86 species, 34 sub-species, and 17 varieties), 21 of them are cultigens. 1 taxon is from Terfeziaceae of Ascomycota division of Fungi kingdom, while the others are from Gymnospermae and Angiospermae sub-division of Spermatophyte division from the Plantae kingdom. In general, local community utilizes taxa identified in field of study as follows: 56 taxa as food, 37 as medicinal purposes, 5 for belief, 5 for pests, 4 as household goods, 3 as seasoning, 3 as ornaments, 3 as cosmetics, 2 as beverages, 2 as knick-knack, 2 as fuel, 2 as building materials, 1 as dulling, 1 as canopy, 1 as aphrodisiac, 1 as clarifying, 1 as repellent, 1 as doddle, 1 as preventive and 1 as aroma. Moreover, 11 taxa are not utilized, but 7 of them are known by their local names and 4 with their harmful effects.

Keywords: Central district, Ethnobotany, Şanlıurfa, Turkey, Vernacular name

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The humanity has always exploited the plants that exist in the vicinity of their settlements by identifying their use through trial and error method and communicated the knowledge to future generations through oral culture. Currently, several studies are conducted with intentions to transform such oral culture into written knowledge¹. Today, said studies for recording the oral knowledge in written form manifest itself in the form of ethnobotany research. Utilizing the plants in their regional flora for distinct purposes since the primeval era, the human beings learned how to exploit plants as food and maintained their lives by conveying such knowledge through generations, and developed cultures for the most frequently consumed plants with intentions to produce more productive and higher quality yields².

The first person to officially pronounce the term Ethnobotany, Harshberger³ described the aim of ethnobotany studies as assisting in elucidation of the cultural positions of the tribes exploiting plants for

food, shelter and dressing; as shedding light on past distributions of the plants; studying transportation of plants from one region to another, thus facilitating our understanding on ancient trade routes, and, finally, as assisting in reorientation of production practices.

Fort quite some time, ethnobotany, due to the definition provided by Harshberger, was considered to cover exploitation of plants by the aborigines. Starting from mid-20th Century, ethnobotany is redefined as studying the relations between the primitive communities and the plants after absorbing a novel culture following increased contribution of professionals to the human sciences⁴.

Today, ethnobotany covers a broader context. The field of study is also expanded to cover the relations between the human societies such as the traditional communities, such as urban–industrial communities, and non-traditional communities, such as rural communities, and the botany⁴. The broader aspect of ethnobotany, which concerns the human-plant relations throughout the evolution process, can be outlined as ‘the knowledge of the communities

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residing in a certain locality for exploiting the plants in the surrounding area for meeting various requirements, and their impact on such plants⁵.

The archeological finds from primeval eras revealed that the humans have primarily exploited the plants in order to cure their health problems and to satisfy their need for nutritional sources⁶. Some of such plants were cultivated, while the others were freshly picked and consumed. Having a broad range of use, such as food, fodder, medicine, handicrafts, fuel, etc., the plants occupy a very significant position in our everyday lives and form an indispensable part of our living⁷. More than 1500 aromatic plant species are identified to be used in the Europe, in Albania, Bulgaria, Croatia, France, Germany, Hungary, Poland, Spain, Turkey and United Kingdom. Currently, there is a rising trust in the industrialized societies towards consumption of traditional medicine. We should also not overlook the significant alimentary role currently assumed by the nutrition derived from the wild plants in the cuisine of the rural population all around the world⁸.

Conducting studies on ethnobotany is becoming more and more challenging due to factors such as modernization, migration to the urban settings, easier access to healthcare services, advancements at roads and means of transportation, etc. The fact that the accumulated knowledge on ethnobotany are not recorded, combined with the indifference of the young generations to this subject, causes such knowledge to dim every day⁹.

As the birth place of many civilizations, the communities settling at Anatolia have, since the ancient times, utilized a rich flora that nourishes due to a diversity of factors such as the bedrock, soil and geomorphological structure, etc. for diverse purposes. The recently popularized trend among people for consuming organic food especially for healthy nutrition, and for preferring natural herbal products, also called as the nostrum, rather than use of synthetic medicine induced a re-escalation in the number of ethnobotany studies throughout the world and also in Turkey.

The Southeastern Anatolia Region, which comprises the study area of the current study, lacks a fully comprehensive study concerning ethno-botanical characteristics in terms of flora and vegetation. In general, the primordial knowledge on the ethnobotany characteristics of the region covers the knowledge we acquired from the local communities in the course of

the fundamental research intended for identifying the flora of any region. Recently, the studies are rather focusing on the studies aiming to identify the ethnobotany characteristics of only a particular territory, as is the case in this study.

Methodology

This study aims to identify and keep record of the plants that are considered as assets in terms of ethnobotany at the settlements located within central portion of Şanlıurfa province in the administrative aspect (county towns and villages). The material for this study comprises the plants exploited by the local communities for various purposes (food stuff, medicine, ornaments, fuel, paint and fodder, etc.). A field scanning study has been conducted for in order to identify the individuals to be used as reference at the settlements within the survey site, and face to face survey study has been conducted with such individuals at different dates. Such individuals identified as references has been generally inquired on several fundamental captions such as the local name, intended use, the part of the plant exploited and their mode of exploitation during the survey, and the inquiries were further broken down to sub-headings based on the responses. 28 settlements (county towns and villages) were visited during the study based on the residence of 96 reference individuals identified in this respect.

The works by Davis¹⁰, Davis *et al.*¹¹, and Güner *et al.*¹² are used as baseline for identification of the plants determined during the survey. The updated taxon names of the plants, on the other hand, are stated by checking from the work by Güner *et al.*¹³. The plants identified in the process are ordered alphabetically based on their respective families.

The anonymous¹⁴ study is used for the knowledge on the general characteristics (history, geographical, geological and soil characteristics, etc.) of the study area.

All plant taxa identified under the present study are grouped in the light of the rules on plant taxonomy and the significant distinctness for each plant group with respect to exploitation for medicinal purposes and as nutrient is demonstrated. When identifying the sample size, 114 taxa representative of the universe have been addressed with 5% error rate for the known universe size of 137.

The data is analyzed using SPSS 18 Package Software. In this study, families with ethnobotanical

characteristics were investigated in terms of whether they are used for medical or food purposes. Our independent variable is plant groups (families) and our dependent variables are the medical and food properties of taxa belonging to these families. Also when the statistical data of our study were analyzed according to the research criteria, it was found that it did not show normal distribution. Kruskal Wallis, one of the non-parametric tests, can be applied to the data that do not show normal distribution, we also applied this test in our study. Significant distinctness tests are conducted for each group involved in the study, and Kruskal Wallis and Tamhane's T2 tests are employed in order to measure the distinctness between the groups.

The statistical evaluation of the ethnobotany data gathered in this study has been performed as demonstration of due diligence as a grouping study on non – parametric plane based on the data from face-to-face and direct surveys and the findings derived from evaluation of data are disclosed and interpreted through tables using Kruskal Wallis and Tamhane's T2 tests from statistical analyses.

There after, the data is analyzed via Kruskal Wallis Test, where observed a very significant variation ($<0,01$) between plant taxa used by the local populace for medicinal purposes and as nutrients based on their taxa.

As the Anacardiaceae, Araceae, Aristolochiaceae, Capparaceae, Caprifoliaceae, Chenopodiaceae, Ixioliriaceae, Juglandaceae, Liliaceae, Linaceae, Lythraceae, Moraceae, Nitrariaceae, Pinaceae, Platanaceae, Portulacaceae, Rhamnaceae, Rutaceae, Rubiaceae, Scrophulariaceae, Vitaceae, and Terfeziaceae are represented by a single sample (taxon) in the study, these families are removed from the analysis process, and the analyses are conducted on remaining 25 families.

Results

Brief description of the study area

Throughout the history, Şanlıurfa has always been the settlement where many independent states and principalities have arisen and where distinct cultural conglomerations are amalgamated due to its geographical features. Throughout the recorded history of the city dating back for 11 thousand years, the settlement came under dominion of civilizations such as Ebla, Akkad, Sumer, Babylonian, Hittite, Hurri-Mitanni, Aramid, Assyrian, Persian,

Macedonia, Roman, and Byzantine. As one of the oldest settlements in Mesopotamia, Urfa has always been a strategically important settlement due to its proximity to the watercourses and its locations that crosses with the trade routes. The excavations undertaken in 2001 at Örencik Village, Göbeklitepe attached to the central district has revealed that the history of this ancient city dates back to 9 Thousand B C, the Pre-Pottery Neolithic (Stoneware Neolithic) period. This historical city is also referred as the 'City of the Prophets as St Adam (a s) lived as farmer in the city, and as prophets such as St İbrahim (a s), St Eyyüb (a s), St Şuayb (as), St Yakup (a s) and St İsa (a s) resided in this region (Fig. 1).

Şanlıurfa is founded on the northern segments of the Arabian plateau and at the southern piedmonts of the central portion of the Southeastern Taurus Mountain Range at an average elevation of 518 m. The elevation of the mountains and high hills to the north generally descends towards south. Apart from the mountain side at northeast, large flat plains with elevation generally not exceeding 900 m prevail. The vertex of the province is at Karacadağ (1957 m), the dormant volcano mass, located southeast of the province. Other high summits include Tek Tek Mountains (801 m) to the east, Mount Susuz (812 m) to the northeast, Mount Nemrut (800 m) at the south, and Mount Arat (714 m) to the east of Birecik district. The elevation falls below 400 m at the Syrian border to the south¹⁴.

In structural terms, Şanlıurfa presents the characteristics of Pliocene age, the final layer of the third geological time (Tertiary or Cenozoic). The land is formed in conjunction with some segment of the ancient world. Scarcely influenced by the side pressures and explosions that occurred at the end of Third age and at the beginning of the Fourth age (Pleistocene), Şanlıurfa was slightly elevated on the rigid mass, where the city is founded thereon, and experienced some occasional folding. The northeastern region of Şanlıurfa province is formed by the basaltic structures outcropping especially at Siverek, Hilvan and Viranşehir, Karacadağ, and some portion of the province is covered with limestone formation¹⁴.

The continental (terrestrial) climate prevails in Şanlıurfa. The province is close to equator and is distant from the impact of the marine climate due to its geographical positioning. Therefore, the terrestrial climate is dominant. The climate manifests itself in

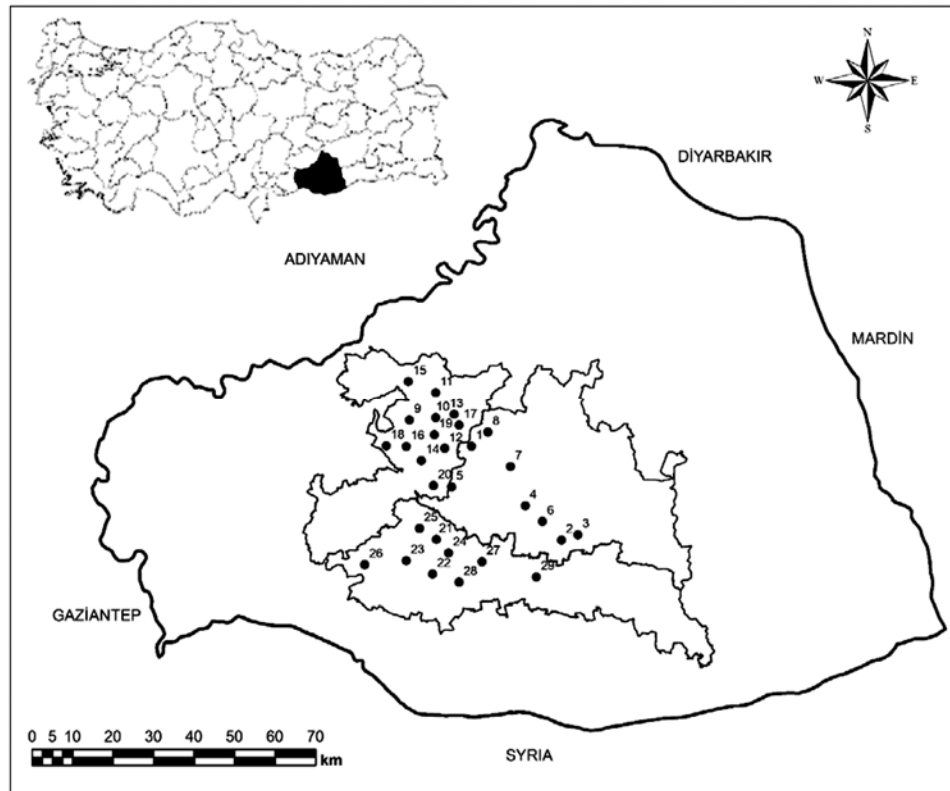


Fig. 1 — The study area (Haliliye town and villages; 1. Aşağı İçkara, 2. Ballica, 3. Bağlar, 4. Çamlıdere, 5. Dağeteği, 6. Kesme, 7. Karatepe, 8. Kengerli, Karaköprü town and villages; 9. Akçahisar, 10. Akziyaret, 11. Cülmen, 12. Gölpinar, 13. Hamurkesen, 14. Horzum, 15. Hüyükli, 16. Korukezen, 17. Kuşluca, 18. Tülmen, 19. Sancak, 20. Karaköprü (merkez), Eyyübiye town and villages; 21. Abdurrahman Dede, 22. Altın, 23. Kızılkuyu, 24. Külünçe, 25. Eyyübiye (merkez), 26. Payamlı, 27. Sultantepe, 28. Uğurlu, 29. Akören)

the form of high temperatures and precipitation. Heavy snowfall and frost incidents are rarely experienced in the region¹⁴.

Ethno-botanical features

Founded around Harran Plain, the most significant plain of Turkey in agricultural terms, located south of Southeastern Anatolian Region, Şanlıurfa is located in Irano-Turanian phytogeography region. During this ethnobotany study, 137 taxa (86 species, 34 sub-species, 17 varieties) from 87 genera of 47 families are identified, and 21 of which are cultivated plants. On the other hand from 137 taxa, 136 of them belong to Spermatophyte division from the Plantae kingdom in Gymnospermae and Angiospermae sub-division; and 1 of them belongs to Fungi kingdom from Ascomycota division in Terfeziaceae family. The ethno-botanical characteristics of all the plant taxa identified within the study area are provided in Table 1.

Demographic characteristics of the reference individuals

The demographics of the local folk used as reference individuals in this study, in terms of age,

gender, education status and profession are provided in Table 2 here under.

During the study, maximum participation occurred at elementary school graduate level while the minimum participation occurred at university graduate level in terms of the education status. This is attributable to the fact that a high rate of the respondents is from farming profession, where the education status is generally at the level of elementary school graduate or even lower. It is contemplated that the reduction at the number of respondents when inclined towards higher education status as due to less knowledge on exploitation of local plants as the respondent moves from the rural areas at early ages due to education (Fig. 2).

Maximum participation to the study in terms of age occurred in the range of 60 – 70 (24 people), while participation occurred over 90 (2 people). The reason for increased number of participants at around age range of 60 – 70 and the declining number of participants at older ages is contemplated to be the increased rate of mortality after passing age

Table 1 — The plants with identified ethnobotanical characteristics in the study area

Family, Scientific name and, Voucher number	Vernacular name	Locality number	Intended use	Part used	Usage form	Preparation, Application, and Observation
Amaranthaceae						
<i>Amaranthus blitoides</i> S. Watson MD 1003	Koksor	5, 11, 13, 14, 29	Food	All plant parts	Fodder	Fresh.
<i>Amaranthus retroflexus</i> L. MD 1030	Koksor, Sırgeyi sor	1, 2, 3, 4, 6, 9, 11, 13, 14, 17, 20	Food Household goods	All plant parts	Fodder Broom	Fresh. Frp picked and bundled and used for broom.
Anacardiaceae						
<i>Pistacia vera</i> L. MD 1229	Kalliki fistuğa	1, 2, 3, 5, 8, 9, 10, 11, 13, 14, 15, 19, 21, 27	Fuel Medicinal	Rind	Firewood Tea	The peels of Drf. used as fuel The peels of Drf., bre. and cons. as tea; for respiratory disorder and diarrhea
Apiaceae						
<i>Bunium paucifolium</i> var. <i>paucifolium</i> MD 1350	Ğeylok	2, 4, 8, 15	Food	Tuber	Fresh	Ftb. is corw.
<i>Eryngium creticum</i> Lam. MD 1331	Sifenok	3, 5, 8, 9, 15	Food	Stem	Fresh	St. is peeled and corw.
<i>Malabaila secacul</i> (Mill.) Boiss. subsp. <i>secacul</i> MD 1218	Harik	2, 3, 5, 8, 15	Food	Stem Leaf	Salad	Sal.
<i>Scandix pecten-veneris</i> L. MD 1317	Şujinok,	15	Food	All plant parts	Fodder	Fresh.
<i>Scandix stellata</i> Banks & Sol. MD1398	Kılçık					
Asparagaceae						
<i>Ornithogalum narbonense</i> L. MD 1116	Akbandır	1,2,5,9,11,13,4,15	Food	Leaf	Cooked	Frl. fri.
Araceae						
<i>Eminium rauwolfii</i> (Blume) Schott var. <i>rauwolfii</i> MD 1425	Zilliki eraba	11, 12, 15	Cosmetics	Flower	Dye	The dye they extract from the flower portion of Br. as nail polish.
Aristolochiaceae						
<i>Aristolochia bottae</i> Jaub. & Spach. MD 1007	Kundurkoşk	1, 2, 3, 5, 8, 9, 11, 13, 19, 20	Medicinal	All plant parts	Fresh Ointment	Acts as worm remover at sheep. Drr. app.
Asteraceae						
<i>Anthemis hyalina</i> DC. MD 1430	Çiçeki mast	1,2,3,4,5,8,9,10,13,14,15,16,17,26,28	Medicinal	All plant parts	Tea	Drp., brews. for respiratory disorder and asthma
<i>Carduus pycnocephalus</i> L. subsp. <i>breviphyllarius</i> P.H.Davis MD 1415	Kerbeş	2, 3, 4, 5, 8, 9, 10, 11, 13,	Food	Stem	Fresh	St. of the plantlet is peeled and consumed.
<i>Centaurea iberica</i> Trevir. ex Spreng. MD 1387	Pıncari teal Histiri çavbellok, Çakırdiken Histiri zer	1, 2, 3, 4, 5, 6, 8, 9, 10, 13, 15, 16, 17, 21	Food Medicinal	Stem Leaf	Cooked	Stel. fri. It is rumored to cure the diabetes. The ripe plant is called “çakırdiken”.
<i>Centaurea solstitialis</i> L. subsp. <i>solstitialis</i> MD 1233	Pıncar Histiri çavbellok	1,2,3,4,5,8,9,11,12,13,14,15,17,19	Food	Stem Leaf	Cooked	Stel. fri..
<i>Centaurea virgata</i> Lam. MD 1407	Sırgeyi teal	1, 2, 6, 9, 13, 15, 17, 21, 23	Household goods	All plant parts	Broom	Frp picked and bundled and used for broom.
<i>Crupina crupinastrum</i> (Moris) Vis. MD 1020	Mıtemor	1, 3, 4, 8, 9, 15, 17, 19, 21,	Medicinal	All plant parts	Tea	Drp. bre. and consumed to remove fear.
<i>Echinops spinosissimus</i> Turra subsp. <i>spinosissimus</i> MD 1206	Gihayi devva Deve diken	1, 2, 3, 5, 9, 13, 17	Food	All plant parts	Fodder	Freshly consumed by camels
<i>Onopordum carduchorum</i> Bornm. & Beauverd MD 1374	Kulındor	15	Food	Fruit	Appetizer	Drf. consumed as appetizers

(Contd.)

Table 1 — The plants with identified ethnobotanical characteristics in the study area (Contd.)

Family, Scientific name and, Voucher number	Vernacular name	Locality number	Intended use	Part used	Usage form	Preparation, Application, and Observation
<i>Gundelia tournefortii</i> L. var. <i>armata</i> Freyn & Sint. MD 1022	Kenger Kereng	2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 17, 19, 21	Food	Stem	Fresh Cooked	The offshoots are corw. or fri.
<i>Matricaria chamomilla</i> L. var. <i>chamomilla</i> MD 1201	Çiçekli mast	1, 2, 3, 4, 5, 6, 8, 9, 11, 12, 13, 15, 16, 17, 21	Medicinal	All plant parts	Tea	Drp.brews. good for respiratory disorder and asthma
<i>Senecio vernalis</i> Waldst. & Kit. MD1333	Çiçekli zer Endilko	1, 2, 3, 6, 9, 11, 13	Medicinal	All plant parts	Tea	Drp. brews. good for stomach problems
<i>Tragopogon porrifolius</i> L. subsp. <i>longirostris</i> (Sch. Bip.) Greuter MD 1303	Fısa pirie Pelgizeir	2, 3, 6, 8	Food Medicinal	Stem Leaf	Fresh Tea	Lvs. and st. of the plt. are consumed. Drp. brews. good for various disorders
<i>Xanthium spinosum</i> L. MD 1111	Histiri zer	1, 2, 3, 5, 6, 8, 9, 13, 15, 17, 19	Food	All plant parts	Fodder	Fresh.
Boraginaceae						
<i>Anchusa azurea</i> Mill. var. <i>azurea</i> MD 1208	Gurizik Kormazi	1, 2, 3, 4, 5, 8, 10, 11, 12, 13, 14, 18	Food	Flower	Suction	The children suck the sweetish flowers.
<i>A. leptophylla</i> Roem. & Schult. subsp. <i>leptophylla</i> MD 1173	Mijmjok					
<i>Onosma auriculata</i> DC. MD 1015	Havajo	1,2, 5, 8, 10, 11, 13, 14, 15	Medicinal	Root	Ointment	Rot. fried and then dried, and app.
Brassicaceae						
<i>Alyssum strictum</i> Willd. MD 1027	Naneçuk	1, 2, 3, 4, 5, 8, 11, 14, 17, 19	Food	All plant parts	Salad Fresh	Frl.corw. or as sal..
<i>Capsella bursa-pastoris</i> (L.) Medik. MD 1435	Çimlik Şimlik	1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 19	Food	All plant parts	Salad Fresh	Plt. consumed as sal. or fresh.
<i>Lepidium draba</i> L. MD 1450	Kıniberk	1, 2, 3, 4, 5, 6, 8, 9, 12, 13, 15, 21	Food	All plant parts	Cooked	Plt. boiled in salt water and fri.
<i>Lepidium sativum</i> L. subsp. <i>sativum</i> MD 1038	Dejnik	1, 2, 9, 20	Food	Leaf	Fresh Salad	Frl. corw. or as sal..
<i>Sinapis alba</i> L. MD 1449	Çerdel	1, 2, 3, 4, 5, 6, 7, 8, 9	Food	Leaf	Fresh Cooked	Frl. corw. or fri.
<i>S. arvensis</i> L. MD 1050						
Capparaceae						
<i>Capparis sicula</i> Veill. subsp. <i>sicula</i> MD 1437	Keber Kemberok	1, 2, 3, 7, 8, 9, 10, 14, 17, 19, 21	Medicinal Cosmetics	Fruit	Ointment Tea Trituration	Drf. triturated, and app.. Drf. brews. good for rheumatism or cancer disorders. Drf. triturated in, mix with henna and apply it hair for revitalizing.
Caprifoliaceae						
<i>Scabiosa rotata</i> M.Bieb. MD 1040	Zivan	1, 2, 4, 6, 7, 9, 15, 19	Food	All plant parts	Fodder	Fresh.
Caryophyllaceae						
<i>Silene conoidea</i> L. MD 1414	Şekrok	2, 3, 4, 5, 8, 9, 11, 13, 15, 17, 19, 21	Food	Flower	Fresh Suction	The children suck or eat the sweetish flowers.
<i>Vaccaria hispanica</i> (Mill.) Rauschert MD 1195	Dımisko Goşt berğik	1,2, 3, 5, 11, 14, 15, 18, 19	Doddle	Fruit	Dried	Used as toy by the children.
Cucurbitaceae						
* <i>Cucurbita pepo</i> L. MD 1422	Kundur	5, 10, 12, 13, 22, 23, 24, 26	Food	Seed	Cooked	Frs. fri..

(Contd.)

Table 1 — The plants with identified ethnobotanical characteristics in the study area (*Contd.*)

Family, Scientific name and, Voucher number	Vernacular name	Locality number	Intended use	Part used	Usage form	Preparation, Application, and Observation
<i>Ecballium elaterium</i> (L.) A.Rich. MD 1042	Ancurei kera	2, 3, 8, 9, 10, 15, 17, 19	Medicinal	Fruit	Juice	Several drops of fruit extract instilled into water and snuffed into nose for sinusitis or hepatitis disorders.
Convolvulaceae						
<i>Convolvulus arvensis</i> L. MD 1305	Peçek	1, 2, 3, 5, 9, 11, 13, 15, 19	Food Preventive	All plant parts	Fodder Cover	Fresh. The vegetable or fruit boxes covered with plt.
<i>C. betonicifolius</i> Mill. subsp. <i>peduncularis</i> (Boiss.) Parris MD 1376						
<i>C. stachydifolius</i> Choisy MD 1101						
Euphorbiaceae						
<i>Euphorbia cheiradenia</i> Boiss. & Hohen. MD 1442	Ğeşul	1, 2, 3, 4, 5, 7, 8, 10, 11, 12, 13, 15, 18, 19	Aroma	Flower	Fresh	Plt. added to grape molasses for add pleasant odor and flavor.
<i>E. falcata</i> L. subsp. <i>falcata</i> var. <i>galilaea</i> (Boiss.) Boiss. MD 1266						
<i>Euphorbia macroclada</i> Boiss. MD 1174	Ğeşula devva	2, 9, 10, 15, 18, 19	Clarifying Medicinal	Latex	Fresh	One drop of the plant's milk instilled into turbid water to clarify the water to drink. The milk used for cleansing tattoos, extracting scorpion's poison and diminishing tooth aches.
Fabaceae						
<i>Astragalus hamosus</i> L. MD 1004	Guni	2, 3, 5, 9, 11, 15, 18	Food Medicinal	All plant parts	Fodder Mash	Fresh. The entire plant boiled and applied to the thorax to cure chest pain.
<i>Coronilla scorpioides</i> (L.) W.D.J.Koch MD 1381	Nefel	1, 2, 3, 4, 5, 6, 7, 8, 11, 13, 14, 15, 17, 19	Food	All plant parts	Fodder	Fresh.
<i>Glycyrrhiza glabra</i> L. var. <i>glabra</i> MD 1225	Suus Biyam balı Meyan balı	27, 28	Beverage Medicinal	Root	Cooler Tea	Soft drink obtained from rot. consumed as refresher and good for nephropathy. Drr. brews. for stomach problem.
<i>Medicago rigidula</i> (L.) All. var. <i>rigidula</i> MD 1380	Nefel	1, 2, 3, 5, 8, 9, 11, 12, 13, 14, 15, 16, 17	Food	All plant parts	Fodder	Fresh.
<i>Lotus gebelia</i> Vent. var. <i>gebelia</i> MD 1006	Nefel	1, 2, 3, 5, 6, 8, 10, 12, 14, 18	Food	All plant parts	Fodder	Fresh.
<i>Pisum sativum</i> L. subsp. <i>elatius</i> (M.Bieb.) Asch. & Graebn. var. <i>pumilio</i> Meikle MD 1302	Balmahatun	1, 2, 3, 4, 8, 9, 10, 13, 14, 15, 18, 19	Food	All plant parts	Appetizer Fodder	Frs. consumed as appetizer. Fresh.
<i>Trifolium campestre</i> Schreb. subsp. <i>campestre</i> var. <i>campestre</i> MD 1377	Nefel	1, 2, 3, 5, 6, 8, 9, 10, 11, 15, 16	Food	All plant parts	Fodder	Fresh.
<i>T. tomentosum</i> L. var. <i>tomentosum</i> MD 1053						
<i>Trifolium constantinopolitanum</i> Ser. MD 1330	Habuji sor	5, 8, 9, 10, 11, 15, 18, 19	Food	All plant parts	Fodder	Fresh.
<i>Trifolium stellatum</i> L. var. <i>stellatum</i> MD 1213	Nefel	3, 5, 8, 9, 10, 11, 12, 15, 19, 20	Knick-knack	Flower	Buckle	Dried calyx is lodged onto broad leaved plant, making some sort of buckle.

(Contd.)

Table 1 — The plants with identified ethnobotanical characteristics in the study area (Contd.)

Family, Scientific name and, Voucher number	Vernacular name	Locality number	Intended use	Part used	Usage form	Preparation, Application, and Observation
<i>Trigonella coelesyriaca</i> Boiss. <i>T. spicata</i> Sm. MD 1197	Nefel	3, 6, 8, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20	Food	All plant parts	Fodder	Fresh.
<i>Vicia cracca</i> L. subsp. <i>atroviolacea</i> (Bornm.) P.H. Davis MD 1048	Ğullus	2, 5, 8, 9, 10, 11, 15, 18, 19	Food	All plant parts	Fodder	Fresh.
<i>Vicia cracca</i> L. subsp. <i>stenophylla</i> Vel. MD 1261	Ğullus	2, 3, 9, 10, 11, 15, 18, 19	Food	All plant parts	Fodder	Fresh.
<i>Vicia narbonensis</i> L. var. <i>narbonensis</i> MD 1369	Collik, Colliki genni	1, 4, 5, 8, 18, 21	Food	All plant parts	Appetizer Fodder	Frs. consumed as appetizer. Fresh.
Geraniaceae						
<i>Erodium ciconium</i> (L.) L'Hér. MD 1260	Nikkuldik	1, 2, 3, 5, 6, 9, 11, 16	Food	Stem Leaf	Fresh Salad	Plt. consumed either raw or as sal.
<i>E. cicutarium</i> (L.) L'Hér. subsp. <i>cicutarium</i> MD 1222						
<i>Geranium dissectum</i> L. MD 1344						
<i>G. libanoticum</i> Schenk MD 1363						
<i>G. lucidum</i> L. MD 1360						
<i>G. molle</i> L. MD 1263						
Hypericaceae						
<i>Hypericum retusum</i> Aucher MD 1055	Bahtof	1, 2, 3, 4, 5, 6, 7, 9, 11, 12, 15, 16, 18, 19, 20	Medicinal Harmful	All plant parts	Wash Vapour Gargling Mash	Drp. boiled and take bath with this water good for dermatologic disorders and edema. Used as mouthwash to cure tooth ache. Plantboiled, applied as poultice for pain.
<i>H. triquetrifolium</i> Turra MD 1067						
Iridaceae						
<i>Crocus cancellatus</i> Herb. subsp. <i>damascenus</i> (Herb.) B. Mathew MD 1118	Pivonk	1, 11, 15, 29	Food	Bulb	Fresh	Fresh bulbs corw.
* <i>Iris x germanica</i> L. MD 1292	Bınevş	2, 5, 7, 9,	Ornamental	All plant parts	Scent	Planted as ornamental for its pleasant odor.
Ixioliriaceae						
<i>Ixiolirion tataricum</i> (Pall.) Schult. & Schult. f. MD 1208	Ancurok	1, 3, 5, 7, 11	Food	Fruit Bulb	Fresh	Fresh fruits and bulbs corw..
Juglandaceae						
* <i>Juglans regia</i> L. MD 1284	Dara guzie	2, 3, 6, 19, 25, 26, 27, 28	Medicinal	Leaf Fruit	Tea Henna	Frl. bre. for common cold and cholesterol. The peel of frs. feed the hair follicles and cures headache if triturated and mixed with henna.
Lamiaceae						
<i>Ajuga chamaepitys</i> (L.) Schreb. subsp. <i>laevigata</i> (Boiss.) P.H.Davis DM 1080	Ğirtkesan	1, 2, 3, 4, 5, 6, 7, 8, 11, 14, 15, 16, 17	Medicinal	All plant parts	Tea Trituration	Drp. bre. to remove fear. 1 teaspoon of dried and pulverized consumed in morning and evening 10 minutes before the meals for constipation.

(Contd.)

Table 1 — The plants with identified ethnobotanical characteristics in the study area (*Contd.*)

Family, Scientific name and, Voucher number	Vernacular name	Locality number	Intended use	Part used	Usage form	Preparation, Application, and Observation
<i>Mentha longifolia</i> (L.) L. subsp. <i>typhoides</i> (Briq.) Harley MD 1109	Pung Su yarpuzu	5, 25, 29	Medicinal Food Belief	All plant parts	Tea Salad Scent	Drp. brews. for stomach and heart disorders. St. and lvs. of plat. used as sal. or consumed fresh. Snakes keep away from the areas where it located.
<i>Micromeria myrtifolia</i> Boiss. & Hohen. MD 1307	Pungie tehta	1, 2, 6, 8, 13, 26	Medicinal	All plant parts	Tea Relish	Drp. brews. for bone development.
* <i>Ocimum basilicum</i> L. MD 1033	Toprehan	29	Ornamental Repellent	All plant parts	Fresh Smell	Used as ornamental and repellent due to its smell.
<i>Phlomis kurdica</i> Rech.f MD 1277	Guhbellok	2, 3, 5, 8, 11, 12, 15, 17, 18, 19	Knick-knack	Flower	Buckle	<i>Xeranthemum</i> species lodged onto the leaves of it for an ornamental buckle. Its name inspired by its resemblance to ears of gazelle.
<i>Salvia multicaulis</i> Vahl MD 1251	Çoban döseği	1, 2, 3, 5, 8, 11,	Medicinal	All plant parts	Tea	Drp. bre. for several disorders.
<i>S. viridis</i> L. MD 1299	Kulafie şivana	12, 14, 17, 19				
<i>S. palaestina</i> Benth. MD 1168	Kunçi beji	1, 20, 26	Medicinal	All plant parts	Tea	Drp. bre. for several disorders.
<i>Scutellaria orientalis</i> L. subsp. <i>hausknechtii</i> (Boiss.) J.R.Edm. MD 1079	Çekmeriş	1, 2, 3, 5, 9, 15, 18, 22	Medicinal	All plant parts	Tea Eardrops Vapour	Drp. bre. for several disorders Brewed water used as eardrops for ear ache. Drp. boiled and its vapor inhaled for respiratory disorders.
<i>Teucrium multicaule</i> Montbret & Aucher ex Benth. MD 1160	Ceteri	1, 2, 3, 4, 5, 9, 11, 14, 17, 19, 20	Seasoning Medicinal	All plant parts	Trituration Tea	Dried and triturated plant used as spice. Drp. bre. for stomach problem.
<i>Teucrium polium</i> L. MD 1210	Tealik	1, 2, 3, 5, 6, 8, 9, 13, 14, 15, 18, 21	Medicinal	All plant parts	Tea	Drp. bre. for keeping the sugar levels of diabetes patients at optimal level. The tea good for dyspepsia.
<i>Thymbra spicata</i> L. var. <i>spicata</i> MD1155	Ceteri Zehter	1, 2, 3, 5, 6, 7, 8, 11, 14, 17, 19	Seasoning Medicinal	All plant parts	Trituration Tea	Dried and triturated plant used as spice. Drp. bre. for several disorders.
Linaceae						
<i>Linum mucronatum</i> Bertol. subsp. <i>mucronatum</i> MD 1231	Çekem	2, 3, 5	Medicinal	All plant parts	Ointment	Dried and triturated plant mixed with animal fat, producing an ointment to apply on wounds and acne.
Lythraceae						
* <i>Punica granatum</i> L. MD 1268	Hennar	1, 2, 3, 4, 5, 21, 22, 23, 24, 26, 27, 28	Food Belief	Fruit	Vinaigrette Dried	The sauce obtained by boiling the fruit juice used as sal.. Drf. hanged on the wall as an amulet.
Malvaceae						
* <i>Abelmoschus esculentus</i> (L.) Moench MD 1026	Bami	2, 3, 4, 5, 7, 9, 11, 13, 14, 17, 19, 21, 22, 29	Medicinal	Fruit	Mash	Fr. boiled and applied to the waist for herniated disc
<i>Alcea acaulis</i> (Cav.) Alef. MD 1086	Hiro	2, 3, 4, 5, 8, 9,	Medicinal	Flower	Tea	Ffl. boiled with milk and sugar, used for 15 days for cough and bronchitis.
<i>A. striata</i> (DC.) Alef. subsp. <i>striata</i> MD 1203	Ğırıra	10, 13, 17, 19, 20				

(Contd.)

Table 1 — The plants with identified ethnobotanical characteristics in the study area (Contd.)

Family, Scientific name and, Voucher number	Vernacular name	Locality number	Intended use	Part used	Usage form	Preparation, Application, and Observation
<i>Malva parviflora</i> L. MD 1301	Tollik	1, 6, 9, 15	Food Medicinal	Leaf	Cooked Tea	Frl. fri./Tea from boiled leaves good for nephropathy.
* <i>Gossypium hirsutum</i> L. MD 1177	Pemi, Pembo	5, 25, 26, 27, 28	Fuel	All plant parts	Firewood	Remaining parts of plant after picking up fruit used as fuel
Moraceae						
* <i>Morus alba</i> L. MD 1201	Dara tu	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 19, 21	Food	Leaf Fruit	Fresh Dried Grape molasses Dried fruit rollup	Frl. used for cooking stuffed grape leaves. Fruit consumed in fresh, dried and grape molasses form.
Nitrariaceae						
<i>Peganum harmala</i> L. MD 1335	Uzelik	23, 25, 27	Belief Medicinal	Fruit	Amulet Vapour	Drf. stringed and obtained amulet hanged on wall for luck charm. Drf. put into tail fat, covered with cheese cloth and its vapor to kill germs in tooth decay.
Orobanchaceae						
<i>Orobanche aegyptiaca</i> Pers. MD 1287	Ğılık	1, 2, 3, 5, 8, 13, 17, 19, 20	Aphrodisiac	All plant parts	Fresh Dried	Several plt. mixed with hay and feed to livestock.
<i>O. mutelii</i> F.W.Schultz MD 1245						
Papaveraceae						
<i>Hypecoum pseudograndiflorum</i> Petrovič MD 1063	Beğtenuzakera	2, 3, 8, 15, 19, 20	Food	All plant parts	Fodder	Fresh.
<i>H. procumbens</i> L. subsp. <i>procumbens</i> MD 1194						
<i>Papaver dubium</i> L. subsp. <i>dubium</i> MD 1112	Şakşako	1, 2, 5, 6, 8, 9, 11, 12, 13, 14, 15, 16, 18, 19, 21	Cosmetics	Flower	Dye	Dfl. bailed and the dye obtained used as nail polish.
<i>P. rhoeas</i> L. MD 1223						
Pinaceae						
* <i>Pinus brutia</i> Ten. var. <i>brutia</i> MD 1351	Dara çamei	1, 2, 4, 9, 12, 18, 19, 22, 23	Medicinal	Resin	Dried	If consumed on empty stomach good for stomach problems.
Platanaceae						
* <i>Platanus orientalis</i> L. MD 1332	Dara çınari	2, 3, 6, 9	Medicinal	Leaf	Tea	The ripe leaves bre. and consumed one glass per day good for osteoarthritis and rheumatism.
Poaceae						
<i>Aegilops triuncialis</i> L. subsp. <i>triuncialis</i> MD 1243	Kılçık	1, 2, 3, 5, 6, 8, 9, 10, 11, 15, 16, 18, 19	Food	All plant parts	Fodder	Fresh.
<i>Avena sterilis</i> L. subsp. <i>sterilis</i> MD 1183	Kılçık	2, 3, 5, 6, 8, 9, 12, 14, 17, 18, 19, 20	Food	All plant parts	Fodder	Fresh.
<i>Bromus japonicus</i> Thunb. subsp. <i>japonicus</i> MD 1309	Gihayi reş	2, 3, 5, 10, 15, 17, 21	Food Belief	All plant parts	Fodder Tang	Fresh. Milk of animal that eats this plant is sour.
<i>Hordeum murinum</i> L. subsp. <i>murinum</i> MD 1227	Kılçık	2, 3, 5, 8, 9, 10, 11, 14, 17, 18, 19, 20	Food	All plant parts	Fodder	Fresh.
<i>Phragmites australis</i> (Cav.) Steud. MD 1411	Kamış	10, 22, 23, 25, 27, 28	Canopy Household goods	All plant parts	Cover Basket	Used as cover to produce shade. All plant used for weaving baskets

(Contd.)

Table 1 — The plants with identified ethnobotanical characteristics in the study area (*Contd.*)

Family, Scientific name and, Voucher number	Vernacular name	Locality number	Intended use	Part used	Usage form	Preparation, Application, and Observation
* <i>Triticum sp.</i> MD 1338	Gennim	1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 17, 21, 25, 26, 27	Building material Food	All plant parts	Mortar Fodder Appetizer	Adobe added to mortar when constructing houses. Plant used as fodder, except its ear portions. The ear portion cooked for 10 minutes when fresh as appetizers.
* <i>Zea mays</i> L. subsp. <i>mays</i> MD 1156	Porie garis	10, 22, 23, 25, 27, 28	Medicinal	Flower	Tea	Stylus brews. one tea glass per day to pass gravel at kidneys.
Polygonaceae						
<i>Polygonum cognatum</i> Meissn. MD 1212	Gihayı karıka	2, 3, 9, 12, 15, 18	Food	All plant parts	Fresh Salad	Plt.corw. or as sal..
<i>Rumex acetosella</i> L. MD 1424	Tırşo	2, 3, 7, 18, 20	Food	All plant parts	Fresh Salad	Plt. corw. or as sal..
Portulacaceae						
* <i>Portulaca oleracea</i> L. MD 1359	Pırpar Pırpırım	10, 22, 23, 25, 27, 28, 29	Food	All plant parts	Fresh Salad	Plt. corw. or as sal..
Ranunculaceae						
<i>Ranunculus arvensis</i> L. MD 1401 <i>R. cuneatus</i> Boiss. MD 1147	Arişevei	1, 2, 3, 4, 8, 9, 10, 11, 13, 15, 18, 19	Belief	All plant parts	Abstention	Plant believed to be harmful, children warned not to play with this plant.
Rhamnaceae						
* <i>Ziziphus jujuba</i> Mill. MD 1388	Annep	29	Food Medicinal	Fruit	Fresh Dried	Fruit consumed as fresh or dried to keep sugar levels optimal for diabetes patients.
Rosaceae						
* <i>Amygdalus communis</i> L. MD 1271	Beıvf	1,2,3,4,5,6,7,9,10,11,15,18,19,20, 21	Food	Fruit Seed	Fresh Dried	Succulent portion of frf. and srf. consumed as appetizers.
<i>A. orientalis</i> Mill. MD 1371	Beıvf teal	1, 2, 5, 9, 12, 18, 19, 20	Medicinal	Seed	Fresh Dried	Srf. consumed to keep sugar levels optimal for diabetes patients.
<i>Crataegus monogyna</i> Jacq. var. <i>monogyna</i> MD 1431	Diğdiğan Dara grıvij	1, 5, 8, 19, 21	Food	Fruit	Fresh	Fr. consumed
* <i>Rosa spp.</i> MD 1071	Gula sor	1,2,5,8,9,10,15,17, 22, 27	Food Beverage Seasoning	Flower	Fresh Jam Sherbet	Ffl. used for making jams and sherb <i>et also</i> used as seasoning.
Rutaceae						
* <i>Citrus medica</i> L. MD 1019	Kebbat	29	Food	Fruit	Jam	Fr. used for making jam.
Salicaceae						
* <i>Populus nigra</i> L. subsp. <i>nigra</i> MD 1278	Dara gerzie	1,5,8,9,10,15,19	Building material	Stem	Ceiling joist	Used as ceiling joist (generally for barn construction).
* <i>Salix alba</i> L. MD 1444	Bisornık	3, 6, 15	Household goods	All plant parts	Baby's crib	The stem and branches used for constructing baby's crib.
Scrophulariaceae						
* <i>Antirrhinum majus</i> L. subsp. <i>majus</i> MD 1349	Benc	2, 5, 9, 15, 16, 19	Ornamental Dulling	All plant parts	Landscape Amnesia	Used as ornamental /Consuming this plant induces temporary memory loss.

(Contd.)

Table 1 — The plants with identified ethnobotanical characteristics in the study area (Contd.)

Family, Scientific name and, Voucher number	Vernacular name	Locality number	Intended use	Part used	Usage form	Preparation, Application, and Observation
Urticaceae						
<i>Urtica dioica</i> L. MD 1166	Gezgezok	4, 6, 8, 9, 15, 19	Medicinal	All plant parts	Tea	Drp. brews. 1 glass per day for cardiac and cancer patients.
<i>U. pilulifera</i> L. MD 1313					Ointment Cooked	Dried and pulverized drp. mixed with water app. Boiled frp. used as pastry ingredient or cooked as soup.
Vitaceae						
* <i>Vitis vinifera</i> L. MD 1293	Arş Tiyek Meyv	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 17, 18, 19, 20, 21, 29	Food Medicinal	Leaf Fruit	Fresh, Dried Grape Molasses Fruit leather	Frl. used for cooking stuffed grape leaves. Fruits consumed in fresh, dried.
Terfeziaceae						
<i>Terfezia boudieri</i> Chatin MD 1375	Kimi, Keme	1, 2, 5, 8, 9, 15, 29	Food	All plant parts	Cooked	Added to cooked rice or cooked as kebab.
Preparation, Application and Observation: Fresh., freshly consumed by cattle; Fri., fried and consumed with onion, chili flakes, eggs and tomato paste; Sal., salad dressing; Drr., Dried rots; Drf., Dried fruits; Drp., Dried plant; Dfl., Dried flowers; Ftb. Fresh tuber; Frp., Fresh plant; Frl., Fresh leaves; Frs., Fresh seeds; Frf., Fresh fruits; Ffl., Fresh flowers; Brc., Bractea; Plt., Plantelet; St., Stem; Lvs., Leaves; Stel., Stem and leaves of plantelet; Brews., brewed and consumed as tea; Bre., brewed into tea, Corw., consumed raw; App., ointment applied externally to wounds; Rot., Rooots; Srf., Seed of ripe fruit.						

70 despite increased and diversified knowledge on exploitation and use of plants. Loss of such valuable knowledge due to low rate of access to such valuable reference individuals at advanced ages further highlights the significance of ethnobotany studies in terms of recording such knowledge and also underlines the need for ethnobotany studies without a moment's delay (Fig. 3).

Data analysis

In the study, Homogeneity and Normality tests were applied to the families used for medicinal purposes and the families used as food by the local populace. The test results revealed that the factor group has no normal distribution on the ancillary group, and not distributed homogeneously (Table 3).

Tamhane's T2 test is implemented in order to determine the variance of plant families according to the plant taxa used by the local populace for medicinal purposes (Table 4).

Based on these results, a significant (<0,05) variance is observed between Lamiaceae, very frequently used by the local populace for medicinal purposes, and Amaranthaceae, Amaryllidaceae, Apiaceae, Asparagaceae, Brassicaceae, Caryophyllaceae, Convolvulaceae, Geraniaceae, Iridaceae, Papaveraceae, Polygonaceae, Ranunculaceae, Salicaceae.

While performing statistical analysis in the light of ethnobotanical data, the status of showing these characteristics of families to which plant taxa showing the characteristics of food taxa used for food and medical purposes is symbolized with 1 and the status of not showing these characteristics is symbolized with 2. The relationship between the figure and the symbol indicates the weight of families showing these characteristics (medical and food).

It is observed that all taxa from Hypericaceae, Orobanchaceae and Urticaceae are used by the local populace for medicinal purposes and that the medicinal use of such families reaches to very high levels as 100%, and as high as 80% for Lamiaceae and Malvaceae (Fig. 4).

In the light of these data, it seems very meaningful to conduct research the taxa of Hypericaceae, Orobanchaceae, Urticaceae, Lamiaceae and Malvaceae, which find very high levels of use by the people for medicinal purposes, in terms of pharmacology, pharmacognosy, etc.

Tamhane's T2 test is implemented once more in order to determine the variance of plant families according to the plant taxa used by the local populace as food (Table 5).

Table 2 — Demographics of the Participants

	Trait	Quantity	N=100 (%)
Age	30	13	14
	40	18	19
	50	22	23
	60	24	25
	70	13	14
	80	3	3
	90	2	2
	Total	95	100
Gender	Female	22	23
	Male	73	77
	Total	95	100
Teaching Status	Uneducated	34	36
	Primary School Graduate	41	43
	Middle School Graduate	17	18
	High School Graduate	2	2
	University Graduate	1	1
Job	Total	95	100
	Farmer	56	59
	Housewife	18	19
	Shepherd	5	6
	Self-Employment	2	2
	Gardener	1	1
	Warden	1	1
	Tradesman	1	1
	Outfitter	1	1
	Construction Sector	1	1
	Ladle Operator	1	1
	Middleman	1	1
	Mukhtar	1	1
	Student	1	1
	Water seller	1	1
	Unknown	4	4
	Total	95	100

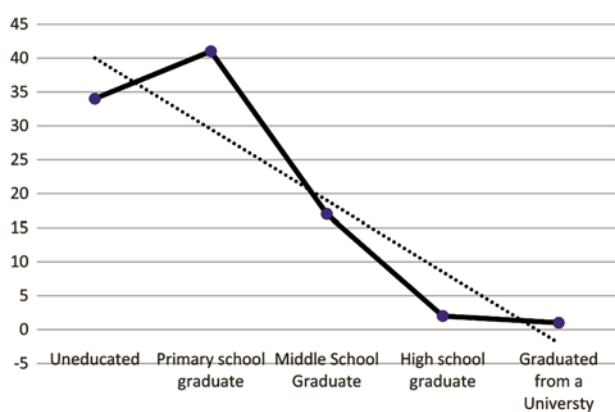


Fig. 2 — Education Status of Participants

Based on these results, a significant (<0,01) variance is observed between Lamiaceae, used as food by the local populace at very a low level,

Table 3 — Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Medicinal	5,317	24	89	,000
Food	7,499	24	89	,000

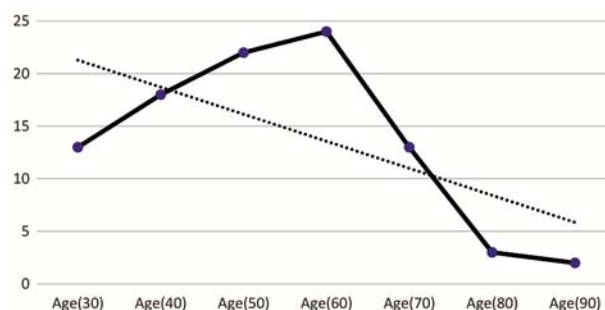


Fig. 3 — Number of Participants by Age

*1,00: Medicinal use available
 **2,00: Medicinal use unavailable

and Amaranthaceae, Brassicaceae, Convolvulaceae, Fabaceae, Geraniaceae, Polygonaceae.

It is also observed that all taxa from Amaranthaceae, Brassicaceae, Convolvulaceae, Geraniaceae and Polygonaceae are used as food by the local populace, and that use of such families as food reaches to very high levels as 100% and as high as 80% for Fabaceae (Fig. 5).

Discussion and conclusion

The knowledge on traditional use of plants exploited for various purposes in the rural settings from past to present is unfortunately fading irreversibly due to demise of the people possessing such knowledge. Moreover, another unfavorable situation leading to vanishing of such knowledge is the rapid increase at migration from rural settings towards the cities and increasing urbanization. Such adverse conditions could be avoided through ethnobotany studies. Identifying the plants exploited by the local populations for centuries through knowledge inherited from past generations through ethnobotany studies and acting accordingly shall facilitate achievement of the intended objective at the scientific researches in terms of time and finance. On the other hand, recording the knowledge on ethnobotany will be to the benefit of the future generations.

One of the greatest challenges experienced during the study was to identify and reach out to the reference individuals. Another challenge was to acquire the knowledge on exploitation of the regional

Table 4 — Multiple Comparison for Medicinal plants

(I) Plant Family	(J) Plant Family	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Lamiaceae	Amaranthaceae	-,81818	,12197	,016	-1,5266	-,1097
	Amaryllidaceae	-,81818	,12197	,016	-1,5266	-,1097
	Apiaceae	-,81818	,12197	,016	-1,5266	-,1097
	Asparagaceae	-,81818	,12197	,016	-1,5266	-,1097
	Asteraceae	-,38961	,18361	1,000	-1,2119	,4327
	Boraginaceae	-,48485	,35495	1,000	-12,7927	11,8230
	Brassicaceae	-,81818	,12197	,016	-1,5266	-,1097
	Caryophyllaceae	-,81818	,12197	,016	-1,5266	-,1097
	Cucurbitaceae	-,31818	,51466	1,000	-803,4617	802,8253
	Convolvulaceae	-,81818	,12197	,016	-1,5266	-,1097
	Euphorbiaceae	-,48485	,35495	1,000	-12,7927	11,8230
	Fabaceae	-,68485	,15209	,064	-1,3868	,0171
	Geraniaceae	-,81818	,12197	,016	-1,5266	-,1097
	Hypericaceae	,18182	,12197	1,000	-,5266	,8903
	Iridaceae	-,81818	,12197	,016	-1,5266	-,1097
	Malvaceae	-,01818	,23426	1,000	-1,6907	1,6543
	Orobanchaceae	,18182	,12197	1,000	-,5266	,8903
	Papaveraceae	-,81818	,12197	,016	-1,5266	-,1097
	Poaceae	-,69318	,17465	,273	-1,5387	,1523
	Polygonaceae	-,81818	,12197	,016	-1,5266	-,1097
	Ranunculaceae	-,81818	,12197	,016	-1,5266	-,1097
	Rosaceae	-,56818	,27817	1,000	-3,7259	2,5895
	Salicaceae	-,81818	,12197	,016	-1,5266	-,1097
	Urticaceae	,18182	,12197	1,000	-,5266	,8903

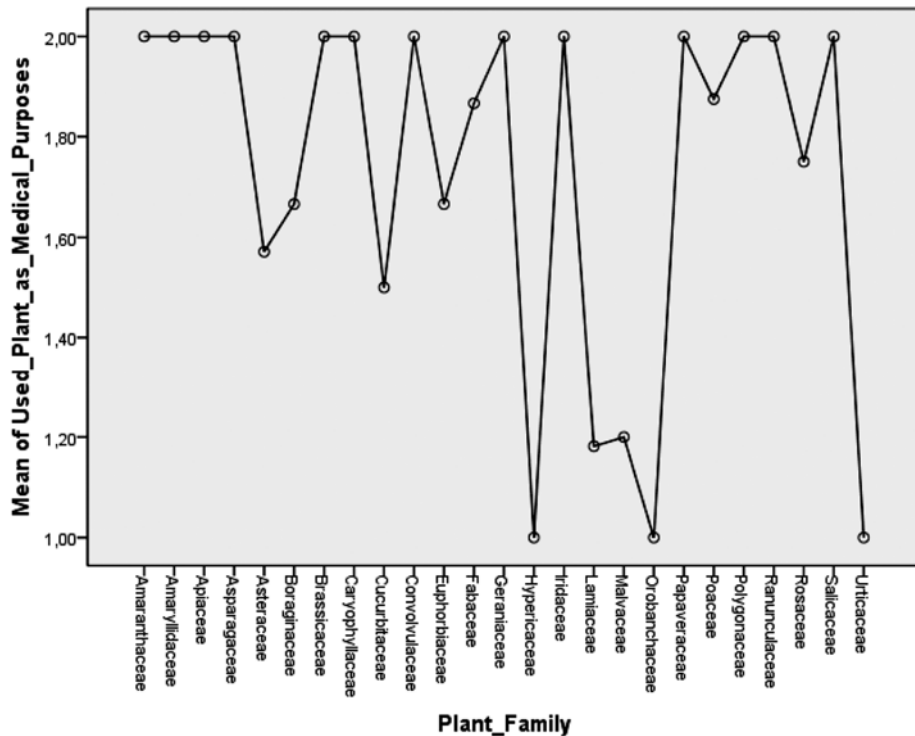


Fig. 4 — Diagram of Post Hoc Tests for Medicinal plants

*1,00: Used as food

**2,00: Not used as food

Table 5 — Multiple Comparison for Food plants

(I) Plant Family	(J) Plant Family	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Lamiaceae	Amaranthaceae	,90909	,09091	,000	,3810	
	Amaryllidaceae	-,09091	,09091	1,000	-,6190	,4371
	Apiaceae	,62338	,20562	,987	-,6427	1,8894
	Asparagaceae	,40909	,50820	1,000	#####	1144,2653
	Asteraceae	,48052	,16463	,912	-,2662	1,2273
	Boraginaceae	,57576	,34551	1,000	-15,7256	16,8771
	Brassicaceae	,90909	,09091	,000	,3810	1,4371
	Caryophyllaceae	,40909	,50820	1,000	#####	1144,2653
	Cucurbitaceae	,40909	,50820	1,000	#####	1144,2653
	Convolvulaceae	,90909	,09091	,000	,3810	1,4371
	Euphorbiaceae	-,09091	,09091	1,000	-,6190	,4371
	Fabaceae	,84242	,11273	,000	,3209	1,3640
	Geraniaceae	,90909	,09091	,000	,3810	1,4371
	Hypericaceae	-,09091	,09091	1,000	-,6190	,4371
	Iridaceae	,40909	,50820	1,000	#####	1144,2653
	Malvaceae	,10909	,21969	1,000	-1,7878	2,0060
	Orobanchaceae	-,09091	,09091	1,000	-,6190	,4371
	Papaveraceae	,30909	,26127	1,000	-2,2219	2,8401
	Poaceae	,53409	,20432	1,000	-,6286	1,6968
	Polygonaceae	,90909	,09091	,000	,3810	1,4371
	Ranunculaceae	-,09091	,09091	1,000	-,6190	,4371
Rosaceae	,65909	,26602	1,000	-3,2188	4,5369	
Salicaceae	-,09091	,09091	1,000	-,6190	,4371	
Urticaceae	-,09091	,09091	1,000	-,6190	,4371	

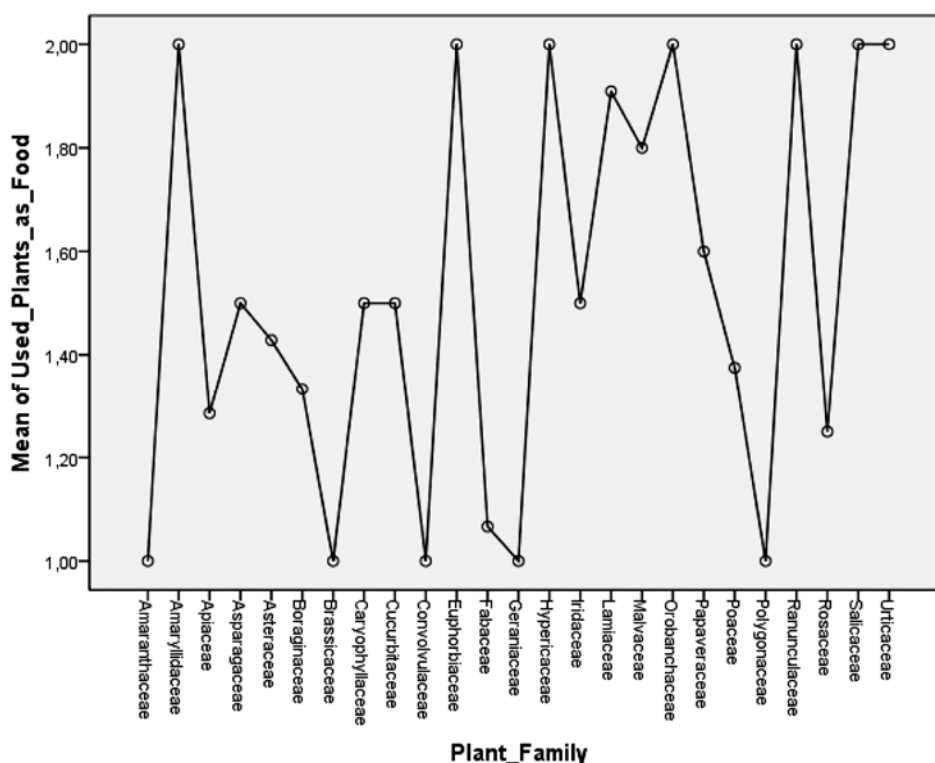


Fig. 5 — Diagram of Post Hoc Tests for Food plants

plants from such reference individuals. Unfortunately, the knowledge offered by the reference individuals proved to be either limited or insufficient. The most significant factor underlying this was not lack of knowledge, but the communication skills necessary to convey such knowledge.

The number of taxa (137 taxa) identified to be in use in terms of ethnobotany as a result of this survey conducted at central districts and attached villages of Şanlıurfa could be much more considering the site of the study area. Based on our observations, the flat land nature of the study area, but especially destruction of the natural areas (through settlement, land clearing, overgrazing, etc.), had significant impact on diversity of the flora, which, in turn, reduced the quantity of the exploited plants. Another factor appears to be the easy access to the province or county centers from the rural settlement sites in the study area, which provides easy access to the needs and life facilitating materials, thus limiting the use of plants in the nature.

The top three participation categories to the study in terms of occupation are farmers (59%), housewife's (19%) and shepherds (6%), respectively. The reason for farmers ranking first in participation compared to the other profession groups is contemplated to be their increased knowledge on use of various plants for diverse purposes due to their higher interaction with the flora based on their time spent on the rural areas.

The shepherds also have knowledge on use of plants for various purposes as they are in direct touch with nature by definition of their profession. Despite the high number of farmers in the study area, the shepherds are quite rare due to the regional tradition where only one and several people shepherd (or take out for grazing) all livestock of a village. This explains the low participation rate of shepherds in the study.

The study was undertaken in three sub-districts and villages (quarters) attached there to, that form Şanlıurfa central district. Karaköprü sub-district has the highest rate (42%), while Eyyübiye sub-district has the lowest rate (19%) in terms of number of participants. High number of participants from Karaköprü sub-district might be attributable to relatively large natural areas that cover the sub district, which, in turn, might explain high number of locals exploiting the natural flora. On the other hand, rather flat nature of Eyyübiye sub-district in topographic terms, where majority of the lands is

covered by plains, might be referred as the reasons that reduce active plant use and lead to the low number of participants.

In the light of these data, it seems very meaningful to conduct research on the nutritive and aromatic characteristics of the taxa from Amaranthaceae, Brassicaceae, Convolvulaceae, Geraniaceae, Polygonaceae and Fabaceae, which find very high levels of use as food by the people through future research efforts, thus making contributions in terms of science and the food industry active in the food sector.

In conclusion, this ethnobotany study identified and recorded the plants, which are exploited by the local population residing at the central district of Şanlıurfa province and the villages attached there to located in Southeastern Anatolia Region, for various purposes with their traditional names.

The results of this study were compared with the results of previous ethnobotanical studies in Şanlıurfa (Table 6). According to this comparison, plants are generally used as food in the study area and secondly for medicinal purposes. Furthermore, although local plants have other intended uses, they are very small in number and varied. Other uses of plants include beliefs, pests, household goods, seasoning, ornaments, cosmetics, fuel and building materials.

On the other hand, from the ethnobotanical researches conducted in Zeytinbahçe in Birecik district¹⁵ and Arat Mountain¹⁶, it is seen that the plants used for feed purposes take the first place. In the same way, the plants used for firewood were found to be higher in number in these two studies than the other studies. As it can be seen, there are apparent differences in the purposes of plant use, even in the same region. Among the reasons of this, we can show that local people in the region collect plants from nature for the purposes they need.

Table 6 — Comparison of ethnobotanical studies in Şanlıurfa

Ethnobotanical Studies in Şanlıurfa	Intended use		
	Food	Medicinal	Others
Şanlıurfa central district (Our Study)	56	37	44
¹⁵ Zeytinbahçe-Akarçay region (Balos and Akan, 2007)	56	43	91
¹⁶ Arat mountain (Akan <i>et al.</i> , 2008)	33	17	120
¹⁷ Kalecik mountain (Akan <i>et al.</i> , 2013)	38	37	51
¹⁸ Gölpınar promenade place (Akan and Ayaz, 2015)	26	15	23
¹⁹ Bozova district (Oymak, 2018)	60	49	62
²⁰ Tek Tek mountains (Şahin, Fidan and Akan, 2019)	52	51	17

Ethnobotanical studies in Şanlıurfa province, including the study area, are quite limited as can be seen in Table 6. In these studies conducted in different parts of the province of Şanlıurfa, it is seen that the results are relatively close to each other in terms of the purposes of plant use. The most important factor for this is the ethnobotanical studies were conducted in the central and southern parts of the province of Şanlıurfa, where these areas are quite plain in terms of topography. This is an obstacle to the emergence of large differences in terms of plant diversity and use.

Author Contribution

Plant collection and Questionnaire: Ömer Faruk KAYA, Mehmet DAĞLI; Plant Identification and Writing-original draft and Writing-reviewing draft: Ömer Faruk KAYA; Writing-reviewing draft, Translation and Statistics: Hatice TOSYAGÜLÜ ÇELİK.

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