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Research Article/Araştırma Makalesi

An Ethnobotanical Study in Ceylanlı Village (Kırıkhan/Hatay-Türkiye)

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Abstract: This study was carried out to determine the ethnobotanical characteristics of some plants distributed in Ceylanlı village (Kırıkhan/Hatay) on the slopes of Amanos Mountain. As a result of the field studies carried out between 2019 and 2021 and the interviews with the local people, it was determined that 75 taxa belonging to 41 families were used by the local people in the research area. The local names of the plants, the harvest season, the parts used, the usage purposes, and forms were determined by face-to-face interviews with different local people in their houses, farms, gardens or natural areas. The families having the highest number of using taxa in the area were determined to be Asteraceae and Lamiaceae (8 taxa each), Rosaceae (6 taxa), Amaryllidaceae, Brassicaceae, and Fabaceae (4 taxa each). In total 116 different uses belonging to the plants in the study area were determined, including uses for medical purposes such as wounds, respiratory tract, and stomachic diseases (47 taxa), food (20 taxa), daily items (6 taxa), spice (4 taxa), firewood (3 taxa), and for other different purposes (14 taxa). The obtained results were discussed by comparing them with the relevant literature. Our results show that most of the plants identified were collected by local people from their natural habitats. The local community in our study area was informed to reduce the collection of natural medicinal plants unconsciously and about the importance of cultivating medicinal and aromatic plants. It is believed that this study will contribute to all relevant studies at national and international scales.

Keywords: Ethnobotany, folk remedies, traditional knowledge, Amanos Mountain, East Mediterranean, Türkiye.

Ceylanlı Köyü'nde (Kırıkhan/Hatay-Türkiye) Etnobotanik Bir Araştırma

Öz: Bu çalışma Amanos Dağı eteklerindeki Ceylanlı köyü (Kırıkhan/Hatay)'nde yayılış gösteren bazı bitkilerin etnobotanik özelliklerini belirlemek amacıyla yapılmıştır. 2019-2021 yılları arasında gerçekleştirilen arazi çalışmaları ve bölge halkıyla yapılan görüşmeler sonucu araştırma alanında 41 familyaya ait 75 bitki taksonunun yöre halkı tarafından kullanıldığı tespit edilmiştir. Bitkilerin yöresel adları, toplanma mevsimleri, kullanılan kısımları, kullanım amaçları ve şekilleri yöre halkıyla evlerinde, çiftliklerinde, bahçelerinde veya doğal alanlarında yüz yüze görüşülerek tespit edilmiştir. Kullanılan bitkilerde takson sayıları bakımından en büyük familyalar sırasıyla Asteraceae ve Lamiaceae (8'er takson), Rosaceae (6 takson), Amaryllidaceae, Brassicaceae ve Fabaceae (4'er takson) şeklinde belirlenmiştir. Çalışma alanında bitkilere ait; tıbbi amaçla (47 takson), gıda olarak (20 takson), günlük eşya yapımı (6 takson), baharat (4 takson), yakacak odun (3 takson) ve diğer farklı amaçlar (14 takson) için olmak üzere toplam 116 farklı kullanım şekli belirlenmiştir. Elde edilen sonuçlar ilgili literatürler ile karşılaştırılarak tartışılmıştır. Sonuçlarımız, tespit edilen bitkilerin çoğunun yerel halk tarafından doğal yaşam alanlarından toplandığını göstermektedir. Çalışma alanımızdaki yerel halk bilinçsizce doğal şifalı bitki toplamanın azaltılması ve tıbbi bitkilerin kültüre alınmasının önemi konusunda bilgilendirilmiştir. Bu çalışmanın ulusal ve uluslararası ölçekte ilgili tüm çalışmalara katkı sağlayacağı düşünülmektedir.

Anahtar kelimeler: Etnobotanik, halk ilaçları, geleneksel bilgi, Amanos Dağı, Doğu Akdeniz, Türkiye.

1. Introduction

Many societies and cultures have used plants as food, medicine, clothing, ornaments, hunting, construction, agriculture, musical instruments, household appliances and similar tools, shade and shelter, superstitious/religious uses, against natural disasters such as floods, drought and soil erosion throughout history. (Altay et al., 2015; Öztürk et al., 2012). According to the latest archaeological evidence in the Sierra de Atapuerca (northern Spain), the relationship between humans and plants dates back to 1.2 million years. Chemical analyzes on human tooth finds show that 70-80% of daily calories were obtained from herbal products at that time (Hardy et al., 2017).

The relationship between humans and plants has been acquired through trial and error and has reached the present day by being transferred from generation to generation in a long period of time. This strong relationship between humans and plants led to the birth of the ethnobotanical discipline whose importance is recognized by the whole world today and in which serious researches are carried out (Koçyiğit & Özhatay, 2006; Kendir & Güvenç, 2010; Altay & Çelik, 2011; Altay & Karahan, 2012; Yesilada, 2013).

Recently, the use of plants as herbal or natural health products beneficial to health has increased worldwide, especially in developed countries. Although the use of plants for medicinal purposes in traditional treatment methods in history has lost its former value due to technological developments, the demand for medicinal plants has increased in recent years, especially due to the chemical side effects of drugs. It is known that 80% of the world population benefits from medicinal plants against diseases and more than 80.000 plant species are used for medicinal purposes (Karahan, 2022). For this reason, the

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investigation and conservation of these plants used in traditional medicine and the determination of their economic value as natural resources contribute to sustainable development in both developed and developing countries (Öztürk et al., 2018a, b, c; Malik et al., 2021).

Many ethnobotanical studies have been carried out in Hatay, which has hosted numerous cultures throughout history and has a rich ethnobotanical heritage, contributing to the efforts to define and protect this natural and cultural heritage (Karahan, 2022). Kırıkhan, chosen as the study area, is one of the most developed districts of Hatay province after Iskenderun and Antakya. The district is host to many different ethnic cultures and communities (Altay et al., 2015).

With this study, some ethnobotanical characteristics of the plants that are distributed in Ceylanlı village (Kırıkhan) established on the slopes of Amanos Mountain were tried to be determined.

The aims of this study are:

•making inventory and records regarding the use of medicinal and aromatic plants by the local community,

•determining which parts of the plants are used by local people and for what purposes,

•identifying the most common plants used in the region, and

•contributing to the studies to be carried out in our country and nearby geography in the future by collecting data on the preparation procedures for herbal medicines.

2. Material and Methods

2.1. Study area

The region chosen as the research area is Ceylanlı village of Kırıkhan district of Hatay province. This region is 52 km away from Hatay city center and 7 km away from Kırıkhan district and is located on the eastern slopes of the Nur Mountains (Fig. 1). It is surrounded by the Amik Plain to the east and the Nur Mountains to the west, south, and north. The name of the village "Ceylanlı" was named after "Ceylan Osman", one of the notables of the village, and the mountain gazelles (Dağ Ceylanı in Turkish) that still exist in the region.

The study area has geomorphologically diverse surface forms (hills, wet and dry streams, mountains, and mountain slopes). The study area has a semi-arid Mediterranean climate type with an annual average precipitation of 557 mm and a medium temperature of 19.3°C (Mesothermal). While annual precipitation is maximum in winter, it decreases in spring. Average minimum and maximum temperatures were measured as 8.2 and 30.4°C in January and July, respectively (Altay et al., 2016; Topuz et al., 2016). The humid rainy air mass coming from the Mediterranean Sea rises over the Amanos Mountains, which extend parallel to the sea from the Iskenderun Bay, and causes heavy precipitation. On the other hand, humid air masses coming from Samandağ and terrestrial air masses coming from the north also meet in the eastern parts of Amanos Mountains. Due to this climate and geographical richness, Kırıkhan and its surroundings are very rich in plant diversity (Altay et al., 2015).

Figure 1. The study area

2.2. Plant material

A total of 75 plant taxa were collected in Ceylanlı village (Kırıkhan) and its surroundings during different vegetation periods between 2019 and2021. The plant samples were identified by Dr. Faruk Karahan according to the relevant literature (Davis, 1965-1988) and voucher specimens were stored at the Herbarium of Hatay Mustafa Kemal University (Hatay, Türkiye). The local names of the plants, the harvest season, the parts used, the usage purposes, and forms were determined by reportages. Face-to-face interviews were conducted at least four times in Turkish with different local people in their houses, farms, gardens or natural areas in accordance with the ethical rules. Especially, elderly people, middle-aged women, and men are chosen and it is aimed to transfer traditional knowledge to the present day correctly. The total number of people from whom information was obtained is 24. 10 of these resource persons are men and 14 of them are women, the average age of women is 58 and the average age of men is 55. In terms of the educational status, 2 of the local people are uneducated while 14 are primary school, 5 high school, and 1 university graduates (Fig. 2).

3. Results

Within the scope of this study, a total of 116 local uses belonging to 75 taxa in 41 families were determined in the research area. These plants are locally used for medicine (47) followed by used as food (20), as spice (4), as fuel (3), and other 14 for different purposes. Ethnobotanical characteristics of these plant taxa are alphabetically listed with their botanical and local names, part used, purpose of use, usage, recorded literature uses, and collector numbers (Table 1). Asteraceae and Lamiaceae (8 taxa each), Rosaceae (5 taxa), Brassicaceae, and Fabaceae (4 taxa each) are the families with the highest number of species in the study. 12 taxa of studied samples are cultivated plants, 2 taxa are exotic, and the others are natural plants (Table 1).

Table 1. Useful plants in Ceylanlı village and the other ethnobotanical properties in the related literature

No	Plant taxa	Local name	Plant part used	Uses	Aim of uses	Recorded literature uses
	AMARYLLIDACEAE					
1	*Allium ampeloprasum* L. F. Karahan 1421	Körmen	Whole plant	As a food	Cooked with bulgur wheat	Visual impairment, diabetes. Eaten as a pastry and salad (Sargın et al., 2013; Kerar & Akan, 2019; Yeşil et al., 2019)
2	***Allium cepa* L. F. Karahan 1422	Soğan	Bulbs	Medicinal, As a food	Poisonous animal bite, ear infection, blood stopper, eaten raw	Gastrointestinal diseases, renal colic, menstrual cramps, aphrodisiac, antiseptic, diuretic, diabetes treatment, antiparasitic (Al-Qura'n, 2008; Sargın et al., 2013; Owfi, 2021).
3	***Allium sativum* L. F. Karahan 1425	Sarımsak	Bulbs	Medicinal, cosmetic	Poisonous bite, hair and beard care	Edible, colds, cataracts, skin reactions, oxidative stress, mouth sores, fatigue, constipation, against hair loss, disinfectant, anti-parasitic, appetizing, blood pressure lowering, kidney stone lowering (Karahan & İlçim, 2017; Owfi, 2021; Kültür et al., 2021).
4	***Narcissus tazetta* L. F. Karahan 1432	Nergis	Bulbs	Medicinal	The bulbs is pounded and crushed and used against the inflamed wound, and then a turmeric leaf is immediately put to relieve the pain and burning.	Eaten as pastry, medicinally for sore throat, wounds, skin disease, also ornamental (Gürdal & Kültür, 2013; Kerar & Akan, 2019)
	ANACARDIACEAE					
5	*Pistacia terebinthus* L. subsp. *palaestina* (Boiss.) Engler F. Karahan 1438	Menengiç	Leaves, Seeds	As a food	It is fried with onions and eaten as menemen. Salad is made.	Respiratory diseases (flu, cough, bronchitis, asthma), stomachache, joint, muscle and stomach aches, constipation, expectorant, diuretic, antiseptic (Honda et al., 1996; Karahan et al., 2020)
6	*Rhus coriaria* L. F. Karahan 1437	Sumak	Fruits, Leaves, Stems	Medicinal, as a spice	It is used as a spice. It is mixed with the Dardagan plant and cooked on the stove and used against the heel nail. When the hands are burned while chopping peppers, if the leaf is fresh, it is applied directly or if the water is boiled and the water is applied, the burning of the hand goes away. Sumac and pine stem are boiled together and used as a mouthwash against mouth sores.	Mouth and skin sores, cut wounds, common cold, toothache and food (Honda et al., 1996; Kocabaş & Gedik, 2016; Sargin & Büyükcengiz, 2019; Özçelik, 2022)
	APIACEAE					
7	*Eryngium creticum* Lam. F. Karahan 1423	Devetabanı	Whole plant	Medicinal	Crushed and used against wounds and athlete's foot	Consumed as a snack after peeling (Yeşil et al., 2019)
	ARACEAE					
8	*Arum dioscoridis* Sm. var. *luschanii* R. Mill. F. Karahan 1462	Dağ pancarı	Leaves	As a food	Soap made by boiling (low temperature/long time)	Leaves cooked as vegetable, soap made by boiling, pie made by roasting the leaves, digestive disorders, diuretic, antitussive, tranquilizer, gastritis, intestinal parasites, hemorrhoids (Akbulut, 2015; Altay et al., 2015; Sargın, 2015; Güneş et al., 2018; Kerar & Akan, 2019)
	ASPARAGACEAE					
9	*Asparagus acutifolius* L. F. Karahan 1424	Kaplan bıyığı	Whole plant	Medicinal	As a tea against stomach wounds	Diabetes, diuretic, analgesic, kidney inflammation desiccant, antipyretic, rheumatism, flu (Fakir et al., 2009; Öztürk et al., 2017)

No	Plant taxa	Local name	Plant part used	Uses	Aim of uses	Recorded literature uses
	ASTERACEAE					
10	*Anthemis haussknechtii* Boiss. & Reuter F. Karahan 1463	Yoğurtlama	Capitula	Medicinal	As a tea against colds and pains.	Hair loss, indigestion, menstrual regulator and tranquilizer (Fakir et al., 2009; Kerar & Akan, 2019)
11	*Centaurea iberica* Trev ex Sprengel F. Karahan 1430	Çakırdikeni	Flowers	Medicinal	It is crushed into pill form and drunk to get rid of dirty water and air while going to the plateau. Also headaches and gallstones	Antipyretic, wound healing, diabetes and stomach ailments (Çakılcıoğlu & Türkoğlu, 2010; Güzel et al., 2015)
12	*Cota tinctoria* (L.) J. Gay. F. Karahan 1442	Boyacı papatyası	Capitula	Cosmetic	Flowers in boiled water to dye hair yellow	Diabetes, throat diseases (Çakılcıoğlu & Türkoğlu, 2010)
13	*Inula viscosa* (L.) Aiton F. Karahan 1433	Çakalotu	Whole plant	Medicinal	Plant in boiled water and sit in its steam against cold	Eye diseases, stomach ailments, wounds, ulcers, pain, respiratory tract infection, hemorrhoids, bone fractures, diabetes, backaches, skin fungus, loss of appetite, dysentery, muscle aches, infertility, lung disorders, skin and joint diseases (Öztürk et al., 2017; Özyigit et al., 2022)
14	*Matricaria chamomilla* L. F. Karahan 1426	Mayıs papatyası	Whole plant, capitula	Medicinal	Used as a tea against pains	Stomachache, cough, cold, bronchitis, malaria, carminative, insomnia, headache, appetite stimulant, depression, antipruritic, hemorrhoids, menstrual problem, laxative, digestive, spasm, diuretic, laxative, aphrodisiac, obesity, stimulant, fever lowering, anti-inflammatory, kidney stone, sedative, ear and toothache, cardiovascular disease, eye disease, mastitis, constipation, female, respiratory, nervous and skin diseases (Gürdal ve Kültür, 2013)
15	*Silybum marianum* (L.) Gaertner F. Karahan 1429	Kangal, Kenger	Whole plant	As food	Eaten raw	Asthma, liver diseases, eaten fresh (Sargin et al., 2015; Sargin & Büyükcengiz, 2019; Sargin, 2019)
16	*Sonchus asper* (L.) Hill. F. Karahan 1431	Eşek marulu	Leaves	Medicinal	Used for wound healing	Food, insect bites, mouth sores (Fakir et al., 2009)
17	*Taraxacum microcephaloides* Soest F. Karahan 1441	Karahindibağı	Whole plant	Medicinal, as food	It is used as a tea against cancer. Consumed as salad.	Diabetes, malaria, ulcers, stomach pain, constipation, eczema, warts and calluses (Fakir et al., 2009)
	BRASSICACEAE					
18	***Brassica oleracea* L. F. Karahan 1443	Lahana	Leaves	Medicinal, as a food	Consumed as sarma food. It is boiled in water and consumed as a stew. Cabbage is boiled and wrapped in knee pain	Edible, scurvy, inflamed wounds, constipation problems (Karahan & İlçim, 2017; Owfi, 2021; Özçelik, 2022)
19	*Capsella bursa-pastoris* (L.) Medik. F. Karahan 1434	Çobançantası	Whole plant	As a food	Eaten as a pastry	Uterine bleeding, malignant ulcers, stomach cancer, kidney stones, dysentery, gastritis, tuberculosis and eye diseases, diabetes, tooth and nose bleeding, burn treatment, constipation, intestinal spasm, rheumatism (Bağcı et al., 2006; Sargın et al., 2013; Zaurov et al., 2013)
20	*Isatis* sp. F. Karahan 1451	Meyana	Whole plant	Medicinal	It is used as a tea against constipation in children. It is dried and powdered with parsley and figs and given the form of pills by adding real honey. It is drunk on an empty stomach in the morning against stomach diseases and hemorrhoids.	Eaten as a meal and salad (Kerar & Akan, 2019)
21	*Nasturtium officinale* W.T. Aiton F. Karahan 1427	Ispatan	Whole plant	Medicinal	It is mixed with flour and roasted on the stove and used against abdominal swelling in children.	Medicinally against goiter, neck swelling; thyroid gland diseases, also eaten as a meal and salad (Altay & Karahan, 2012; Kerar & Akan, 2019; Özçelik, 2022)

No	Plant taxa	Local name	Plant part used	Uses	Aim of uses	Recorded literature uses
	CACTACEAE					
22	***Opuntia ficus-indica* (L.) Miller F. Karahan 1439	Papuç inciri, Frenk inciri	Stem, Fruits	Medicinal	The stems are crushed and used against knee pain.	Pain, rheumatism, insect bites, abdominal pain, kidney stones, respiratory diseases, hematomas, diarrhea, edema, skin, liver, and musculoskeletal disorders, sedative, diuretic, antispasmodic (Gürdal & Kültür, 2013)
	CAPPARACEAE					
23	*Capparis spinosa* L. F. Karahan 1436	Kemer kökü	Seeds, buds	Medicinal, As a food	Antibiotics, eaten as pickles	Wounds, asthma and gastrointestinal diseases, hepatitis, hemorrhoids, toothaches, diarrhea cataract, skin reactions, oxidative stress, analgesic and vermifuge, also, pickles are appetizing. (Zaurov et al., 2013; Karahan & İlçim, 2017; Kerar & Akan, 2019)
	CHENOPODIACEAE					
24	****Beta vulgaris* L. var. *cicla* (L.) K. Koch F. Karahan 1428	Pancar, Pazı	Whole plant	Medicinal	It is cooked with pomegranate syrup and used against intestinal parasites	As food, detox (Altay et al., 2015; Kocabaş & Gedik, 2016)
	ELAEAGNACEAE					
25	*Elaeagnus angustifolia* L. F. Karahan 1435	İğde	Woods	Firewood	Used as firewood	Breath freshener, food, necklace, rosary making (Kocabaş & Gedik, 2016)
	ERICACEAE					
26	*Erica manipuliflora* Salisb. F. Karahan 1452	Puren	Stem	Tool making	Broom is made	Slimming, diuretic, constipation, arthritis (Öztürk et al., 2017)
	EUPHORBIACEAE					
27	*Euphorbia* spp. F. Karahan 1440	Sütloğan, Sütleğen	Stem	Medicinal	Stem milk is applied to temra wounds in livestock	Eczema, hemorrhoids, constipation, rheumatism, warts, diuretick (Güzel et al., 2015; Öztürk et al., 2017)
	FABACEAE					
28	*Cercis siliquastrum* L. subsp. *siliquastrum* F. Karahan 1487	Erguvan	Flowers	Medicinal	As a tea against cough	Malaria, burn treatment (Güzel et al., 2015; Kerar & Akan, 2019)
29	*Spartium junceum* L. F. Karahan 1490	Boruk, Katırtırnağı	Whole plant	Tool making	Figs and molasses are dried on it. Also broom is made	Stomachic, kidney stones, anesthetic, diuretic (Senkardes & Tuzlacı, 2014; Kültür et al., 2021)
30	*Trifolium* spp. F. Karahan 1491	Üçgül	Whole plant	Medicinal	It is used as a tea against atherosclerosis.	Kidney pains, animal feed (Ünver, 2019; Kültür et al., 2021)
31	*Trifolium pilulare* Boiss. F. Karahan 1492	Sancı otu	Whole plant	Medicinal	It is used as a tea for pains	Animal feed (Kerar & Akan, 2019)
	GERANIACEAE					
32	**Erodium amanum* Boiss. & Kotschy F. Karahan 1489	İğnelik	Whole plant	As a food	It is cooked by frying with onions and olive oil	Chronic and acute rheumatism (Karahan, 2022)
	HYPERICACEAE					
33	*Hypericum perforatum* L. F. Karahan 1453	Kantaron	Flowers	Medicinal	As a tea against stomach wound, externally as a wound healer.	Hemorrhoid, prostate, diabetes, hypertension, urinary tract infections, diaper rash, rheumatism, osteoporosis, skin lesion, sunburn, antiseptic, antispasmodic, constipation, ulcer, sedative, arthritis, depression, insomnia, expectorant, jaundice, tuberculosis, asthma, stomach and abdominal pains, rheumatism, hemorrhoids, skin burns, inflammation and wounds, diarrhea, mastitis (for animal), enteritis, ulcer (Polat & Satıl, 2012; Karahan & İlçim, 2017; Öztürk et al., 2017)
	JUGLANDACEAE					
34	*Juglans regia* L. F. Karahan 1461	Ceviz	Fruits, stem barks	Tool making, dye plants	It is used to prevent the dye from flowing when women dye their hair or to make the henna dye red and bright. Daily kitchen utensils made such as breadboard, spoon, ladle, rolling pin (also local names such as tokaç,	Fruits for hair loss and diabetes, wood is used in carpentry and for furniture, household utensils, and musical instruments (Kocabaş & Gedik, 2016; GC et al., 2021)

No	Plant taxa	Local name	Plant part used	Uses	Aim of uses	Recorded literature uses
					kernep, astım, evraç).	
	LAMIACEAE					
35	*Ajuga chamaepitys* (L.) Schreber F. Karahan 1454	Kızlarleylimi	Whole plant	Medicinal	As a tea against stomach ailments, kidney and gallstones.	Tonic, antipyretic, hemorrhoidal, diuretic, wound healer, pain reliever (Terzioğlu & Coşkunçelebi, 2021)
36	*Lavandula stoechas* L. F. Karahan 1444	Karabaş otu	Whole plant	Medicinal, tool making	It is used as a tea against cardiovascular diseases, shortness of breath, skin wounds, it is a slimming tea and germicidal. The broom is made.	Stomach and headaches, cancer, urinary tract diseases, antiseptic, ulcer, nervous disease, asthma, cardiovascular disease, diabetes, cholesterol, cough, cold, bronchitis, smoking cessation, sedative, insomnia, epilepsy, obesity digestive, carminative, kidney stone, injury, rheumatism, skin diseases, musculoskeletal disease, respiratory disease, menstrual disorders, bad breath (Gürdal & Kültür, 2013)
37	*Melissa officinalis* L. F. Karahan 1445	Melisa	Whole plant, flowers	Medicinal	Relaxation	Brain stimulant, cold, high fever, stomach pain and spasms, cardiovascular diseases, insomnia, headache, migraine, weakness, hyperthyroidism, ear ache, relaxing (Korkmaz & Karakurt, 2014; Özyigit et al., 2022)
38	*Mentha longifolia* (L.) Hudson F. Karahan 1446	Nane, Yabani nane, Yarpuz	Whole plant	Medicinal, as a spice, fragrant	It is used as a tea against cold and flu. It is used as a blood stopper and as a spice in meals. In addition, tarhana is dried on it because it gives a nice smell	Cold, flu, bronchitis, asthma, cough, flu, stomachache, menstrual pain, stomach, headache, lung ailments, diarrhea, hemorrhoids, sunstroke (Altundağ & Özturk 2011)
39	***Ocimum basilicum* L. F. Karahan 1447	Mor reyhan, Reyhan	Whole plant	Medicinal, as a spice	It is used as a spice and a tea against cough	Upper respiratory tract infections (cough, bronchitis, laryngitis, pharyngitis, etc.), chronic gastritis, enterocolitis, food poisoning, nausea and spasm, dysentery, cramps, diuretic, appetizing, sedative, relaxing (Özyiğit et al., 2018; Sharopov & Setzer, 2018)
40	*Rosmarinus officinalis* L. F. Karahan 1448	Biberiye	Above plant	Medicinal	It is used as a tea against indigestion, against blood pressure, and as a sedative.	Hypertension, asthma, obesity, anorexia, diuretic (Sağıroğlu et al., 2013; Sargin & Büyükcengiz, 2019)
41	*Teucrium polium* L. F. Karahan 1449	Peryavşan	Whole plant	Medicinal	It is used as a tea against headache and diabetes. It is put in the shower water and is good for fatigue.	Cold, cough, sore throat, back and foot pain due to fatigue, rheumatic pain, stomach cold, against motion sickness toothache (Fakir et al., 2009; Kocabaş & Gedik, 2016; Özçelik, 2022)
42	*Thymus kotschyanus* Boiss. & Hohen subsp. *kotschyanus* F. Karahan 1450	Kekik	Whole plant	Medicinal, as a spice, superstitious and religious beliefs	After being boiled in water and cooled, mouthwash is made and used against intra-oral wounds and inflammations. It is used as a spice. In addition, it is fried with salt in a pan and it is believed that it is good for the eyes and evil eye by drawing salawat in its smoke.	As a spice, colds (Kocabaş & Gedik, 2016)
	LAURACEAE					
43	*Laurus nobilis* L. F. Karahan 1455	Defne, Har, Gar	Leaves, seeds	Medicinal, cosmetic	It is used as a tea against cough, laurel and olive oil are boiled together to make soap. The laurel soap is chopped into the egg white and whisked. This mixture is used as a	Spices, hair care (Kocabaş & Gedik, 2016)

No	Plant taxa	Local name	Plant part used	Uses	Aim of uses	Recorded literature uses
					plaster for fractures in a cloth.	
44	****Persea americana** Mill. F. Karahan 1456	Avakado	Leaves, Fruits	Cosmetic	It is boiled and used as a hair nourisher.	Antihypertensive, exfoliative, vasorelaxation, analgesia, anti-inflammatory activity, anticonvulsant activity, antiviral, wound healing, hepatoprotective, antioxidant and hypoglycemic (Saleem et al., 2019)
	MALVACEAE					
45	*Malva sylvestris* L. F. Karahan 1482	Ebegümeci, Kömeç	Whole plant	Medicinal, as a food, superstitious/ religious beliefs	It is fried with oil and onions and eaten. It is thrown into the water where the clothes are washed and provides a nice foaming. It is roasted with flour and used externally against boils on the feet. It is crushed in a mortar and added to the water in which the deceased was washed and it is believed to produce urine.	Diuretic, sedative, expectorant, eczema, bee sting, insect sting, burn, abscess boil, acne and sores, laxative, stomachache, bronchitis, cold, rheumatism, tonsillitis, gastritis and ulcer, cancer, sedative, hoarseness, edema, headache, cardiovascular and gastrointestinal diseases, asthma, kidney stones, miscarriage, menstrual problem, dislocation, weight loss, toothache, sore throat, galactagogue, constipation, gynecological diseases, prostatitis, stomatitis, lung diseases, cholesterol, hemorrhoids, constipation, neurosis (Gürdal & Kültür, 2013)
	MELIACEAE					
46	*Melia azedarach* L. F. Karahan 1483	Tespih ağacı	Seeds	Medicinal	Its seeds are pounded together with hibiscus, mixed with flour and white onion and rubbed into bruised wounds. If the wound is very bruised, sumac syrup is also added.	Hemorrhoids, psoriasis, rheumatism, headache, intestinal parasites (Al-Qura'n 2008; Güzel et al., 2015; Ekren & Çorbacı, 2021)
	MORACEAE					
47	*Ficus carica* L. subsp. *carica* F. Karahan 1484	İncir, Yemiş	Fruits	As a food	It is eaten as a snack, and the milk of its fruit is used as rennet (Teleme).	Medically, cancer, flu, wart treatment, callus treatment, constipation, analgesic, bee and insect bites are also eaten wet or dry, jam is made, and it is also used as yeast in cheese (teleme) production (Sargın et al., 2013; Güzel et al., 2015; Kerar & Akan, 2019)
48	*Morus alba* L. F. Karahan 1486	Dut	Fruits	Medicinal	Dried and eaten, it is used against kidney stones, constipation and also accelerates metabolism.	Food, indigestion, milk enhancer, abscess, stomach ailments, stomach ulcer (Altundağ & Özturk, 2011; Kocabaş ve Gedik 2016)
	MYRTACEAE					
49	*****Myrtus communis** L. F. Karahan 1485	Hambeles	Whole plant, fruits	Superstitious and religious beliefs	The fruits are prayed and put in the shroud of the dead. It is also used against calcification by boiling the above-ground parts and sitting in the water. Broom is made	Food, high cholesterol, diabetes, cough, weight loss, mouth sores, constipation, astringent, antiseptic, laxative, hypoglycemic, analgesic, hemostatic, hair tonic, stimulant, stomachic, appetizing, hemorrhagic and wound healing (Özçelik, 2022; Özyiğit et al., 2022)
	OLEACEAE					
50	*Fraxinus excelsior* L. F. Karahan 1493	Dişbudak	Leaves	Dye plants	Leaves in boiled water for dyeing of woolen yarns with yellow	Medically, migraine pain, kidney stones, constipation, rheumatism, antipyretic, expectorant, astringent, diuretic, laxative, diarrhea, rheumatism, gout, slimming tea, boat and pulley are made from wood (Korkmaz & Karakurt, 2014, Öztürk et al., 2018a)
51	*****Olea europaea** L. F. Karahan 1494	Zeytin	Fruits, seeds, leaves	Medicinal, as a food, cosmetic, as a fuel	It is consumed as olives, olive salad, and olive oil. The leaves are chewed against mouth	Cardiovascular, skin and eye diseases diabetes tissue repair, inflammation, blood pressure, constipation, antipyretic, appetizing (Gürdal & Kültür, 2013; Karahan & İlçim, 2017).

No	Plant taxa	Local name	Plant part used	Uses	Aim of uses	Recorded literature uses
					sores, olive oil is applied to the hair, eyebrows and beard, and soap is made from the seed oil. Its pulp is used as a fuel in the form of pomace.	
52	*Phillyrea latifolia* L. F. Karahan 1457	Akçakesme	Woods	Firewood	Used as firewood	Animal feed (Kerar ve Akan 2019)
	PAPAVERACEAE					
53	*Papaver rhoeas* L. F. Karahan 1488	Gelincik	Whole plant, flowers	Medicinal, as a food	It is used as a tea against insomnia, it is also roasted with rush broom and pastry is made.	Antistress, burn, wound, insomnia, sedative, anthelmintic cough, aphthae, anemia, tonic, hemorrhoids, rheumatism, immunotoxic, epistaxis, galactagogue, eye disease, nervous disease, baldness, nervous disease, digestive, respiratory disease (Gürdal & Kültür, 2013)
	PEDALIACEAE					
54	*Sesamum indicum* L. F. Karahan 1459	Küncü	Fruits, Seeds	Medicinal	It is mixed with crushed and roasted milk and used against inflamed wounds.	Burns and wounds, skin and hair care, backaches (Sargin, 2015; Güneş et al., 2018)
	PINACEAE					
55	*Pinus brutia* Ten. F. Karahan 1458	Çam ağacı	Cones, flowers, resin and stem barks	Medicinal, as a food, toys	Jams are made from cones and toys for children are made from stem shells. The flowers are used as a tea against cough. Its resin is used in pill form against liver diseases	Cough, bronchitis, asthma, bad breath, teeth cleaning, stomachache and ulcer, diabetes, appetizer, skin sores, scabies, anti-acarides (Karahan et al., 2020)
	PLANTAGINACEAE					
56	*Plantago lanceolata* L. F. Karahan 1464	Damar otu	Whole plant	Medicinal	Used as a tea for atherosclerosis	Abscess, respiratory problems, visceral wounds, cough, wounds, insect bites, acne ulcers, stomachaches, hemorrhoids, embolism, gynecological diseases, urinary tract infections, shortness of breath, cardiovascular diseases, lung protective, also antiparasitic, expectorant, slimming and anti- inflammatory (Karahan, 2022; Özçelik, 2022)
	PLATANACEAE					
57	*Platanus orientalis* L. F. Karahan 1481	Çınar	Leaves, Fruits	Medicinal	Especially 5-part leaves are used as tea against joint calcification.	Calcification, joint pain, menstrual regulator (Bulut & Tuzlaci, 2013; Kerar & Akan, 2019)
	POLYGONACEAE					
58	*Rumex acetosella* L. F. Karahan 1480	Ebelik, Evelik	Stem, Seeds	Medicinal	It is used as a tea against diarrhea and stomachache. It is used against itching by boiling the stem and seeds.	Raw "ekşimen salatası" and roasted "Kilime pilavı" (Özer & Türkmen, 2019; Sargın, 2019
	PORTULACEAE					
59	*Portulaca oleracea* L. F. Karahan 1460	Semiz otu, Soğukluk	Whole plant	As a food	It is consumed as vegetables, salad, tzatziki and pastry alongside meals and it is also fed to cool the animals in hot weather.	Eaten as a meal and salad, animal feed (Kerar & Akan, 2019)
	PUNICAEAE					
60	***Punica granatum* L. F. Karahan 1465	Nar	Fruits, Flowers	Medicinal, as food, dye plants	It is used as a tea against intestinal disorders. The pomegranate syrup is made. Dye is obtained from its flowers.	Diabetes, cholesterol, abdominal pain, digestive, cardiovascular and kidney diseases, constipation problems, diuretic, diarrhea, cough, pain, prostate, mouth sores (Gürdal & Kültür, 2013; Kocabaş & Gedik, 2016; Özçelik, 2022

No	Plant taxa	Local name	Plant part used	Uses	Aim of uses	Recorded literature uses
	PTERIDACEAE					
61	*Adianthum capillus-veneris* L. F. Karahan 1478	Erefe otu, baldırıkara	Whole plant	Medicinal	Kidney stones	Expectorant, kidney stone, heartburn, menstrual regulation (Fakir et al., 2009; Kocabaş & Gedik, 2016)
	RHAMNACEAE					
62	*Paliurus spina-christi* P. Mill. F. Karahan 1466	Karadal	Whole plant	Dye plants	A yellow color thread is obtained by boiling and a brown color thread is obtained by mixing with ash.	For muscle cramps, joint pain, warts, kidney stones and inflammation, constipation, kidney stones, hepatitis, lung inflammation, stomachache, dysentery, diuretic (Kocabaş & Gedik, 2016; Karahan et al., 2022).
63	*Zizyphus lotus* (L.) Lam. F. Karahan 1479	Gülnap, Hannep	Fruits	As a food	The fruits are used for regulating blood sugar	Medicinally for gastric ulcers and spasms, also its stem is used to make garden fencing (İlçim, 2014; Kerar & Akan, 2019)
	ROSACEAE					
64	***Prunus avium* L. F. Karahan 1468	Kiraz	Fruits, Leaves	Medicinal, As a food	The jam is made. It is used as a tea against skin wounds, acne, psoriasis.	Inflammation, acne, obesity, diuretic, kidney stones, also eaten as jam (Metin, 2009; Sargın, 2015)
65	***Prunus domestica* L. F. Karahan 1469	Erik ağacı	Stems, Fruits	Tool making	Daily kitchen utensils made such as breadboard, spoon, ladle, rolling pin (also local names such as tokaç, kernep, astım, evraç).	Anticoagulant, analgesic, stomachic, also eaten raw or jam, music instrument "Mey" made (Al-Qura'n, 2008; Akaydın et al., 2013; Karahan et al., 2015)
66	*Rosa* spp. F. Karahan 1473	Kafirin, Gül	Flowers	Superstitious and religious beliefs	It is put in the shroud because it gives a nice smell.	Diabetes, flu, diarrhea, shortness of breath (Kocabaş & Gedik, 2016; Güneş et al., 2018)
67	*Rubus idaeus* L. F. Karahan 1467	Ahududu	Fruits	Medicinal	Used against mouth sores by chewing	Diabetes, sugar, toothache, gum disease, high fever, burning and allergic itching, also eaten as syrup, jam and marmalade (Metin, 2009; Ünver, 2019)
68	*Rubus sanctus* Schreber F. Karahan 1476	Yabani böğürtlen	Whole plant	Medicinal	Used as a tea against high blood pressure	Rheumatism, eczema, hemorrhoids, kidney stones, diabetes, tonsillitis, stomachache, antipyretic, cancer, constipation, birthmark, infertility, ulcer, diuretic, respiratory disease, toothache, liver diseases, hemostatic, musculoskeletal disease, stomach, wound, biliary bladder disease (Gürdal & Kültür, 2013)
69	*Sanguisorba minor* Scop. F. Karahan 1471	Dardağan otu	Whole plant	Medicinal	It is used as an ointment against wounds, especially heel wounds.	Kidney stone, hernia (Kültür et al., 2021)
	RUTACEAE					
70	*Citrus sinensis* (L.) Osbeck F. Karahan 1474	Portakal	Leaves	Medicinal	As a tea against constipation, to lose weight	Antiseptic, nervous disease, constipation, cardiovascular and respiratory diseases, sedative, digestive, abdominal pain, wart (Gürdal & Kültür, 2013)
	SALICACEAE					
71	*Salix triandra* L. F. Karahan 1477	Söğüt ağacı	Leaves	Medicinal	Tea is used against malaria and to strengthen immunity.	Energizing, antipyretic, relieving constipation, rheumatic pains (Saday, 2009)
	SOLANAECAE					
72	*Solanum tuberosum* L. F. Karahan 1470	Patates	Tubers	Medicinal	Used against eye inflammation and swelling	Abscesses, headache (Senkardes & Tuzlacı, 2014; Karakaya et al., 2020)
	TILIACEAE					
73	*Tilia argentea* Desf. ex DC. F. Karahan 1475	Ihlamur	Above plant, Stems, Flowers	Medicinal, tool making	As a tea, it is good for flu and cold. Daily kitchen items made such as breadboard, spoon, ladle, rolling pin (also local names such as tokaç, kernep, astım, evraç)	Pain reliever, diuretic, antipyretic, sore throat, nausea, insomnia, sedative, sedative, expectorant, antioxidant (Akbulut, 2015; Öztürk et al., 2017)
	URTICACEAE					
74	*Urtica dioica* L. F. Karahan 1472	Isırgan otu	Whole plant	Medicinal, as a food	It is used as a blood purifier as tea, and also as a meal.	Medicinally as a diuretic, blood purifier, anemia, rheumatic pains, inflammations, hair care, also as a pastry filling, roasted or

No	Plant taxa	Local name	Plant part used	Uses	Aim of uses	Recorded literature uses
						as a salad. (Saday, 2009; Kocabaş & Gedik, 2016)
	VITACEAE					
75	*Vitis vinifera* L. F. Karahan 1495	Üzüm	Fruits, Leaves	Medicinal, as a food	Molasses is made for treating anemia. Tea boiled with olive oil is used against cough. Used for wrap food	Tonsillitis, anemia, bleeding, skin and hair care, bruises, bruises, puerperal women mix molasses and black pepper for their immune system and drink it, antipyretic. (Metin, 2009; Polat & Satıl, 2012)

*Endemic, **: Exotic, ***: Cultured plants

Figure 2. The field and survey studies (Ceylanlı village/Kırıkhan)

When evaluated in terms of the usage purposes, it was determined that the identified plants were generally used for medicinal purposes (50%) and as food (21%) as shown in Figure 3. If the usage purposes are to be classified in detail, the plants are mostly used as food (13 taxa), for wound healing (8 taxa), cosmetics (7 taxa), stomach ailments and making daily goods (6 taxa), kidney-gallstone reducer, cough suppressant, and dye plant (5 taxa each) (Table 2).

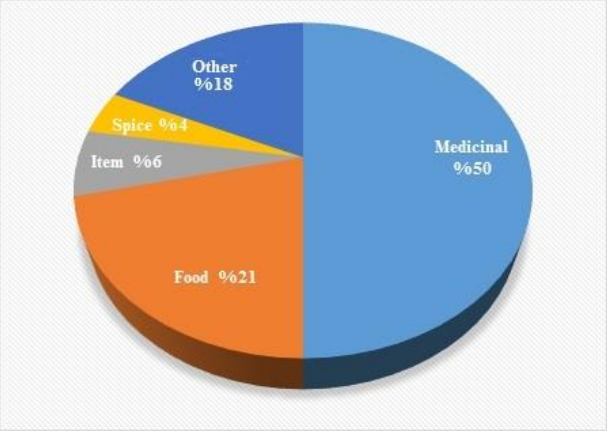

Figure 3. Purpose of use of studied plants (%)

Generally, the plants in the study area are medicinally used by the local people for upper respiratory tract infections (cold, flu, cold, bronchitis, etc.), asthma, skin diseases, wound healing, hemorrhoids, painkillers, kidney and gallstones, mouth sores, high cholesterol, and knee pain. A majority of these plants are used for the treatment of respiratory disorders (common cold, cough, etc.) (12%), wounds (10.7%), stomachic problems (8%), and the other purposes (Fig. 4). It is used in the treatment of many diseases such as joint diseases. Plants used for medicinal purposes generally belong to the Asteraceae and Lamiacae families which contain many medicinal aromatic plants and are widely used for medicinal purposes in different regions (Table 1).

Plants consumed in the study area as food (fresh, pastry, meal, salad, pickle, spice, etc.) are: *Allium ampeloprasum* (Körmen), *Arum dioscoridis* (Dağ pancarı), *Brassica oleracea* (Lahana), *Capparis spinosa* (Kemer kökü), *Capsella bursa-pastoris* (Çobançantası), *Erodium amanum* (İğnelik), *Ficus carica* (İncir, Yemiş), *Malva sylvestris* (Ebegümeci, kömeç), *Olea europaea* (Zeytin), *Papaver rhoeas* (Gelincik), *Pistacia terebinthus* (Menengiç), *Portulaca oleracea* (Semizotu, Soğukluk), *Prunus avium* (Kiraz), *Prunus* × *domestica* (Erik), *Punica granatum* (Nar), *Rhus coriaria* (Sumak), *Silybum marianum* (Kangal, Kenger), *Taraxacum microcephaloides* (Karahindibağı), *Thymus kotschyanus* subsp. *kotschyanus* (Kekik), *Urtica dioica* (Isırgan otu), and *Vitis vinifera* (Üzüm) taxa (Table 1).

The parts of the plants whose ethnobotanical characteristics are determined change according to the way they are used. Local people most commonly use above-ground parts (34 taxa), fruits (14 taxa), leaves (13 taxa), flowers (11 taxa), stems (8 taxa), seeds (6 taxa), and other parts such as cones and resin of the plants (8 taxa each) in the study area (Fig. 5).

Previously, the ethnobotanical uses of the plants sold in the neighborhood markets and herbalists by the Kırıkhan district of Ceylanlı village, which is our research area, were examined and it was determined that 70 plant taxa belonging to 32 families are sold in herbalists and a total of 37 different plant taxa belonging to 23 families are sold in neighborhood markets (Altay et al 2015). It was also determined that *Arum dioscoridis* (Dağ pancarı), *Beta vulgaris* (Pancar, Pazı), *Portulaca oleracea* (Semizotu), *Spartium junceum* (Boruk çiçeği), *Narcissus tazetta* (Nergiz), *Rhus coriaria* (Sumak), *Allium cepa* (Zambık), *Malva sylvestris* (Kömeç), *Pistacia terebinthus* subsp. *palaestina* (Işkın), *Nasturtium officinale* (Ispatan), and *Teucrium polium* (Peryavşan) are similarly sold in herbalists and neighborhood markets for commercial purposes (Table 1).

Table 2. Purpose of use of studied plants

Purpose of usage	Number of taxa
as a food	13
wound healer	8
cosmetic	7
stomachic	6
item making	6
kidney and gallstone	5
cough	5
as dye plants	5
mouth sores	4
common cold	4
skin diseases	4
spice	4
superstitious/religious beliefs	4
constipation	3
as firewood	3
pains	2
animal poisoning	2
knee joint diseases	2
antibiotic	2
headaches	2
animal diseases	2
slimming tea	2
blood pressure	2
diabetes	2
athlete's foot	1
blood stopper	1
interference	1
bowel	1
diarrhea	1
weakness	1
indigestion	1
hemorrhoids	1
shortness of breath	1
relaxing tea	1
eye inflammation and swelling	1
cancer	1
blood purifier	1
anemia	1
as rennet	1
fragrant	1
toy making	1
	116

4. Discussion

Compared to the previous ethnobotanical studies, although the species, local names, parts used, and usage patterns of the plants in this study are similar to nearby regions, especially the purposes of benefiting from plants may vary between local societies. For instance, while the *Eryngium creticum* (Devetabanı) species in our study is used against wounds and foot fungus by beating and crushing, it is known as "Beektire/Ekkeyde" in a study carried out in Mardin province and is eaten as a snack (Yeşil et al., 2019). Fruits of *Ficus carica* (incir) is eaten fresh/dry or as jam. In addition, cheese (teleme) is made by dripping the milk of the raw fruit into cow, goat or sheep milk. This usage pattern is similar to the ethnobotanical usage in the nearby Aktepe and Zeytinoba villages (Hassa/Hatay) (Kerar & Akan, 2019). *Rumex acetocella*, known as "ebelik/evelik" in the research area and used medically against diarrhea, stomachache, and skin itching, is known with the local name "ekşimen" in Gaziantep province and eaten as salad (Özer & Türkmen, 2019). Also, it is known that " Kuzukulağı, ekşimek and ekşikulak" and "Kilime pilavı" is made by roasting with bulgur in Bozyazı district (Mersin province) (Sargın, 2019). These differences confirm that Anatolian geography has a very rich cultural and ethnobotanical heritage.

When compared in terms of ethnobotanical uses, many ethnobotanical studies have reported that some plants studied have different ethnobotanical uses in other countries. For instance, bulbs of *A. cepa* are used as wound healing, diuretic, and for vagina washing while bulbs of *Allium sativum* are used for the treatment of hypertension, acne, wasp bites, and wounds, to protect against evil eye, and as antihelmintic in Italy (Cornara et al., 2009). *Capsella bursa-pastoris* have been used as haemostatic, hypotensive, alimentary, and astringent in Jordan and Italy (Leporatti & Guarrera, 2007; Al-Quran, 2008). In Iran, it was reported that *Elaeagnus angustifolia* has been used as anti-diarrheal and hepatoprotective and also against gastric pains and rheumatoid arthritis (Karimi et al., 2010; Ghasemi et al., 2013). Latex of *Ficus carica* are medicinally used to heal warts and calluses and also fruits are eaten raw and used to make jams in Marche region, Italy (Lucchetti et al., 2019). *Hypericum perforatum* have been used as antidepressant, choleretic, wound healing (human and veterinary use), anti-diarrheal, and antimicrobial in Romania and Italy (Ghasemi et al., 2013; Marinescu et al., 2020). *Laurus nobilis* has been used medicinally as antirheumatic, digestive, antiscabies, stomach ache, gases, and cough and its leaves are used to flavor meat and fish, and cosmetically it is used in bath water to relax in Italy, Spain, and Jordan (Guarrera et al., 2005; Al-Quran, 2008; Benítez et al., 2010; Lucchetti et al., 2019).

The other taxa *Myrtus communis* is useful traditionally for mouthwash in gingivitis, stomachic, chronic bronchitis and epilepsy in Italy while it is used for dysentery, diarrhea, and rheumatism in Pakistan (Leporatti & Guarrera, 2007; Ahmad et al., 2021). *Opuntia ficus-indica* is used in the treatment of diabetes in Morocco; against burns, kidney pains, clean ailments, and to bring good luck in Bolivia; and as antispasmodic, skin emollient, and diuretic in Liguria region of Italy (Jouad et al., 2001; Macía et al., 2005; Passalacqua et al., 2007). *Tilia argentea* is one of the most important medicinally plants used for the sore throat, bronchitis, kidney disorders, common colds, inhalation, sedative in Bulgaria and it also used against migraine, ingestion problems, liver and gall bladder disorders, nervous tension, and ingestion problems in Central Italy (Koleva et al., 2015; Frezza et al., 2020). Another ethnobotanical study reported that *Urtica dioica* has been used for hypertension, sedative, blood sugar, and

digestive in north of Iran (Mirdeilami et al., 2011). As a result, all these reports demonstrate that the ethnobotanical uses of plants in different societies and cultures are various.

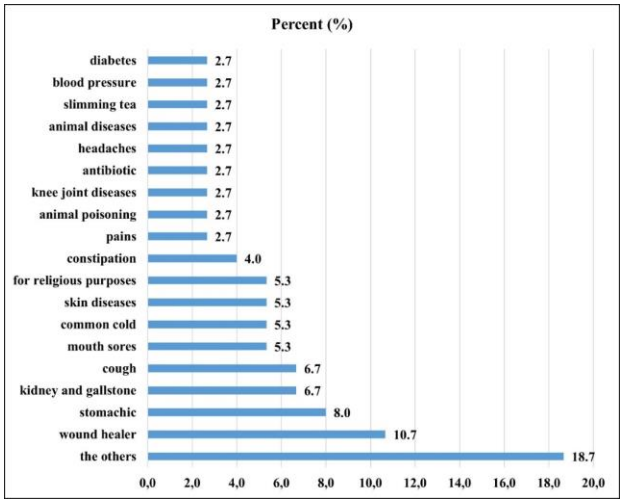

Figure 4. Therapeutic uses of the medicinal and aromatic plant taxa on Percentage Basis.

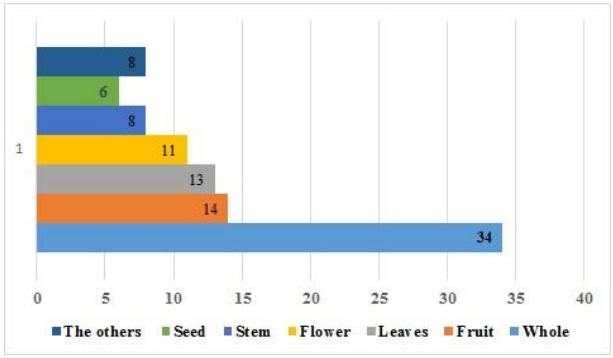

Figure 5. Used parts of the studied plants

Most of the plants identified in our study area are collected from nature. Very few of them are cultivated plants. The unconscious collection of the medicinal plants, especially the endemic *Erodium amanum* (İğnelik otu) taxa which takes its name from the Amanos Mountains and is used by the people of the region, causes a significant decrease in the populations in nature. This situation once again reveals the importance of cultivating medicinal and aromatic plants.

When collecting medicinal plants from nature, especially during the appropriate vegetation period, they should be collected from relatively clean rural areas far from urbanization, traffic, mining sites, agricultural lands, and cement and stone quarries. Their habitats should be away from heavy metal pollution, which causes many serious health problems in the human body, especially when exposed. Finally, awareness of the local people should be raised through academic studies to be carried out in coordination with different disciplines such as medicine, pharmacy, phytochemistry, and ethnology about the plant species in the region.

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Conflict of interest: The authors declare that there is no conflict of interest.

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