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Research article

A study on some ethnobotanical information belonging to the Keşan (Edirne) region

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Abstract: Situated in a unique geographical location where three phytogeographic regions intersect, Turkey boasts a remarkably diverse flora, aproxymetly 12,000 plant taxa. Furthermore, it holds a pivotal position bridging the continents of Europe, Asia, and Africa, making it a cultural crossroads. Consequently, ethnobotanical studies that compile information on traditional uses are crucial in Turkey, a country characterized by both biological and cultural diversity. In this particular study, conducted in 2023, we visited 15 villages and the Keşan District center in Edirne's Keşan district. A total of 127 individuals were interviewed during these visits. The information collected during these interviews, including local plant names, intended uses, preparation methods, and the parts of the plants used, was documented through notes, photographs, audio recordings, and video recordings. Following our evaluations, we gathered a total of 94 pieces of traditional usage information, overing the uses of 62 plant taxa belonging to 31 different families. It was observed that 34 of these plants were employed for human health, 32 for nutritional purposes, 19 for industrial applications, 4 for agriculture and animal husbandry, 2 for veterinary uses, and 2 for religious and 1 for cosmetic purposes. This study contributes to the existing literature and will provide valuable information for future ethnobotanical studies in Edirne province and Thrace region.

Keywords: Ethnobotany, Edirne, Keşan, Thrace

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Introduction

Ethnobotany explores how plants were used, processed, and the cultural meanings in both the past and the present. The term "ethnobotany" is derived from the combination of the Greek words "ethnos" (folk) and "botany" (Tütenocaklı, 2002; Heinrich et al., 2004; Kendir & Güvenç, 2010). While the term 'ethnobotany' was first coined by the American botanist John William Harshberger in 1896, the relationship between humans and plants spans over 5,000 years. During this 5,000-year period, ancient Greek and Egyptian civilizations, as well as Sumerian, Hittite, and Assyrian civilizations, utilized plants for various purposes, including food, shelter, heating, treatment, and the production of various tools (Heinrich et al., 2004; Kendir & Güvenç 2010).

Turkey, located at the intersection of 3 phytogeographic regions, hosts approximately 12,000 plant taxa (Güner et al. 2012). In Anatolia,

which is a geography rich in plants, a lot of ethnobotanical information has been transferred from ancient times to the present day. The number of studies published only during the Republic years is around 1500 (Ertuğ 2014).

Today, people continue to utilize plants for a wide range of purposes. They can either cultivate the plants they need or gather them from the natural environment. Meeting the needs of individuals in rural areas is heavily reliant on nature. According to the World Health Organization (WHO), approximately 80% of the global population residing in developing countries rely on traditional medicines for their primary healthcare, considering these herbal remedies to be safe, cost-effective, and easily accessible. In developed countries, 25% of medicinal drugs are derived from plants and their derivatives (Ullah et al., 2014).

Considering these reasons, such studies should be conducted more frequently in Turkey, a country rich in plant diversity. Moreover, Turkey is abundant not only in terms of plant species but also in terms of socio-cultural diversity due to historical human migrations from the past to the present. Ethnobotanical studies are of great significance in a country where these two valuable resources intersect.

The study area, Edirne province, is situated on the Thrace peninsula, which has been one of Turkey's significant migration regions throughout its history. Edirne is also a western province of Turkey, located on the border with Bulgaria and Greece. Many people from the Balkans, once part of the Ottoman Empire, migrated to the Thrace region, especially before and after World War I. Consequently, these immigrants make up a substantial portion of Edirne's population. Therefore, ethnobotanical data is crucial in regions that experience such migration and where various cultures coexist (Kazancıgil & Gökçe; 2005).

Keşan, where our study was conducted, is a town situated in the southern part of Edirne province. It shares a cultural similarity with the broader province of Edirne. In addition to its noteworthy demographic and cultural makeup, Keşan is also remarkable for its ecological diversity. While pine and mixed forests are prevalent, the region also features plains, meadows, and coastal dune habitats, contributing to a higher plant diversity in the area. As a result, the wealth of ethnobotanical information is directly proportional to this diversity.

Several ethnobotanical studies have been conducted in the Thrace region. Akalın and Alpınar (1994) conducted research on medicinal and edible plants in Tekirdağ. Ecevit Genç and Özhatay (2006) carried out an ethnobotanical study in Çatalca, while Tuzlacı and Alparslan (2007) investigated folk remedies in Babaeski. Kültür (2007, 2008) conducted ethnobotanical research in Kırklareli and also focused on medicinal plants in the same region. Tuzlacı et al. (2010) studied folk remedies in Lalapaşa.

Güneş (2015, 2016a) identified plants used as folk remedies and for cooking in the central district and villages of Edirne, as well as in the Havsa district and its villages. Güneş (2016b, 2018a) also documented the use of plants in folk remedies and cooking in the Ipsala district and its villages in Edirne, Güneş (2017a) conducted similar research in the Meriç district and its villages and There is a study titled "An Ethnobotany Study in Enez Town from Edirne" by Güneş (2018b) and Enez ilçesinde ‘’Edirne’nin Enez İlçesinde Halk İlacı Olarak Kullanılan Bitkiler’’ by Kartal (2015).

Kartal and Güneş (2017) researched plants used as folk remedies in the Meriç district and its villages, and Güneş (2017b) identified plants used as folk remedies in the Uzunköprü district and its villages.

In addition to these studies, Çapanoğlu-Marangoz (2022) examined the flora and pharmaceutical properties of the "Tavuk Ormanı" region located in the north of Edirne as part of a master's thesis. Furthermore, a separate study conducted in a small area highlighted the local use of plants.

In this study, we aimed to identify the local names, scientific names, parts used and purposes of use of the plants used by the people in Keşan and surrounding villages and to contribute to the studies carried out in the region.

Materials and Method

Study Area

The study was conducted between May 2023 and September 2023 in the Keşan district of Edirne province, encompassing 15 villages and the town center. Keşan covers an area of 1,087 km² and is bordered by İpsala and Uzunköprü to the north, Tekirdağ's Malkara to the east, Tekirdağ's Şarköy to the southeast, Çanakkale's Gelibolu to the south, and Enez districts, with the Aegean Sea to the southwest (Figure 1).

Figure 1. Map of villages visited in kesan (Google earth, 2023).

The town's primary sources of income are agriculture and commerce. Due to its proximity to Greece, there is a continuous flow of tourists in and out of the district. Keşan boasts a high literacy rate of

98% (Kenneth et al. 1985; Karateke, 2013; TÜİK, 2022).

In selecting the villages for the study, we considered factors such as the villages' ethnic origins, migration history, and geographical locations. Some of the chosen villages have a predominantly ''Balkan immigrant or Pomak'' population, while others are composed of local residents known as ''gacal.'' The selected villages represent a range of geographical settings, including mountainous, forested, plain, and coastal areas.

Methodology

In this study, interviews primarily involved middle-aged and elderly individuals, chosen for their ability to transfer historical knowledge to the present. Field data were collected through note-taking, video and audio recordings. During interviews, we documented local plant names, usage purposes, preparation methods, and the parts of plants used.

Based on the information provided by participants, we prepared herbarium samples from relevant plant taxa and took photographs. Plant identification was conducted both in the field and on herbarium specimens. We employed reference works, including 'Flora of Turkey and the East Aegean Islands' (Davis 1965-85; Davis et al. 1988), 'Illustrated Flora of Turkey, Volume 1' (Güner et al. 2012), and 'Volume 2' (Güner et al. 2018) for plant identification. Some plants were identified only at the genus level due to the absence of distinctive characteristics during the study, and they were recorded accordingly.

Results and Discussions

During the field studies carried out in 15 villages of Keşan District, 94 traditional information was obtained by interviewing a total of 127 people (Table 1.). In this study, 62 plants taxa belonging to 31 families were identified. While 22 of these taxa are cultivated plants, 40 taxa are natural plant in Turkey. Thus, total of 62 taxa were determined. The most taxa from the Rosaceae family were included, with 7 taxa. This family is followed by Lamiaceae (6), Malvaceae (4) and Brassicaceae (4), respectively. The numbers of taxa belonging to other families are given in Figure 2.

Table 1. Number of uses of plant parts in traditional knowledge

Part of Plant	Number of Information Obtained	Part of Plant	Number of Information Obtained
Fruit	22	Flower & Polen	2
Herb	14	Seed	2
Leaf	13	Stem	2
Bulb	11	Tuber	2
Branch	7	Cone & Resin	1
Fruit&leaf	5	Flower & Brakte	1
Flower	3	Flower & Stem	1
Latex	3	Male Spike	1
Wood	3	Root	1

Species identified during the study were classified into 7 categories according to their intended use. Those are Cosmetic, Belief, Veterinary medicine, Agriculture & Animal husbandry, Food, Industrial, Medicine. While 32 plants are used for Food purposes, 19 plants are used for industrial purposes, 34 for medical purposes, 4 for Agriculture & Animal husbandry, 2 for Veterinary medicine, 2 for Belief and 1 for Cosmetic. Information about plant taxa, local names, parts used and usage purposes are given in Table 1.

When the traditional usage information obtained was examined, it was seen that the fruit part of the plants was mostly used. The fruit is followed by herb, leaf and bulb respectively.

It was observed that the most used parts after the bulb were branch, fruit&leaf, flower, latex and wood (Table 1). Parts used between 1 and 2 times are collected under the other category. Additionally, during some interviews, it was observed that 2 parts such as "leaf&pollen" were used in 1 traditional knowledge. While expressing it as a percentage, we used these parts in the chart as "multiple parts" (Fig. 5).

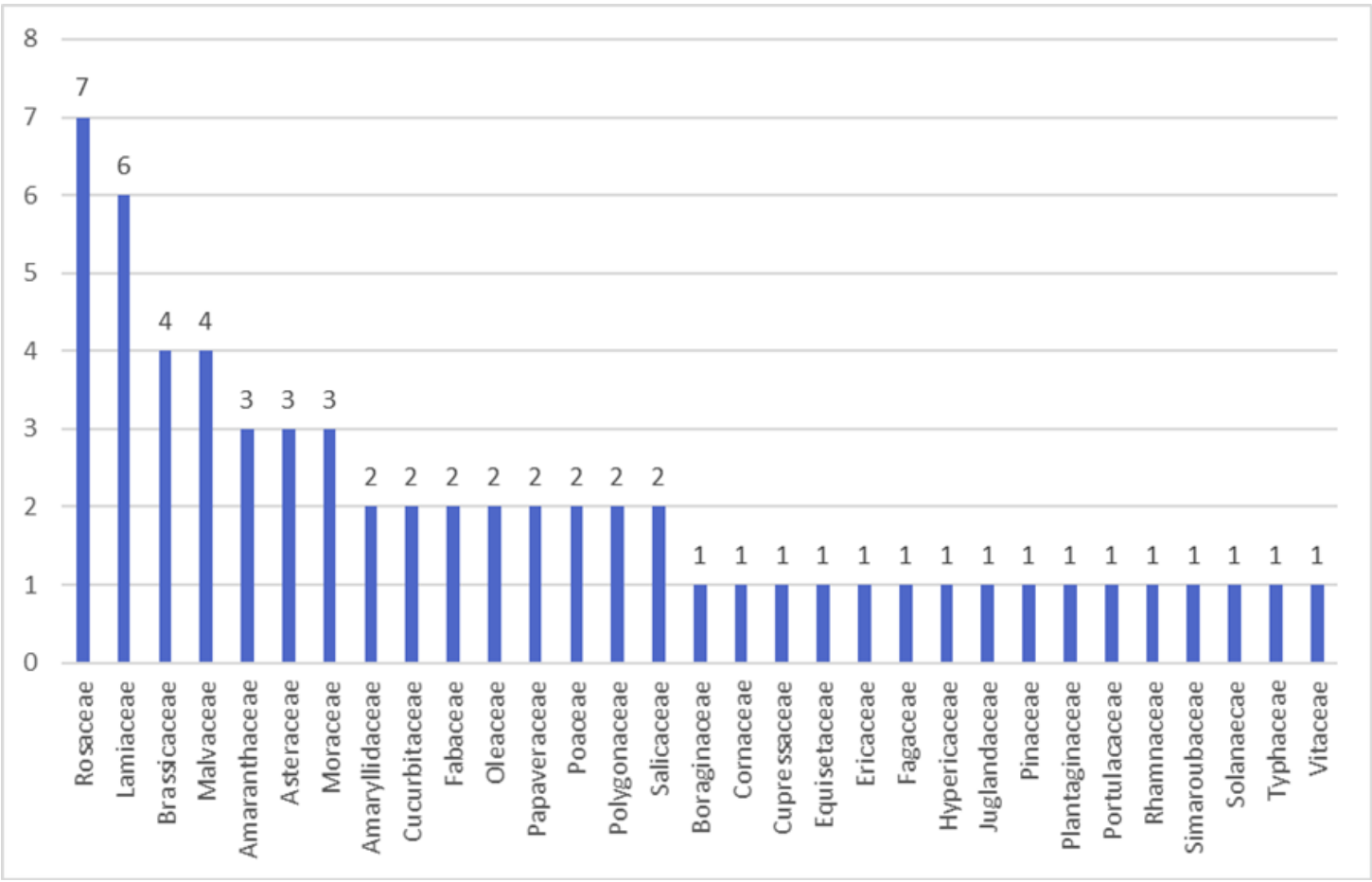

Figure 2. Number of taxa belonging to families

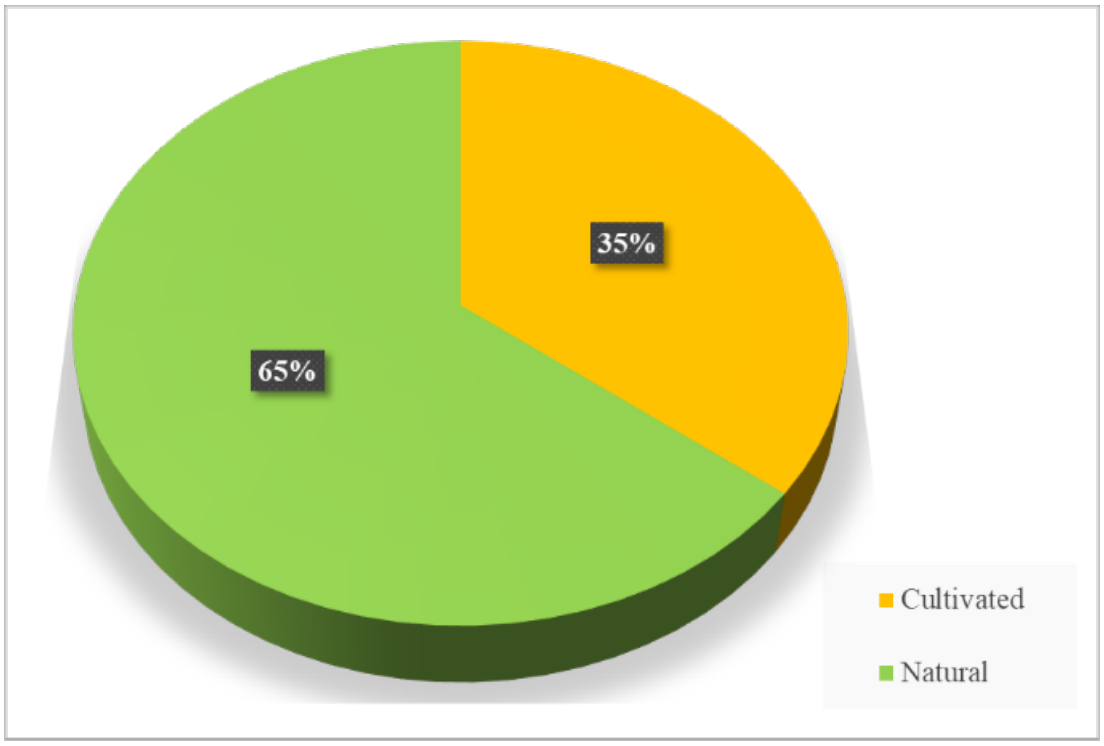

Figure 3. Natural-culture graph of plants proportionally

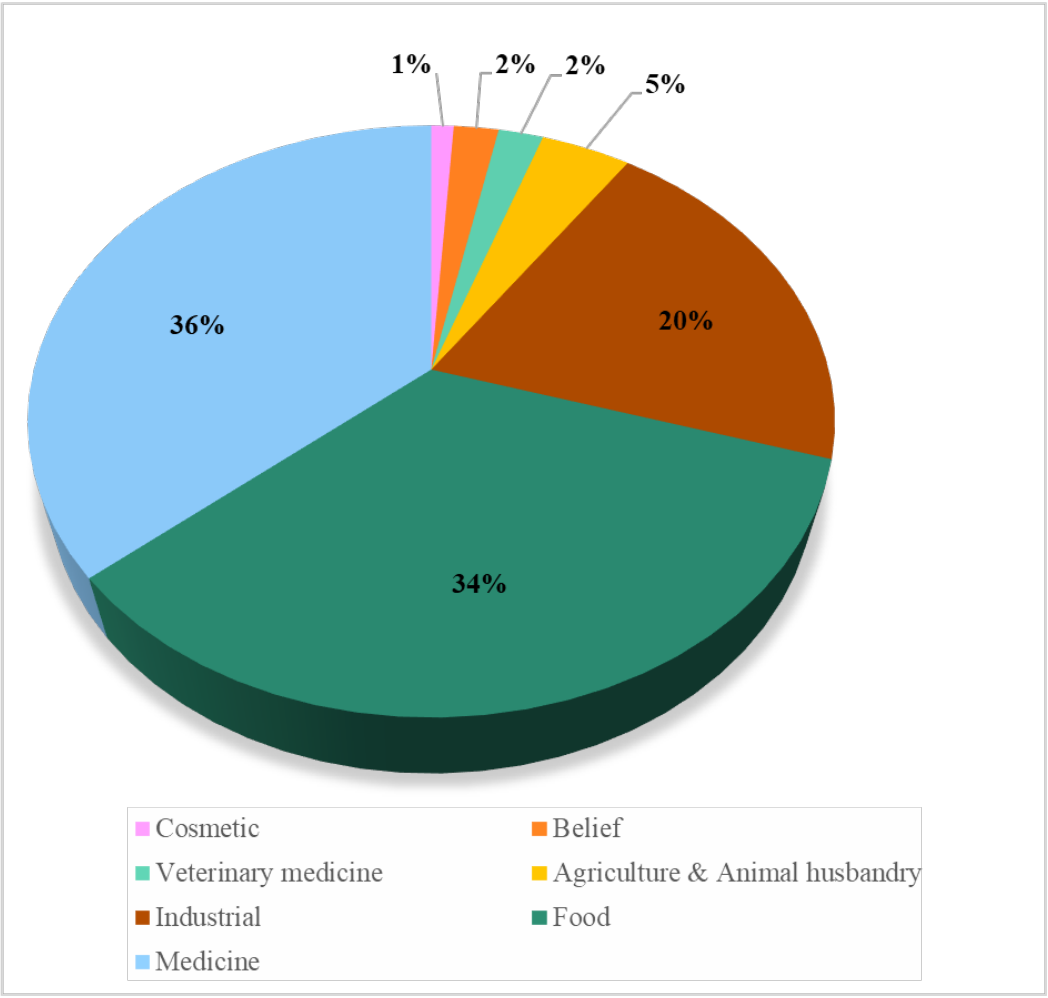

Figure 4. Distribution of categories according to usage purposes

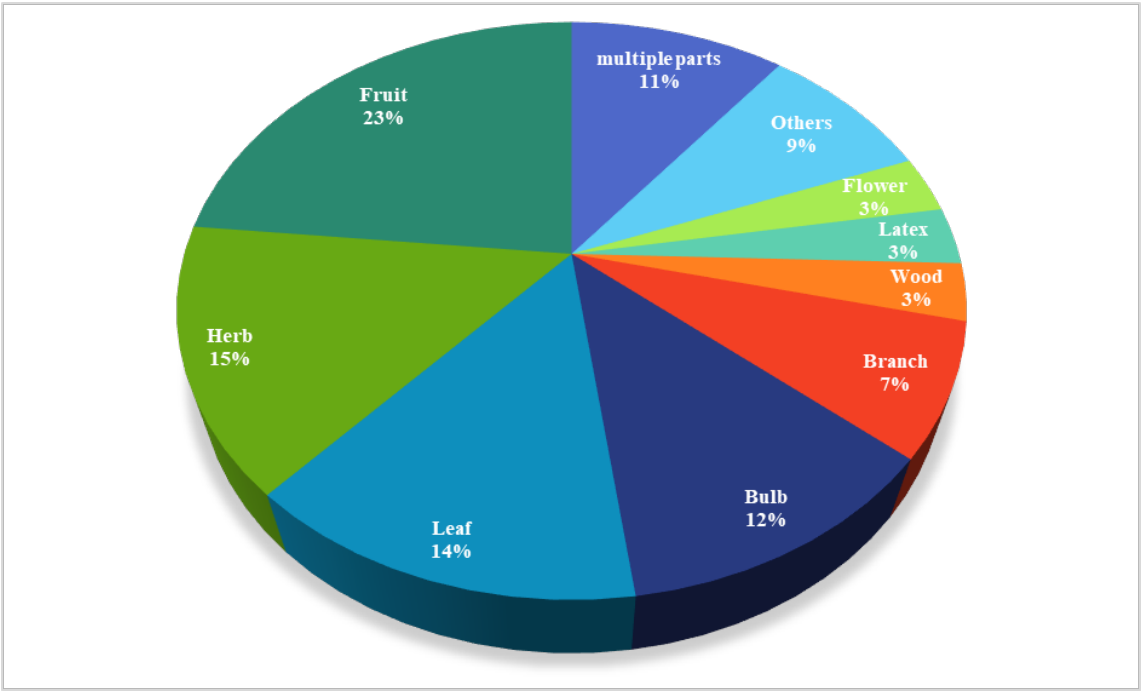

Figure 5. Percentage of uses of plant parts in traditional knowledge

11 ethnobotanical study has been carried out from past to present in the province of Edirne, which includes (Tuzlacı et al. 2010; Güneş, 2015; Kartal, 2015; Güneş 2016; Güneş 2017a; Güneş 2017b; Kartal & Güneş, 2017; Güneş, 2018a; Güneş, 2018b; Güneş 2019; Çapanoğlu-Marangoz, 2022). In the conducted studies, the traditional medicinal uses and edible plants of the identified plants have been determined. When these pieces of information are compared, it is observed that many plant uses under these two headings serve similar purposes. However, what sets our study apart from others is the inclusion of plants used in animal These uses have not been addressed in previous studies.

It is believed that the results obtained from our study will provide insights for more comprehensive ethnobotanical research in the future. The recording of this knowledge, passed down from generation to generation, is therefore deemed important. None of the information presented in the study has undergone experimentation; hence, their usage is not recommended.

All the ethnobotanical information we obtained in the Keşan region has been compiled and given in Table 2.

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Ethical Approval

No need to ethical approval for this study.

Conflicts of Interest

The authors declare that they have no conflict of interest.

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Table 2. Data obtained from field studies

Famliy	Species	Vernacular name	Main Category of Used	Part of Used	Purpose of Usage	Preparation/ Usage
Malvaceae	*Abelmoschus esculentus* (L.) Moench*	Bamya	Medical	Seed	Joint pain	It is believed that swallowing a single number of seeds every day on an empty stomach is good for pain.
Amaryllidaceae	*Allium cepa* L.*	Soğan	Medical	Bulb	Injury from impact	The onion is pounded into porridge and the bruised limb is wrapped with a piece of cloth.
					Inflammation	Onion is boiled and consumed on an empty stomach in the morning as an anti-inflammatory.
					Cough	Boil the onion, squeeze lemon into it and consume its juice.
					Abscess	After cutting the onion and grating soap on it, the area where the boil is located is wrapped with a cloth.
					Sprain	The onion is grated and separated into the sprained part.
					Edema	It is boiled and drunk
					Joint pain	Olives and onions are crushed and applied to the painful part.
			Industrial	Bulb	Clothing dye	Reddish-Brown dye is obtained by boiling together with onion peel and soot.
Amaryllidaceae	*Allium sativum* L.*	Sarımsak	Medical	Bulb	Toothache	Garlic is especially chewed with aching teeth.
					Bee sting	Garlic is pestled with salt. It placed on the place where the bee stings, or if there is no salt, it is mixed with mud and used.
				Leaf	Sprain	Yeşil kısımları kaynatılıp lapa haline getirilir ve burkulan bölgeye sürülür.
			Veterinary medicine	Bulb	Carminative in cattle and sheep	Yogurt, alcohol and garlic are mixed and applied to the animal's belly.
Amaranthaceae	*Beta vulgaris* var. *vulgaris* L.*	Pancar	Food	Root	Molasses making	It is prepared by chopping and boiling in water with white soil.
Brassicaceae	*Brassica oleracea* L.*	Kara lahana	Food	Leaf	Cooking	A stuffed dish is made from black cabbage leaves.

Rosaceae	*Cerasus avium* (L.) Moench*	Kiraz	Food	Fruit	Fruit juice	It is boiled to obtain fruit juice called Hoşaf (compote).
					Jam	It is prepared by boiling with sugar until it thickens.
			Medical	Fruit	Influenza	It is brewed with apple peel, linden and lemon and drink.
					Stomach ache	Brewed with apple peel, linden and lemon and drink.
Cucurbitaceae	*Cucumis melo* L.*	Kavun	Veterinary medicine	Seed	Carminative in cattle and sheep	The seeds are boiled and fed to animals and the water is made to drink.
Rosaceae	*Cydonia oblonga* Mill.*	Ayva	Food	Fruit	Jam	It is prepared by boiling with sugar until it thickens.
			Medical	Fruit&Leaf	Influenza	It can be consumed by boiling the leaves and fruit together and drinking them.
Moraceae	*Ficus carica* L.*	İncir	Medical	Latex	Abscess	Latex is applied directly to the relevant area.
					Toothache	Latex is dripped onto the aching tooth.
			Food	Fruit	Jam	It is prepared by boiling with sugar until it thickens.
Asteraceae	*Helianthus annuus* L.*	Gündöndü/Ayçiçeği	Agriculture and Animal husbandry	Flower & Pollen	Apiculture	The hives are placed near sunflower fields.
			Industrial	Flower&stem	Toy	4 large flowers, 2 on the right and 2 on the left, are taken and placed on an axis. The axle is fixed to a stick obtained from the trunk of the sunflower. A toy with wheels is obtained.
Poaceae	*Hordeum vulgare* L.*	Arpa	Industrial	Stem	Adobe making	It is added to adobe obtained from soil to strengthen it.
Juglandaceae	*Juglans regia* L.*	Ceviz	Industrial	Fruit & Leaf	Clothing dye	Green fruit and leaves of the walnut are used to dye fabric.
			Cosmetic	Fruit & Leaf	Hair dye	Green fruit and leaves of the walnut are used to hair dye.
Lamiaceae	*Mentha* x *piperita* L.*	Nane	Medical	Herb	Stomache ache	Mint and lemon are boiled and drunk.
Moraceae	*Morus alba* L.*	Akdut	Food	Leaf	Cooking	A stuffed dish is made from black cabbage leaves.
				Fruit	Fruit	Eaten directly
Moraceae	*Morus nigra* L.*	Karadut	Food	Fruit	Fruit	Eaten directly
			Medical	Fruit	Mouth sores	Its fruit is eaten for wounds in the mouth.

Oleaceae	*Olea europaea* L.*	Zeytin	Medical	Fruit	Joint pain	Olives are crushed and rubbed on the aching place and covered with a cloth
Papaveraceae	*Papaver somniferum* L.*	Afyon (Haşhaş)	Medical	Fruit's Latex	Toothache	Latex is dripped onto the aching tooth.
Rosaceae	*Prunus* x *domestica* L.*	Erik	Food	Fruit	Fruit	Eaten directly
					Jam	It is prepared by boiling with sugar until it thickens.
					Fruit juice	It is boiled to obtain fruit juice called Hoşaf (compote).
Solanaecae	*Solanum tuberosum* L.*	Patates	Medical	Tuber	Stomache ache	Potatoes are boiled and the water is drunk.
					Eye pain	It is peeled off and applied directly to the eyes.
Fabaceae	*Vicia faba* L.*	Bakla	Food	Leaf	Salad	The leaves are chopped and added to the salad.
Vitaceae	*Vitis vinifera* L.*	Asma	Food	Fruit	Vinegar yeast	The grapes are fill into a container. Add water, salt and vinegar yeast found at the bottom of vinegars. It is kept in a closed container for approximately 40 days.
				Leaf	Cooking	A stuffed dish is made from black cabbage leaves.
Poaceae	*Zea mays* L.*	Mısır	Medical	Male Spike	Kidney stone	It is brewed and consumed on an empty stomach.
Simaroubaceae	*Ailanthus altissima* (Mill.) Swingle	Kokar ağaç	Industrial	Branch	Basket	It's branches are braided and used.
Malvaceae	*Althaea hirsuta* L.	Hatmi çiçeği	Medical	Fruit	Influenza	It is prepared by brewing.
Amaranthaceae	*Amaranthus deflexus* L.	Horozibiği	Food	Leaf	Cooking	Fresh leaves are roasted and cooked with eggs or onions.
Boraginaceae	*Anchusa azurea* var. *azurea* Mill.	Sığırdili	Food	Leaf	Cooking	Fresh leaves are roasted and cooked with eggs or onions.
Amaranthaceae	*Chenopodium album* L.	Kazayağı	Food	Herb	Cooking	Fresh leaves are roasted and cooked with eggs or cheese
Cornaceae	*Cornus mas* L.	Kızılcık	Industrial	Branch	Walking stick	Durable and straight branches are used.
			Food	Fruit	Fruit juice	It is boiled to obtain fruit juice called Hoşaf (compote).
			Medical	Fruit & Leaf	Influenza	It is prepared by brewing.
Rosaceae	*Crataegus orientalis* Pall. ex M.Bieb.	Alıç	Medical	Fruit	Diabetes	It is prepared by brewing.
Descurainia sophia	*Descurainia sophia* (L.) Webb ex Prantl	Süpüge Otu	Industrial	Herb	Broom	It is made by making bundles and tying them.

Cucurbitaceae	*Ecballium elaterium* (L.) A.Rich.	Eşek Hıyarı	Medical	Fruit	Earache	One drop of liquid is used in the ear, not more than 1 drop per day.
Equisetaceae	*Equisetum telmateia* Ehrh.	Kırk kilitotu/Kırk Bahar Otu	Medical	Herb	Joint pain	It should be boiled and consumed 1 glass every day.
Ericaceae	*Erica manipuliflora* Salisb.	Püren	Industrial	Herb	Broom	It is made by making bundles and tying them.
			Agriculture and Animal husbandry	Flower & Pollen	Apiculture	The hives are placed near Erica manipuliflora's habitats.
Oleaceae	*Fraxinus angustifolia* Vahl.	Dişbudak-Dişbudak	Industrial	Branch	Churn	It is made with plank obtained from its branches.
				Fruit&Leaf	Clothing dye	While it is boiled, it is thrown into the fabric to be dyed and obtained dark color.
Hypericaceae	*Hypericum perforatum* L.	Kantaron	Medical	Herb	Stomache ache	The herbs are boiled and infused.
Cupressaceae	*Juniperus oxycedrus* L.	Katran Ardıç	Industrial	Cone & Resin	Tar	Tar is obtained by boiling the cones and resin.
Asteraceae	*Lactuca serriola* L.	Eşek Marulu	Agriculture and Animal husbandry	Leaf	Forage	Its leaves are given as feed to chickens.
Malvaceae	*Malva sylvestris* L.	Ebe Gümeci	Food	Leaf	Cooking	Leaves are roasted and cooked
			Medical	Flower	Asthma	It is brewed and consumed 1 glass every day.
Asteraceae	*Matricaria chamomilla* L.	Papatya	Medical	Flower	Asthma	It is brewed and consumed 1 glass every day.
					Stomache ache	It is brewed and consumed 1 glass every day.
Lamiaceae	*Melissa officinalis* L.	Oğul Otu	Agriculture and Animal husbandry	Herb	Apiculture	In order for the bees to produce new swarms, it is tied to where (tree, etc.) to be used as a hive.
Lamiaceae	*Origanum vulgare* L.	Kekik/Kekikotu	Medical	Herb	Stomache ache	It is boiled and drunk.
Rhamnaceae	*Paliurus spina-christi* P. Mill.	Karaçalı	Belief	Fruit	Evil eye	Its fruits are attached to the cradles or swaddles of newborn babies.
			Industrial	Branch	Fence	The branches with lots of thorns are selected and a fence is obtained by knitting/Building them.
Papaveraceae	*Papaver rhoeas* L.	Gelincik	Food	Leaf	Cooking	The leaves collected in the spring are cooked.
Pinaceae	*Pinus brutia* Ten.	Kızıl Çam/Çam	Industrial	Wood	Kindling wood	Resinous wood is selected, it is crushed and a fire starter is used.

Plantaginaceae	*Plantago major* L.	Damarlı ot	Medical	Leaf	Burn	The green leaves are kept directly over the fire for a few seconds and after it cools down, it is wrapped around the burned area of the body and kept for a few minutes.
Salicaceae	*Populus alba* L.	Kavak	Industrial	Wood	Baker's tool (Pinevit)	A special wooden tool called "pinevit" is made to hold and preserve the bread while it is being made.
Portulacaceae	*Portulaca oleracea* L.	Semizotu	Food	Herb	Cooking	Cooked and prepared with yogurt
Rosaceae	*Prunus spinosa* L.	Güvem	Food	Fruit	Jam	Jam is made by boiling.
Rosaceae	*Pyrus elaeagnifolia* Pall.	Ahlat	Food	Fruit	Alcoholic beverages	First of all, fruits are cut. A small amount of sugar is added along with water, placed in a clay pot and left for 40 to 45 days.
Fagaceae	*Quercus* sp.	Meşe	Industrial	Branch	Broom	It is made by turning leafy branches into bundles.
			Industrial	Wood	Firewood	It is used as firewood.
Brassicaceae	*Raphanus raphanistrum* L.	Turp otu	Food	Herb	Cooking	It is combined with onions and used in meatballs mix or it is roasted eaten.
Rosaceae	*Rubus sanctus* Schreb.	Karamuk/Böğürtlen	Food	Fruit	Jam	Jam is made by boiling.
Polygonaceae	*Rumex acetosella* L.	Kuzukulağu	Food	Leaf	Cooking	Cooked by roasting.
Polygonaceae	*Rumex crispus* L.	Labada/Işıtır	Food	Leaf	Cooking	Cooked by roasting with eggs.
Salicaceae	*Salix alba* L.	Söğüt	Industrial	Branch	Basket	It's branches are braided and used.
Lamiaceae	*Salvia fruticosa* Mill.	Adıçayı	Belief	Herb	Drive out evil spirits	Herbs are burned and moved around the rooms of the house.
Lamiaceae	*Satureja thymbra* L.	Çibriska/Taş kekiği	Food	Herb	Spices	It is added to meals
Brassicaceae	*Sinapis arvensis* L.	Hardal otu/Yabani Hardal	Food	Herb	Cooking	Cooked by roasting with eggs.
Fabaceae	*Spartium junceum* L.	Katırtırnağı	Industrial	Branch	Broom	It is made by turning leafy branches into bundles.
Lamiaceae	*Thymus* sp.	Kekik	Food	Herb	Spices	It is added to meals
Malvaceae	*Tilia tomentosa* Moench	Ihlamur	Food	Flowers & Brakte	Winter Tea	Flowers and bracts are brewed.
Typhaceae	*Typha angustifolia* L.	Saz	Industrial	Stem	Wicker	Stem are obtained by knitting.