

Folk medicine in Düzce Province (Turkey)

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Abstract: The present study was conducted to collect, record, and document local knowledge of medicinal practices in Düzce, a northwestern Anatolian province. To the best of our knowledge, no comprehensive ethnobotanical study has been reported from this province. Information was acquired through semistructured interviews and personal conversations using a questionnaire and numerous guided field trips with local knowledgeable people. For quantitative analyses and comparisons, recorded data such as informant consensus factor (F_{ic}) and use value (UV) were calculated, respectively. As a result of extensive field studies, 122 taxa were determined as folk medicines; 76 of were wild and 46 were cultivated. The identified medicinal plants were mainly from the family Rosaceae, followed by Compositae, Apiaceae, Lamiaceae, and Solanaceae, respectively. Among the preparations used, liquid forms such as infusions (30.2%) or decoctions (16.4%) represented the most favored ways to administer medicinal plants. Dermatological disorders had the highest F_{ic} score with a value of 0.75 followed by skeletomuscular ($F_{ic} = 0.7466$), gastrointestinal ($F_{ic} = 0.6666$), immunological ($F_{ic} = 0.6615$), and respiratory ($F_{ic} = 0.6292$) system disorders, among others. The most prominent medicinal plants were *Urtica dioica* (UV = 0.4352), *Plantago major* (UV = 0.3056), *Rubus ulmifolius* (UV = 0.2279), and *Sambucus ebulus* (UV = 0.2279). According to the present study, the number of people who recognize and use the wild plants of Düzce, and those of the rest of Anatolia, is steadily decreasing. The ethnobotanical knowledge cannot be passed to the next generation in its entirety if it is not properly recorded. In addition to this gradual loss of knowledge, modern information pollution and contamination via the popular media highlight the urgent need to record this precious knowledge before it is lost.

Key words: Folk medicine, Düzce, ethnobotany, Turkish medicinal plants, Turkey

1. Introduction

Herodotus (c. 484–425 BC), who is known as the father of history, drew up a map that survived and came to be known as *Orbis Terrarum ad mentem Herodoti*. On this map Asia was extensive, as large as Europe; however, what he referred to as Asia was Asia Minor (known as Anatolia in Turkey). His emphasis of Asia Minor was more groundbreaking than he realized; the cultural development of that region was to have a far-reaching impact on the worlds of literature, science, and medicine. Due to its location it serves as a natural bridge between Europe and Asia, and Anatolia is one of the oldest continuously inhabited regions in the world. Ancient Neolithic settlements in Anatolia such as Çatalhöyük, Çayönü, Nevalı Çori, Hacilar, and Göbekli Tepe are considered to be among the earliest settlements in the world (Wheelwright, 1974).

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Turkey also has a great variety of natural habitats including the Mediterranean, Aegean, and Black Sea coasts; the coastal and interior mountain ranges; valleys; large steppes; fertile plains; arid and rocky slopes. Continuous interaction between species and the environment has led to dynamic habitat change over thousands of years, and various habitat types have become living spaces for the rich composition of plant and animal species found in this area. As a result of biological diversity and the above-mentioned dynamism, there are almost 12,000 plant taxa in Turkey. It is generally accepted that the richness of a region's flora is determined by the level of endemism as well as the total number of plant species. Floristic records reveal that there are more than 3000 plant species endemic to Turkey, which constitutes approximately 30% of the total

flora (Davis, 1965–1985; Davis et al., 1988; Güner et al., 2000; Kaya and Raynal, 2001; Yeşilada, 2002; Bulut and Yılmaz, 2010; Özhatay et al., 2015, 2017).

The cultural heritage and richness of the flora have contributed to great diversity of traditional knowledge and practices among local people who use plants in their daily lives. Globally, folk medicine constitutes an essential base for herbal drug research and contributes to the discovery of new molecular drug candidates in modern pharmaceutical research. However, as far as folk medicine is concerned, little research was undertaken in Turkey prior to 2000. The most important pioneering surveys of folk medicines of Anatolia were conducted between 1986 and 1994, and this was the result of collaboration between Turkish and Japanese researchers. The results of this research were published as a series of manuscripts (Yeşilada, 2002). Over the past decade, there has been an increase in ethnobotanical research conducted in Turkey focusing in particular on medicinal plants (Kültür, 2007; Güneş and Özhatay, 2011; Özudođru et al., 2011; Özgen et al., 2012; Akaydın et al., 2013; Gürdal and Kültür, 2013; Güler et al., 2015; Mükemre et al., 2015; Özdemir and Alpınar, 2015; Polat et al., 2015; Sargın, 2015; Günbatan et al., 2016; Uzun and Kaya, 2016; Bulut et al., 2017a, 2017b; Yeşilyurt et al., 2017; Dalar et al., 2018; Sinmez et al., 2018; Tufan et al., 2018; Sargın and Büyükcengiz, 2019).

It is well known that the use of medicinal plants is in rapid decline. This decline has accelerated in recent decades mainly due to the increasing use of modern-day synthetic medicines, and there is an urgent need to record traditional knowledge of folk medicine before it is completely lost. Our research thus aims to record the remaining folk medicinal knowledge in various regions of Turkey.

Düzce Province, located in the northwest of Anatolia, an area of rich flora and diverse cultural heritage, is an important ethnobotanical resource (Dođru Koca and Yıldırımli, 2009). It is located within square A3 according to the grid square system adopted by Davis for *Flora of Turkey and the East Aegean Islands*; which corresponds to the Euro-Siberian phytogeographical region (Davis, 1965–1985). Despite its culture and habitat, only one taxonomic and two minor ethnobotanical reports related to the region were found during an extensive literature review. The taxonomic analysis of the flora of Akçakoca District was carried out by Dođru Koca and Yıldırımli (2009), and a total of 657 taxa belonging to 103 families were identified. They also stressed that hazelnut is a major source of income for the local people, and, consequentially, the forest areas are progressively being replaced by hazelnut, which contributes to a severe degradation of the floristic composition of the area. During the floristic surveys, the same team also explored the ethnobotanical

characteristics of the Akçakoca District of Düzce, and the resulting data showed that 46 taxa have 48 Turkish local names, all of which are used for various purposes in the research area. Twenty-one are used for medicinal purposes, 19 are used for food, and 4 are used for fuel (Yıldırımli et al., 2009; Dođru Koca and Yıldırımli, 2010). The latter report (Yeşilada et al., 1999) dealt with the folk medicines of Northwest Anatolia in general; however, only the village of Deredibi–Akçakoca in Düzce was within the scope of the current study and only four traditional remedies were cited.

In light of previous studies and data, Düzce Province with its eight districts was in need of further folk medicinal investigations. The present study was conducted in order to discover the profile of folk medicinal practices in this region. In addition to collecting and recording this precious knowledge before it is lost, the results of this study will provide invaluable information for future research in this area.

2. Materials and methods

2.1. General description of the area

Düzce Province is situated in the Western Black Sea region of Turkey (40°40'44.6"N, 31°14'24.4"E), encompassing a total area of 2.567 km², and the altitude of the central district is 140 m above sea level (Figure 1). The rainy season lasts from October to June, producing an annual rainfall of 844.9 mm, and the annual average temperature is 13.0 °C. Most of the provincial area (86%) is rough and mountainous; 14% is lowland and is known locally as the Düzce Plain. General characteristics of the Black Sea and Euro-Siberian vegetation types prevail in this region. In addition, sub-Mediterranean vegetation elements can also be found. In the northern region, forest vegetation like *Fagus orientalis* Lipsky, *Castanea sativa* Mill., *Quercus cerris* L., *Quercus frainetto* Ten., *Carpinus betulus* L., *Tilia argentea* Desf. ex. DC., *Acer campestre* L., and *Fraxinus angustifolia* Vahl, which are Black Sea elements, are dominant; in the south there are shrubs such as *Arbutus unedo* L., *Laurus nobilis* L., *Phillyrea latifolia* L., *Pistacia terebinthus* L., *Erica arborea* L., and *Cistus creticus* L., which belong to the Mediterranean vegetation (Güneş Özkan, 2009).

According to the general census of 2010, the population of Düzce was approximately 340,000, and 42.6% of the population resided in rural areas. Following two devastating earthquakes in western Turkey (17 August and 12 November 1999), the demographic structure of Düzce changed and there are many rural settlements. Approximately 45.9% of the total area is agricultural lands, 40.5% forests, 3.5% meadows and mountain ranges, and 10.1% nonagricultural lands; the main occupations of locals are farming or forestry. Nearly half of the farmland

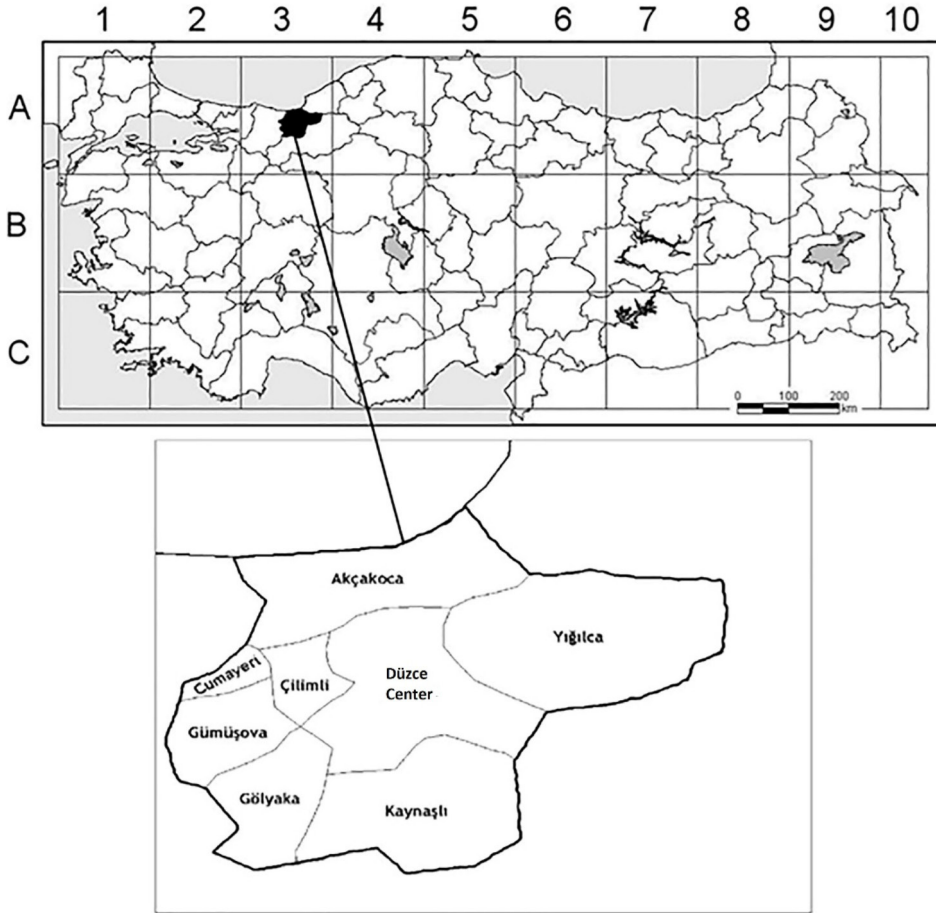


Figure 1. Geographical location of Düzce in Turkey.

is dedicated to cultivating hazelnuts, in addition to beets, maize, wheat, rice, and Virginia tobacco. Düzce is located between the cities of İstanbul and Ankara and other cities of Inner and Eastern Anatolia, and it has a growing economy. Additionally, as an earthquake-affected area, Düzce has qualified for new development assistance, particularly development that expands its industrial sector. Textiles, wood products, and manufacturing are the leading industries. Düzce has eight districts (Akçakoca, Çilimli, Cumayeri, Gümüşova, Gölyaka, Kaynaşlı, Yığılca, and the central district) and 280 villages/small towns (Doğru Koca and Yıldırım, 2009, 2010; Düzce Belediye Başkanlığı, 2017). More details can be found in the Düzce Belediye Başkanlığı 2010–2014 Dönemi Stratejik Planı (<http://www.duzce.bel.tr/detay.asp?id=2354>).

2.2. Selection of research localities in Düzce

Instead of visiting all of the residential sites, 106 representative towns or villages from different locations in Düzce Province were chosen. Visits for accumulating traditional knowledge of folk medicines were organized between 2008 and 2009. The distance to urban centers, accessibility of health services, population and ethnicity,

altitude, diversity of flora, transportation facilities, etc. were all used as criteria for selection of fieldwork locations. In addition, locations and people were chosen according to recommendations gleaned during visits; people who were known locally and especially remote, inaccessible rural areas were prioritized. Traditional uses of plants and other materials and demographic details of all informants were recorded. The localities spotted in the present study were numbered in succession, following the names of the administrative districts they belong to, as follows.

CENTRAL [(1) Akbıyıklar; (2) Aydınpınar; (3) Bahçeköy; (4) Beçiköyü; (5) Beyköy; (6) Çakırlar; (7) Çamköy; (8) Çınardüzü; (9) Çınarlı; (10) Çiftlik (Gürcüçiftlik); (11) Derdin; (12) Eskimengencik; (13) Gölormanı; (14) Güven; (15) Islahiye; (16) Kirazlı; (17) Küçükmehtemler; (18) Muradiye; (19) Musababa; (20) Ovapınar; (21) Paşakonağı; (22) Paşaoormanı; (23) Sallar Mahallesi; (24) Sarayyeri; (25) Soğukpınar; (26) Şıralık; (27) Uğur; (28) Uğurköy; (29) Üçyol; (30) Yeşilçimen; (31) Yukarıyahyalar];

AKÇAKOCA [(32) Akkaya; (33) Altınçay Mezrası; (34) Beyhanlı; (35) Çayağzı; (36) Çiçekpınar; (37) Deredibi;

(38) Diaver; (39) Esmahanım; (40) Fakıllı; (41) Göktepe; (42) Hemşin; (43) Kınık; (44) Kirazlı; (45) Koçar/Belen Mahallesi; (46) Kurugöl; (47) Kurukavak; (48) Akçakoca Merkez; (49) Ortanca; (50) Paşalar; (51) Yenice; (52) Yeşilköy];

CUMAYERİ [(53) Akpınar; (54) Büyükmelen; (55) Dokuzdeğirmen; (56) Esentepe; (57) Harmankaya; (58) Ören; (59) Sırtpınar; (60) Subaşı; (61) Taşlık; (62) Üvezbeli];

ÇİLİMLİ [(63) Arabacı; (64) Esenli; (65) Karaçörtlen; (66) Kırkharman; (67) Tepeköy; (68) Yukarıkaraköy];

GÖLYAKA [(69) Açmaköy; (70) Bakacak; (71) Bekiroğlu; (72) Çayköy; (73) Merkez; (74) Muhappede; (75) Saçmalıpınar; (76) Saçmalıpınar/Karamahmut Mahallesi; (77) Yazlık; (78) Yeşilova; (79) Zekeriyaköy];

GÜMÜŞOVA [(80) Dededüzü; (81) Kıyıköy; (82) Pazarcık; (83) Yeşilyayla; (84) Yongalık];

KAYNAŞLI [(85) Altunköy; (86) Bıçkıyanı; (87) Çamoluk; (88) Sazköy; (89) Tavak; (90) Tavak/Çimenlikorluk Mahallesi; (91) Yeşiltepe];

YİĞİLCA [(92) Aksaklar; (93) Aydın; (94) Aydınayla; (95) Çukurören; (96) Çukurören/Resuller Mahallesi; (97) Dibektaş; (98) Dutlar; (99) Gaziler; (100) Gökçeagaç; (101) Güney; (102) Hacıyeri; (103) Hocaköy; (104) Karakaş; (105) Mengen; (106) Yılgin].

2.3. Interview methodology, plant materials, and calculations

The methodology of Sezik et al. (1991) was applied in the field studies, and the questionnaire of Thring and Weitz (2006) was used with some modifications. A structured questionnaire was completed, and direct questions were avoided as much as possible during face-to-face interviews. Open and semistructured interviews were used to collect the information. Since traditional treatments are based on ancestral knowledge and the empirical experiences of local people, only long-established information was sought while interviewing. Accordingly, external knowledge coming from other sources such as television, newspapers, books, etc. was not taken into consideration. Demographic data (sex, age, educational and marital status, employment, ethnicity, duration of residence in the region, etc.) of the interviewees were also recorded.

During the field studies 291 plant materials were collected, and data acquired from each sample included the local name, its uses, parts used, and details of preparation and application. Most of the plants mentioned were recognized by the informants in situ during short field walks and collected for later taxonomic verification. The voucher specimens were deposited in the Herbarium of the Faculty of Pharmacy of Gazi University (GUEF) and the Herbarium of the Faculty of Pharmacy of Ankara University (AEF). Herbarium numbers were not assigned to cultivated plants. Plant identification was performed

by two of the authors (Prof. G. Akaydın and Prof. A.M. Gençler Özkan) by consulting *Flora of Turkey and the East Aegean Islands* (Davis, 1965–1985; Davis et al., 1988; Güner et al., 2000) and by comparison with specimens in the above-mentioned herbaria.

Using the formula below, the informant consensus factor (F_{IC}) was calculated for remedies according to Heinrich (2000), where F_{IC} demonstrates the consistency of the data obtained from informants for a certain illness category. Informant consensus factors range between 0 and 1. A high F_{IC} (close to 1) represents consistency among informants for an illness category. A lower F_{IC} shows disagreement among informants on taxa used for a certain illness, η_{ur} represents the number of citations used in each illness category, and η_t indicates the number of taxa used. The following equation was used: $F_{IC} = \eta_{ur} - \eta_t / \eta_{ur} - 1$.

The other quantitative method used to compare results in this study was use value (UV). This method was proposed by Phillips et al. (1994) and Prance et al. (1987) and it reveals the relative significance of a taxon utilized by a certain group of informants. In other words, it defines the proportion of utilization of a plant species within an informant sample in a study area (Özüdoğru et al., 2011). It was calculated using the formula $UV = \sum U / N$, where U indicates the number of citations for a taxon and N indicates the total number of informants.

When there are many uses reported for a plant species, the UV is high, and this suggests that the species is significantly important. Use values approach zero when there are few utilization reports relevant to the use of a particular plant. However, the UV does not determine whether a plant is used for single or multiple purposes (Musa et al., 2011; Ullah et al., 2014). Quantitative data were calculated by using plant-originated folk medicines only.

3. Results

3.1. Demography

Traditional knowledge of healing was collected from 193 persons; 119 were women (61.7%) and 74 were men (38.3%). Most of the interviewees were older than 50, and most came from families that still lead a traditional land-based lifestyle. Nearly all of the women interviewed were housewives, and the men were mainly farmers or pensioners. The average age of the interviewed persons was 56.7, and 131 informants (67.9%) were above the age of 49. Informants younger than 29 (only 3.6%) had very little knowledge of folk medicines in Düzce. A large proportion of informants (60.1%) were locally born; only 5.1% had resided in Düzce for less than 10 years. In Table 1, information on the educational status of the informants is compiled. The majority were primary school graduates

Table 1. Demographic characteristics of the informants.

Characteristics	Count	%
Sex (n = 193)		
Female	119	61.7
Male	74	38.3
Age (n = 193)		
≤19 years	2	1.0
Between 20 and 29	5	2.6
Between 30 and 39	29	15.0
Between 40 and 49	26	13.5
Between 50 and 59	49	25.4
Between 60 and 69	34	17.6
Between 70 and 79	29	15.0
≥80 years	19	9.9
Education (n = 188)		
Illiterate	56	29.8
Literate	26	13.8
Primary school	87	46.3
Middle school	11	5.9
High school	7	3.7
College	1	0.5
Marital status (n = 191)		
Married	161	84.3
Unmarried	30	15.7
Employment (n = 188)		
Self-employed	9	4.8
Worker/public servant	1	0.5
Housewife	116	61.7
Student	2	1.1
Farmer	40	21.3
Retired	20	10.6
Ethnicity (n = 192)		
Turkish	173	90.1
Abkhazian	15	7.8
Others (immigrants = 3; Circassian = 1)	4	2.1
Duration of residence (n = 158)		
Less than 10 years	8	5.1
More than 10 years	55	34.8
Since birth	95	60.1

(46.3%), 13.8% of informants were literate, and 29.8% were unschooled and illiterate. As seen in Table 1, the ethnicity of the informants was also collected during the interviews, and 90.1% of respondents stated that they were Turkish. In addition, 15 Abkhazians (7.8%) and a few people from other ethnic groups (2.1%) contributed to this study (this region received migrants from the Caucasus towards the end of the 19th century during the last era of the Ottoman Empire).

3.2. Ethnopharmacy

According to data drawn from the questionnaires, almost all informants (97.0%) found folk medicines useful and efficient. Substantial amounts of folk medicinal plants were collected from their natural habitats around the villages (85.5%) where the informants live, and some were purchased from the market (14.5%). In cases of disease, approximately one-third of the informants (29.5%) said that they consult directly with a doctor instead of using traditional medicines, 5.8% rely on homemade local remedies, and the majority (64.7%) prefer to use both options (Table 2). The rate of people that rely solely on local folk medicines is in decline, which strongly suggests a decreasing reliance on traditional knowledge as a consequence of the increasing accessibility of modern health services.

In this study, although all the ethnobotanical and ethnomedicinal data were recorded, the primary focus was on plant species used medicinally by the inhabitants of Düzce Province. Results show that 135 plant taxa from 55 families are used for ethnobotanical purposes (including medicine and food for humans or domestic animals, etc.) in Düzce Province. When spices and exotic plants such as *Cinnamomum verum*, *Kalanchoe blossfeldiana*, *Lawsonia inermis*, *Piper nigrum*, *Salvia officinalis*, and *Zingiber*

Table 2. Additional data on folk medicines used by the inhabitants of Düzce.

Questions	Number	%
Effectiveness of folk medicines (n = 134)		
Effective	130	97.0
Ineffective	4	3.0
Where the plants are obtained (n = 131)		
Around the village	112	85.5
Market	19	14.5
Treatment choices (n = 156)		
Consult the physician	46	29.5
Use traditional remedies	9	5.8
Both	101	64.7

officinale are included, this number increases to include 141 taxa, 112 genera, and 57 families. In addition, 46 of the taxa used as folk medicines are cultivated, and the rest are acquired from their natural habitat.

Local people can obtain exotic plants from local markets or herb stores. It is important that the safety record of a particular wild plant used as food be noted if it is also used for medicinal purposes.

The Latin names of the folk medicinal plants of Düzce are listed alphabetically in Supplement Table along with their local names, details of their medicinal uses, localities, number of citations, and UV calculation results. All plants in Supplement Table were verified by comparison with *Flora of Turkey and the East Aegean Islands* (Davis, 1965–1985; Davis et al., 1988; Güner et al., 2000), which includes all taxa that grow in Turkey: native, cultivated, hybrid, and naturalized. The Latin names of these identified taxa were updated according to The Plant List (<http://www.theplantlist.org/>). The plants used for animal health are presented in Table 3. The use of exotic plants for the treatment of diseases in Düzce is given in Table 4. Additionally, animal products (Table 5) and other materials (Table 6) used as folk medicine in Düzce are listed.

According to the data, in 65.1% (69 dwelling units) of the localities, there were people who had information on folk medicine. One of the most important characteristics of folk medicines is access to the plants used; they must grow in or around the nearby region (Yeşilada and Sezik, 2003). If a plant does not grow in the region any longer, its use as folk medicine is eventually forgotten.

Medicinal species recorded during fieldwork belong mostly to the family Rosaceae, followed by Compositae, Apiaceae, Lamiaceae, and Solanaceae, respectively (Figure 2). Most of these are large families with many representatives in the Anatolian flora, and some are quite common plants. As for the better known and more frequently used species, 13 of these were cited 16 times or more. The most frequently cited was *Urtica dioica* (84 citations), followed by *Plantago major* (59 citations), *Rubus ulmifolius* (44 citations), *Sambucus ebulus* (44 citations), *Prunus laurocerasus* (27 citations), *Rubus serpens* (26 citations), *Tilia tomentosa* (26 citations), *Rosa canina* (25 citations), *Juglans regia* (23 citations), *Ononis spinosa* subsp. *leiosperma* (18 citations), *Allium sativum* (18 citations), *Allium cepa* (17 citations), and *Malva neglecta* (17 citations). As was observed in this work, the more common a plant is in the area, the more common its popular use. In other words, people prefer to use plants that are readily available.

According to the Data Bank of Turkish Folk Remedies (TUHIB) and current scientific literature, 120 out of 129 plant species shown in Supplement Table have been determined in previous ethnobotanical studies carried out in different regions of Turkey (Yeşilada, 2002; Doğru Koca

and Yıldırım, 2010; Güneş and Özhatay, 2011; Özüdoğru et al., 2011; Özgen et al., 2012; Akaydin et al., 2013; Gürdal and Kültür, 2013; Güler et al., 2015; Güzel et al., 2015; Han and Bulut, 2015; Mükemre et al., 2015; Özdemir and Alpınar, 2015; Polat et al., 2015; Sargın, 2015; Sargın et al., 2015a, 2015b; Günbatan et al., 2016; Uzun and Kaya, 2016; Bulut et al., 2017a, 2017b; Yeşilyurt et al., 2017; Dalar et al., 2018; Sinmez et al., 2018; Tufan et al., 2018; Sargın and Büyükcengiz, 2019). Ethnobotanical uses of 9 plants (*Lepidium coronopus*, *Hypericum androsaemum*, *Hypericum bithynicum*, *Oenanthe silaifolia*, *Pinus taeda*, *Persicaria maculosa*, *Salix excelsa*, *Sonchus arvensis* subsp. *uliginosus*, and *Typha shuttleworthii* W.D.J.Koch & Sond.) were recorded for the first time for Turkey in the present study (Supplement Table). According to TUHIB, *Cinnamomum verum* was also determined and recorded as a folk remedy for the first time in Anatolia, as it is used extensively in Düzce. Although different uses have been reported in ethnomedical records, the use of *Kalanchoe blossfeldiana* for the treatment of boils, wounds, acne, and paronychias was also recorded for the first time in Düzce.

Among the medicinal plants listed in Supplement Table, the uses recorded for 54 taxa and 2 genera are reported here for the first time. Some interesting implementations are also described for nonherbal folk remedies in Tables 5 and 6, such as the ingestion of snake meat for eczema, applying heated adobe brick to the painful area as a treatment for kidney diseases and urinary tract infections, and wrapping cheesecloth soaked in vinegar around the head for headache relief.

Zootherapeutical folk medicinal treatments (the use of animals, animal body parts, and some byproducts of animal metabolism as medicinal resources for the treatment of illnesses or to relieve symptoms) were among the most interesting findings of this study and are listed in Table 5. As noted, natural beehive products such as honey, beeswax, and propolis have been used for many health complaints, in particular for dermatological problems, sores, and wounds. This has been frequently observed in traditional therapeutic practices from around the world for thousands of years. Additionally, the importance of honey as an indispensable excipient for dispensing folk remedies is confirmed once again by this study with use in more than 20 herbal preparations (Supplement Table, Table 3-5). The production and use of “mad honey”, which is derived from the nectar of *Rhododendron* species commonly found in the region and contains a high concentration of grayanotoxin, were also observed and recorded during field work in Düzce. In the northern part of Turkey, mad honey is a popular folk medicine used in particular to treat gastrointestinal and genital/sexual problems, in addition to hypertension, arthritis, and diabetes. It is very interesting to note that although it has been known to be poisonous (producing symptoms such as chills, fainting, loss of

Table 3. Plants used in animal disorders in Düzce folk medicine [(E) external use, (I) internal use].

Plant name (family), voucher specimen no.	Local name	Part used	Use and administration	Locality	Cit.	UV
<i>Buxus sempervirens</i> L. (Buxaceae)	Şimşir	Leaf	To treat diarrhea in animals; (I) infusion is administrated orally.	8	1	0.0051
<i>Camellia sinensis</i> (L.) Kuntze* (Theaceae)	Çay, Karaçay	Leaf	To treat diarrhea in animals; (I) infusion is mixed with powdered coffee and 2 teaspoons full of sugar; administered orally.	83, 84	6	0.0310
<i>Hypericum androsaemum</i> L. (Hypericaceae) 09DZ031, 09DZ123, 09DZ137, 09DZ035	Ajafer, güneş otu, kantaron	Aerial part	To treat diarrhea in animals; (E) the pinna of the animal's ear is pierced and the herb is folded into the hole.	89	5	0.0259
<i>Juglans regia</i> L.* (Juglandaceae) 08DZ029, 08DZ100, 09DZ002, 09DZ148	Ceviz	Leaf	Against diarrhea in animals; (I) infusion is drenched.	97	23	0.1191
<i>Mespilus germanica</i> L.* (Rosaceae) 09DZ044, 09DZ086, 09DZ175	Beşbüyük, döngel, muşmula, töngel	Leaf, twig	To treat diarrhea in animals; (I) one glass of decoction prepared with 1-2 twigs or leaves is consumed (or drenched) each time until recovery.	68	11	0.0569
<i>Morus alba</i> L.* (Moraceae) 09DZ065	Dut, tut	Leaf	To treat wounds in animals; (E) wound is directly washed with the decoction.	47	6	0.0310
<i>Ononis spinosa</i> L. subsp. <i>leiosperma</i> (Boiss.) Sirj. (Leguminosae) 08DZ110, 09DZ092, 09DZ140	Andak, yandak, yandak diken	Root	To treat diarrhea in animals; (I) decoction is administrated orally.	8	18	0.0932
<i>Sambucus ebulus</i> L. (Adoxaceae) 08DZ003, 08DZ004, 08DZ012, 08DZ049, 08DZ076, 08DZ102, 09DZ027B, 09DZ070, 09DZ096, 09DZ104, 09DZ142	Gülüzoğu, gülüz, nivirdin, nivürden, onjura, öküz kuyruğu, sultanotu, şahmelik, şahmeren, yiğidin, yivdin, yivirden	Leaf	Against wormy wounds of animals; (E) decoction is squirted into the wound with a syringe. Worms drop out. Against udder edema in cattle; (E) soaked in boiling water, while still warm, applied to udder.	77, 100, 104	44	0.2279
<i>Sonchus arvensis</i> L. subsp. <i>uliginosus</i> (M.Bieb.) Nyman (Compositae) 09DZ151	Sütlüot	Aerial part	Against foot pain and for animal diseases; (E) heated and applied to affected area. To increase lactation in animals; (I) mowed and used as animal feed.	42	1	0.0051
<i>Viscum album</i> L. (Santalaceae) 09DZ057, 09DZ058, 08DZ117	Burç, küskük otu, purç	Aerial part	Against foot-and-mouth disease of cattle; as feed, fresh.	47, 68	8	0.0414

*: Cultivated plants; Cit.: citations; UV: use value.

Table 4. Plants used in Düzce folk medicine not native to Turkey.

Plant name (family), voucher specimen	Local name	Part used	Use and administration	Locality
<i>Cinnamomum verum</i> J.Presl* (Lauraceae)	Tarçın	Bark	Against high cholesterol and fatty liver; (I) two pieces are boiled thoroughly in two glasses of water, strained, and the filtrate is consumed daily after cooling. The powdered bark is also ingested.	31
<i>Kalanchoe blossfeldiana</i> Poelln. (Crassulaceae) 08DZ001	Yaraotu	Leaf	Against abscesses, wounds, acne, and to treat felon; (E) the leaf is directly applied to affected area after peeling off the membranaceous surface layer of leaf. Treatment should be repeated until complete recovery. It promotes suppuration.	69
<i>Lawsonia inermis</i> L.* (Lythraceae)	Kına	Leaf	To treat eczema on hands; (E) powdered leaves are mixed with butter to form an ointment and applied to hands. Complete healing needs long-term application.	25
<i>Piper nigrum</i> L.* (Piperaceae)	Biber, karabiber	Fruit	Against common cold; (I) a teaspoonful of powdered fruit and sugar is added to boiling milk and kept boiling for few minutes, and is consumed before bed.	32
			Against cough; (I) infusion prepared with none (<i>Mentha × piperita</i>) and black pepper is consumed after addition of honey. Against abdominal pain and common cold; (I) infusion prepared with lemon, none (<i>Mentha × piperita</i>) and black pepper is consumed.	61
<i>Salvia officinalis</i> L.* (Lamiaceae) 09DZ083	Adaçayı	Aerial part	Against intestinal spasms and inflammation; (I) infusion is consumed after every dinner. Against diabetes; (I) infusion is consumed after dinner.	62
<i>Zingiber officinale</i> Roscoe* (Zingiberaceae)	Zencefil	Rhizome	Against cough; (I) powdered, mixed with bitter honey and ingested.	87

(E) External use, (I) internal use.

*Cultivated plants.

consciousness, sweating, bradycardia, hypotension, and arrhythmia) since ancient times, its crucial role as a folk medicine has never faltered (Costa-Neto, 2005; Demircan et al., 2009; Yeşilada, 2015). Although local native plants are the mainstay of traditional medicine in Düzce, all other materials recorded during the fieldwork and listed in Tables 4–6 provide evidence of the creative trial-and-error basis of folk medicine.

During each interview, the informants were asked if there were any harmful effects from the reported folk medicines where no statements on harmful effects were stated. Informants provided some warnings such as “causes constipation” (*Rubus serpens*) or “should not be ingested by individuals who have stomach diseases” (*Sambucus ebulus*), and these warnings are recorded in Supplement Table.

The ailments named by local people during the fieldwork were categorized into 14 groups, and Table 7 represents the F_{IC} values of these categories. Dermatological disorders had the highest F_{IC} score ($F_{IC} = 0.7500$) followed by skeletomuscular ($F_{IC} = 0.7466$), gastrointestinal ($F_{IC} = 0.6666$), immunological ($F_{IC} = 0.6615$), and respiratory ($F_{IC} = 0.6292$) system disorders, respectively. The UVs of the folk medicinal plants were calculated and are listed in Supplement Table. The plants with the top three UVs are *Urtica dioica* (UV = 0.4352), *Plantago major* (UV = 0.3056), *Rubus ulmifolius* (UV = 0.2279), and *Sambucus ebulus* (UV = 0.2279). These are followed by *Prunus laurocerasus*, *Rubus serpens*, *Rosa canina*, and *Juglans regia*, respectively. These values provide insight into the homogeneity of the information, consensus in the selection and use of plants, and the relative importance of locally known species.

Table 5. Folk medicines of animal origin used in Düzce folk medicine.

Name or explanation	Usage and utilization	Locality
Bitter honey or mad honey; produced from the nectar of <i>Rhododendron</i> sp.	Against bruises, swellings; (E) applied to affected area and kept covered for half a day. Against leg pain; (E) mixed with olive oil and salt, applied to affected area. Against wounds; (E) applied to affected area with muslin. Against pains in arms; (E) applied to affected area, covered with a plastic bag, left overnight. Application should be repeated for 3–4 successive days. Against scabies; (E) applied to affected area for 3–4 days. Against fungal infections of foot; applied to affected area. Against colitis; (I) ingested mornings on an empty stomach for 3 days (started as a teaspoon and then the amount is increased gradually each day). Against cough; (I) ingested. As a panacea; (I) ingested.	36, 37, 43, 45, 100, 102, 105
Trout (<i>Salmo trutta</i>)	Against fractures, rheumatism, joint pains, and lumbar herniated disc; (E) the whole fish is cut into halves along its midline and directly applied to the affected area. Against gastrointestinal pain; (I) a whole young trout is swallowed.	39, 31, 70, 80, 83, 104
Human breast milk	Against earaches in children; (E) two drops are dropped into the ear. Against eye pain; (E) dropped into the eye.	1, 31, 71, 104, 62
Honey	Against stomach ailments; (I) two coffee spoons full of honey are added to a glass of water, consumed twice daily on an empty stomach. Against diarrhea; (I) ingested. Against tickle in the throat; (I) lemon juice is squeezed into honey, mixed with warm water, and consumed. Against abdominal twinges; (I) honey sorbet is consumed. Against stomachache; (I) mixed with milk and ingested. Against diarrhea; (I) mixed with hot water and consumed. Against constipation; (I) mixed with cold water or milk and consumed. Against headache; (E) applied to the head. Against pains; (E) applied to affected area.	2, 31, 33, 37, 45, 46, 80, 97
Beeswax	Against burns; (E) mixed with butter and heated, when warm spread on a piece of a muslin, applied to the affected area and kept covered. The treatment should be repeated every day until complete recovery. Never leaves a scar.	25
	Against abscesses; (E) heated and applied to affected area.	35
Cow milk	Against abscesses; (E) mixed with yogurt and flour, applied to affected area; promotes suppuration.	
Chestnut honey	Against gashes; (E) applied to affected area. Against bronchitis, stomach ailments, and ulcer; (I) a tablespoonful of chestnut honey is added to a glass of warm milk and consumed on an empty stomach every morning. Against stomachache; (I) mixed with pounded and muslin-sieved mastic and ingested. Against cough; (I) mixed with powdered ginger and ingested. As a panacea.	36, 37, 45
Sheep skin	Against fractures; (E) freshly flayed skin is directly applied to affected area.	31
Raw/untreated wool	Against bruises and strains; (E) applied to the affected area.	80
Propolis	Against inflamed wounds; (E) melted and put inside a piece of muslin, then applied to affected area while still warm and kept covered. Against earache; (E): directly applied and wrapped on the ear or burned in conical mouth of a funnel, and the smoke is transferred into the ear by the help of the small opening at the end of the narrow stem of funnel.	45
Fleshy underlayer of freshly flayed sheep skin	Against fractures; (E) after setting of fractured bones, applied to affected area with a towel. In the case of swelling the meat has to be replaced with new meat.	104

Table 5. (Continued).

Snail	Against lichen infections and all kind of itching; (E) snail is put on the affected area until the slime is smeared.	68
Leech	For removing impure blood; 4–5 leeches are attached to the legs, knees twice a year. This application also improves the eyesight.	2, 35
Chicken gizzard skin	Against urinary tract diseases (burning symptoms of kidney stones, etc.); (I) the peeled skin of the gizzard is dried, pounded with lemon juice, mixed with hot water, and ingested.	89, 106
Snake meat	Against eczema; (I) ingested.	31
Dried snake skin	Against psoriasis; (I) powdered; mixed with mad honey to form pills and then swallowed for one week	83
Water of yogurt	Against diarrhea; (I) two full tablespoons are consumed every day until complete recovery.	80
Egg yolk	Against burns; (E) mixed with unsalted cattle butter, cooked until the color turns to brown (bulama), applied to affected area and wrapped	97

(E) External use, (I) internal use.

Table 6. Other materials used in Düzce folk medicine.

Local name (English name)	Use and administration	Locality
Cotton fabric	Against burns; (E) the ash obtained after burning a piece of cotton fabric is applied to the affected area and kept covered.	58
Cotton or linen fabric	Against bleeding; (E) a piece of cloth is burned and the ash is applied to the affected area. It is very effective to stop bleeding in skin injuries.	
Baking soda	Against stomachache; carbonated water is consumed.	45
Starch	Against diarrhea; (I) a poultice is prepared with water and ingested when warm.	45
Bran flour	Against swellings; (E) cooked in salted water, applied to affected area. It rapidly reduces the inflammation.	62
Mud brick	Against renal pain, urinary tract infections; (E) a heated mud brick is applied externally on the dorsal part of the body where kidneys are located.	31
Lime	Against burns; (E) dissolved in twofold amount of water; allowed to stand for one week. The clear solution from the sediment is applied to affected area.	45
Vinegar	Against headache; (E) muslin is soaked in vinegar, wrung out, and wrapped around the head.	31
Salt	Against bleeding; (E) sprinkled on the affected area to stop bleeding.	31

(E) External use, (I) internal use.

In Düzce, the most frequently used plant parts are leaves (38.1%), followed by fruits (19.2%), and trunks/branches (9.6%); medicinal use of roots and other subterranean parts is more limited (12.4%) in the region (Table 8).

In accordance with the common characteristics of Turkish folk medicine, the inhabitants of Düzce also use simple prescriptions with only one or two ingredients. However, more complex formulas are occasionally

used. According to the field studies, 67.8% of the folk medicines are used internally, the remaining 32.1% are used externally (Figure 3), and 22.7% of medicinal plants are applied to the affected area or directly ingested fresh and unprocessed (e.g., leaves of *Plantago lanceolata*, *Beta vulgaris*, and *Brassica oleracea*).

On the other hand, some remedies entail a more complex preparation processes (Table 9). With regard

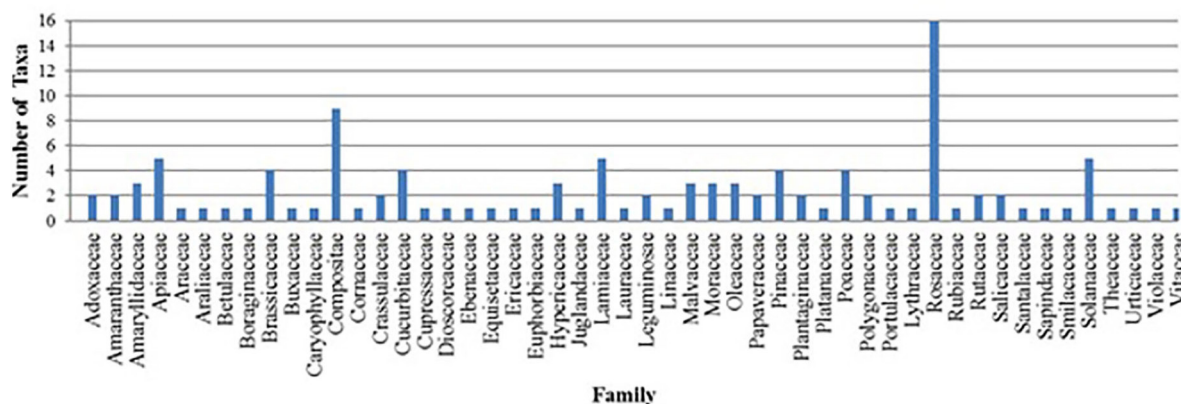


Figure 2. Distribution of plant taxa used for folk medicinal purposes only, according to families, in Düzce.

Table 7. Informant consensus factor (F_{IC}) values for illness categories.

Category of illness	Species	All taxa (%)	Use citation	All use citation (%)	F_{IC} value
Dermatological	42	36.21	165	19.48	0.7500
Skeletomuscular	20	17.24	76	8.97	0.7466
Immunological	23	19.83	66	7.79	0.6615
Gastrointestinal	69	59.48	205	24.20	0.6666
Respiratory	34	29.31	90	10.63	0.6292
Infections	16	13.79	34	4.02	0.5454
Metabolic	29	25.00	63	7.44	0.5483
Urogenital	29	25.00	68	8.03	0.5820
Cardiovascular	12	10.34	20	2.36	0.4210
Central nervous	12	10.34	19	2.24	0.3888
Veterinary	11	9.48	16	1.89	0.3333
Eye-ear	8	6.90	11	1.30	0.3000
Oral hygiene	9	7.76	11	1.30	0.2000
Folk illness*	3	2.59	3	0.35	0.0000

*Folk illness: diseases or symptoms described by the informants that were found to be incompatible with current medical pathology definitions.

F_{IC} : Informant consensus factor.

to these methods, tisanes (infusion 30.2% or decoction 16.4%) represent the most favored way to administer medicinal plants. In general, comminuted dried plant material is used for preparing these liquid folk medicines. Some taste correctors like honey are preferably added to powdered materials used for oral administration. For decoctions and infusions in particular, it is a common practice to leave the preparations in a cool place (e.g., on the outer windowsill) overnight before use, as it is believed to enhance the effectiveness of the remedy (e.g., medicines prepared from *Olea europaea*, *Allium cepa*, *Chelidonium majus*, and *Juglans regia*). Among the data obtained by this

study, there are some preparations used in ointment form for dermatological problems. The powdered or crushed plant parts (e.g., *Sambucus ebulus*, *Lawsonia inermis*, or *Plantago* sp. leaves) are mixed with readily available excipients such as pine resin, olive oil, or butter for ointment preparation. For the treatment of acne, eczema, or pain, taking a medicated bath is a common practice in the region. A warm infusion or decoction prepared from plant parts (e.g., subterranean parts of *Hypericum androsaemum* or leaves of *Juglans regia*) is used as a bath. In some cases, the sap obtained by squeezing certain parts of the plants (e.g., bulb of *Allium cepa*, fruits of *Ecballium elaterium* and

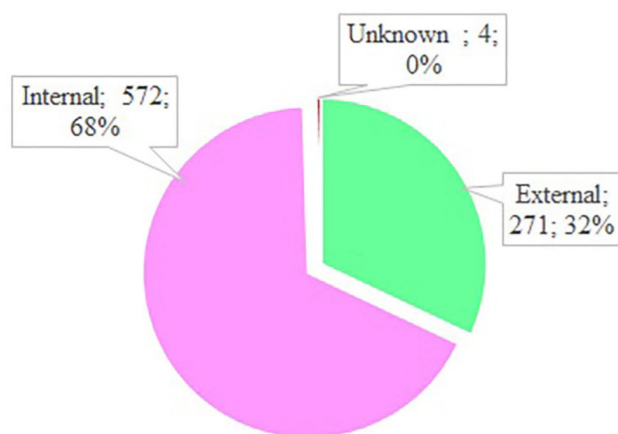
Table 8. Plant parts used in ethnobotanical practices in Düzce.

Used part	Number	%
Underground parts	105	12.4
Root	64	7.6
Tuber	6	0.7
Bulb	35	4.1
Aerial parts	739	87.3
Leaf	323	38.1
Fruit	163	19.2
Complete	66	7.9
Trunk, branch	81	9.6
Seed	43	5.1
Flower	47	5.6
Resin	14	1.6
Cone	2	0.2
Whole plant	3	0.3
Total	847	100.0

Sambucus ebulus, and root of *Dioscorea communis*) and the latex derived by scratching the plants (e.g., root and stem of *Chelidonium majus* or branches of *Ficus carica*) are used either directly without any processing or after some mixing procedures.

3.3. Literature survey

To the best of our knowledge a literature review showed that there was no previous comprehensive study of folk medicines in Düzce. However, as mentioned above, there was a report from Akçakoca District (Doğru Koca and Yıldırımli, 2010). Overall, 48 local names of 46 taxa in central Akçakoca and its vicinity were identified. Out of the 44 taxa reported, 21 folk medicines, 19 food plants, and 4 fuel plants were identified. In addition, *Amaranthus lividus* L., *Petasites hybridus* (L.) Gaertn., B.Mey. & Scherb., *Corylus avellana* L., *Nasturtium officinale* R.Br., *Raphanus raphanistrum* L., *Cucurbita moschata* Duchesne., *Rhododendron ponticum* L., *Phaseolus vulgaris* L., *Quercus cerris* L., *Q. petraeae* (Matt.) Liebl., *Q. pubescens* Willd., *Satureja hortensis* L., *Malva sylvestris* L., *Primula vulgaris* Huds., *Ribes alpinum* L., and *Lycopersicon esculentum* Mill. were mentioned in the Akçakoca ethnobotanical report but not included in the current study. Comprehensive data collected by our research team on local names made new contributions to the Turkish plant names literature, as well as to the local names of the following plants compiled by Doğru Koca and Yıldırımli: *Trachystemon orientalis*, *Oenanthe pimpinelloides*, *Sambucus ebulus*, *Beta vulgaris*, *Cornus mas*, *Juglans regia*, *Smilax excelsa*, and *Prunus*

**Figure 3.** Application types of folk medicines used in Düzce.

laurocerasus. Some plant names recorded in Akçakoca are completely different from those recorded in the present research. For example, the names recorded for *Stellaria media* and *Chenopodium album* are *cırcımık* or *yemnir* and *sirken* or *sirkence* in Akçakoca (Doğru Koca and Yıldırımli, 2010) and *kuşyüreği* in the rest of the province.

Local names are not used for scientific accounts, as they lack homogeneity and consistency; however, they are indispensable for ethnobotanical research used to disseminate information on new beneficial plants or new uses of well-known plants. Strictly speaking, for ethnobotanical fieldwork, local names may offer a first step towards authentication of the taxa. Additionally, they provide a useful and easy way to communicate with locals in a particular area. Hence, the collection and preservation of local plant names is an important part of an ethnobotanical study along with researching valuable facts about the plants (Singh, 2008).

These two studies reveal results that confirm one another with respect to the use of some plants in folk medicine: for example, the use of *Brassica oleracea* and *Prunus laurocerasus* for rheumatism; *Sambucus ebulus* for constipation; *Mentha longifolia* for hemorrhoids; *Mespilus germanica* for diarrhea; *Rubus sanctus*, *R. serpens*, and *R. ulmifolius* for wounds; and *Urtica dioica* for cancer. There are also some minor differences in the indications for use of the folk medicines. For example, Doğru Koca and Yıldırımli wrote that *Smilax excelsa*, *Morus alba*, and *Morus nigra* are used against diabetes, and *Mespilus germanica* and *Rubus* sp. are used for stomachache. However, according to our data, *S. excelsa* is used for stomachache; *M. alba* and *M. nigra* for eczema, wounds, coughs as expectorants, and as cholesterol-lowering remedies; *M. germanica* for inflammation, rheumatism, and as a mixture for bruises; and *Rubus* sp. for many other health problems. Since all the districts of Düzce including Akçakoca were within

Table 9. Folk medicine preparation types in Düzce.

Preparation method	Number	%
Directly	192	22.7
After processing	651	76.8
Decoction	139	16.4
Infusion	256	30.2
Ointment	12	1.4
Poultice	5	0.6
Paste (marmalade, molasses)	37	4.4
Withered on the stove	44	5.2
Mastication	28	3.3
Juice	18	2.1
Powdered	17	2.0
Cooking	6	0.7
Stewed	2	0.2
Other (ash, etc.)	87	10.3
No information	4	0.5
Total	847	100.0

the scope our study, it included most of the information presented by the study conducted in Akçakoca. However, there has been some erosion of information as a result of the five-year time gap separating the two studies. This erosion highlights the need to record information before it is lost forever (Doğru Koca and Yıldırım, 2010).

3.4. Notes on nonmedicinal uses

In addition to the recorded medicinal uses, *Juglans regia* and *Cornus mas* are used for fishing, *Equisetum telmateia* and *Prunus laurocerasus* as animal feed, *Juglans regia* and *Sambucus ebulus* as dyes, and the branches of *Corylus maxima* in basket production. On the other hand, some plant species not listed in Supplement Table were described only for nonmedicinal uses. These include *Clematis vitalba* L. (Ranunculaceae), which is used as fodder, and *Typha shuttleworthii* (Typhaceae) for basket weaving. The use of *Ophrys apifera* Huds. (Orchidaceae) tubers to ferment yogurt was particularly interesting.

At this point it should be noted that 17 plant species are used exclusively for food in Düzce [*Allium* sp. (Amaryllidaceae), *Amaranthus retroflexus* L. (Amaranthaceae), *Anthriscus kotschyi* Fenzl ex Boiss. (Apiaceae), *Arbutus unedo* (Ericaceae), *Chenopodium album* L. (Amaranthaceae), *Cirsium* sp. (Compositae), *Fagus orientalis* Lipsky (Fagaceae), *Heracleum sphondylium* L. (Apiaceae), *Lactuca* sp. (Compositae), *Ophrys apifera* (Orchidaceae), *Rapistrum rugosum* (L.) All. (Brassicaceae), *Ribes uva-crispa* L. (Grossulariaceae), *Rumex conglomeratus*

Murray (Polygonaceae), *Rumex crispus* L., *Rumex cristatus* DC., *Rumex scutatus* L., and *Sonchus asper* (L.) Hill subsp. *glaucescens* (Jord.) Ball. (Compositae)]. Seventeen other plants (*Arum italicum*, *Beta vulgaris*, *Brassica oleracea*, *Capsella bursa-pastoris*, *Malva nicaeensis*, *Mespilus germanica*, *Oenanthe silaifolia*, *Portulaca oleracea*, *Prunus laurocerasus*, *Rumex* sp., *Rosa canina*, *Smilax excelsa*, *Thymus* sp., *Thymus longicaulis*, *Tilia tomentosa*, *Trachystemon orientalis*, and *Urtica dioica*) have been recorded for use as food as well as medicine (Supplement Table). However, some plants with ethnobotanical uses in Düzce are also used as food plants in Turkey (*Allium cepa*, *Allium ampeloprasum*, *Allium sativum*, *Anethum graveolens*, *Camellia sinensis*, *Capsicum annuum*, *Cerasus vulgaris*, *Citrus limon*, *Citrus sinensis*, *Coriandrum sativum*, *Cornus mas*, *Corylus maxima*, *Crataegus rhipidophylla*, *Cucurbita pepo*, *Cucurbita maxima*, *Cydonia oblonga*, *Diospyros kaki*, *Eriobotrya japonica*, *Ficus carica*, *Hordeum vulgare*, *Juglans regia*, *Malus sylvestris*, *Mentha × piperita*, *Mespilus germanica*, *Morus alba*, *Morus nigra*, *Olea europaea*, *Petroselinum crispum*, *Pisum sativum*, *Pinus taeda*, *Prunus avium*, *Prunus domestica*, *Punica granatum*, *Raphanus raphanistrum* subsp. *sativus*, *Rubus ulmifolius*, *Rubus serpens*, *Rubus idaeus*, *Solanum tuberosum*, *Sorbus domestica*, *Spinacia oleracea*, *Vitis vinifera*, and *Zea mays*).

This overlapping of uses proves the close relationship between health and nutrition, which is quite well known in traditional societies and deserves to be one of the major components of ethnopharmaceutical research (Pieroni, 2000; Amini Rad et al., 2017).

4. Discussion

The findings of the present research revealed that in 34.9% of the localities visited there was no longer anyone who had knowledge of local folk medicines in Düzce. This observation is an important indicator of the current decline in knowledge. During conversations with locals in almost all of the locations, some of the older inhabitants of the neighborhood were honored for preparing and practicing folk medicines. However, after the deaths of these people, locals said that they began to lose interest in traditional medicines, and today they generally go to nearby healthcare institutions for healthcare. Finally, folk medicinal knowledge is not being transferred to future generations and is receiving little attention. Several fundamental factors such as rural depopulation, easy transportation to larger town centers, the proliferation of healthcare services, younger generations that are unaware, and industrialization are contributing to the disappearance of this precious knowledge. In addition, due to environmental deterioration, the aforementioned plants are not able to survive in their habitats. Consequently, plants become locally extinct, and the regional uses of these plants are forgotten.

Another important finding of this study was the deterioration of local folk medicinal knowledge. It was noted that even in the farthest villages, the information gleaned from newspapers and magazines, books making erroneous claims, and exaggerated advertisements in various media is misleading and misinforms the public regarding the use of medicinal plants. In this respect, trends may have an impact, as when interesting exotic plants and inferior or nonmedicinal native plants are introduced and promoted by popular laymen who lack professional knowledge. Meanwhile, humble local folk medicines fall out of use and the continuing knowledge of their uses is threatened (Thomas, 2011).

In some villages visited during fieldwork, residents were collecting particular plants as a result of the unsubstantiated claims of quacks in order to treat their health problems. This observation was a striking example of the negative influence of misinformation on both deeply rooted traditions and public health. In addition to providing inflated and unscientific claims, such laymen always use the vernacular names of the plants, which is often misleading, as some plant names have several synonyms. In fact, quite often, a synonym of one plant name may be the common name of another plant in a different part of the country (Tuzlacı, 2006). For example, during the field work, people in the villages were collecting *Fraxinus excelsior* instead of *Platanus orientalis*, which known as çınar in nearly every part of Turkey, apart from villages in Düzce, in the hopes of healing arthritis. Moreover, locals praised the healing effects of some nonnative plants, which were unknown to them until recently.

During the field work phase of this comprehensive study, it took a long time to separate the genuine traditional knowledge from the contaminated information. As a result of our field experiences it should be noted that field researchers in ethnopharmacology need to be extremely cautious and alert to information pollution caused by easily accessible and ever-increasing press and broadcast media sources and to examine the source of the information presented by locals.

In brief, the intrusion of quackery into folk medicinal traditions causes contamination and information pollution. Additionally, globalization has radically altered the interactions and integration of people on a global scale. Because of this, the boundaries between societies and cultures are noticeably dissolving. This study also shows that multiple factors may be involved in changes to folk medicinal knowledge and the gradual decline in the identification of native plant species. In recent decades, uncurbed commercialization of plants and plant products alleged to be healthy has confused the population. In Turkey, as in much of the world, printed and visual media commonly employ strategies of misleading and misinforming the public about medicinal plants. This

malpractice leaves the population vulnerable to abuse by unethical media hype and sales techniques. The current study does not measure any effective outcomes or reveal any concrete cause-and-effect findings. However, it emphasizes the need for in-depth studies designed to unveil the prevalence of such promotional activities and their effects on folk medicinal lore and public health in Turkey (Islam and Farah, 2007).

It was observed that the number of people who know of and use the wild plants in Düzce, as well as in the rest of Anatolia, is decreasing day by day and very swiftly. Hence, ethnobotanical knowledge cannot be transferred in its entirety to future generations and it begins to diminish. The above-mentioned information pollution also highlights the urgent need to record this valuable knowledge before it becomes extinct. It is quite important for Turkey, which is rich in plant diversity, culture, and history, to record the folk medicinal knowledge as soon as possible through fieldwork of rigorous scientific quality. It is also very important for these studies to be carried out by independent and specialist research groups in order to produce accurate information; ethnobotanical studies of scientific quality could be the source for countless studies and the development of new medicines. Therefore, folk medicinal research, which could be the basis for further studies, is far more important than it was in the past and should be conducted more intensely and rapidly throughout the country, prioritizing the regions that have not been previously studied.

In conclusion, the wisdom, beliefs, traditions, practices, institutions, and world views conceived and fostered by local groups generate local knowledge. Occasionally this type of knowledge has been viewed as outdated, primitive, and without any potential to solve the principal problems of modern society. Others believe that the applicability and value of local knowledge must be evaluated through scientific methods for the well-being of the modern individual struggling with economic, social, and environmental uncertainties. To support this idea, there is a vast archive of ethno-literature studies demonstrating the importance and usefulness of local knowledge for community health, nutrition, cultural heritage, and other social challenges. However, local knowledge should not be regarded as a panacea for all of the problems we have. Rather, it should complement scientific research (Vandebroek et al., 2011).

Over the past few decades, researchers have focused on developing new pharmaceuticals from herbal medicines or botanical sources following the guidance of ethnobotanical records. The research and development processes for conventional drugs are very expensive and difficult because of the high risk of failure and huge investments required. The success rate of developing a new drug from an herbal preparation with a long history of folk

medicinal usage should hypothetically be higher than rates for drugs developed from chemical synthesis. Instead of blindly looking for a needle in a haystack, cultivating the deep trust of local people in their folk medicinal heritage could open new doors and opportunities for successful pharmaceutical research.

References

- Akaydın G, Şimşek I, Arıtulak ZC, Yeşilada E (2013). An ethnobotanical survey in selected towns of the Mediterranean subregion (Turkey). *Turkish Journal of Biology* 37: 230-247. doi: 10.3906/biy-1010-139
- Amini Rad M, Sajedi S, Domina G (2017). First data on the taxonomic diversity of the *Portulaca oleracea* aggregate (Portulacaceae) in Iran. *Turkish Journal of Botany* 41: 535-541. doi: 10.3906/bot-1611-43
- Arı S, Temel M, Mustafa Kargioğlu M, Konuk M (2015). Ethnobotanical survey of plants used in Afyonkarahisar-Turkey. *Journal of Ethnobiology and Ethnomedicine* 11: 84. doi: 10.1186/s13002-015-0067-6.
- Bulut G, Haznedaroğlu MZ, Doğan A, Koyu H, Tuzlacı E (2017a). An ethnobotanical study of medicinal plants in Acipayam (Denizli-Turkey). *Journal of Herbal Medicine* 10: 64-81.
- Bulut G, Korkmaz A, Tuzlacı E (2017b). The ethnobotanical notes from Nizip (Gaziantep-Turkey). *Istanbul Journal of Pharmacy* 47 (2): 57-62.
- Bulut Z, Yılmaz H (2010). The current situation of threatened endemic flora in Turkey: Kemaliye (Erzincan) case. *Pakistan Journal of Botany* 42 (2): 711-719.
- Costa-Neto EM (2005). Animal-based medicines: biological prospection and the sustainable use of zootherapeutic resources. *Annals of the Brazilian Academy of Sciences* 77 (1): 33-43.
- Dalar A, Mukemre M, Ünal M, Özgökçe F (2018). Traditional medicinal plants of Ağrı Province, Turkey. *Journal of Ethnopharmacology* 226: 56-72.
- Davis PH (1965–1985). *Flora of Turkey and the East Aegean Islands*. Vols. 1–9. 1st ed. Edinburgh, UK: University Press.
- Davis PH, Mill RR, Tan K (1988). *Flora of Turkey and the East Aegean Islands*. Vol. 10 (Supplement). 1st ed. Edinburgh, UK: University Press.
- Demircan A, Keleş A, Bildik F, Aygencel G, Doğan NÖ et al. (2009). Mad honey sex: therapeutic misadventures from an ancient biological weapon. *Annals of Emergency Medicine* 54: 824-829. doi: 10.1016/j.annemergmed.2009.06.010
- Doğru Koca A, Yıldırım Ş (2009). Flora of Akçakoca District (Düzce-Turkey). In: 4th Balkan Botanical Congress; Sofia, Bulgaria. pp. 144-155.
- Doğru Koca A, Yıldırım Ş (2010). Ethnobotanical properties of Akçakoca District in Düzce (Turkey). *Hacettepe Journal of Biology and Chemistry* 38: 63-69.
- Güler B, Manav E, Uğurlu E (2015). Medicinal plants used by traditional healers in Bozüyük (Bilecik-Turkey). *Journal of Ethnopharmacology* 173: 39-47.
- Günbatan T, Gürbüz İ, Gençler Özkan AM (2016). The current status of ethnopharmacobotanical knowledge in Çamlidere (Ankara, Turkey). *Turkish Journal of Botany* 40: 241-249. doi: 10.3906/bot-1501-37
- Güner A, Özhatay N, Ekim T, Başer KHC (2000). *Flora of Turkey and the East Aegean Islands*. Vol. 11 (Supplement 2). 1st ed. Edinburgh, UK: University Press.
- Güneş F, Özhatay N (2011). An ethnobotanical study from Kars (Eastern) Turkey. *Biological Diversity and Conservation* 4 (1): 30-41.
- Güneş Özkan N (2009). *Hasanlar Baraj Gölü (Düzce) ve çevresinin florası*. MSc, Düzce University, Düzce, Turkey (in Turkish).
- Gürdal B, Kültür Ş (2013). An ethnobotanical study of medicinal plants in Marmaris (Muğla, Turkey). *Journal of Ethnopharmacology* 146: 113-126. doi: 10.1016/j.jep.2012.12.012
- Güzel Y, Güzelşemme M, Miski M (2015). Ethnobotany of medicinal plants used in Antakya: a multicultural district in Hatay Province of Turkey. *Journal of Ethnopharmacology* 174: 118-152.
- Han Mİ, Bulut G (2015). The folk-medicinal plants of Kadışehri (Yozgat-Turkey). *Acta Societatis Botanicorum Poloniae* 84 (2): 237-248.
- Heinrich M (2000). Ethnobotany and its role in drug development. *Phytotherapy Research* 14: 479-488.
- Islam M, Farah S (2007). How complementary and alternative medicine (CAM) is promoted in Bangladesh?: A critical evaluation of the advertisements published in local newspapers. *Internet Journal of Alternative Medicine* 5 (2): 1-8.
- Kaya Z, Raynal DJ (2001). Biodiversity and conservation of Turkish forests. *Biological Conservation* 97 (2): 131-141. doi: 10.1016/S0006-3207(00)00069-0
- Kültür Ş (2007). Medicinal plants used in Kırklareli Province (Turkey). *Journal of Ethnopharmacology* 111: 341-364. doi: 10.1016/j.jep.2006.11.035
- Mükemre M, Behçet L, Çakılcıoğlu U (2015). Ethnobotanical study on medicinal plants in villages of Çatak (Van-Turkey). *Journal of Ethnopharmacology* 166: 361-374. doi: 10.1016/j.jep.2015.03.040

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- Musa MS, Abdelrasool FE, Elsheikh EA, Ahmed L, Mahmoud ALE et al. (2011). Ethnobotanical study of medicinal plants in the Blue Nile State, South-eastern Sudan. *Journal of Medicinal Plants Research* 5: 4287-4297.
- Özdemir E, Alpınar K (2015). An ethnobotanical survey of medicinal plants in western part of central Taurus Mountains: Aladağlar (Niğde-Turkey). *Journal of Ethnopharmacology* 166: 53-65. doi: 10.1016/j.jep.2015.02.052
- Özgen U, Kaya Y, Houghton P (2012). Folk medicines in the villages of Ilca District (Erzurum, Turkey). *Turkish Journal of Biology* 36: 93-106.
- Özhatay N, Kültür Ş, Gürdal B (2015). Check-list of additional taxa to the supplement Flora of Turkey VII. *Journal of Faculty of Pharmacy of Istanbul University* 45: 61-86.
- Özhatay N, Kültür Ş, Gürdal B (2017). Check-list of additional taxa to the supplement Flora of Turkey VIII. *Istanbul Journal of Pharmacy* 47: 31-46. doi: 10.5152/IstanbulJPharm.2017.006
- Özüdoğru B, Akaydın G, Erik S, Yeşilada E (2011). Inferences from an ethnobotanical field expedition in the selected locations of Sivas and Yozgat provinces (Turkey). *Journal of Ethnopharmacology* 137: 85-98. doi: 10.1016/j.jep.2011.04.050
- Phillips O, Gentry AH, Reynel C, Wilkin PC, Gálvez-Durand B (1994). Quantitative ethnobotany and Amazonian conservation. *Conservation Biology* 8: 225-248. doi: 10.1046/j.1523-1739.1994.08010225.x
- Pieroni A (2000). Medicinal plants and food medicines in folk traditions of the upper Lucca Province, Italy. *Journal of Ethnopharmacology* 70: 235-273. doi: 10.1016/S0378-8741(99)00207-X
- Polat R, Çakılcıoğlu U, Kaltahoğlu K, Uluhan MD, Türkmen Z (2015). An ethnobotanical study on medicinal plants in Espiye and its surrounding (Giresun-Turkey). *Journal of Ethnopharmacology* 163: 1-11. doi: 10.1016/j.jep.2015.01.008
- Prance GT, Baize W, Boom BM, Carneiro RL (1987). Quantitative ethnobotany and the case for conservation in Amazonia. *Conservation Biology* 1: 296-310.
- Sargın SA (2015). Ethnobotanical survey of medicinal plants in Bozyazı District of Mersin, Turkey. *Journal of Ethnopharmacology* 173: 105-126.
- Sargın SA, Büyükcengiz M (2019). Plants used in ethnomedicinal practices in Gülnar District of Mersin, Turkey. *Journal of Herbal Medicine* 15: 100224. doi: 10.1016/j.hermed.2018.06.003
- Sargın SA, Selvi S, Büyükcengiz M (2015). Ethnomedicinal plants of Aydıncık District of Mersin, Turkey. *Journal of Ethnopharmacology* 174: 200-216.
- Sargın SA, Selvi S, López V (2015). Ethnomedicinal plants of Sarigöl District (Manisa) Turkey. *Journal of Ethnopharmacology* 171: 64-84.
- Sezik E, Tabata M, Yeşilada E, Honda G, Goto K et al. (1991). Traditional medicine in Turkey I. Folk medicine in Northeast Anatolia. *Journal of Ethnopharmacology* 35 (2): 191-196. doi: 10.1016/0378-8741(91)90072-L
- Singh H (2008). Importance of local names of some useful plants in ethnobotanical study. *Indian Journal of Traditional Knowledge* 7 (2): 365-370.
- Sinmez ÇÇ, Aslım G, Yaşar A (2018). An ethnoveterinary study on plants used in the treatment of dermatological diseases in Central Anatolia, Turkey. *Journal of Complementary Medicine Research* 8 (2): 71-84.
- Thomas V (2011). Do modern-day medical herbalists have anything to learn from Anglo-Saxon medical writings? *Journal of Herbal Medicines* 1: 42-52. doi: 10.1016/j.hermed.2011.08.003
- Thring TSA, Weitz FM (2006). Medicinal plant use in the Bredasdorp/ Elim region of the Southern Overberg in the Western Cape Province of South Africa. *Journal of Ethnopharmacology* 103: 261-275. doi: 10.1016/j.jep.2005.08.013
- Tufan S, Toplan G, Mat A (2018). Ethnobotanical usage of plants as aphrodisiac agents in Anatolian folk medicine. *Marmara Pharmaceutical Journal* 22 (2): 142-151.
- Tuzlacı E (2006). A Dictionary of Turkish Plants: Turkish-Latin, Latin-Turkish. 1st ed. İstanbul, Turkey: Alfa Basım Yayım Dağıtım Ltd. Şti.
- Ullah S, Khan MR, Shah NA, Shah SA, Majid M et al. (2014). Ethnomedicinal plant use value in the Lakki Marwat District of Pakistan. *Journal of Ethnopharmacology* 158: 412-422. doi: 10.1016/j.jep.2014.09.048
- Uzun M, Kaya A (2016). Ethnobotanical research of medicinal plants in Mihalgazi (Eskişehir, Turkey). *Pharmaceutical Biology* 54 (12): 2922-2932.
- Vandebroek I, Reyes-Garcia V, De Albuquerque UP, Bussmann R, Pieroni A (2011). Local knowledge: Who cares? *Journal of Ethnobiology and Ethnomedicine* 7: 35. doi: 10.1186/1746-4269-7-35
- Wheelwright EG (1974). *Medicinal Plants and Their History*. 1st ed. New York, NY, USA: Dover Publications.
- Yeşilada E (2002). Biodiversity in Turkish folk medicine, In: Sener B (editor). *Biodiversity: Biomolecular Aspects of Biodiversity and Innovative Utilization*. London, UK: Kluwer Academic/Plenum Publishers, pp. 119-135.
- Yeşilada E (2015). *Apiterapi, Arıyla Gelen Şifa*. İstanbul, Turkey: Hayy Publication (in Turkish).
- Yeşilada E, Sezik E (2003). Part 28. A survey on the traditional medicine in Turkey: semi-quantitative evaluation of the results. In: Singh VK, Govil JN, Hashmi S, Singh G (editors). *Recent Progress in Medicinal Plants*. Vol. 7. Ethnomedicine and Pharmacognosy-II. New Delhi, India: Studium Press, pp. 389-412.
- Yeşilada E, Sezik E, Honda G, Takaishi Y, Takeda Y et al. (1999). Traditional medicine in Turkey IX. Folk medicine in Northwest Anatolia. *Journal of Ethnopharmacology* 64: 195-210.
- Yeşilyurt EB, Şimşek I, Akaydın G, Yeşilada E (2017). An ethnobotanical survey in selected districts of the Black Sea region (Turkey). *Turkish Journal of Botany* 41: 47-62. doi: 10.3906/bot-1606-12
- Yıldırım Ş, Doğru Koca A, Dinç M (2009). Some local plant names and uses in Akçakoca (Düzce) and other parts of Turkey. In: 4th Balkan Botanical Congress; Sofia, Bulgaria. pp. 638-64.

1 **Supplement Table.** Plants used in folk medicine in Düzce [(E) external use, (I) internal use].

Plant name (family), voucher specimen no.	Local name	Part used	Use and administration	Locality	Cit.	UV
<i>Abies nordmanniana</i> (Steven) Spach subsp. <i>equi-trojani</i> (Asch. & Sint. ex Boiss.) Coode & Cullen (Pinaceae) 08DZ018	Göknar, küner, köknar	Resin	Poorly healing wounds; (E) fresh resin is applied directly on the wound for rapid recovery. Stomach disorders; (I) chewed and swallowed. Prick wounds, gunshot-gunpowder wounds; (E) applied directly to the affected area. Fissures of hand and foot; (E) resin under the bark is heated until it melts and applied directly to the affected area. Against injuries and pain; (E) resin “akındırık” is applied to the affected area. Necrotic wounds, burns, or eczema; (E) heated until it melts and then mixed with motor oil, beeswax, and butter and applied to the affected area. Depilation; (E).	102 2 69, 89	15	0.0777
		Male cone	Incurable diseases, i.e. cancer, tuberculosis, internal diseases, and flatulence; (I) decoction is consumed.			

		Phloem layer under the stem bark	Incurable diseases, gastric ulcer; (I) the bark is peeled, under-tissue is scratched with a knife and then eaten fresh.	90		
<i>Achillea</i> sp. (Compositae) 09DZ067	Kasım çiçeği	Flower inflorescence	Internal diseases; (I) infusion is prepared, kept in a cool place overnight, and consumed. This treatment should be repeated for 7 days.	47	1	
<i>Achillea nobilis</i> L. subsp. <i>neilreichii</i> (A.Kern.) Velen. (Compositae) 09DZ42	Civanperçemi	Capitulum	Insect stings and snake bites; (I) infusion prepared with 1 g of flower and a glass of water is consumed every day. This treatment lasts for 21 days.	68	1	0.0051
<i>Aesculus hippocastanum</i> L.* (Sapindaceae)	Yabani kestane	Seed	Stomachache, toothache, colic, colds, and constipation; (I) peeled seeds are minced and swallowed after mixing with water in a cup.	68	5	0.0259
<i>Agrimonia eupatoria</i> L. (Rosaceae) 09DZ138		Aerial part	Fungal infections of hand and foot; (E) dried and powdered; sprinkled between the fingers or toes.	28	1	0.0051
<i>Allium ampeloprasum</i> L.* (Amaryllidaceae)	Pırasa	Leaf	For earache; (E) squeezed to obtain sap and one drop is dropped into the ear. (Warning: Excess is risky!)	25, 43	2	0.0103

<i>Allium cepa</i> L. * (Amaryllidaceae)	Soğan	Bulb	To treat abscess; (E) the fleshy leaves of the bulb are warmed up and applied to the abscess to promote suppuration.	2, 35, 54, 17 69, 77, 84	0.0880
			To treat felon; (E) mixed with grated soap and liquid oil, boiled to prepare a poultice and applied to the affected area.	32	
			Earache; (E) squeezed and the juice is dropped into the ear.	71	
			Diabetes; (I) squeezed and the juice is kept in a cool place overnight. A half-full tea glass is consumed every day.	80	
			To pass kidney stones; (I) bulb is ingested.		
			Against diabetes; (I) pounded bulb is boiled with water for 3 min and every day one glass of this extract is consumed.	62	
			To treat the dislocated bones of foot or arm; (E) seeds of black olive and the bulb are pounded together to prepare a paste, applied to the affected joint, and left covered overnight.	58	
			Cough and sore throat; (I) grated bulb is squeezed to obtain its juice, 1–2 half-full tea glasses of juice are mixed with honey and consumed after meals for 3 days.	83	
			As a depurative; (I) squeezed juice is consumed.		

			Gastric ulcer and reflux; (I) a salad is prepared by mixing onion bulb (<i>Allium cepa</i>), keltirce (<i>Rumex</i> sp.), ebegümeçi (<i>Malva nicaeensis</i>), kazayağı (<i>Oenanthe pimpinelloides</i>), nane (<i>Mentha piperita</i>), and parsley (<i>Petroselinum crispum</i>) and 3 times a day every day one bowl of this salad is ingested.	68		
<i>Allium sativum</i> L.* (Amaryllidaceae) 09DZ062	Sarımsak	Bulb	Alopecia; (E) bald area is made to bleed by rubbing it with a corncob (güdine) and then a garlic clove is wiped on the irritated area.	89	18	0.0932
			Toothache and tooth inflammation; (E) garlic cloves are directly applied to the tooth or inflammation.	31		
			Bruises; (E) garlic cloves and black olives are pounded together to prepare a paste and applied to the affected area.	70		
			As a hypotensive; (I) a clove of garlic is ingested every day to regulate the blood pressure.	8		
			Sunstroke; (E) pounded garlic cloves are mixed with yogurt and this mixture is applied to the head and wrapped with muslin.	61, 83, 97		
			Sunstroke; (I) pounded garlic cloves are mixed with yogurt and ingested.	39		

Hemorrhoids; (E) garlic cloves are pricked by a toothpick and kept in olive oil and one clove is inserted into the anus every day. This treatment lasts for 40 days.	36
Ear ache; (E) juice obtained by squeezing a garlic clove is dropped into the ear.	62
Against sty and herpes infections in mouth; (E) pounded garlic cloves are applied to the affected area.	51, 83
Scorpion, insect, and bee stings; (E) juice of the pounded garlic cloves is wiped on the affected area.	
Bee sting; (E) pounded garlic cloves mixed with yogurt, applied to the affected area.	45
Dizziness; (I) a garlic clove is swallowed every morning.	51
To treat alopecia caused by scalp inflammation (cicatricial alopecia); (E) ash obtained from burning a piece of çınar (<i>Fraxinus excelsior</i>) bark is mixed with Vaseline, butter, and pounded garlic (<i>Allium sativum</i>) cloves, applied to the affected area of the head.	51

<i>Anethum graveolens</i> L.* (Apiaceae)	Dereotu	Aerial part	As diuretic for renal disorders, leg edema; (I) infusion prepared with a mixture of dereotu (<i>Anethum graveolens</i>) herbs with cherry (<i>Prunus avium</i>) stalks, parsley (<i>Petroselinum crispum</i>) is consumed.	57	1	0.0051
<i>Anthemis cotula</i> L. (Compositae) 08DZ013	Acımuk	Aerial part	Rheumatism; (E) a decoction is prepared with a mixture of acımuk (<i>Anthemis cotula</i>), anıkotu (<i>Mentha longifolia</i>), and yiğidin (<i>Sambucus ebulus</i>); the patient sits in it for about 30 min while it is still warm.	89	1	0.0051
<i>Artemisia</i> sp. (Compositae) 09DZ149	Mideotu	Leaf	Stomach diseases; (I) one tablespoonful of leaf is simmered in three cups of water and consumed.	14	1	0.0051
<i>Arum italicum</i> Mill. (Araceae) 09DZ107	-	Root	Hemorrhoids; (I) it is cut into small pieces; everyday a corn kernel-sized piece is swallowed for 41 successive days without water. Use of water causes intoxication.	39	1	0.0051
<i>Bellis perennis</i> L. (Compositae) 08DZ014, 09DZ100, 09DZ101, 09DZ114, 09DZ127, 09DZ045	Beyaz papatya, papatya	Flower inflorescence	Stomachache, intestinal and internal diseases; (I) infusion prepared with “uzun yaprak” (<i>Plantago lanceolata</i>) leaves is consumed. Stomachache and other gastric complaints; (I) a tea glass full of	89, 90	12	0.0621

			the decoction prepared with a mixture of “ince yapraklı damarotu (<i>Plantago lanceolata</i>) leaves and young shoots of pine (<i>Pinus</i> sp.) is consumed on an empty stomach daily for 2–3 days.			
			Stomach disorders; (I) infusion is consumed.	83		
			Against fever; (I) mixed with a tablespoonful of barley grain and boiled in two glasses of water and then this tea is consumed until recovery.	68		
			Sleep problems, insomnia; (I) infusion is consumed.	45		
			Against nausea, vomiting; (I) infusion is consumed.	40		
			To sooth pain and itching between toes; (E) dried and powdered flowers are sprinkled between the toes.	35		
			Asthma; (I) infusion is consumed in the mornings for 3–4 days.	39		
			To ease congestion in chest; (I) infusion is consumed.	37		
			As a panacea; (I) infusion is consumed.	86		
<i>Beta vulgaris</i> L. *	Efelek,	Leaf	To stimulate hair growth; (E) sap obtained by squeezing the fresh leaves is mixed with honey and applied to the head.	41	3	0.0155
(Amaranthaceae)	pazi,					
09DZ061, 09DZ069	pezik		Maturation of abscess; (E) a fresh leaf is applied to abscess,	47, 80		

<i>Brassica oleracea</i> L.* (Brassicaceae)	Karalahana, karamancar, mancar, şalgam	Leaf	covered with muslin, and kept overnight to drain the puss out.	45	9	0.0466
			Excessive tearing, watery eyes; (E) sap obtained by squeezing the fresh leaves is dropped into the eyes.			
			Bone pain (especially for ribcage pain of children); (E) a fresh leaf is applied to the sore area, wrapped with a plastic bag and then a towel.			
			To sooth pain, i.e. headache, backache, lumbago, sprains, and herniated discs; (E) a fresh leaf is wilted over a fire and applied to the affected area and covered.			
			To halt hair loss or to stimulate hair growth; (E) leaves are boiled and strained, and then washed with the extract. Hair is kept wet 15–20 min to increase absorption, then rinsed with water. Repeat for 15 days.	39		
<i>Bromus tectorum</i> L. (Poaceae) 09DZ099	Ot	Aerial part	Stomachache of dogs; (I) dogs eat the fresh herb to stop the pain.	45	1	0.0051
<i>Camellia sinensis</i> (L.) Kuntze* (Theaceae)	Çay, karaçay	Leaf	Against diarrhea; (I) strong tea is consumed.	102	6	0.0310
			To treat diarrhea; (I) dry black tea is mixed with yogurt and	45		

			ingested.			
			Against excessive tearing, watery eyes; (E) leaves are boiled, eyes are exposed to the vapor.	83, 84		
			To treat diarrhea; (I) strong tea is consumed on an empty stomach.			
<i>Capsella bursa-pastoris</i> (L.) Medik. (Brassicaceae) 08DZ082	Keditırnađı, ot	Leaf	Enteritis; (I) cooked as meal and ingested.	100	1	0.0051
<i>Capsicum annuum</i> L.* (Solanaceae)	Acı yeřil biber	Fruit	Abscess; (E) the fruit is divided into halves and applied to the abscess overnight. It heals the abscess by the morning.	39	1	0.0051
<i>Chelidonium majus</i> L. (Papaveraceae) 09DZ052, 09DZ132, 09DZ146, 09DZ160, 09DZ153	Temreotu	Latex from root or stem	Fungal or lichen infections of hand and foot; (E) applied to the affected area until recovery. To remove warts and moles; (E) applied to the formation. To treat open wounds; (E) applied to the sore area, stops bleeding and heals.	31, 68, 71, 94 83 105	10	0.0518
	Sarılık otu	Aerial part	Jaundice; (I) 1 kg herb (fresh or dried) is boiled in 2 L of water, filtrate is kept in a cool place overnight. Every morning, one	10		

			glass is consumed on an empty stomach. Repeat for 7 days for complete recovery.			
	Sütliyen	Seed	Eye ailments; (E) seeds are spread on embers and the eyes are exposed to vapors.	94		
		Leaf	Against lichen infections and alopecia; (E) pounded and applied to the affected area or head.	76		
<i>Cichorium intybus</i> L. (Compositae) 08DZ061	Mayasilotu	Aerial part	Piles and bleeding fistulas; (I) infusion is consumed until recovery.	8	1	0.0051
<i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai* (Cucurbitaceae)	Karpuz	Fruit juice	To pass kidney stones: (I) squeezed to obtain juice and consumed.	71	1	0.0051
<i>Citrus limon</i> (L.) Osbeck* (Rutaceae)	Limon	Fruit	Against abdominal pain and common cold; (I) infusion prepared with nane (<i>Mentha × piperita</i>) leaf and black pepper fruit is consumed.	61	6	0.0310
		Fruit or leaf	Flu; (I) infusion prepared with nane (<i>Mentha × piperita</i>) leaf is consumed.	62, 65, 68		
		Fruit juice	Alopecia; (E) used for scalp massage, held for a while for	83		

			absorption and then rinsed.			
<i>Citrus sinensis</i> (L.) Osbeck*	Portakal	Leaf	Constipation; (I) infusion is consumed.	51	1	0.0051
(Rutaceae)						
<i>Coriandrum sativum</i> L.*	Kişniş	Aerial part	Stomach ailments; (I) a meal prepared with a mixture of kişniş	61	1	0.0051
(Apiaceae)			(<i>Coriandrum sativum</i>) herb, ısırgan (<i>Urtica dioica</i>) herb,			
09DZ017			gelincik (<i>Papaver rhoeas</i>) leaves, and kazayağı (<i>Oenanthe</i>			
			<i>pimpinelloides</i>) leaves is ingested.			
<i>Cornus mas</i> L.	Kızılcık,	Fruit	Incurable diseases, diabetes; (I) compote prepared by boiling	89	12	0.0621
(Cornaceae)	yabani kiren		the fruits is ingested without addition of sugar.			
08DZ030, 09DZ098			Against abdominal pain and diarrhea; (I) juice obtained by			
			squeezing the fruits is consumed.			
			Against abdominal pain; (I) decoction prepared with the dried	76, 80		
			fruits is consumed.			
			To sooth pain, to ease child birth; (I) dried fruit compote is			
			ingested.			
			Against diarrhea; (I) either marmalade or compote is ingested.	45, 62		
			Against headache; (I) ingested.	100		
		Twig	Against toothache; (E) fresh twig is put on fire for a short period	102		

<i>Corylus maxima</i> Mill.* (Betulaceae)	Fındık	Leaf	and the sap appearing at the tip is applied to the tooth. Against rib ache and abdomen pain; (E) crushed gently between the hands and applied to the sore area.	79	3	0.0155
		Fruit	Against chills; (I) crushed fruits are mixed with honey and ingested.	84		
<i>Cota tinctoria</i> (L.) J.Gay (Compositae) 08DZ081	Papatya	Capitulum	As a carminative; (I) infusion is consumed.	100	1	0.0051
<i>Crataegus rhipidophylla</i> Gand. (Rosaceae) 09DZ170	Alıç	Fruit	Against diabetes; (I) ingested.	104	3	0.0155
		Leaf	Against diabetes and diarrhea; (I) one glass of infusion is consumed every morning on an empty stomach.	12		
<i>Cucurbita maxima</i> Duchesne* (Cucurbitaceae)	Ak kabak, bal kabağı	Seed	Against intestinal worms; (I) ingested.	45, 51	2	0.0103
<i>Cucurbita pepo</i> L.* (Cucurbitaceae)	Kabak, tatlı kabak, yemeklik tatlı	Fruit	Against digestive system pains, stomachache; (I) ingested.	68	3	0.0155
			To reduce fever in mumps; (E) rotten parts or directly grated fruits are applied.	2		
<i>Cupressus sempervirens</i> L. (Cupressaceae)	Çamselvi	Cone	Against shortness of breath; 2–3 cones boiled for 5 min and the decoction is consumed.	68	2	0.0103

09DZ037, 09DZ088	Selvi	Fruit	To ease cough; (I) decoction prepared with 6 fruits and 1 L of water is consumed thrice a day (morning, noon, and evening) after meals. Should be prepared fresh before administration.	83		
<i>Cydonia oblonga</i> Mill.* (Rosaceae)	Ayva	Leaf	Against common cold, flu, and chest pain; (I) infusion prepared with leaves gathered and dried in autumn is consumed.	89, 100	15	0.0777
08DZ028, 08DZ060, 09DZ034			Against cough: (I) infusion prepared with a mixture of the döngel (<i>Mespilus germanica</i>) and ayva (<i>Cydonia oblonga</i>) leaves is consumed. Leaves should be gathered during autumn when turned yellow.			
			Against cough; (I) infusion prepared with dried leaves is consumed.	62, 84		
			Against cough; (I) decoction prepared with ayva (<i>Cydonia oblonga</i>) leaf, ihlamur (<i>Tilia tomentosa</i>) inflorescence, and elma (<i>Malus sylvestris</i>) peel is consumed.	45		
			Against common cold; (I) infusion prepared with ayva (<i>Cydonia oblonga</i>) leaf and ihlamur (<i>Tilia tomentosa</i>) inflorescence is consumed.	54		
			Against common cold; (I) infusion prepared with ayva (<i>Cydonia</i>	51		

			<i>oblonga</i>) leaf, ihlamur (<i>Tilia tomentosa</i>) inflorescence, and yeni dünya (<i>Eriobotrya japonica</i>) leaf is consumed.			
			Against kidney problems and common cold symptoms in children; (I) infusion prepared with ayva (<i>Cydonia oblonga</i>) and taflan (<i>Prunus laurocerasus</i>) leaves is consumed.	67		
			Against shortness of breath; (I) infusion prepared with its dried leaves alone or combined with defne (<i>Laurus nobilis</i>) leaves is consumed until recovery.	8		
			Against heartburn and pyrosis; (I) infusion is consumed.	68		
			Against stenocardia and to soothe body; (I) infusion prepared with 2–3 dessert spoons of dried leaves is consumed.	80		
			Against stomachache; (I) 4–5 handfuls of dried leaves are boiled in 2 L of water until the volume is reduced to half. Consumed before meals for one week.	47		
<i>Cynodon dactylon</i> (L.) Pers. (Poaceae) 08DZ039, 09DZ108	Ayrıkotu, sapankıran	Root	Against stomachache; (I) decoction is consumed for one week.	61	2	0.0103
			Against dysuria; (I) decoction is consumed.	90		
<i>Dioscorea communis</i> (L.) Caddick	Yılanotu	Root	Against backache; (E) fresh root is cut into halves, the juice is	47	1	0.0051

& Wilkin (Dioscoreaceae)

09DZ066

Diospyros kaki L.f.*

Trabzon hurması

Fruit

applied to the affected area.

Against diabetes; (I) ingested.

62

3

0.0155

(Ebenaceae)

Against diarrhea; (I) unripe fruit is peeled off, dried by hanging,

45

and ingested when necessary.

To stimulate lactation of nursing mothers; (I) pekmez, a thick syrup prepared by condensing the fruit juice, is ingested.

Ecballium elaterium (L.) A.Rich.

Acıkavun

Fruit

Against sinusitis; (E) fruit juice is dropped into

83

1

0.0051

(Cucurbitaceae)

nostrils. Excessive use may be dangerous.

Equisetum telmateia Ehrh.

At kuyruğu,

Aerial part

To ease nephralgia and to pass kidney stones; (I) infusion is

45, 80

10

0.0518

(Equisetaceae)

çamotu,

prepared with 4–5 tablespoons full of herb and 3–4 glasses are

09DZ071, 09DZ122, 09DZ130

Dorukotu,

consumed every day. This treatment should be continued until

sazakotu

the pain ceases.

Against kidney problems and nephritis; (I) infusion is

37, 39

consumed.

Against cardiovascular and renal problems; (I) infusion is

39

consumed.

Erica arborea L.

Çalışüpürgesi,

Flower

To sooth itching in anal fissure; (I) infusion is prepared with a

61

1

0.0051

(Ericaceae)	pirançalısı		handful of flowers and consumed.			
09DZ026						
<i>Eriobotrya japonica</i> (Thunb.) Lindl.* (Rosaceae)	Yeni dünya	Leaf	Against common cold; (I) infusion prepared with ayva (<i>Cydonia oblonga</i>) leaf, ihlamur (<i>Tilia tomentosa</i>) inflorescence, and yeni dünya (<i>Eriobotrya japonica</i>) leaf is consumed.	51	2	0.0103
			Against cough; (I) infusion prepared with a mixture of elma (<i>Malus sylvestris</i>) peels, ihlamur (<i>Tilia tomentosa</i>) inflorescence, yeni dünya (<i>Eriobotrya japonica</i>) leaves, and döngel (<i>Mespilus germanica</i>) leaves is consumed.	36		
<i>Euphorbia helioscopia</i> L. (Euphorbiaceae)	Acımuk, acıot, sütlüot	Stem latex	To remove warts; (E) applied on the base of the wart daily. This treatment should be continued until the wart disappears.	68	2	0.0103
09DZ029, 09DZ118		Leaf	Against hemorrhoids; (I) leaves are dried in the shade and powdered, sieved through muslin, and mixed with bitter honey to form pills. Daily one pill is swallowed. This treatment should be continued for 41 days. Warning: After ingestion, water consumption is prohibited for 1 h.	39		
<i>Ficus carica</i> L.*	İncir	Latex	To remove warts and moles; (E) applied at the base of the	68	8	0.0414

(Moraceae)			formation two times a day. Treatment is continued for a few days.			
09DZ030			To remove facial warts and vesicles; (E) applied to the formation.	105		
			To remove warts; (E) the wart is bled and latex is dripped on it. This treatment may be repeated if necessary.	47, 84		
			Eczema; (E) a fresh branch is broken and the latex appearing at the tip is applied to the affected area.	62		
		Fruit	Abscess for suppuration; (E) halved fruit is applied to the abscess and covered.	32		
			Flatulence and dyspepsia; (I) ingested.	76		
			Constipation; (I) matured fruits are ingested.	36		
<i>Fraxinus excelsior</i> L. (Oleaceae)	Çınar	Bark	To treat alopecia and scalp inflammation; (E) ash obtained from burning a piece of çınar (<i>Fraxinus excelsior</i>) bark is pounded with Vaseline, butter, and garlic (<i>Allium sativum</i>) cloves and the ointment thus obtained is applied to the affected area on the head.	51	2	0.0103
09DZ110						
<i>Hedera helix</i> L.	Bezükotu, kersen,	Stem	To induce abortion; (E) inserted into the vagina. This	89	5	0.0259

(Araliaceae)	sarmaşık,		application is very dangerous and can even be fatal.			
09DZ023, 09DZ085, 09DZ133	sırımovuğu	Twig and leaf	Against renal failure; (I) infusion is consumed.			
		Leaf	Against stomach disorders; (I) boiled in water, filtrate is consumed on an empty stomach every night for 2–3 days.	61		
			Against burns; (E) boiled in water, the filtrate is used to clean the affected area. Egg white and unsalted butter are beaten together to prepare an ointment and applied to the affected area, then covered with a leaf. This treatment is repeated until complete healing (preferentially leaves of plants creeping on the ground are used).	62		
			Against wounds; (E) directly applied to wounded area.	40		
<i>Hordeum vulgare</i> L.*	Arpa	Seed	To stimulate lactation of nursing mothers; (I) a glass of decoction is consumed daily.	68	1	0.0051
(Poaceae)						
<i>Hyoscyamus niger</i> L.	Ebelik, gözotu	Seed	To expel worms from eyes; (E) seeds are cooked with butter in a frying pan on embers and face is exposed to the vapor.	105	1	0.0051
(Solanaceae)						
09DZ161						
<i>Hypericum androsaemum</i> L.	Ajafer, güneş otu,	Aerial part	Against cough and asthma; (I) infusion is consumed.	39	5	0.0259
(Hypericaceae)	kantaron		Against allergies and acne; (E) infusion is used for bathing.	28		

09DZ031, 09DZ123, 09DZ137,
09DZ035

Hypericum bithynicum Boiss.
(Hypericaceae)

Sarıkantaron

Flower

As a depurative and for stomach disorders; (I) 3–5 g of flowers
and andız (*Juniperus drupacea*) roots are boiled together,
filtrate is consumed 3 times a day for at least 21 days.

68

5

0.0259

09DZ035, 09DZ124

Aerial part

As an emmenagogue and for menstrual cramps; (I) a handful of
the herb is boiled in two glasses of water, a glass of filtrate is
consumed after meal.

68

Against wounds; (E) kept inside olive oil and applied to injuries
for rapid recovery.

39

Hypericum montbretii Spach.
(Hypericaceae)

Acumuk, dişotu,
öğleğin çiçeği,

Aerial part

Against toothache; (I) infusion is consumed.

87

7

0.0362

08DZ009, 08DZ017, 08DZ037,
08DZ045, 08DZ057

Against gastrointestinal disorders, constipation, and internal
diseases; (I) infusion is consumed.

89

Against internal diseases; (I) infusion is consumed.

90

Against renal diseases and diarrhea; (I) an infusion is prepared
with acumuk (*Hypericum montbretii*) and kekikotu (*Thymus* sp.)
herbs, a glass is consumed daily.

8

Juglans regia L.*

Ceviz

Outer green

Against diabetes; (I) decoction is consumed.

69

23

0.1191

(Juglandaceae) 08DZ029, 08DZ100, 09DZ002, 09DZ148	pericarp	Against wounds; (E) ointment prepared with pounded pericarp and ox butter (ghee) is applied to wounds. Even inflamed wounds may heal within 2–3 days.	29
		Against eczema itching; (E) green husk of fresh fruit (pericarp) is rubbed on the sores area to soothe itching.	62
	Endocarp	Against cough; (I) a decoction prepared with the dried woody endocarps is consumed.	25
	Seed	Against psoriasis; (I) thoroughly ground seeds are mixed with honey and a full dessert spoon is ingested twice a day until healing.	89
		Against burns; (E) seeds are ground with liquid oil and egg, boiled, and applied to the sore area.	47
		Against goiter; (I) a chickpea-sized immature small fruit is swallowed every day for 40 days.	28
		Against cardiac problems; (I) daily five seeds are ingested, it is good for heart health.	76
		To lower high cholesterol levels; (I) 4–6 whole seeds are crushed just before addition to a glass of water and kept	2, 25, 35, 42, 45,

	overnight. In the morning decanted water is consumed, seeds are then ingested.	62, 80
	Against cough; (I) seeds of three walnuts are boiled in 2 glasses of water; daily a glass of filtrate is consumed.	62
Seed testa	For lowering cholesterol levels; (I) infusion prepared with the peeled off membrane-like pale brown seed coat (testa) is consumed.	90
Stem bark	Against rheumatism; (E) peeled bark is heated and while still warm it is applied to the affected area.	45
Leaf	Against knee pain; (E) fresh leaf is applied to the knee and left overnight.	58
	Knee pain; (E) boiled in water, strained, and applied to knee, covered by muslin.	67
	Against myalgia and neurogenic pain of paralyzed person; (E) decoction of fresh leaves is used for bathing.	42
	Against hemorrhoids; (I) infusion is cooled overnight and taken orally. This treatment should be continued for three months.	68
	Against renal failure; (I) infusion prepared with young and	45

			dark-green leaves is allowed to rest for 20 min and two glasses are consumed daily.			
<i>Laurus nobilis</i> L.* (Lauraceae) 09DZ060, 09DZ021, 09DZ089	Defne	Leaf	Against common cold to ease inhalation; (I) infusion prepared with dried ayva (<i>Cydonia oblonga</i>) and defne (<i>Laurus nobilis</i>) leaves is consumed.	8	9	0.0466
			Against common cold; (I) infusion prepared with a mixture of defne (<i>Laurus nobilis</i>) leaf and ihlamur (<i>Tilia tomentosa</i>) inflorescence is consumed.	51		
			Against knee pain or other pains; (E) a towel is soaked in prepared decoction, squeezed, and wrapped on the affected area 3–4 times.	51		
			Against diabetes; (I) infusion prepared with defne (<i>Laurus nobilis</i>) leaves and ısırgan (<i>Urtica dioica</i>) herb is consumed.	45		
			Against eczema and fissures of hands; (I) infusion is consumed.	61		
		Fruit	Against hemorrhoids and bleeding anal fissures; (I) dried fruits are pounded and mixed with honey to form pills. Three pills are swallowed daily, in the morning, at midday, and in the evening, for five days.	83		

			Against rheumatism; (I) swallowed.	43		
<i>Lepidium coronopus</i> (L.) Al-Shehbaz (Brassicaceae) 09DZ027A	Kedi tirnağı	Aerial part	Against stomach ailments; (I) cooked as meal and ingested.	61	1	0.0051
<i>Ligustrum vulgare</i> L. (Oleaceae) 09DZ121		Leaf	Against herpes infections or wounds inside the mouth; (E) fresh leaf is chewed and spit out.	39	2	0.0103
<i>Linum usitatissimum</i> L.* (Linaceae)	Keten	Seed	Against tonsillitis; (E) pounded seeds are boiled in milk to prepare a poultice, applied to neck while still warm, and covered with muslin.	105	1	0.0051
<i>Malus sylvestris</i> (L.) Mill.* (Rosaceae)	Elma	Fruit	Against burns; (E) rotten fruits are applied to the affected area directly or after being grated to sooth the pain by cooling down the area. Against hoarseness, anemia and as a panacea; (I) ingested as “pekmez” prepared by boiling the fruits in water and then condensing to thick syrup consistency. Against hemorrhoids; (I) decoction prepared with immature fruits is consumed on an empty stomach every morning as much	2, 58	10	0.0518
				89		
				84		

			as possible.			
		Fruit peel	Against cough; (I) infusion prepared with a mixture of elma (<i>Malus sylvestris</i>) peels, ihlamur (<i>Tilia tomentosa</i>) inflorescence, yeni dünya (<i>Eriobotrya japonica</i>) leaves, and döngel (<i>Mespilus germanica</i>) leaves is consumed.	36		
			Against cough; (I) decoction prepared with ayva (<i>Cydonia oblonga</i>) leaf, ihlamur (<i>Tilia tomentosa</i>) inflorescence, and elma (<i>Malus sylvestris</i>) peel is consumed.	45		
		Cider	For lowering cholesterol levels and weight control; (I) apple cider is consumed.	68		
<i>Malva neglecta</i> Wallr. (Malvaceae) 08DZ062, 09DZ177	Ebegümeçi, ebegömeçi, ebekömeçi	Leaf	Against hemorrhoids; (I, E) fresh leaf is ingested and also directly applied to anus.	69	17	0.0880
			Against wounds; (E) boiled in milk to prepare a poultice, while still warm applied and covered with muslin.	97		
			Against wounds; (E) applied directly and covered with muslin.	80		
			Against abscess; (E) boiled in milk to prepare a poultice and applied to promote suppuration.	62		
			As a panacea; consumed as a food.	35, 36,		

					54, 67,			
					77, 86			
		Aerial part	Against stomachache and intestinal diseases; (E) 1–2 glasses of decoction are consumed thrice a day.	4				
			Against stomach ailments and stomachache; (I) boiled in milk, strained, and ingested.	62				
			Against cancer and intestinal, renal diseases; (I) boiled in water, filtrate is covered by muslin and kept in a cool place overnight.	74				
			A glass is consumed 1 h before meals.					
<i>Malva nicaeensis</i> All.	Ebegümeçi	Leaf	Against fissures of feet; (I) decoction is consumed.	61				
(Malvaceae)			Against gastric ulcer and reflux; (I) a salad is prepared by using onion (<i>Allium cepa</i>), keltirce (<i>Rumex</i> sp.), ebegümeçi (<i>Malva nicaeensis</i>), kazayağı (<i>Oenanthe pimpinelloides</i>), nane (<i>Mentha × piperita</i>), and parsley (<i>Petroselinum crispum</i>), 3 bowls are ingested every day.	68	9	0.0466		
09DZ016, 09DZ050, 09DZ081,								
09DZ111, 09DZ129								
			As a panacea; consumed as a food.	36				
			Menstrual and renal pains; (I) decoction prepared with ebegümeçi (<i>Malva nicaeensis</i>) leaf and ısırgan (<i>Urtica dioica</i>)	25				

			herb is consumed while still hot.			
		Aerial part	Against uterine cysts and as an emmenagogue; (I) a tea glass of infusion is consumed every morning.	51		
		Root	As an abortifacient; (I) after rinsing, the root is pushed inside the vagina. This practice can be fatal.	82		
<i>Melissa officinalis</i> L. (Lamiaceae) 09DZ082	Kalpotu	Aerial part	Against cardiac problems; (I) infusion is consumed.	82	1	0.0051
<i>Mentha longifolia</i> (L.) L. subsp. <i>thyphoides</i> (Briq.) Harley (Lamiaceae) 08DZ040, 08DZ016, 08DZ021	Anıkotu, anuk	Aerial part	Against menstrual pains and hemorrhoids; (E) warmed up and put in the vagina or affected area.	90	4	0.0207
		Leaf	Against rheumatism; (E) a decoction is prepared with a mixture of acımuk (<i>Anthemis cotula</i>), anıkotu (<i>Mentha longifolia</i>), and yiğidin (<i>Sambucus ebulus</i>); while still warm, the patient sits in this extract for 30 min.	89		
			Against common cold to ease inhalation; (I) 3–4 glasses of infusion are taken orally on an empty stomach every morning for a week.	47		
<i>Mentha × piperita</i> L.* (Lamiaceae)	Nane	Leaf	Against flu; (I) infusion prepared with lemon is consumed.	62, 65, 68	10	0.0518

09DZ019, 09DZ047, 09DZ143

Against abdominal pain and common cold; (I) infusion prepared with lemon and black pepper is consumed. 61

Against shortness of breath in common cold; (I) infusion is consumed. 31

Against cough; (I) infusion prepared with nane (*Mentha × piperita*) leaf and black pepper is consumed with the addition of honey. 32

Against eczema; (I) decoction is consumed. 31

Against gastric ulcer and reflux; (I) a salad is prepared by using onion (*Allium cepa*), keltirce (*Rumex* sp.), ebeğümeci (*Malva nicaeensis*), kazayağı (*Oenanthe pimpinelloides*), nane (*Mentha piperita*), and parsley (*Petroselinum crispum*), 3 bowls are ingested every day. 68

Aerial parts To stimulate lactation of nursing mothers; (I) a salad is prepared by the addition of lemon and olive oil, ingested. 37

Mespilus germanica L.*

Beşbıyık,

Leaf, twig

To treat diarrhea; (I) one glass of decoction prepared with 1–2 twigs or leaves is consumed (or drenched) each time until 68

11

0.0569

(Rosaceae)

döngel,

09DZ044, 09DZ086, 09DZ175

muşmula, töngel

recovery.

	Against cough; (I) decoction prepared with the leaf and a matchstick-long twig is consumed.	62, 68
	Against cough; (I) infusion prepared with the mixture of elma (<i>Malus sylvestris</i>) peels, ihlamur (<i>Tilia tomentosa</i>) flowers/bracts, yeni dünya (<i>Eriobotrya japonica</i>) leaves, and döngel (<i>Mespilus germanica</i>) leaves is consumed.	36
Leaf	Against cough: (I) infusion prepared with mixture of yellowed döngel (<i>Mespilus germanica</i>) and ayva (<i>Cydonia oblonga</i>) leaves is consumed.	31
Fruit	Against hemorrhoids; (I) the thin skin underside of the outer shell is peeled off and then 200 g of it is used to prepare a decoction and consumed.	39
	Against diabetes; (I) ingested.	83
Twig	Against inflammation, rheumatism, and bruises; (I) muşmula (<i>Mespilus germanica</i>) twigs, ısırğan (<i>Urtica dioica</i>) root, yaban gülü (<i>Rosa canina</i>) root, diken (<i>Rubus ulmifolius</i>) root, kekik otu (<i>Thymus longicaulis</i>) herb, andak (<i>Ononis spinosa</i> subsp. <i>leiosperma</i>) root are mixed evenly; decoction prepared with this	83

			mixture, steeped, and consumed.			
<i>Morus alba</i> L.*	Dut, tut	Fruit	To treat eczema of hands; (E) “pekmez” (condensed syrupy	47	6	0.0310
(Moraceae)			fruit juice) is applied directly to the affected area until it heals.			
09DZ065			To treat eczema of hands; (E) boiled in water, hands are	25		
			submerged inside this extract twice a day for up to 15–20 days.			
			Against cough; (I) “pekmez” is ingested.	62		
			Against stomach ailments; (I) “pekmez” is prepared and	76		
			ingested.			
			Against asthma; (I) infusion is consumed.	32		
<i>Morus nigra</i> L.*	Karadut	Leaf	For lowering cholesterol levels; (I) infusion is consumed.	12	11	0.0569
(Moraceae)		Fruit	Against stomach ailments, to treat anemia; (I) “pekmez” is	18, 76		
			prepared and ingested.			
			Against cancer; (I) “pekmez” is prepared and ingested.	80		
			Against eczema; (E) boiled, applied to affected area.	62		
			Against bronchitis; (I) infusion is consumed.			
			Against cough and as an expectorant: (I) “pekmez” is prepared	35		
			and mixed with fresh butter evenly, then ingested.			
			To treat anemia; (I) pekmez, jam, or fresh fruit is ingested.	83		

			Against aphtha and herpes infections in mouth; (E) “pekmez” is used for gargling on an empty stomach in the mornings.	51		
<i>Nicotiana tabacum</i> L.* (Solanaceae)	Tütün	Leaf	To stop bleeding; (E) pressed directly on a cut or wound.	2, 35, 76	3	0.0155
<i>Oenanthe pimpinelloides</i> L. (Apiaceae) 09DZ049	Kazayağı	Leaf	Against gastric ulcer and reflux; (I) a salad is prepared by using onion (<i>Allium cepa</i>), keltirce (<i>Rumex</i> sp.), ebegümeçi (<i>Malva nicaeensis</i>), kazayağı (<i>Oenanthe pimpinelloides</i>), nane (<i>Mentha × piperita</i>) and parsley (<i>Petroselinum crispum</i>), 3 bowls are ingested every day. Against stomach ailments; (I) a meal prepared with kişniş (<i>Coriandrum sativum</i>) herb, ısırgan (<i>Urtica dioica</i>) herb, gelincik (<i>Papaver rhoeas</i>) leaves, and kazayağı (<i>Oenanthe pimpinelloides</i>) leaf is ingested.	68	3	0.0155
<i>Oenanthe silaifolia</i> M.Bieb. (Apiaceae) 08DZ022, 09DZ135	Kazayağı, sakızlı ot	Aerial part	Against stomach ailments, bloating and as a purgative; (I) infusion is consumed. Against diabetes; (I) ingested.	89	4	0.0207
<i>Olea europaea</i> L.* (Oleaceae)	Zeytin, siyah zeytin	Fruit	Against strains and bruises; (E) 50–500 g of fruits are pounded with their seeds in a bronze mortar, applied to the affected area,	11, 31	13	0.0673

	and covered with muslin.	
	Against wounds; (E) pounded, mixed with butter, and applied to the affected area.	88
Fatty oil	Burns on the face; (E) after smearing on the face, powdered coffee beans are sprinkled on it.	74
	Against burns: (E) mixed with egg and walnut, boiled, and applied to the affected area.	47
	Against burns: (E) an ointment is prepared by heating a mixture of olive oil and candle wax and applied to the affected area, covered with muslin.	105
	Against constipation; (I) half-full coffee cup of oil is consumed at 1 or 2 mealtimes every day.	31, 61, 84
	Against toothache; (E) applied to aching tooth.	45
	Against alopecia; (E) the oil is used for massaging into the scalp, head is wrapped with a towel to improve absorption, after 2 h the oil is rinsed. Application should be repeated nightly.	83
Seed	For dislocation of arm and foot; (E) seeds and onion are pounded together by mortar and pestle, applied to affected area,	58

			and left overnight.			
		Leaf	Against diabetes; (E) a glass of freshly prepared infusion is consumed at each meal daily for up to six months.	66		
<i>Ononis spinosa</i> L. subsp.	Andak, yandak,	Root	Against jaundice and to improve breathing; (I) decoction is left overnight and consumed.	45	18	0.0932
<i>leiosperma</i> (Boiss.) Sirj. (Leguminosae)	yandak diken		To treat wounds on hand; (E) decoction is used to protect from infection and for rapid recovery.	24		
08DZ110, 09DZ092, 09DZ140			Against saddle wounds of horses; (E) decoction is applied to the affected area.	83		
			Against gastric ulcers and flesh wounds; (I) decoction is consumed.	11		
			Against gastric ulcer and stomachache; (I) a glass of decoction prepared with a handful of crushed roots is kept in a cool place overnight and then strained into a bottle. A glass of decoction is consumed every day until recovery.	4, 8, 19, 24, 28, 68		
			Against inflammation, rheumatism and bruises; (I) muşmula (<i>Mespilus germanica</i>) twigs, ısırgan (<i>Urtica dioica</i>) root, yaban gülü (<i>Rosa canina</i>) root, diken (<i>Rubus ulmifolius</i>) root, kekik	83		

			otu (<i>Thymus longicaulis</i>) herb, and andak (<i>Ononis spinosa</i> subsp. <i>leiosperma</i>) root are mixed evenly; decoction prepared with this mixture is steeped and consumed.			
<i>Papaver rhoeas</i> L. (Papaveraceae) 09DZ053	Gelincik	Leaf	Against cardiac problems and as a panacea; (I) it is used to make meals with the addition of onion.	68	3	0.0155
			Against stomach ailments; (I) a meal prepared with kişniş (<i>Coriandrum sativum</i>) herb, ısırgan (<i>Urtica dioica</i>) herb, gelincik (<i>Papaver rhoeas</i>) leaves, and kazayağı (<i>Oenanthe pimpinelloides</i>) leaf is ingested.	61		
<i>Persicaria maculosa</i> Gray (Polygonaceae) 08DZ077, 09DZ181	Mayasıl otu	Aerial part	Against inflammation of hands; (I) infusion is consumed for 10 days.	106	2	0.0103
			Against internal diseases; (I) infusion is consumed.	86		
<i>Petroselinum crispum</i> (Mill.) Fuss* (Apiaceae)	Maydanoz	Leaf, aerial part	Against inflammation; (I) 1–2 glasses of infusion are consumed daily.	65	11	0.0569
			Against bronchitis and cough; (I) infusion prepared by using 4–5 katırkulağı (<i>Plantago major</i>) and 5–6 maydanoz (<i>Petroselinum crispum</i>) leaves is consumed.	89		
			To pass kidney stones; (I) decoction is consumed.	62		

		Against renal diseases and foot edema; (I) infusion prepared with a mixture of cherry (<i>Prunus avium</i>) stalks, parsley (<i>Petroselinum crispum</i>), and dereotu (<i>Anethum graveolens</i>) herbs is consumed.	57		
		Against urethritis, bronchitis, cough, and diarrhea; (I) for bronchitis and cough; (I) infusion prepared by using 3–4 katirkulağı (<i>Plantago major</i>) leaves and 5–6 maydanoz (<i>Petroselinum crispum</i>) leaves is consumed every day until healing.	89		
		Against diabetes: (I) half of a bunch is ingested every morning.	51		
		Against gastric ulcer and reflux; (I) a salad is prepared by using onion (<i>Allium cepa</i>), keltirce (<i>Rumex</i> sp.), ebegümeçi (<i>Malva nicaeensis</i>), kazayağı (<i>Oenanthe pimpinelloides</i>), nane (<i>Mentha piperita</i>), and parsley (<i>Petroselinum crispum</i>), 3 bowls are ingested every day.	68		
		Against vaginal inflammation; excess causes genital rashes.	45, 54		
	Root	To pass kidney stones; (I) decoction is consumed.	51		
<i>Physalis alkekengi</i> L.	-	Fruit	Against intestinal inflammation and constipation; (I) ingested.	28	5 0.0259

(Solanaceae) 09DZ139, 09DZ159	Kulakotu	Seed	Against earache, ear inflammation, and worms in the ear; (E) dried seeds are burned with beeswax on a mud brick. The smoke is transferred into the ear by the help of a tube.	94		
<i>Pinus nigra</i> J.F.Arnold (Pinaceae)	Karaçam	Resin (yavır)	Against shortness of breath in common cold; (I) resin is boiled, cooled, let stand overnight and consumed.	104	1	0.0051
<i>Pinus sylvestris</i> L. var. <i>hamata</i> Steven (Pinaceae)	Sarıçam	Resin (yavır)	Against shortness of breath in common cold; (I) resin is boiled, cooled, let stand overnight and consumed.	104	1	0.0051
<i>Pinus taeda</i> L. (Pinaceae) 09DZ046	Fıstık çamı	Seed	As immune system booster; (I) ingested.	68	1	0.0051
<i>Pisum sativum</i> L.* (Leguminosae)	Bezelye	Seed	Against internal diseases, cancer and tuberculosis; (I) ingested.	89	3	0.0155
<i>Plantago lanceolata</i> L. (Plantaginaceae) 08DZ008, 08DZ015, 08DZ101, 08DZ141, 09DZ073, 08DZ119, 09DZ041,	Damarotu, dar yara yaprağı, ince yapraklı damarotu, sivrisülük, sinirotu,	Leaf	Against shortness of breath; (I) infusion is consumed. Against diabetes; (I) a glass of infusion is consumed on an empty stomach every morning. Against stomachache; (I) infusion is consumed. Against stomachache and other stomach diseases; (I) a tea glass full of the decoction prepared with a mixture of ince yapraklı	76 61 87, 94 90	14	0.0725

uzun Yaprak, yaraotu, yilandili	damarotu (<i>Plantago lanceolata</i>) leaves, papatya (<i>Bellis perennis</i>) flower, and young pine shoots (<i>Pinus</i> sp.) is consumed on an empty stomach daily for 2–3 days.	
	Stomachache, intestinal and internal diseases; (I) infusion prepared with a mixture of papatya (<i>Bellis perennis</i>) flowers and uzun yaprak (<i>Plantago lanceolata</i>) leaves is consumed.	89
	Against abscess; (E) fresh leaf is applied directly to abscess.	67
	Against burns; (E) crushed, wrung out, and the sap is applied to the affected area.	80
	Against wounds; (E) ointment prepared with the addition of butter is applied to affected area.	28, 11
	Against wounds; (E) pounded and directly applied to affected area.	39

<i>Plantago major</i> L. (Plantaginaceae)	Ahuraş, beşparmak otu, çıban otu, damarotu, katırkulağı, keçiotu Kesik otu, siğil yaprağı, sinirli ot, sinirlikotu, sinsek yaprağı, sivilceotu, şuşek, yaraotu, yara yaprağı, yarabüzen, yarabezdüren,	Leaf	Against inflamed wound, pricks, felons, and abscesses; (E) a fresh leaf is applied to the affected area, kept covered, and replaced with a new one twice a day every morning and evening to drain the pus out and for the maturation of the abscess. Against wounds; (E) cooked in water, mashed through muslin; an ointment is prepared by the addition of unsalted butter and applied. Against wounds; (E) mixed with butter to obtain an ointment and applied to wound. Against abscesses; (E) warmed leaf is applied and covered.	2, 8, 10, 18, 25, 28, 32, 33, 35, 39, 45, 51, 56, 67, 71, 81, 82, 89, 97, 105, 106 74 28 8, 65, 68, 100	59	0.3056
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yedidamar otu	Against wounds; (E) a fresh leaf is pounded, strained through muslin, pulp is applied to affected area and covered.	37, 80
	Against wounds; (E) pounded in a wooden mortar, strained through muslin, the filtrate and remaining pulp is used to dress the wound. Wound is treated in one month.	83
	Against head wounds; (E) decoction is applied to affected area.	43
	Against bronchitis and cough; (I) infusion prepared by using 4–5 katirkulağı (<i>Plantago major</i>) and 5–6 maydanoz (<i>Petroselinum crispum</i>) leaves is consumed.	89
	Against shortness of breath; (I) infusion is consumed.	76
	Against bronchitis and cough; (I) infusion prepared by using 3–4 katirkulağı (<i>Plantago major</i>) leaves and 5–6 maydanoz (<i>Petroselinum crispum</i>) leaves is consumed every day until healing.	89
	Against cardiovascular diseases; (I) infusion is consumed.	39
	Against nervousness; (I) 3–5 g of leaf is boiled with a glass of	68

water in a steel pot and consumed.	
Against cancer; (I) infusion is consumed for at least 21 days.	
Against gastric ulcer; (I) dried, ground, mixed with honey, and ingested.	45
Against stomachache and as a panacea; (I) a tea glass of infusion prepared with dried leaves is consumed every morning.	2, 8
Against stomachache, gastric bleeding, and ulcer; (I) infusion is consumed unlimitedly.	32, 33, 47, 83, 90, 100
Against urinary tract disorders; (I) a tea glass of infusion prepared with 15–20 leaves is consumed in mornings until recovery.	41, 90
Against diabetes; (I) infusion prepared with karayemiş (<i>Prunus laurocerasus</i>) fruits and yedidamarotu (<i>Plantago major</i>) leaves is consumed.	39
Against hemorrhoids and kidney cancer; (I) infusion is consumed.	67
Against hemorrhoids; (I) decoction is consumed.	68

			Flower	Against hemorrhoids; (I) a meal is prepared and ingested.	102		
				Against piles, hemorrhoids, constipation, and enteritis; (I) 3 teaspoons full of flowers are boiled in 6 tea glasses of water until it is reduced to half of its original volume, strained through muslin, kept in a cool place overnight, and a teaspoonful is consumed every day.	33		
<i>Platanus orientalis</i> L. (Platanaceae) 09DZ182	Kavlanağacı	Leaf		Against backache; (I) decoction is consumed.	71	1	0.0051
<i>Portulaca oleracea</i> L. (Portulacaceae) 08DZ066	Semizotu, temizotu	Aerial part		Against constipation; (I) salad prepared by the addition of tomato is ingested.	62	1	0.0051
<i>Prunus avium</i> (L.) L.* (Rosaceae)	Kiraz	Fruit stalk		Against bronchitis; (I) infusion prepared with dried stalks is consumed.	67	7	0.0362
				Against constipation; (I) decoction is consumed.	39, 71		
				As diuretic; (I) decoction is consumed.	39, 71		
				Against renal diseases and foot edema; (I) infusion prepared with a mixture of its stalks with maydanoz (<i>Petroselinum</i>	57		

crispum) and dereotu (*Anethum graveolens*) herbs is consumed.

<i>Prunus cerasus</i> L.* (Rosaceae)	Fişne	Fruit juice	Against stomachache, diarrhea and anemia; (I) juice is consumed.	89	3	0.0155
<i>Prunus domestica</i> L.* (Rosaceae)	Siyah erik	Fruit	Against constipation; (I) boiled, as the exocarps start to open, taken off and dried. These fruits with seeds are swallowed and the infusion is consumed.	24	1	0.0051
<i>Prunus laurocerasus</i> L. (Rosaceae)	Taflan, tahlan, karayemiş	Leaf	Against kidney diseases and common cold in children; (I) infusion prepared with ayva (<i>Cydonia oblonga</i>) and taflan (<i>Prunus laurocerasus</i>) leaves is consumed.	67	27	0.1398
08DZ043, 08DZ048, 08DZ091, 09DZ024, 09DZ032, 09DZ163, 09DZ090, 09DZ102			Against tonsillitis; (E) warmed up, applied on neck by muslin.	54		
			Pain in legs; (E) applied to the affected area and covered with muslin.			
			Against cirrhosis and diabetes; (I) infusion is consumed, the elderly should avoid this application.	37		
			Against mumps; (E) leaf is wilted over fire, applied to the neck, covered with muslin, and kept overnight.	84		
			Against stomachache, ulcer, and stomach cancer; (I) 1–2 glasses	83		

	of decoction are consumed daily for a few days. After a 3-day pause, treatment is repeated.	
	Against stomachache, knee pain, and as a panacea; (I) infusion with leaves and twigs is consumed until recovery.	61
	Against stomachache; (I) decoction is consumed.	68
	For lowering blood sugar; (I) infusion is consumed.	45
	Against aches; (E) applied to the affected area and covered with muslin.	56
	Against hemorrhoids; (I) leaves are soaked in 1 L of water and kept in a cool place, a tea glass of filtrate is consumed every morning until finished.	51
	Against hemorrhoids; (I) infusion is consumed.	39
Fruit	Diabetes, intestinal diseases, and for lowering cholesterol levels; (I) mature fruits are ingested.	35
	Against diabetes; (I) ingested.	62, 73
	Against stomach ailments; (I) ingested.	25
	Against stomachache; (I) ingested as compote or pekmez.	80
	As a panacea; (I) ingested.	76

		Seed	Against diabetes; (I) crushed and ingested. Regulates blood sugar levels.	8		
<i>Punica granatum</i> L.* (Lythraceae)	Nar	Fruit exocarp	Against diarrhea, (I) decoction is consumed, seeds with arils are ingested simultaneously.	25	2	0.0103
<i>Raphanus raphanistrum</i> subsp. <i>sativus</i> (L.) Domin* (Brassicaceae)	Karaturp, siyah turp	Tuber	Against cough; (I) sliced, mixed with honey to a syrup, kept in a cool place overnight, strained and ingested. Against cough; (I) a tuber is hollowed out and stuffed with honey to a syrup, left for a while and consumed.	83	2	0.0103
<i>Rosa canina</i> L. (Rosaceae)	Gül tomurcuğu, itburnu, kuşburnu, köpekdiken, yabangülü	Fruit	Against diabetes; (I) infusion is consumed. Against flu; (I) decoction is consumed. Against sore and swollen throat; (I) decoction is consumed. Against hemorrhoids and stomachache; (I) infusion is consumed. Against hemorrhoids; (I) infusion is consumed, pekmez is prepared and ingested. Against eczema; (I) pekmez is prepared and ingested every morning on an empty stomach.	52, 89, 97	25	0.1295
08DZ064, 09DZ026, 09DZ172				45, 71		
				97, 100		
				37		
				89		
				84		

	Against foot pain and itching; (I) a kind of marmalade is prepared and ingested.	8
	Against atherosclerosis, constipation and as a panacea; (I) two glasses of infusion prepared with a tablespoonful of fruit are consumed every morning on an empty stomach.	80
	As a panacea; (I) marmalade and pekmez of the fruits are ingested.	61, 100
	To strengthen immunity and regenerate, <i>Prunus laurocerasus</i> regenerates the body; (I) infusion is consumed as tea or marmalade ingested.	83
	Against inflammation, rheumatism, and bruises; (I) muşmula (<i>Mespilus germanica</i>) twigs, ısırgan (<i>Urtica dioica</i>) root, yaban gülü (<i>Rosa canina</i>) root, diken (<i>Rubus ulmifolius</i> Schott) root, kekik otu (<i>Thymus longicaulis</i>) herb, and andak (<i>Ononis spinosa</i> subsp. <i>leiosperma</i>) root are mixed evenly; decoction prepared with this mixture is steeped and consumed.	83
Flower	To pass kidney stones; (I) infusion is consumed.	8
Root	Against dysuria; (I) infusion prepared with a mixture of	87

			kuşburnu (<i>Rosa canina</i>), böğürtlen (<i>Rubus serpens</i>), and ısırgan (<i>Urtica dioica</i>) roots is consumed.			
<i>Rosa</i> sp. (Rosaceae) 08DZ035	Yerli gül	Twigs and root	Against internal diseases; (I) a tea glass of infusion prepared with removed barks of twigs and roots is consumed every day on an empty stomach.	90	1	0.0051
<i>Rubia</i> sp. (Rubiaceae) 09DZ164	Sarılık otu	Leaf	Against anorexia; (I) infusion is consumed. Against jaundice; (I) decoction is mixed with honey and consumed unlimitedly. It heals jaundice effectively.	79	2	0.0103
<i>Rubus idaeus</i> L. (Rosaceae) 08DZ048, 09DZ013, 09DZ020, 09DZ022, 09DZ059, 09DZ084, 09DZ136,	Ahududu, badem çileği, çilek, baldıran	Leaf Fruit Root	As a panacea; (I) a meal is prepared and ingested. Against cough and abdominal pain; (I) a jam is prepared and ingested. Against diabetes and anemia; (I) infusion is consumed. Against diabetes; (I) ingested. As a panacea; (I) infusion is consumed for 2–3 days or put between two slices of cornbread to make a sandwich and ingested.	47, 61 10, 58 62 76 61	12	0.0621
			Against diabetes; (I) infusion is consumed, a meal is prepared	40		

			and ingested.			
<i>Rubus serpens</i> Weihe ex Lej. & Courtois (Rosaceae) 08DZ019	Avat, böğürtlen, böğürtlen diken karaköstek, tiken	Leaf	Against cuts as a hemostatic; (E) fresh leaf is chewed and applied to affected area.	2, 4, 8, 33, 67, 89, 97, 100, 102, 106	26	0.1347
		Leaf and young shoots	Against stomachache; (I) infusion prepared with the young endmost leaves and twigs is consumed.	2, 67, 104		
		Young shoots	Against wounds; (E) pounded and applied to the affected area.	61		
		Root	Against cough; (I) decoction is consumed. Against diabetes, renal diseases, gastric ulcer; (I) infusion prepared by chopped root is consumed. WARNING: Causes constipation!	102 2, 69, 89		
			Against dysuria; (I) infusion prepared with a mixture of kuşburnu (<i>Rosa canina</i>), böğürtlen (<i>Rubus serpens</i>), and ısırgan (<i>Urtica dioica</i>) roots is consumed.	87		
		Fruit	Against anemia; (I) ingested.	89		

<i>Rubus ulmifolius</i> Schott (Rosaceae)	Böğürtlen, Böğürtlen Dikeni, Börtlen	Leaf	Against burns; (E) dried on the stove and rubbed between the hands to make a coarse powder and sprinkled over the affected area. It heals effectively, without any scar.	81, 94	44	0.2279
09DZ005, 09DZ018, 09DZ025, 09DZ041, 09DZ072, 09DZ095, 09DZ145, 09DZ154	Börtliyen, Diken, Mahır, mora		Against cuts; (E) wilted gently over the stove, applied to affected area, and covered. It heals and treats the wound.	31, 76, 91		
			Against wounds; (E) fresh leaf is directly or after chewing applied to affected area.	12, 32, 34, 35, 41, 42, 45, 46, 47, 50, 51, 52 61		
			Against wounds; (E) fresh (or dried and powdered) leaf is directly applied to affected area.	68		
			Against wounds inside the mouth; (E) decoction is used for gargling.	71		
			Against wounds inside the mouth, stomach diseases, stomachache; (I) chewed; sap is swallowed, the pulp is spit out. Three applications are enough for complete healing.	51		

	Against gastric ulcer; (I) a tea glass of infusion prepared with a handful of leaves and 2 tea glasses of water consumed every day for up to 40 days.	12
Leaf, twig, root	Against abdominal distension, stomachache, and flatulence; (I) infusion prepared by boiling of the mixture of leaves, twigs, and roots for 5–6 min is consumed.	68
Young shoot	Against stomachache; (I) sap of the pounded shoot is consumed on an empty stomach.	47
	Against gastric ulcer; (I) fresh shoots are ingested three times daily (morning, noon, and evening) for 3 consecutive days.	46
	Against wounds; (E) sap of the pounded shoot is dropped onto the affected area.	83
	Against cancer; (E) decoction is consumed.	
	Against heartburn; (I) a glass of decoction prepared by boiling nearly 1 h is consumed twice a day for a month.	52
Root	Against bronchitis and diabetes; (I) washed, boiled, and kept in a cool place for a day; one glass is consumed on an empty stomach.	62

Against hemorrhoids; (I) infusion is consumed.	80
Against hemorrhoids and intestinal diseases; (I) decoction prepared with small amount of water is consumed.	39
Against bleeding anal fissure; (I) a tea glass of decoction is consumed twice a day (morning and evening) whenever thirst is felt.	42, 51
Against inflammation, rheumatism, and bruises; (I) muşmula (<i>Mespilus germanica</i>) twigs, ısırgan (<i>Urtica dioica</i>) root, yaban gülü (<i>Rosa canina</i>) root, diken (<i>Rubus ulmifolius</i>) root, kekik otu (<i>Thymus longicaulis</i>) herb, and andak (<i>Ononis spinosa</i> subsp. <i>leiosperma</i>) root are mixed evenly; decoction prepared with this mixture is steeped and consumed.	83
Against internal diseases and diabetes; (I) decoction is consumed.	34, 47
To pass kidney stones; (I) washed, boiled, kept in a cool place for three nights, a half-full glass is consumed every day for 7–15 days.	37
Against gynecological inflammations; (I) infusion is consumed.	45

			Against heartburn; (I) a glass of decoction prepared by boiling nearly 1 h is consumed twice a day for a month.	52		
		Fruit	Against anemia; (I) ingested.	34		
			As a panacea; (I) ingested.	12		
<i>Rumex</i> sp. (Polygonaceae) 09DZ48, 09DZ134	Keltirce	Leaf	Against gastric ulcer and reflux; (I) a salad is prepared by using onion (<i>Allium cepa</i>), keltirce (<i>Rumex</i> sp.), ebegümeçi (<i>Malva nicaeensis</i>), kazayağı (<i>Oenanthe pimpinelloides</i>), nane (<i>Mentha × piperita</i>), and parsley (<i>Petroselinum crispum</i>), 3 bowls are ingested every day.	68	3	0.0155
			Against diabetes.	40		
<i>Salix excelsa</i> S.G.Gmel. (Salicaceae) 09DZ087	Salkım söğüt	Leaf	Against diabetes; (I) infusion is consumed.	83	1	0.0051
<i>Salix</i> sp. (Salicaceae) 08DZ010, 08DZ027	Söğüt, yabani söğüt	Leaf	Against diabetes; (I) decoction is consumed.	69	4	0.0207
		Leaf and twig	Against jaundice, insomnia; (I) infusion is consumed.	87		
		Bark	Against eczema; (E) burned, ash is applied to affected area. Sooths itching.	89		
<i>Sambucus ebulus</i> L.	Gülüzotu, gülüz,	Leaf	Against pain, fracture, and dislocation of bones: (E) wilted		44	0.2279

(Adoxaceae)	nivirdin,	slightly over embers, put on muslin, and applied to affected	62
08DZ003, 08DZ004, 08DZ012,	nivürden,	area.	
08DZ049, 08DZ076, 08DZ102,	onjura,	Against pain; (E) boiled, applied to affected area, and covered.	67, 80,
09DZ027B, 09DZ070, 09DZ096,	öküz kuyruğu,		90, 100
09DZ104, 09 DZ142	sultanotu,	Against rheumatism; (E) fresh leaves wilted gently over the	2, 8, 69
	şahmelik,	stove, applied to affected area, and kept covered overnight. Pain	
	şahmeren,	is treated by morning.	
	yiğidin,	Against pains; (E) after application of olive oil on the affected	37
	yivdin,	area wilted leaves are wrapped.	
	yivirden	Against rheumatism; (E) a decoction is prepared with a mixture	89
		of acımuk (<i>Anthemis cotula</i>), anıkotu (<i>Mentha longifolia</i>), and	
		yiğidin (<i>Sambucus ebulus</i>); while still warm, the patient sits in it	
		for 30 min.	
		Against knee pain and rheumatism; (E) wilted over fire and	35, 45
		applied to affected area.	
		Against sunstroke; (E) mowed leaves are treated with buttermilk	2
		and then the patient is covered with this mixture.	
		Against the pain and itching from common nettle sting; (E)	2, 82, 39

	fresh leaf or the leaf sap is applied to affected area. It soothes quickly.	
	Against bee stings; (E) boiled, strained, and applied to the affected area. Prevents swelling and allergic reaction.	69
	Postnatal pain and suffering of vagina; (E) cooked over fire and applied to affected area.	80
	Against bruises and sprains; (E) directly or after heating, applied to affected area.	11
	Against wounds; (E) boiled with pine resin to obtain an ointment and applied to wound.	105
	Against menstrual cramps; (E) applied to abdomen and covered.	37
	To induce abortion; (E) leaves are heated and woman sits on it while still hot.	37
	Against malaria; (I) boiled in buttermilk, the filtrate is consumed. Prevents fever and chills.	2
Leaf, flower	Against stomachache; (E) fresh inflorescences and young, endmost leaves are wilted over the stove, treated with salt and oil, and then applied to abdomen.	2

Fruit	Against hemorrhoids; (I) dried fruits are swallowed on an empty stomach for up to 40 days.	2, 25, 36, 43, 45, 84
	Against hemorrhoids; (I) ripe fruits are ingested.	68
	Against hemorrhoids; (I) a couple of fruits are swallowed on a full stomach 3–4 times daily. WARNING: People with stomach diseases should not ingest fruits!	10, 31
	To expel intestinal tapeworms and round worms; ripe fruits are ingested.	68
	Against colic; (I) juice obtained by squeezing the fresh fruits is consumed.	67
	Against stomachache; (I) swallowed.	62
	Against cancer; (I) fruits are ingested.	62
	Against eczema; (I) two fruits are ingested thrice a day.	2, 25, 36, 43, 45, 106
	Root	Against burns; (E) cooked with butter and applied to affected area.

			Against toothache to sooth pain and inflammation: (E) cut into two pieces, juice is squeezed onto the sore tooth.	2		
<i>Sambucus nigra</i> L. (Adoxaceae) 09DZ125	Kavalçiçeği, patlak çiçeği	Flower	Against renal diseases; (I) infusion prepared with shade-dried flowers is consumed.	39	1	0.0051
<i>Sedum maximum</i> (L.) Suter (Crassulaceae) 09DZ010, 09DZ147	Kalınkaymak	Leaf	Against inflamed wounds; (E) wilted gently, after removing the outer membrane, applied to affected area.	25, 81	2	0.0103
<i>Sempervivum</i> sp. (Crassulaceae) 09DZ173	Kulakotu	Leaf	Against earache; (E) sap is squeezed into the ear.	71	1	0.0051
<i>Smilax excelsa</i> L. (Smilacaceae) 08DZ095, 09DZ004, 09DZ043, 09DZ106, 09DZ150	Burçman, dikenucu, gıcır diken, karasal diken, melovcan, meloncan diken, melican, meravcan	Young shoot	Against wounds; fresh shoots are applied to affected area and covered. Stomachache; (I) infusion prepared with the fresh leaves of young shoots is consumed. Against stomachache; (I) it is used to prepare a meal. Against stomachache; (I) it is used to prepare a meal and also ingested freshly. As a stomachic; (I) membrane under the peel is chewed, in the	50, 67 83 43, 45	10	0.0518

			course of time it increases in size.			
		Root	Against stomachache; (I) decoction is consumed and also ingested freshly.	58		
		Seed	As stomachic; (I) chewed as a gum.	50, 58		
<i>Solanum tuberosum</i> L.* (Solanaceae)	Patates	Tuber	Against fever; (E) sliced tubers are applied to with muslin.	47	4	0.0207
			Against stomachache; (I) grated, juice obtained through squeezing is consumed.	51		
			Against diarrhea;(I) boiled and ingested.			
			Against burns; (E) grated and applied to affected area and covered with muslin soaked in olive oil. It heals.	51		
<i>Sorbus domestica</i> L. (Rosaceae) 09DZ115, 09DZ171	Ovaz, Üvez	Leaf	To pass kidney stones; (I) infusion is consumed unlimitedly for 1–4 weeks.	12, 51,71	6	0.0310
			Against diabetes; (I) infusion is consumed.			
		Fruit	Against diarrhea; (I) dried fruits are ingested as much as possible until recovery.	12, 104		
			Against diarrhea; (I) dried fruits are ground to obtain flour, 2 full teaspoons are ingested every day. Fresh fruit is never used for this purpose.	105		

<i>Spinacia oleracea</i> L.* (Amaranthaceae)	Ispanak	Leaf	For bee stings; (E) boiled gently and applied to affected area.	68	1	0.0051
<i>Stellaria media</i> (L.) Vill. (Caryophyllaceae) 09DZ039	Kuşyüreği	Leaf	Helps to stabilize the mood; it is ingested as a salad or braised to prepare a meal.	68	1	0.0051
<i>Taraxacum microcephaloides</i> Soest (Compositae) 09DZ040	Sarıot, sütlüot	Flowering aerial part	Against nephritis and stomachache; (I) decoction is consumed.	68	2	0.0103
<i>Thymus longicaulis</i> C.Presl (Lamiaceae) 08DZ059, 09DZ091, 09DZ109, 09DZ174	Kekik	Leaf Aerial part	To regulate and reduce pain in menstruation; (I) leaves are boiled in water for 3–4 min and consumed. Against cough; (I) infusion is consumed. Against inflammatory disorders, rheumatism, and bruises; (I) muşmula (<i>Mespilus germanica</i>) twigs, ısırgan (<i>Urtica dioica</i>) root, yaban gülü (<i>Rosa canina</i>) root, diken (<i>Rubus ulmifolius</i>) root, kekik otu (<i>Thymus longicaulis</i>) herb, and andak (<i>Ononis spinosa</i> subsp. <i>leiosperma</i>) root are mixed evenly; decoction prepared with this mixture is steeped and consumed. Against shortness of breath due to common cold; (I) infusion is consumed.	43 8 83 76	5	0.0259

<i>Thymus</i> sp. (Lamiaceae) 08DZ079	Kekikotu	Aerial part	Against stomachache; (I) infusion is consumed. Against hoarseness; (I) infusion is consumed. Against renal diseases and diarrhea; (I) an infusion is prepared with acumuk (<i>Hypericum montbretii</i>) and kekikotu (<i>Thymus</i> sp.) herbs, a glass is consumed daily.	97, 102 36	6	0.0310
<i>Tilia tomentosa</i> Moench* (Malvaceae) 08DZ056, 08DZ065, 09DZ128	Ihlamur	Bark Inflorescence with bracts	Against cough, flu and catarrh; (I) infusion is consumed. Against common cold and cough; (I) decoction prepared with ayva (<i>Cydonia oblonga</i>) leaf and elma (<i>Malus sylvestris</i>) peel is consumed. Against common cold; (I) infusion prepared with ayva (<i>Cydonia oblonga</i>) leaf and yeni dünya (<i>Eriobotrya japonica</i>) leaf is consumed. For same purpose infusion prepared with defne (<i>Laurus nobilis</i>) leaf is also used.	2, 8, 12, 14, 35, 51, 62, 71, 89, 97, 102, 100 45, 54 51	26	0.1347

			Against cough; (I) infusion prepared with the mixture of elma (<i>Malus sylvestris</i>) peels, yeni dünya (<i>Eriobotrya japonica</i>) leaves, and döngel (<i>Mespilus germanica</i>) leaves is consumed.	36		
<i>Trachystemon orientalis</i> (L.) D.Don (Boraginaceae) 08DZ020	Kaldirik, kaldirıç, zılbit	Root	Against internal diseases and to lengthen the life; (I) tea is consumed.	89	2	0.0103
<i>Urtica dioica</i> L. (Urticaceae) 08DZ006, 08DZ033, 08DZ034, 08DZ038, 08DZ071, 08DZ131, 09DZ001, 09DZ033, 09DZ064, 09DZ094, 09DZ131	Cibirgen, cigirgen, ısırgan, sırgan	Leaf	Against pain in rheumatism and osteoarthritis; (E) fresh leaf is directly applied to knee and covered. Application is repeated 2– 3 times.	11, 31, 37, 43, 83, 89, 104, 58	84	0.4352
			Against pains; (E) boiled in water, affected area is exposed to the vapor.	46		
			Against knee pain; (E) heated and applied to knee and covered.	35		
			Against rheumatism and herniated disk; (E) fresh leaf is applied directly to the affected area and covered.	2, 89		
			Against intestinal cancer; (I) infusion prepared with leaves dried	68		

in shade is consumed.	
Against face acne; (E) pounded and applied to acne.	35
Against eczema; (I) infusion is consumed.	52, 80
Against diabetes; (I) infusion prepared with defne (<i>Laurus nobilis</i>) leaves is consumed.	45
As a local anesthetic before ear-piercing; (E) area to be pierced is rubbed and pricked by a fresh leaf.	2, 89
As a local anesthetic before injection; (E) injection area is rubbed and pricked by a fresh leaf.	82
Against wounds; (E) pounded fresh leaves are applied to affected area. Stops bleeding, heals the wound.	77
Against female infertility; (E) boiled in water, patient sits over the vapor.	37
As a panacea; (I) infusion is consumed. Stimulates the blood circulation.	82
As a panacea; (I) a meal is prepared and ingested.	35, 67, 74, 76, 82, 97,

		106
	For weight control; (I) infusion is consumed.	52, 80
	Against renal diseases; (I) infusion is consumed.	47
	To pass kidney stones and for hemorrhoids; (I) decoction is consumed.	37
	Against hemorrhoids; (I) a meal is prepared and ingested.	102
Aerial part	Against menstrual and renal pains; (I) decoction prepared with ebegümeçi (<i>Malva nicaeensis</i>) leaf and ısırgan (<i>Urtica dioica</i>) is consumed while still hot.	25
	Against abdominal pain, stomachache, and leg pain; (I) infusion prepared with the fresh plant is consumed for 2–3 days.	2,71,94
	Against tumors, rheumatism, and all kinds of inflammations; (I) decoction prepared with 1 kg of plant in 2 L of water is kept in a cool place overnight, strained, and filtrate is consumed on an empty stomach unlimitedly.	10
	Against cancers; (I) infusion is consumed.	58
	Against breast cancer; (I) infusion is consumed.	33

Against incurable diseases, intestinal diseases, and hemorrhoids; (I) infusion is consumed. WARNING: Excess may be harmful!	10
Against cancer and intestinal diseases; (I) infusion is consumed.	89, 90, 100
Against jaundice; (I) infusion is consumed.	97
Against stomachache; (I) boiled in water, kept in a cool place overnight, strained; filtrate is consumed.	67
Against stomachache, diabetes, and to relax the body; (I) sun-dried plant is boiled, kept in a cool place for two nights, strained; a glass of filtrate is consumed on an empty stomach for three consecutive mornings.	61, 69, 84
Against stomach ailments; (I) a meal prepared with <i>kişniş</i> (<i>Coriandrum sativum</i>) herb, <i>ısırgan</i> (<i>Urtica dioica</i>) herb, <i>gelincik</i> (<i>Papaver rhoeas</i>) leaves, and <i>kazayağı</i> (<i>Oenanthe pimpinelloides</i>) leaf is ingested.	
Against wounds; (E) pounded to make a poultice and applied on the affected area. Treatment should be repeated 2–3 times for	

	complete healing.	
Seed	Against hemorrhoids; (I) tea prepared with seeds is consumed.	67
	Against internal diseases, diabetes, chest pain, and cough; (I) mixed with true honey, a tablespoonful is ingested on an empty stomach every morning.	2, 89
	Against cancer; (I) dried and pounded with Anzer honey (a special kind of bitter honey produced in the East Black Sea Region of Turkey), a teaspoonful is ingested every morning for 40 days.	51
	Against alopecia; (I) infusion is consumed for up to 6 months.	47
	Against cancer; (I) mixed with honey; a full dessert spoon is ingested on an empty stomach every morning.	68
	Against all kinds of cancers; (I) tea prepared with dried seeds is consumed. Overuse may be harmful!	2,90
	As a panacea; (I) dried, powdered, and mixed with bitter honey; a teaspoonful is ingested every morning.	74
	Against asthma; (I) dried and pounded with bitter honey and a teaspoonful is ingested every morning.	37

Root	Against dysuria; (I) infusion prepared with a mixture of kuşburnu (<i>Rosa canina</i>), böğürtlen (<i>Rubus serpens</i>), and ısırgan (<i>Urtica dioica</i>) roots is consumed.	87
	Against alopecia; (I) infusion is used to wash the hair, left on for a while for better absorption before rinsing.	89
	Against renal problems, incurable diseases; (I) a glass of decoction is consumed on an empty stomach every morning.	90
	Against inflammation, rheumatism, and bruises; (I) muşmula (<i>Mespilus germanica</i>) twigs, ısırgan (<i>Urtica dioica</i>) root, yaban gülü (<i>Rosa canina</i>) root, diken (<i>Rubus ulmifolius</i>) root, kekik otu (<i>Thymus longicaulis</i>) herb, and andak (<i>Ononis spinosa</i> subsp. <i>leiosperma</i>) root are mixed evenly; decoction prepared with this mixture is steeped and consumed.	83
	Against rheumatism; (I) infusion is consumed.	35
	Against hemorrhoids; (I) decoction is consumed for a week.	61
Whole plant (root and aerial part)	Against cancer, stenocardia, and diabetes; (I) decoction prepared with chopped whole plant is kept in a cool place overnight. A tea glass is consumed every morning.	80

<i>Viola</i> sp. (Violaceae) 09DZ180	Menevşe	Leaf	Against wounds; (E) wilted in a pan with some butter and applied to affected area.	86	1	0.0051
<i>Viscum album</i> L. (Santalaceae) 09DZ057, 09DZ058, 08DZ117	Burç, küskük otu, purç	Leaf	Against heart diseases; (I) infusion prepared with one leaf in a glass of water is consumed every day for up to 20 days. The type of host tree makes no difference.	51	8	0.0414
		Leaf and young twig	Against diabetes; (I) leaves with stems (not fruits) are macerated in warm water, strained, and consumed.	45		
		Aerial part	Against diabetes; (I) 3 tea glasses of infusion a day (morning, noon, and evening) are consumed. The host tree should be pear, apple, or cherry.	19, 47, 68, 102		
		Fruit	To pass kidney stones and for kidney inflammation; (I) decoction is consumed whenever thirst is felt.	39		
<i>Vitis vinifera</i> L.* (Vitaceae) 08DZ069	Çakıl üzüm, üzüm	Fruit	Against sunstroke; (E) fruits are smashed and directly applied to the body and wrapped. Against lichen infections; (E) affected area is made to bleed by rubbing it with a corncob, then pekmez mixed with salt is applied to the irritated area.	97	7	0.0362

	Kara üzüm, kokulu üzüm	Fruit (black variety)	Against anemia; (I) fruits are directly consumed or syrup, marmalade, or pekmez (a thick syrup obtained by condensation of grape juice on open fire) prepared from the fruits is consumed.	35, 45, 51, 83		
	Üzüm	Twig	Against dandruff and as a hair tonic; (E) old vine branch is cut, red sap is collected in a pot and used to wash the hair.	84		
<i>Zea mays</i> L.* (Poaceae)	Mısır	Seed (starch)	Against diarrhea; (I) a tablespoonful of corn flour is fried in a pan with a half tablespoonful of butter and ingested. Against burns; (E) equal amounts of corn flour, salt, and yogurt are mixed, applied to the affected area, and covered.	62 83	2	0.0103

1 *: Cultivated plants; Cit.: citations; UV: use value.

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