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The current status of ethnopharmacobotanical knowledge in Çamlıdere (Ankara, Turkey)*

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Abstract: The main objective of this study is to identify and record the folk medicines used in Çamlıdere (Ankara) as well as to contribute to the preservation of this precious lore. For this purpose field trips were organized to Çamlıdere. A total of 79 taxa belonging to 66 genera and 33 families were recorded for the treatment of various disorders. The most represented families were Asteraceae, Lamiaceae, and Rosaceae, respectively. Respiratory tract diseases were the principal reasons for using folk medicines. Eight new folk medicines were included in the Turkish ethnobotanical repository with this study. Different ethnobotanical usages such as fuel and food were also noted. Our data obtained from the research area showed some uses of plants that were newly introduced to the folk medicinal literature of Turkey. Moreover, "Use value", "Informant consensus factor", and "Cultural importance index" were also calculated to evaluate the data statistically.

Key words: Ethnobotany, Çamlıdere, medicinal plants, folk medicine, Turkey

1. Introduction

Since the beginning of time, man's relationship with medical treatment has been one of the most important parts of human ecology. Research on the use of wild flora for healing purposes could be used to make conclusions on processes of anthropogenesis and ethnogenesis, especially in some regions of the world. In some Asian and African countries, 80% of the population depends on traditional medicine for primary healthcare. Traditional medicine is often termed "alternative" or "complementary" medicine (WHO, 2008). According to "WHO Traditional Medicine Strategy 2002–2005", the use of complementary and alternative medicine is also increasing rapidly in developed countries. For example, 48% of Australia's population, 70% of Canada's population, and 42% of the United States' population has used traditional medicine at least one time in their lives. Although the side effects and the costs of conventional medicines have been their major criticisms, longer life expectancy and increased risk of developing chronic, debilitating diseases such as heart disease, cancer, diabetes, and mental disorders have also contributed to this trend (WHO, 2002). Plants provide a vast array of natural products and have been used in traditional medicine for thousands of years. Due to the political, economic, and social difficulties that block the proper distribution of modern healthcare in many parts of the world, the World Health Organization has started a substantial program to appraise traditional herbal medicines. This project essentially aims to solve the global healthcare problems by encouraging the use of locally used plants with proven empirical value. Ethnobotanical fieldworks play a key role in this sense as catalyzers of interactions between researchers and the people whose knowledge they document (WHO, 1978; Alcorn, 2003). Hence, two major challenges define contemporary ethnobotanical fieldwork. First, there is the longstanding

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duty of documenting/cataloging what is known in a society. The second and much more difficult task is to compare the uses and the cultural importance of different plant taxa. In recent years, data obtained from fieldworks have been systematized as never done before by quantitative methods for getting a more tangible and reliable frame of local information. These analyses that reflect the traditionally valued systems are also meaningful for the conservation of biodiversity, because people tend to conserve resources that are most important to them (Albuquerque et al., 2006). Additionally, compiling traditional knowledge on medicinal plants is invaluable for the conservation of deep-rooted lore and has the potential to contribute to new drug investigations.

In this regard, Turkey constitutes a reliable source for such investigations and has a special place; ever since the first human settlements, nations from this region have been linked to their environment. Turkey is on the meeting ground of three phytogeographical regions, namely the Euro-Siberian, Mediterranean, and Irano-Turanian regions. It also forms a bridge at a unique point in the world where three continents converge. Its flora is very rich with a high rate of endemism, and some cultivated plants like *Linum* L., *Allium* L., *Triticum* L., *Avena* L., *Vitis* L., *Amygdalus* L., *Prunus* L., *Beta* L. spp., etc. have their center of origin in Anatolia (the Asian part of Turkey). Besides, throughout history human tribes from various lands settled in this land, bringing their cultures. This invaluable heritage and the richness of the flora have contributed to the high variety of the traditional knowledge and daily practices of people to use nearby plants (ftp://ftp.fao.org/docrep/fao/meeting/014/aj614e.pdf).

Ankara, the capital city of Turkey, is located in the northwest of the Central Anatolian subdivision of the Anatolian peninsula. Although the surrounding mountains hinder the moderating effects of sea breezes and cause cold winters and hot summers in this region, a transitional climate is observed toward the north of the province. It was pointed out by Davis that the intermediate zones between the major phytogeographical regions in Turkey support a considerable number of species that are endemic or nearly so (Davis, 1971).

Çamlıdere, one of the 25 administrative districts of Ankara, has been established in a hilly terrain in the northern part of the province, just between the two phytogeographic regions of the Euro-Siberian and Irano-Turanian. Its transitional position and vicinity to Çankırı Province, which is one of the important endemism centers in Turkey, make Çamlıdere attractive for botanical investigations (Davis, 1971). There is not floristic research focused on the whole Çamlıdere district, but two theses about flora of some parts of Çamlıdere were conducted and they are sufficient to support the above-mentioned floral richness and endemism of the district. In one of these theses, the flora of the Çamkoru Pond area was investigated; 382 taxa were recorded in the study area and 26 of them were endemic. It was expressed that Euro-Siberian elements were dominant in mentioned area [Sezer Topaloğlu, Çamkoru Göleti çevresi florası (Çamlıdere), MSc, Hacettepe University Graduate School of Natural and Applied Sciences, Ankara, 2005 (in Turkish)]. According to an investigation related to plant sociology of coniferous forest located between the Gerede and Çamlıdere districts, 246 species belonging to 46 families were determined in the study area, and 10% of these plants were endemic. Asteraceae, Fabaceae, Lamiaceae, Rosaceae, and Brassicaceae were the families represented with the most species, respectively [Kemal Tekin, Gerede ve Çamlıdere arasında kalan iğne yapraklı ormanların bitki sosyolojisi yönünden araştırılması, PhD, Ankara University Graduate School of Natural and Applied Sciences, Ankara, 2005 (in Turkish)].

Çamlıdere is situated at a distance of 100 km from the Ankara city center and hosted different civilizations throughout history (Akpolat and Eser, 2004). Although the folk medicines of nearby districts were reported in previous papers (Şimşek et al., 2001, 2004; Elçi and Erik, 2006; Sarper et al., 2009), folk medicines in the surveyed area have not yet been scientifically studied. As is known, folk medicinal knowledge is vanishing rapidly because of reasons like modernism, migration to big cities, improvements in communication and transportation issues, and ease in achieving orthodox medicine (Yeşilada, 2005). The major purposes of this study were to determine species used in the folk medicine of Çamlıdere, to define the range of employment of the medicinal plants, and to set out the tradition of popular therapeutic practices before it completely disappears. Furthermore, researching new folk medicines and new usages of plants that were previously determined as folk medicines was an aim, as well. The obtained data were evaluated quantitatively and compared with the ethnobotanical literature. In light of the above information, it is thought that the contributed information could form a basis for new drug development research.

2. Materials and methods

2.1. General information about the study area

The Çamlıdere district is surrounded by the Gerede (Bolu), Güdül, Kızılcahamam, and Beypazarı (Ankara) districts (Figures 1a–1c). The district is situated in the A4 square (Figure 1a) in Davis's grid system (Davis, 1965) and according to floristic research, it is under the influence of the Euro-Siberian and Irano-Turanian phytogeographical regions [Kemal Tekin, Gerede ve Çamlıdere arasında kalan iğne yapraklı ormanların bitki sosyolojisi yönünden araştırılması, PhD, Ankara University Graduate School

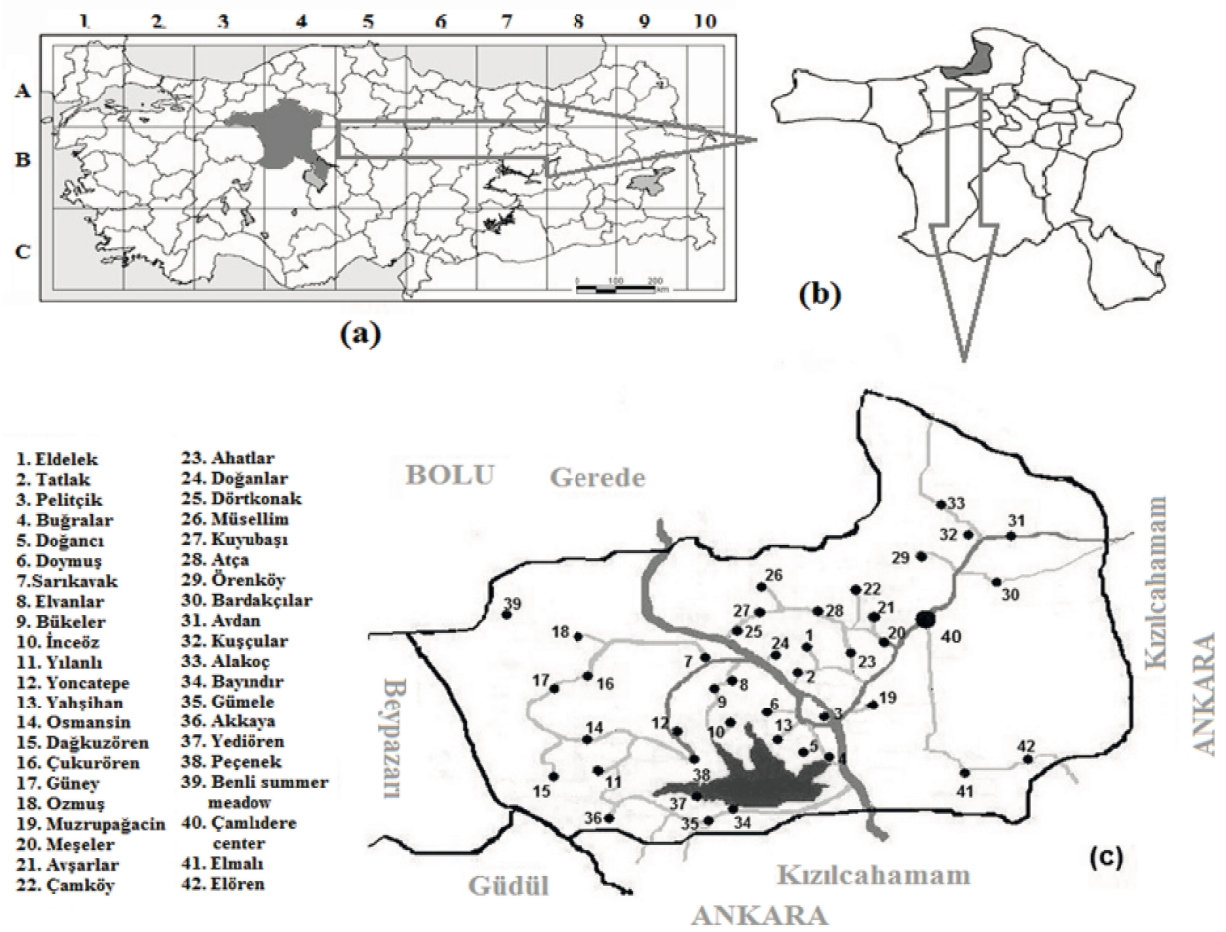

Figure 1: a) Position of Ankara in Davis's grid system (Davis, 1965); b) position of Çamlıdere in Ankara; c) map of Çamlıdere and visited locations.

of Natural and Applied Sciences, Ankara, 2005 (in Turkish); Sezer Topaloğlu, Çamkoru Göleti çevresi florası (Çamlıdere), MSc, Hacettepe University Graduate School of Natural and Applied Sciences, Ankara, 2005 (in Turkish)]. It covers a total area of approximately 625 km^2 and its average elevation is 1175 m above sea level.

2.2. Field trips

The fieldwork was undertaken in 39 villages, one town, one summer meadow, and the district center over several time intervals during the summers of 2009 and 2010. These locations are labeled on the map given in Figure 1c. The information about ethnobotanical usages were obtained by face-to-face interviews in accordance with the methodology described by Sezik et al. (1991).

Herbarium voucher specimens were prepared from collected plants used for ethnobotanical purposes and are preserved in GUE (Gazi University Faculty of Pharmacy Herbarium). Botanical identification was performed by A Mine Gençler Özkan, a pharmaceutical botanist.

2.3. Statistical methods

To determine the homogeneousness of the information, the informant consensus factor (F_{IC}) was calculated by using the following formula: $F_{IC} = (\Pi_{ur} - \Pi_t) / (\Pi_{ur} - 1)$. Π_{ur} stands for the number of citations from informants for a particular plant-use category and Π_t symbolizes the number of taxa used for the treatments of disorders in each pharmacological category (Table 1). F_{IC} is the degree of agreement among the different people interviewed concerning the use of a given resource (Albuquerque et al., 2006). In other words, it is used to determine the taxa that are most used to treat a specific illness. Results of this equation get values between 0 and 1; high values (close to 1) correspond to the agreement about the use of a folk medicine in specific situations by the informants (Trotter and Logan, 1986).

The other quantitative parameter for data evaluation, "Use value" (UV), is based on the number of uses and the number of people that cite a plant, and it has been widely

Table 1. Distribution of herbal folk medicines with respect to pharmacological categories.

Pharmacological categories	Number of taxa and percentage of all species		Number and percentage of citations		F_{IC} value
	Number	%	Number	%	
Respiratory system disorders	35	44.30	65	29.02	0.4687
Dermatological system disorders	22	27.85	51	22.77	0.5800
Gastrointestinal system disorders	17	21.52	22	9.82	0.2380
Muscle-skeletal system disorders	17	21.52	24	10.71	0.3043
Metabolic disorders	15	18.99	20	8.93	0.2631
Genitourinary system disorders	15	18.99	21	9.37	0.3000
Cardiovascular disorders	5	6.33	6	2.68	0.2000
Central nervous system disorders	5	6.33	6	2.68	0.2000
Immunity disorders	4	5.06	4	1.79	0.0000
Eye-ear disorders	2	2.53	2	0.89	0.0000
Animal disorders	2	2.53	3	1.34	0.5000

used within the ethnobotanical community to indicate the species that are considered most important by a given population (Albuquerque et al., 2006). It is calculated as UV = Σ (U / n). 'U' stands for the number of use reports for a particular taxon and 'n' stands for the number of total informants. A high value is obtained when a plant is important, namely when a lot of people declare to use this plant (Abe and Ohtani, 2013).

Finally, "Cultural importance index" (CI) was calculated according to the method specified by Tardio and Pardo-De-Santayana (2008).

3. Results

The data were collected from 43 residents aged between 33 and 80. The mean age of informants was 63 and 79% were more than 50 years old. When the educational statuses were compared, the data showed that 39% of the participants were illiterate and 11% were barely literate. Evaluating the percentage of the participants' sex, no remarkable difference was observed (46.5% female; 53.5% male). In addition, nearly half of the participants were housewives, and most of the males were farmers (Table 2). All participants were native-born and 93% of them were married.

During the interviews, most of the informants stated that they had learned the usage of these plants from their elderly relatives, so this proved the ancestral origin of the information. There are only 44 use reports belonging to participants who are younger than 51 years old, while the number of use reports belonging to participants older than 51 years is 180. Another point determined during the interviews was that in the case of illness 70% of participants visited a physician firstly and 30% of them searched for folk remedies besides visiting the physician.

Upon the systematical analysis of plants used as folk medicine, it was determined that 72 species (79 taxa) belonging to 66 genera of 33 families are being used in the treatment of various disorders in Çamlıdere. In the Appendix (on the journal's website), plants that are used with ethnobotanical purposes are presented with their localities, local names, the parts used as medicine, therapeutic uses, etc. As can be concluded from the Appendix, local people are mostly using plants from the families Asteraceae (10 taxa), Lamiaceae (9 taxa), and Rosaceae (8 taxa), while the other families were represented with 4 or less taxa.

In our study area, plant-derived folk medicines are mainly used after some processing, like infusions or maceration (87.50%). In addition, 61.84% of all folk medicines are used internally. In internal administrations, the most common preparation method is decoction (33.55%). It was found that 60% of plants are used alone, while 40% of plants are included in mixtures with other plants or animal products like honey. The most frequently used plant part is the leaf (27%); flower/flower parts (14%) and fruit/fruit parts (14%) are the other frequently used plant parts (Figure 2). Some endemic plants [*Abies nordmanniana* Spach var. *bornmuelleriana* (Mattf.) Silba, *Anthemis armeniaca* Freyn & Sint., *Crataegus* × *bornmuelleri* Zabel ex K.I.Chr. & Ziel., *Crocus ancyrensis* Maw, *Glaucium grandiflorum* Boiss. & A.Huet var. *torquatum* Cullen, *Phlomis armeniaca* Willd., *Sideritis germanicopolitana* Bornm. subsp. *germanicopolitana*,

Table 2. Some statistical analysis of participant's demographic properties.

Demographic properties		Number of informants			
		Female	Male	Total	Percentages
Age	≤35	-	1	1	2.32
	36–50	6	2	8	18.60
	51–65	5	8	13	30.24
	≥66	9	12	21	48.84
Marital status	Married	17	23	40	93.02
	Widowed	3	-	3	6.98
Education	Illiterate	11	6	17	39.54
	Literate	2	3	5	11.63
	Primary school	6	10	16	37.20
	Middle school	1	4	5	11.63
Employment	Housewife	20	-	20	46.51
	Farmer	-	12	12	27.91
	Self-employed	-	7	7	16.28
	Other	-	4	4	9.30
Inhabitance	Native born	20	23	43	100.00
	Other	-	-	-	0

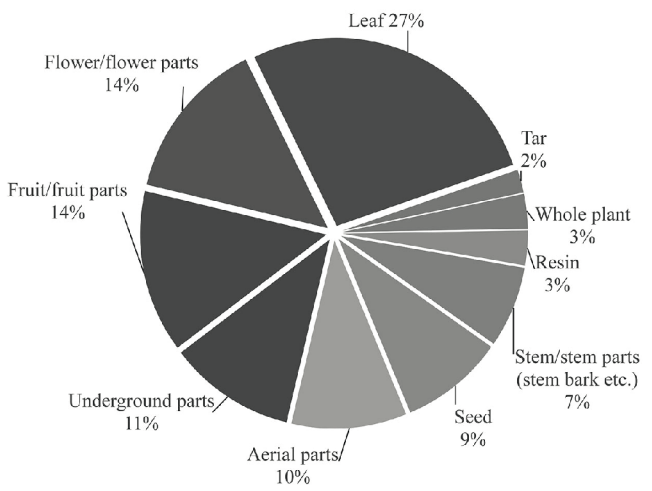

Figure 2. Percentage distribution chart of plant parts used in the treatment of ailments.

and *Tripleurospermum callosum* (Boiss. & Heldr.) E.Hossain] were determined to be used as folk medicines in the area. According to the habit distribution of used medicinal plants, 59% are herbs, 27% are trees, and 14% are shrubs.

Disorders treated with folk medicines were analyzed according to pharmacological categories and F_{IC} values were calculated as well. Results showed that folk medicines were mainly used for respiratory tract diseases (35 medicines, 44.30%), dermatologic disorders (22 medicines, 27.85%), gastrointestinal system disorders (17 medicines, 21.52%) and muscle-skeletal system problems (17 medicines, 21.52%) (Table 1).

Pinus nigra J.F.Arnold subsp. *pallasiana* (Lamb.) Holmboe has the highest UV value (0.51), followed by *Malva neglecta* Wallr. (0.30) and *Urtica dioica* L. (0.23). *Allium cepa* L., *Plantago major* L. subsp. *major*, *Tripleurospermum callosum* (Boiss. & Heldr.) E.Hossain, and *Rosa canina* L. are the other species with high UV values (0.19, 0.16, 0.16, and 0.14, respectively) (Appendix). According to the CI index, this ranking is a little different; *Pinus nigra* subsp. *pallasiana* takes first place (0.35). It is primarily used for dermatological disorders (CI = 0.16), followed by respiratory system disorders (CI = 0.05), metabolic disorders (CI = 0.05), animal disorders (CI = 0.05), gastrointestinal system disorders (CI = 0.02) and cardiovascular disorders (CI = 0.02). *Juniperus oxycedrus* L. subsp. *oxycedrus* and *Malva neglecta* follow *Pinus nigra* subsp. *pallasiana* as the second (CI = 0.30) and third (CI = 0.23), respectively.

4. Discussion

According to the distribution of plants by families, the most represented families are Asteraceae, Lamiaceae, and Rosaceae, respectively. This finding seems similar to some other ethnobotanical works conducted previously in Turkey (Ezer and Avcı, 2004; Gençler Özkan and Koyuncu, 2005). The most commonly used genus is *Thymus* L. *Pinus nigra* subsp. *pallasiana* is the most frequently preferred plant as a folk medicine in Çamlıdere, possibly due to its widespread distribution in the district. The most frequently used plant parts are leaf and flower/flower parts. Folk medicines that are used in our study area mainly consist of herbaceous plants and therefore the high frequencies of plant parts like leaf and flower are agreeable.

Herbal folk medicines are mainly used for respiratory tract diseases, dermatological disorders, gastrointestinal system disorders, and muscle-skeletal system problems (Table 1). Considering the mean age of informants (mean age was calculated as 63 from questionnaires) and countryside life, these disorders could be come across frequently, and for that reason this is an expected situation. On the other hand, this situation changes if F_{IC} values are considered; dermatological system disorders have the highest F_{IC} value (0.5800), followed by animal disorders (0.5000) and respiratory system disorders (0.4687). Differences in ranking according to two parameters were thought to be based on lack of agreement among informants and using the same plants for very different purposes. Immunity and eye-ear disorders have 0.0000 as their F_{IC} values because each plant used in these pharmacological categories are not popular among the residents of Çamlıdere, so they were cited just once.

Pinus nigra subsp. *pallasiana* has the highest UV value and CI index (Appendix). High values of this plant may be because of its accessibility in the region. As mentioned before, *Pinus nigra* subsp. *pallasiana* is the most culturally important taxon in the study area.

Frequency of citation is important for evaluating the diversity of folk medicines, but if the plants are to be differentiated by use variations, the CI index should be used. The CI index is accepted as the most objective index while considering these factors. Another advantage of the CI index is to allow evaluating the data obtained from different areas with different numbers of participants (Sharma et al., 2012).

As we compare our findings with those of previous studies conducted in Turkey (Appendix), there were some similarities, although 8 plants were detected for the first time to be used as folk medicines in Turkey (Table 3). Four of these plants (*Anthemis armeniaca*, *Crocus ancyrensis*, *Glaucium grandiflorum* var. *torquatum*, *Tripleurospermum callosum*) are endemic species, and therefore their

Table 3. Plants detected for the first time in this study to be used as folk medicines in Turkey.

Plants	Used part	Purpose of usage	Preparation method
Anthemis armeniaca Freyn & Sint.	Flower	Sore throat and urinary tract inflammation	Tea
Crocus ancyrensis Maw	Flower	Abdominal pain and as a diuretic	Tea
Glaucium grandiflorum Boiss. & A.Huet var. *torquatum* Cullen	Flower	Pertussis	Tea
Medicago lupulina L.	Aerial part	Wounds and burns	Ointment
Thuja orientalis L.	Seed	Stomach disorders	Eaten
Triticum baeoticum Boiss.	Seed	Abscesses and inflamed wounds	Poultice
Tripleurospermum callosum (Boiss. & Heldr.) E.Hossain	Flower	Urinary tract disorders, kidney stones, shortness of breath, common cold, asthma, bronchitis, and as a panacea	Tea
Trifolium fragiferum L. var. *fragiferum*	Aerial part	Wounds and burns	Ointment

familiarity/usability in the folk medicine of Çamlıdere as a first-time record for the Turkish ethnobotanical literature is an expected case.

In Turkish traditional medicine, different *Anthemis* species (e.g., *A. pseudocotula* Boiss., *A. cretica* L., *A. austriaca* Jacq., and *A. tinctoria* L.) are used for disorders like stomachache, abdominal pain, rheumatism, common cold, or atherosclerosis (Honda et al., 1996; Sezik et al., 1997; Şimşek et al., 2004). However, *Anthemis armeniaca* was first recorded as a folk medicine with our research.

Unearthed corms of various *Crocus* species are commonly eaten fresh after peeling by local peasants in many regions of Turkey. Additionally, the dried red stigma of *Crocus sativus* L. (saffron) has been used as a condiment and a coloring agent in food for thousands of years, especially in Persian, Indian, European, Arab, and Turkish cuisines. It also has a number of medicinally important activities such as antihypertensive, anticonvulsant, antitussive, antigenotoxic, and cytotoxic effects and anxiolytic, aphrodisiac, antioxidant, antidepressant, antinociceptive, antiinflammatory, and relaxant activities. To the best of our knowledge, *Crocus ancyrensis* had not been known for its folk medicinal usage until this study. It needs to be investigated by more comprehensive bioactivity studies (Srivastava et al., 2010).

Glaucium grandiflorum var. *torquatum* was first detected as a folk medicine with our study and used for the treatment of pertussis, while the other *Glaucium* species in other parts of Anatolia were reported to be used for situations like goiter, erysipelas, lymphadenitis, or edema (Yeşilada et al., 1995; Sezik et al., 2001). Although there is not any research that focused on the activity of *Glaucium* species on *Bordetella pertussis*, methanolic extract and alkaloid subfraction of *Glaucium vitellinum* Boiss. & Buhse aerial parts were found to have important activity against *Staphylococcus aureus* and *Salmonella typhi* (Mehrara et al., 2015).

Medicago lupulina L. is used for wounds and burns in our study area. In the work of Baloch et al. (2013), methanolic extracts of *Medicago lupulina* leaves were determined to have remarkable antibacterial and antifungal activities on *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Salmonella typhi*, *Staphylococcus aureus*, *Microsporum canis*, *Candida albicans*, *Aspergillus flavus*, and *Candida glabrata*. These findings support its ethnopharmacological usages recorded in our study area.

In the present study, *Tripleurospermum callosum* was first recorded to be used in a very large scale of respiratory and urinary system ailments, while the other *Tripleurospermum* species were determined to be used for stomachache, gynecological inflammation, vaginitis, migraine pain, or cough in different parts of Turkey (Sezik et al., 1997; Şimşek et al., 2004).

Trifolium species contain isoflavones and they are used for their estrogenic effect (Lipovac et al., 2012), but in Çamlıdere, *Trifolium fragiferum* L. var. *fragiferum* is one of the basic components of a homemade ointment for wounds and burns. Similarly, *Trifolium pratense* L. was reported to be used for wound healing in East Anatolia (Sezik et al., 1997). Additionally, the usages of other *Trifolium* species in hepatitis, rheumatism, and constipation were recorded previously in several studies conducted in other regions of Turkey (Şimşek et al., 2004; Polat et al., 2013).

As the other striking result of this study, different new usages of 23 taxa, which had not been recorded before in Turkish folk medicinal literature, were determined (Appendix). For example, usages of A*nthemis tinctoria* L. var. *pallida* DC. for sinusitis, *Juniperus oxycedrus* subsp. *oxycedrus* for jaundice, and *Pinus nigra* subsp. *pallasiana* for intestinal cancer were firstly recorded in our fieldworks in Çamlıdere.

Tanacetum parthenium Sch. Bip. is well known plant for migraine treatment (Holland et al., 2012), but usages for cough and tonsillitis are new records for Turkish traditional medicine.

Many Lamiaceae plants are used for gastric ailments, but *Phlomis* species are not commonly used in Turkish ethnomedicinal practices. In our study area, *Phlomis armeniaca* was detected to be used in gastric disorders. Moreover, another *Phlomis* L. species, *Phlomis grandiflora* H.S.Thomps., was recorded to be used in gastric disorders by Özçelik (1987) and a significant antiulcerogenic activity for this plant was determined, as well (Gürbüz et al., 2003). Therefore, *Phlomis armeniaca* could probably exhibit notable antiulcerogenic activity; this needs focused research.

The usage of *Papaver dubium* L. for fungal infections is first determined with this study, while it is commonly used for cough treatment in other parts of Turkey. According to the literature survey, the plant has not been investigated for its antifungal activity. Hence, *Papaver dubium* should be examined to determine the presence of antifungal compounds.

With this study, *Crataegus* × *bornmuelleri* was first introduced to Turkish folk medicinal records with its usage for antiinflammatory purposes. Different species of *Crataegus* were also determined previously to have antiinflammatory activities (Kumar et al., 2012), so research on *Crataegus* × *bornmuelleri* may give positive results in this respect.

On the other hand, literature comparison showed that different species of the same genus have similar utilizations. For example, *Anthemis coelopoda* Boiss. is used similarly to *Anthemis armeniaca* (Ezer and Avcı, 2004); likewise, *Trifolium pratense* L. is used in same conditions

as T*rifolium fragiferum* L. var. *fragiferum* (Sezik et al., 1997). Others, except for the plants mentioned in Table 3, are well known to popular medicine and are often used in similar ways. For example, *Teucrium polium* L. is used for hemorrhoids as an infusion or decoction (Ezer and Avcı, 2004). Similarly, the fumes obtained by sprinkling *Hyoscyamus niger* L. on embers is used for eye disorders in various locations in Anatolia including Çamlıdere (Sezik et al., 1997, 2001; Özgen et al., 2012).

Because of unemployment, limited agricultural lands, and insufficiency of educational institutions and health services, villagers have migrated to the city center or to other big cities, and they only revisit their villages for holidays in short times [Erdal Gümüş, Yeni bir doğa koruma kavramı: UNESCO jeoparklar çerçevesinde Çamlıdere (Ankara) fosil ormanı fizibilite çalışması, MSc, Ondokuz Mayıs University Institute of Social Sciences, Samsun, 2008 (in Turkish); Tarihte ve Günümüzde Kızılcahamam-Çamlıdere Yöresi Sempozyumu. 1st ed. Ankara, Turkey: Kızılcahamam-Çamlıdere Eğitim ve Sosyal Yardımlaşma Vakfı Yayınları (in Turkish)]. Furthermore, it was seen that after the deaths of elderly people with comprehensive knowledge about folk medicine, young people have not been interested in the subject. We also noted that the population of a few villages in the area was less than ten people. Therefore, we had difficulties finding someone who had knowledge about folk medicines while conducting this research. Now access to orthodox medicine and drugs is easy, even in villages. Increase in the educational status of the people also has an important role in the tendency toward orthodox medicine. This could be confirmed with the high percentages of elderly people and people with low educational status among our informants (Table 2). Despite these challenges, 8 new folk medicines (*Anthemis armeniaca*, *Crocus ancyrensis*, *Glaucium grandiflorum* var. *torquatum*, *Medicago lupulina*, *Thuja orientalis* L., *Triticum baeoticum* Boiss., *Tripleurospermum callosum*, and *Trifolium fragiferum* var. *fragiferum*) and new usages for 23 common folk medicines were added to the Turkish ethnobotanical lore (Appendix).

Our work has provided comparative data for the interpretation of Turkey's ethnobotanical treasure as well as a resource for ecologists, ethnobotanists, pharmacologists, and perhaps planners of local development projects. Although there are increasing numbers of publications on folk medicinal plant lore, many more detailed studies are needed to obtain a comprehensive picture of folk medicines in Turkey.

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Appendix. Ethnobotanical knowledge in Çamlıdere.

Family and scientific name (GUE no.)	Loc.[a]	Local name	Part used[b]	Use, preparation, and application[b]	Recorded folk medicine usages with previous studies	Cit.	UV	CI
ASTERACEAE								
Anthemis armeniaca Freyn & Sint. (2825)	15	Papatya	F.	Sore throat and urinary tract inflammation: inf.	N.r.	2	0.05	0.05
Anthemis tinctoria L. var. *pallida* DC. (2804)	3	Papatya	F.	Urinary tract inflammation; inf. Cough and common cold; dec. *Sinusitis; inf., vap. inh.	For atherosclerosis, rheumatism, common colds, cough, sore throat, shortness of breath, stomach disorders, hemorrhoids, gynecological disorders, urinary tract inflammations, obesity, as a diuretic, sedative (Şimşek et al., 2004; Tuzlacı, 2006; Özüdoğru et al., 2011)	4	0.09	0.05
Arctium minus (Hill) Bernh. subsp. *pubens* (Bab) Arènes (2903)	42	Ayı kabağı	L.	Knee pain; soaked in boiled water and app. aff.	For rheumatism, abscess, wounds, sun stroke, swelling of stomach, common colds, food poisoning (Tabata et al., 1994; Sezik et al., 1997; Tuzlacı and Erol, 1999; Yeşilada et al., 1999; Özgen et al., 2012)	1	0.02	0.02
Cirsium arvense (L.) Scop. subsp. *vestitum*	1	Mayasıl otu	F.	*Shortness of breath; dec. with the leaves of *Urtica dioica*, *Sinapis arvensis*,	For peptic ulcer (Yeşilada et al., 1995)	1	0.02	0.02

(Wimmer & Grab.) Petrak (2798)				*Malva neglecta*, *Mentha longifolia* subsp. *longifolia* and *Thymus leucotrichus* var. *leucotrichus*				
Helichrysum sp. (2872)	31	Mayasıl otu	F.	*Hemorrhoids, urinary tract disorders, and kidney stones; dec.	For common colds, earache, fungal infections, itching, wounds, gynecological pain, urinary tract disorders, hypercholesterolemia, intestinal diseases, jaundice, stomach ailments, diabetes, as antiinflammatory, antihemorrhagic (Sezik et al., 1991; Yeşilada et al., 1993, 1995; Honda et al., 1996; Sezik et al., 1997; Tuzlacı and Erol, 1999; Sezik et al., 2001; Şimşek et al., 2004; Gençler Özkan and Koyuncu, 2005; Ezer and Mumcu Arısan, 2006; Kargıoğlu et al., 2008; Özgen et al., 2012)	3	0.07	0.05
Inula oculus-christi L. (2827)	15	Sarı ot	L.	*Incision; app. aff.	For hemorrhoids, stomach disorders (Özçelik, 1987; Gizem Özatkan, Kızılcahamam yöresi halk ilaçları, MSc, Gazi University Institute of Health Sciences, Ankara, 2009)	1	0.02	0.02

Matricaria chamomilla L. var. *recutita* (L.) Grierson (2801, 2841)	2	Papatya	F.	As panacea; inf.	For earache, respiratory system disorders, malaria, stomachache, eye strain, cleaning face and eyes, kidney stones, menstrual diseases, wounds, as antiarrhythmic, aphrodisiac, appetizer, antiinflammatory, cholagogue, digestive, spasmolytic, diuretic, sedative (Tuzlacı and Tolon, 2000; Tuzlacı and Eryaşar Aymaz, 2001)	3	0.07	0.05
	19	Papatya	F.	Gynecological disorders and urinary tract inflammation; dec.				
Onopordum turcicum Danin (2805)	4	Kalkan	S.	Diabetes; e.d.	As hypoglycemic (Tuzlacı, 2006)	1	0.02	0.02
Tanacetum parthenium Sch. Bip. (2865)	30	Papapya	F.	*Cough and tonsillitis; dec.	For migraine, stomachache, as antipyretic (Tuzlacı, 2006)	2	0.05	0.02
Tripleurospermum callosum (Boiss. & Heldr.) E.Hossain (2833, 2848, 2854)	16	Papatya	F.	Urinary tract disorders and kidney stones; inf.	N.r.	7	0.16	0.12
	22	Akbaba otu	F.	Shortness of breath; dec. with the leaves of *Mentha* × *piperita*, *Thymus longicaulis* subsp. *longicaulis* var. *subisophyllus* and the aerial parts of *Urtica dioica*				
	23	Papatya, göde	F.	Common cold and as panacea; dec.				

			F.	Asthma, bronchitis, and shortness of breath; dec. with the seeds of *Urtica dioica*, whole parts of *Malva neglecta*				
BERBERIDACEAE								
Berberis crataegina DC. (2858, 2866)	24	Yurgu çalısı	Ro.	*Prostate disorders; dec.	For hemorrhoids, dysuria, sterility, myalgia, itching and reddening of eyes, as antiseptic (Yeşilada et al., 1995; Tuzlacı and Eryaşar Aymaz, 2001; Gençler Özkan and Koyuncu, 2005; Tuzlacı, 2006)	3	0.07	0.05
	24, 30	Yurgu çalısı	Ro.	As diuretic; dec.				
BRASSICACEAE								
Brassica oleracea L. (2917)	39	Lahana	L.	Leg pain; soaked in boiled water about 1–2 min and app. aff.	For abscess, cough, pneumonia, headache, high fever, hoarseness, inflammation of eyelid, ulcer, urinary inflammation (Tabata et al., 1994; Yeşilada et al., 1995; Sezik et al., 1997; Yeşilada et al., 1999; Sezik et al., 2001)	1	0.02	0.02
Raphanus sativus L. (2907)	42	Karaturp	Tb.	Common cold; inside of tuber scooped out and filled with honey; after one night, water that spilled over from the pit is drunk	For asthma, bronchitis, cancer, diabetes, urinary tract diseases, as anthelminthic, antitussive, appetizer, tonic (Yeşilada et al., 1993, 1995; Ezer and Avcı, 2004; Tuzlacı, 2006)	2	0.05	0.05

				Knee pain; grated tubers are app. aff.				
Sinapis arvensis L. (2794)	1	Isıtma otu	L.	Shortness of breath; as described for *Cirsium arvense* subsp. *vestitum*	For bronchial trouble, dermatological disorders, urinary system disorders, as carminative, sedative (Sezik et al., 2001)	1	0.02	0.02
CISTACEAE								
Cistus laurifolius L. (2849)	22	Süt püşüren	F. bud, L.	Shortness of breath; dec.	Asthma, cancer, high fever, lumbago, peptic ulcer, rheumatism, urinary inflammation, as diuretic, tension-regulator (Yeşilada et al., 1995; Honda et al., 1996; Tuzlacı and Erol, 1999; Tuzlacı, 2006; Kargıoğlu et al., 2008).	2	0.05	0.09
			Br.	As firewood; especially used for heating milk				
CUCURBITACEAE								
Cucurbita maxima Lam. (2914)	39	Bal kabağı	Pl.	*Mumps; app. aff.	As expectorant (Yeşilada et al., 1995)	1	0.02	0.02
CUPRESSACEAE								
Juniperus oxycedrus L. (2862)	26	Ardıç	Tar	Eczema and rheumatism; e.d.	For abdominal pain, hemorrhoids, parasitic diseases, bronchitis, common cold, cough, sore throat, shortness of breath, fractured or dislocated bones, wounds, eczema, rheumatism, kidney stone, urinary inflammations, as digestive,	2	0.05	0.05

					hypoglycemic, tension regulatory (Yeşilada et al., 1993, 1995; Honda et al., 1996; Sezik et al., 1997; Yeşilada et al., 1999)			
Juniperus oxycedrus L. subsp. *oxycedrus* (2847, 2871)	22 31	Ardıç Ardıç	Fr. Tar	Shortness of breath; dec. Eczema and psoriasis; app. aff.	For asthma, bronchitis, common colds, chest pain, cough, tuberculosis, dermatological disorders, diabetes, gall bladder disorders, gynecological diseases, kidney stones, nocturnal discharge, prostate inflammation, hemorrhoids, intestinal parasitic infections, urinary inflammations, stomach disorders, as laxative (Özçelik, 1987; Tuzlacı and Erol, 1999; Tuzlacı and Tolon, 2000; Sezik et al., 2001; Tuzlacı and Eryaşar Aymaz, 2001; Ezer and Avcı, 2004; Koçyiğit and Özhatay, 2006; Kargıoğlu et al., 2008; Özüdoğru et al., 2011)	5	0.12	0.30
			Fr. and B.t.	Shortness of breath; dec. *Jaundice, dec.				
Thuja orientalis L. (2870)	31	Servi	Se.	Stomach disorders; e.d.	N.r.	1	0.02	0.02
ELAEAGNACEAE								
Elaeagnus angustifolia L. (2813)	5	İğde	L.	*Cough; inf., prepared singly or by a mixture of the leaves of *Thymus praecox* subsp.	For abscess, diabetes, urinary tract disorders, purifying blood, sunstroke, as aphrodisiac, diuretic (Sezik et al., 1991;	1	0.02	0.02

				skorpilii var. *skorpilii*, *Olea europaea*, and yellowed leaves of *Cydonia oblonga*	Yeşilada et al., 1995; Sezik et al., 1997, 2001; Tuzlacı and Eryaşar Aymaz, 2001; Özüdoğru et al., 2011)			
FABACEAE								
Astragalus microcephalus Willd. (2860, 2880)	24, 33 33	Geven Geven	Ro. Ro.	Shortness of breath; dec. Bronchitis and for lung recovery after smoking; dec.	As tonic (Özgen et al., 2012)	4	0.09	0.07
Medicago lupulina L. (2898)	40	-	A.p.	Wounds and burns; warmed up in olive oil with aerial parts of *Trifolium fragiferum* var. *fragiferum* then filtrated; filtrate is mixed with resin of *Pinus nigra* subsp. *pallasiana* and beeswax to prepare an ointment, app. aff.	N.r.	1	0.02	0.02
Phaseolus vulgaris L. (2873)	31	Kuru fasulye	Se.	Open wounds; crushed seeds are kneaded with resin of *Pinus nigra* subsp. *pallasiana* and tail fat to prepare an ointment, app. aff.	For bruises, wounds (Sezik et al., 2001)	1	0.02	0.02
Trifolium fragiferum L. var. *fragiferum* (2897)	40	-	A.p.	Wounds and burns; as described for *Medicago lupulina*	N.r.	2	0.05	0.02

FAGACEAE								
Quercus pubescens Willd. (2840)	19	Meşe	B.	*Rheumatism; dec.	For bronchitis, diarrhea, hemorrhoids (Sezik et al., 2001; Ezer and Avcı, 2004)	1	0.02	0.02
IRIDACEAE								
Crocus ancyrensis Maw (2892)	35	Çiğdem	F.	Abdominal pain and as diuretic; inf.	N.r.	2	0.05	0.05
JUGLANDACEAE								
Juglans regia L. (2908)	42	Ceviz	L.	Diabetes; dec. with leaves of *Morus alba* and aerial parts of *Urtica dioica*	For abscess, epistaxis, foot sweating, hemostatic, dermatological disorders, eye disorders, bee bite, diabetes, diarrhea, dysmenorrhea, women's sterility, hypercholesterolemia, sunstroke, as antirachitic, appetizer, stomachic, tonic, vermifuge (Tabata et al., 1994; Yeşilada et al., 1995; Honda et al., 1996; Sezik et al., 1997; Tuzlacı and Tolon, 2000; Sezik et al., 2001; Tuzlacı and Eryaşar Aymaz, 2001; Ezer and Avcı, 2004; Kargıoğlu et al., 2008; Sarper et al., 2009)	1	0.02	0.02
LAMIACEAE								
Mentha longifolia (L.) Huds. subsp. *longifolia* (2796, 2891, 2916)	1	Nane	L.	Shortness of breath; as described for *Cirsium arvense* subsp. *vestitum*	For cold, cough, dyspnea, diarrhea, hemorrhoids, stomach disorders, diabetes, eczema, wounds, high fever, kidney stone,	3	0.07	0.07

	35	Nane	L.	Baby's fever; dried and crushed leaves are mixed thoroughly with the leaves of *Lawsonia inermis*, honey, and egg, then applied to the baby's chest and back	pains, as antiinflammatory, anthelmintic, diuretic (Yeşilada et al., 1993, 1995, 1999; Sarper et al., 2009; Özgen et al., 2012)			
	39	Yarpuz	L.	Sunstroke; crushed fresh leaves are spread on a cloth and applied to forehead				
Mentha × *piperita* L. (2845)	22	Nane	L.	Shortness of breath; as described for *Tripleurospermum callosum*	For abdominal pain, nausea, common colds, cough, as antispasmodic (Gizem Özatkan, Kızılcahamam yöresi halk ilaçları, MSc, Gazi University Institute of Health Sciences, Ankara, 2009)	1	0.02	0.02
Phlomis armeniaca Willd. (2896)	40	-	A.p.	*Gastric disorders; dec.	For cancer, wounds, as antiseptic (Dilara Çimen Oral, Konya ilinde kullanılan halk ilaçları üzerinde etnobotanik araştırmalar, MSc, Gazi University Institute of Health Sciences, Ankara, 2007)	1	0.02	0.02
Sideritis germanicopolitana Bornm. subsp. *germanicopolitana* (2835)	16	Adaçayı	A.p.	Common cold; inf.	For cough, inflammation, nephritis (Gizem Özatkan, Kızılcahamam yöresi halk ilaçları, MSc, Gazi University	2	0.05	0.05

					Institute of Health Sciences, Ankara, 2009)			
Teucrium polium L. (2809, 2812, 2857)	4 5	Masur otu Mayasıl otu	A.p. A.p.	Hemorrhoids; dec. Hemorrhoids; crushed with fruits of *Vitis vinifera*, and ingested	For abdominal ailments, constipation, diarrhea, hemorrhoids, anorexia, coronary failure, common cold, shortness of breath, tuberculosis, diabetes, wounds, hemostatic, headache, hypertension, goiter, internal diseases, menstrual pain, urinary system disorders, rheumatism, toothache, weaning babies, as analgesic, antipyretic, stimulant (Tabata et al., 1994; Honda et al., 1996; Sezik et al., 1997; Tuzlacı and Erol, 1999; Sezik et al., 2001; Ezer and Avcı, 2004; Gençler Özkan and Koyuncu, 2005; Koçyiğit and Özhatay, 2006; Sarper et al., 2009; Özüdoğru et al., 2011)	4	0.09	0.09
	23	Mayasıl otu	A.p.	Hemorrhoids; inf. Diabetes; inf.				
Thymus leucotrichus Halácsy var. *leucotrichus* (2795)	1	Kekik	L.	Shortness of breath; as described for *Cirsium arvense* subsp. *vestitum*	For cough (Gizem Özatkan, Kızılcahamam yöresi halk ilaçları, MSc, Gazi University Institute of Health Sciences, Ankara, 2009)	1	0.02	0.02

Thymus longicaulis C.Presl subsp. *longicaulis* var. *longicaulis* (2832, 2921)	16 39	Kekik Kekik	L. L.	Common cold; dec. As panacea; dec. Diabetes, abdominal pain; inf.	For abdominal pain, cough, as antidiarrheal, sedative (Tuzlacı and Erol, 1999)	5	0.12	0.09
Thymus longicaulis C.Presl subsp. *longicaulis* var. *subisophyllus* (Borbás) Jalas (2851)	22	Kekik	L.	Shortness of breath; as described for *Tripleurospermum callosum*	For enteritis, hemorrhoids, nausea, stomach diseases, arteriosclerosis, cardiac diseases, hypercholesterolemia, diabetes, cancer, regulating blood pressure, bronchitis, cold, cough, shortness of breath, eczema, insomnia, kidney stones, kidney pain, nephritis, menstrual pain, obesity, toothache, as antiinflammatory, anthelmintic, prophylactic, sedative, tonic (Tuzlacı and Tolon, 2000; Şimşek et al., 2001; Tuzlacı and Eryaşar Aymaz, 2001; Koçyiğit and Özhatay, 2006)	1	0.02	0.02
Thymus praecox Opiz subsp. *skorpilii* (Velen.) Jalas var. *skorpilii* (2816)	5	Kekik	L.	Cough; as described for *Elaeagnus angustifolia* Diabetes; inf.	For colds, constipation, stomachache, diabetes, wounds, shortness of breath, as antitussive, hypoglycemic, immunostimulant (Ezer and Avcı, 2004; Ezer and Mumcu Arısan, 2006; Tuzlacı, 2006)	2	0.05	0.05

LILIACEAE								
Allium cepa L. (2837, 2839, 2883, 2888, 2906)	16	Kuru soğan	Bu.	Abscess and inflamed wounds; grated and cooked with soap, milk, resin of *Pinus nigra* subsp. *pallasiana*, butter, and *Triticum baeoticum* flour in a pan (this mixture is called "hekim hamuru") and app. aff.	For hemorrhoids, stomachache, abscess, bee sting, wounds, scabies, arteriosclerosis, bruises, fractured bones, gynecological disorders, dysuria, urinary inflammations, headache, as analgesic, antiinflammatory, antitussive, diuretic, hypoglycemic (Yeşilada et al., 1995; Sezik et al., 1997; Yeşilada et al., 1999; Sezik et al., 2001; Ezer and Avcı, 2004; Ezer and Mumcu Arısan, 2006; Gençler Özkan and Koyuncu, 2005; Kargıoğlu et al., 2008)	8	0.19	0.14
	18	Kuru soğan	Bu.	Wounds; the whole bulb is cut into halves and app. aff.				
	33	Kuru soğan	Bu.	Abscess; grated and mixed with egg, roasted, then app. aff.				
	34	Soğan	Bu.	Abscess; ember-baked and app. aff.				
	42	Kuru soğan	Bu.	Common cold; ember-baked, cored out and stuffed with butter, ingested				
Allium sativum L. (2924)	39	Sarımsak	Bu.	*Poultry diseases; crushed and mixed with tincture of iodine, and given to the animals	For alopecia, eczema, pustule, cold, diabetes, earache, hemorrhoids, hydrophobia, hypertension, erectile dysfunction, ovarian diseases, reducing	1	0.02	0.02

					effect of alcohol, rheumatism, sunstroke, as antiseptic, anthelminthic, carminative (Sezik et al., 1991; Yeşilada et al., 1993, 1995; Sezik et al., 1997; Yeşilada et al., 1999; Tuzlacı and Tolon, 2000; Tuzlacı and Eryaşar Aymaz, 2001; Ezer and Avcı, 2004; Ezer and Mumcu Arısan, 2006)			
LORANTHACEAE								
Viscum album L.	7 14 18	Çam purcu	W.p. W.p. W.p.	Urinary tract disorders; dec. Shortness of breath; dec. Atherosclerosis; dec. Shortness of breath; dec.	For asthma, cancer, cardiovascular disorders, heart stimulant, cuts, pruritus, diarrhea, hemorrhoids, splenopancreatic diseases, stomachache, diabetes, dizziness, kidney stones, prostatitis, women's sterility, rheumatism, as diuretic, panacea, spasmolytic (Yeşilada et al., 1995; Sezik et al., 2001; Tuzlacı and Eryaşar Aymaz, 2001; Gençler Özkan and Koyuncu, 2005; Kargıoğlu et al., 2008; Özüdoğru et al., 2011)	5	0.12	0.09
LYTHRACEAE								
Lawsonia inermis L.	35	Kına	L.	Baby's fever; as described for *Mentha longifolia* subsp. *longifolia*	For foot odor, hoarseness, poisoned animals (Tuzlacı, 2006)	2	0.05	0.05

	39	Kına	L.	Tonsillitis; inf.				
MALVACEAE								
Alcea rosea L. (2882)	33	Hatmi çiçeği	F.	*Abdominal pain; inf.	For asthma (Ezer and Avcı, 2004)	1	0.02	0.02
Hibiscus esculentus L. (2844)	19	Bamya	Se.	Diabetes; dec.	For diabetes, hypoglycemia (Yeşilada et al., 1995)	1	0.02	0.02
Malva neglecta Wallr (2791, 2815, 2834, 2843, 2855, 2867, 2890, 2904, 2920)	1	Ebegümeci	L.	Shortness of breath; as described for *Cirsium arvense* subsp. *vestitum*	For dermatological disorders, abdominal pain, constipation, hemorrhoids, stomach disorders, gynecological disorders, prostatitis, renal diseases, urinary tract inflammation, bruises, lumbago, muscular pain, bronchitis, common cold, sinusitis, shortness of breath, tonsillitis, tuberculosis, broken bones, cancer, choleretic, hypoglycemic, internal infections, liver disorders, mastitis, rheumatism, as abortifacient, analgesic, antiinflammatory, antihemorrhagic, antitussive, diuretic (Özçelik, 1987; Sezik et al., 1991; Yeşilada et al., 1993; Tabata et al., 1994; Yeşilada et al., 1995; Honda et al., 1996; Sezik et al., 1997; Tuzlacı and	13	0.30	0.23
	5		L.	Rheumatism; po. m., app. aff.				
	16		W.p.	Common cold and lung edema; dec.				
	19		L.	Bruises; po. m., app. aff.				
	23		W.p.	Asthma, bronchitis, shortness of breath; as described for *Tripleurospermum callosum*				
	30		Ro.	Rheumatism; po. m., app. aff.				
			W.p.	Hemorrhoids; dec., app. aff.				
	35		L.	*Diarrhoea; dec.				
	39		W.p.	Broken or dislocated bones; dec. mixed with milk, app. aff.				

	42		A.p.	Rheumatism; soaked in boiled milk for 1–2 min, app. aff.	Erol, 1999; Sezik et al., 2001; Şimşek et al., 2001; Ezer and Avcı, 2004; Şimşek et al., 2004; Gençler Özkan and Koyuncu, 2005; Ezer and Mumcu Arısan, 2006; Tuzlacı, 2006; Kargıoğlu et al., 2008; Sarper et al., 2009; Özüdoğru et al., 2011; Özgen et al., 2012)			
Malva pusilla Sm. (2824)	15	Ebegümeci	W.p.	*Blood stopper; inf.	For tonsillitis, as antipyretic, antitussive (Tuzlacı, 2006)	1	0.02	0.02
MORACEAE								
Morus alba L. (2911)	42	Beyaz dut	L.	Diabetes; as described for *Juglans regia*	For cancer, constipation, diabetes, eczema, reddening of eyes, urinary inflammations, weakness, as antipyretic (Yeşilada et al., 1995, 1999)	1	0.02	0.02
OLEACEAE								
Olea europaea L.	5	Zeytin	L.	Cough; as described for *Elaeagnus angustifolia*	For arthralgia, muscular and rheumatic pain, sprain, dermatological disorders, common colds, diabetes, eye disorders, foot swelling, high cholesterol, liver disorders, as antipyretic, appetizer (Özçelik, 1987; Yeşilada et al., 1999; Honda et al., 1996; Tuzlacı and Tolon,	5	0.12	0.09
	34		Fr.	Abscess; crushed, app. aff.				
	39, 41		Fr.	Fractured or dislocated bones; salted, crushed, and app. aff.				
	40		Oil	Wounds and burns; as described for *Medicago lupulina*				

					2000; Sezik et al., 2001; Tuzlacı and Eryaşar Aymaz, 2001)			
PAPAVERACEAE								
Glaucium grandiflorum Boiss. & A. Huet var. *torquatum* Cullen (2808)	4	Gelincik	F.	Pertussis; dec.	N.r.	1	0.02	0.02
Papaver dubium L. (2821)	13	Gelincik	A.p.	*Fungal infections and eczema on feet; inf., feet are soaked in it	For cough (Yeşil and Akalın, 2009)	2	0.05	0.02
PEDALIACEAE								
Sesamum indicum L.	39	Susam	Se.	Burns; roasted and ground seeds ("tahin") are app. aff.	For burns (Tuzlacı, 2006)	1	0.02	0.02
PINACEAE								
Abies nordmanniana Spach var. *bornmuelleriana* (Mattf.) Silba (2850)	22	Köknar	R.	Abscess; app. aff.	For abscess, wounds (Sezik et al., 1997).	1	0.02	0.02
Pinus nigra J. F. Arnold subsp. *pallasiana* (Lamb.) Holmboe (2819, 2831, 2852, 2861, 2869, 2874, 2878, 2899, 2900)	5 16	Karaçam	C. L. R.	Diabetes, hypertension, hypercholesterolemia; dec. Dog or wolf bites (for animals); crushed, app. aff. Abscess and inflamed wounds; as described for *Allium cepa*	For dermatological disorders, stomach disorders, antiinfective, bronchitis, common colds, cough, shortness of breath, tuberculosis, diabetes, internal diseases, fractured bones, rheumatic pain, as panacea (Özçelik, 1987; Yeşilada et al.,	22	0.51	0.35

			C.	*Intestine cancer and pains; e.d. or dec.	1995; Honda et al., 1996; Sezik et al., 2001)			
	22, 30, 33, 41		R.	Abscess and inflamed wounds; app. aff.				
	24		R.s.	Bronchitis; e.d.				
			L.	Dog or wolf bites (for animals); crushed, cooked with milk, app. aff.				
	30		Ph.	Lung disorders and pneumonia; e.d.				
	31		R.	Open wounds; kneaded with tail fat and crushed seeds of *Phaseolus vulgaris*, app. aff.				
	40		R.	Wounds and burns; as described for *Medicago lupulina*				
	41		C.	Diabetes; dec.				
Pinus sylvestris L. (2915)	39	Sarıçam	R.	Stomachache; mixed with honey and ingested	For pulmonary disorders, wounds, expelling worms, ulcer, as hypoglycemic, panacea (Yeşilada et al., 1999; Gençler Özkan and Koyuncu, 2005; Tuzlacı, 2006; Özüdoğru et al., 2011)	1	0.02	0.02

PLANTAGINACEAE								
Plantago major L. subsp. *intermedia* (Gilib.) Pilg. (2822)	13	Siyil otu/siğil otu	L.	Wounds; app. aff.	For eczema, wounds, cancer, gynecological disorders, rheumatism, toothache, as antiinflammatory (Yeşilada et al., 1995; Honda et al., 1996; Sezik et al., 1997; Gençler Özkan and Koyuncu, 2005; Koçyiğit and Özhatay, 2006; Özüdoğru et al., 2011; Özgen et al., 2012)	2	0.05	0.02
Plantago major L. subsp. *major* (2856, 2868, 2893, 2919)	23 30, 39 35	Siyil otu/siğil otu	L. L.	Rheumatism; app. aff. Inflammation and wounds; app. aff. Wounds; app. aff. Hemorrhoids; e.d. or dec.	For bronchitis, shortness of breath, abscess, hemostatic, cancer, dermatological disorders, constipation, diarrhea, hemorrhoids, gastric disorders, edema, kidney stones, prostatitis, urinary inflammation, vaginitis, rheumatism, as sedative (Özçelik, 1987; Yeşilada et al., 1995; Honda et al., 1996; Sezik et al., 1997; Tuzlacı and Erol, 1999; Tuzlacı and Tolon, 2000; Ezer and Avcı, 2004; Şimşek et al., 2004; Ezer and Mumcu Arısan, 2006; Kargıoğlu et al., 2008; Sarper et al., 2009; Yeşil and Akalın, 2009; Özgen et al., 2012)	7	0.16	0.12

POACEAE								
Hordeum L. sp.	16	Arpa	Se.	Pneumonia and common colds; milled, po. m. and applied to the chest and back	For abdominal pain, dermatophytes, itching, common colds, cough, dysuria, kidney stones, urinary inflammation, uterus inflammation, facial paralysis, fever, rheumatism, as analgesic, diuretic, antiinflammatory (Sezik et al., 1997; Yeşilada et al., 1999; Sezik et al., 2001; Gençler Özkan and Koyuncu, 2005; Ezer and Mumcu Arısan, 2006; Tuzlacı, 2006)	4	0.09	0.07
	35	Arpa	Se.	Urinary tract disorders; dec.				
	39	Arpa	Se.	Fractures; po. w., app. aff.				
Triticum baeoticum Boiss. (2838, 2887, 2894)	16	Buğday	Se.	Abscess and inflamed wound; as described for *Allium cepa*	N.r.	5	0.12	0.07
	34	Buğday	Se.	Diarrhea; milled, roasted with butter and ingested Abdominal distension (for children); milled, kneaded with butter (this mixture is called "yağlı hamur"), and applied to the abdomen				
	35	Buğday	Se.	Tonsillitis; milled and kneaded with yoghurt and dried; this mixture is called "tarhana hamuru"; after				

				drying, water is added to this mixture and it is heated, then applied to throat				
Zea mays L. (2885)	34	Mısır	St.	Diuretic; dec.	For cough, sore throat, diuretic, dysuria, kidney disorders, prostatitis, urinary inflammation, dysmenorrhea, obesity, as antiinflammatory (Yeşilada et al., 1993, 1995; Sezik et al., 1997; Tuzlacı and Tolon, 2000; Sezik et al., 2001; Ezer and Avcı, 2004; Özüdoğru et al., 2011)	1	0.02	0.02
POLYGONACEAE								
Rumex crispus L. (2793,2823)	15	Mancar, pancar	L.	Lip fissure and wound; boiled and mixed with yoghurt or stuffed with rice, rolled, and cooked	For abdominal pain, boil, wound, scabies, bronchitis, cough, tonsillitis, constipation, goiter, malaria, as abortive, antipyretic, appetizer, sedative (Yeşilada et al., 1999; Şimşek et al., 2001; Ezer and Avcı, 2004; Özüdoğru et al., 2011; Özgen et al., 2012)	3	0.07	0.02
	1, 15	Mancar, pancar	L.	Foodstuff; boiled and mixed with yoghurt or stuffed with rice, rolled and cooked				
PORTULACACEAE								
Portulaca oleracea L. subsp. *oleracea* (2905)	42	Temiz otu	A.p.	Diabetes; mixed with yoghurt and ingested as salad or cooked as meal	For anemia, common cold, cancer, cardiac disorders, constipation, stomach disorders, hemorrhoids, diabetes, high fever, kidney stone, sunstroke, obesity, as anthelminthic,	1	0.02	0.02

					appetizer, diuretic, hypoglycemic (Özçelik, 1987; Yeşilada et al., 1995; Yeşil and Akalın, 2009)			
ROSACEAE								
Cerasus avium (L.) Moench (2879, 2902)	33	Kiraz	Fr. s.	Urinary tract disorders; dec.	For urinary system disorders, obesity, as antirheumatic, depurative, diuretic, stomachic (Tuzlacı and Erol, 1999; Ezer and Avcı, 2004)	2	0.05	0.05
	41	Kiraz	Fr. s.	*Diabetes; dec.				
Crataegus × *bornmuelleri* Zabel ex K. I. Chr. & Ziel. (2807, 2826)	4	Alıç	Fr.	*Inflammation; dec.	For rheumatism, as antihypertensive, diuretic (Yeşil and Akalın, 2009)	3	0.07	0.07
	15	Alıç	Fr., F., L.	Heart disease and rheumatic disorders; dec.				
Crataegus orientalis (Mill.) M.Bieb. var. *orientalis* (2830)	16	Alıç	Fr.	Diabetes; e.d.	For cardiac disorders, diarrhea, stomach disorders, rheumatism, as antihypertensive, hypoglycemic, vasodilator (Ezer and Mumcu Arısan, 2006; Tuzlacı, 2006; Yeşil and Akalın, 2009)	1	0.02	0.02
Cydonia oblonga Mill. (2799, 2817, 2875)	1	Ayva	L.	Shortness of breath and bronchitis; dec.	For abdominal pain, hemorrhoids, respiratory tract disorders, diabetes, eczema, urinary tract disorders, headache, as antidiarrheal, antipyretic, antiseptic, appetizer, sedative (Honda et al., 1996; Sezik et al., 1997; Yeşilada et al., 1999;	5	0.12	0.09
	5	Ayva	L.	Cough; as described for *Elaeagnus angustifolia*				
	32	Ayva	L.	Cough; dec. with *Malus sylvestris* peels, used as tea				

			Se.	*Breastfeeding nipple wound; maceration, app. aff.	Tuzlacı and Tolon, 2000; Sezik et al., 2001; Tuzlacı and Eryaşar Aymaz, 2001; Ezer and Avcı, 2004; Ezer and Mumcu Arısan, 2006; Kargıoğlu et al., 2008)			
Malus sylvestris Mill. (2800, 2802, 2877, 2913)	1	Elma	Fr.	Shortness of breath and pain in chest; cored out and stuffed with butter, roasted in ember, ingested after it gets warm	For asthma, bronchitis, cough, mumps, sore throat (Sezik et al., 2001; Kargıoğlu et al., 2008)	5	0.12	0.09
	2	Elma	Fr.	*Rheumatism; cider vinegar prepared from the fruits mixed with honey and water, app. aff.				
	32	Elma	F.s.	Cough; as described for *Cydonia oblonga*				
	42	Elma	Fr.	To remove burn marks; grated and app. aff.				
Prunus L. sp.	1	Acı erik	Fr.	Diabetes and high blood pressure; e.d. or dried layers of fruit pulp (this preparation is called “pestil”) are consumed	For asthma, common cold, earache, constipation, diabetes, eczema, hypotension, kidney stone, nephritis, scorpion bite, stomachache (Yeşilada et al., 1993, 1995, 1999; Sezik et al., 2001; Şimşek et al., 2004)	3	0.07	0.07
				Foodstuff; pestil (described above) is used instead of				

				lemon for giving a sour taste to meals				
Prunus spinosa L. subsp. *dasyphylla* (Schur) Domin (2810, 2836)	4, 16	Acı erik	Fr.	Diabetes; e.d. or a piece of pestil (described above) is dissolved in hot water and drunk	For Alzheimer disease, asthma, cold, cardiac diseases, embolism, diabetes, eczema, urinary system disorders, toothache, as antidiarrheal, diarrheal, stomachic, hypertension, insecticide, galactagogue (Tuzlacı and Tolon, 2000; Tuzlacı and Eryaşar Aymaz, 2001)	4	0.09	0.07
	16		Fr.	Common cold and cough; pestil (described above) is dissolved in hot water and drunk				
Rosa canina L. (2811, 2829, 2864)	4	Kuşburnu	Fr.	As panacea; dec.	For abdominal ptosis, diarrhea, hemorrhoids, hepatitis, intestinal bleeding, allergy, respiratory tract disorders, arteriosclerosis, cardiac disorders, hypertension, cancer, cystitis, intrauterine inflammation, kidney disorders, dermatological disorders, internal diseases, malaria, rheumatism, as aphrodisiac, diarrheal, diuretic, prophylactic, stimulant, tonic (Özçelik, 1987; Tabata et al., 1994; Yeşilada et al., 1995; Honda et al., 1996; Sezik et al., 1997; Tuzlacı and Erol, 1999; Yeşilada et	6	0.14	0.09
	16	Kuşburnu	Fr.	Common cold and cough; dec.				
	30	Kuşburnu	Fr.	To promote bowel movements and renal health; dec.				

					al., 1999; Tuzlacı and Tolon, 2000; Sezik et al., 2001; Tuzlacı and Eryaşar Aymaz, 2001; Ezer and Avcı, 2004; Şimşek et al., 2004; Gençler Özkan and Koyuncu, 2005; Ezer and Mumcu Arısan, 2006; Koçyiğit and Özhatay, 2006; Kargıoğlu et al., 2008; Sarper et al., 2009; Yeşil and Akalın, 2009; Özüdoğru et al., 2011; Özgen et al., 2012)			
SALICACEAE								
Salix alba L. (2797, 2922)	1	Söğüt	R.b.	Headache and sinusitis; ash of the burnt root bark is mixed with water, then applied to the scratched scalp	For colds, sinusitis, dandruff, eczema, erysipelas, wound, hemorrhoids, oxyuriasis, stomachache, tympanites, headache, malaria, rheumatism, as analgesic, sedative, antidiarrheal, antifungal, hypoglycemic (Yeşilada et al., 1995; Tuzlacı and Erol, 1999; Yeşilada et al., 1999; Tuzlacı and Eryaşar Aymaz, 2001; Ezer and Mumcu Arısan, 2006; Tuzlacı, 2006; Özüdoğru et al., 2011)	2	0.05	0.05
	39	Söğüt	B.	Rheumatism; dec.				
SCROPHULARIACEAE								
	30	Sığır kuyruğu	Ro., B.l.	Hemorrhoid; dec., app. aff.	For cough, earache, shortness of breath, hair loss, pruritus, hemorrhoids,	1	0.02	0.02

Verbascum cheiranthifolium Boiss. var. *cheiranthifolium* (2863)					stomachache, menstrual pain, uterine inflammation, wounds, rheumatism (Gençler Özkan and Koyuncu, 2005; Tuzlacı, 2006; Özüdoğru et al., 2011; Özgen et al., 2012)			
Veronica anagallis-aquatica L. (2918)	39	Yarpuz	L.	*Sunstroke; crushed and spread on a cloth then applied on head	For abdominal pain and colds (Kargıoğlu et al., 2008)	1	0.02	0.02
SOLANACEAE								
C*apsicum annuum* L. (2925)	39	Biber	Fr.	Leg pain; decoction is mixed with bran flour, app. aff.	For stomachache (Sezik et al., 2001)	1	0.02	0.02
Hyoscyamus niger L. (2912)	42	Göz otu	Se.	Pain, itching and worms in eye; sprinkled on embers, eyes are exposed to the smoke under a blanket; a cup filled with water is put under the face; worms fall down into this water	For earache, respiratory disorders, eye disorders, dental diseases, drunkenness, headache, wound, intoxication, as anthelmintic (Sezik et al., 1991; Tabata et al., 1994; Yeşilada et al., 1995; Honda et al., 1996; Sezik et al., 1997; Yeşilada et al., 1999; Sezik et al., 2001; Tuzlacı and Eryaşar Aymaz, 2001; Ezer and Avcı, 2004; Gençler Özkan and Koyuncu, 2005; Yeşil and Akalın, 2009; Özüdoğru et al., 2011; Özgen et al., 2012)	1	0.02	0.02

Lycopersicum esculentum Mill. (2881)	33	Domates	Fr.	Abscess; cut into halves and app. aff.	For abscess, burns, scorpion bite, fever, headache, stomach disorders, as blood-former (Yeşilada et al., 1995; Sezik et al., 1997, 2001; Tuzlacı, 2006)	1	0.02	0.02
Solanum tuberosum L. (2889, 2910)	34	Patates	Tb.	Headache; sliced, salted, and applied to the forehead	For eye disorders, bruises, burn, eczema, gastric ulcers, headache, as analgesic (Sezik et al., 2001; Gençler Özkan and Koyuncu, 2005; Tuzlacı, 2006; Kargıoğlu et al., 2008)	2	0.05	0.05
	42	Patates	Tb.	To eliminate burn marks; grated and app. aff.				
TILIACEAE								
Tilia L. sp. (2884)	34	Ihlamur	I.	Abdominal pain and common cold; dec.	For abdominal pain, nausea, respiratory system disorders, eczema, gingival pain, infection, kindey pain, kidney stone, as cardiotonic, diuretic, prophylactic, sedative (Yeşilada et al., 1999; Tuzlacı and Tolon, 2000; Tuzlacı and Eryaşar Aymaz, 2001; Ezer and Avcı, 2004; Koçyiğit and Özhatay, 2006; Kargıoğlu et al., 2008)	3	0.07	0.05

ULMACEAE								
Ulmus minor Mill. subsp. *minor* (2820, 2859)	7	Karaağaç	R.b.	Improperly healed fractures; po. m., app. aff, softens the bone so that the wrongly healed bone can be broken again without much pain and reset	For softening bones, menstrual diseases, wounds, as muscular relaxant (Yeşilada et al., 1999)	3	0.07	0.05
	24	Karaağaç	Ro.	*Prostate disorders and as diuretic; dec.				
URTICACEAE								
Urtica dioica L. (2792, 2806, 2828, 2846)	1	Isırgan	L.	Shortness of breath; as described for *Cirsium arvense* subsp. *vestitum*	For abdominal pain, intestinal disorders, internal infection, liver diseases, abortifacient, enlarged prostate, gynecological disorders, urinary system diseases, abscess, alopecia, dermatological disorders, allergy, arthralgia, dislocated bone, fracture, osteoporosis, rheumatism, sciatica, arteriosclerosis, cardiac disease, cleaning blood, embolism, hypertension, varicosity, antiaging, cancer, lung diseases, diabetes, epistaxis, headache, hoarseness, goiter, paralysis, as analgesic, anticoagulant, hemostatic, appetizer,	10	0.23	0.21
	4	Dalağan	A.p.	Rheumatism; app. aff.				
	16	Isırgan	A.p.	Rheumatism; boiled in water, then cut small pieces and applied to the joints or dec.				
	22	Dalağan	A.p.	Shortness of breath; as described for *Tripleurospermum callosum.* Diabetes; inf.				
	23	Dalaz	Se.	Asthma, bronchitis and shortness of breath; as				

				described for *Tripleurospermum callosum*	stomachic, antifungal, hair restorer, diuretic, galactagogue, panacea, prophylactic, sedative, tonic (Özçelik, 1987; Yeşilada et al., 1993; Tabata et al., 1994; Honda et al., 1996; Sezik et al., 1997; Tuzlacı and Erol, 1999; Tuzlacı and Tolon, 2000; Sezik et al., 2001; Şimşek et al., 2001; Tuzlacı and Eryaşar Aymaz, 2001; Ezer and Avcı, 2004; Şimşek et al., 2004; Gençler Özkan and Koyuncu, 2005; Ezer and Mumcu Arısan, 2006; Koçyiğit and Özhatay, 2006; Kargıoğlu et al., 2008; Sarper et al., 2009; Yeşil and Akalın, 2009; Özüdoğru et al., 2011; Özgen et al., 2012)			
			A.p.	Rheumatism; app. aff.				
	32	Dalaz	A.p.	Inflammation; dec.				
	42	Isırgan	A.p.	Diabetes; inf. or as described for *Juglans regia*				
Urtica urens L. (2803, 2814, 2842)	3, 5	Isırgan	A.p.	Diabetes; dec.	For abscess, wounds, antiaging, erythema, asthma, bronchitis, tuberculosis, cancer, diabetes, diarrhea, hemorrhoids, stomachache, headache, galactagogue, menopausal complaints, urinary diseases, women's sterility, rheumatism, sciatica, as diuretic (Tabata et al., 1994; Yeşilada et al., 1995; Honda et al., 1996; Tuzlacı and	5	0.12	0.12
	5	Isırgan	A.p.	Joint pain; po. m, app. aff.				
				Diabetes; ingested with bread				
				Shortness of breath; dec.				
	19	Isırgan	A.p.	Diabetes; inf.				

					Erol, 1999; Tuzlacı and Eryaşar Aymaz, 2001; Sarper et al., 2009)			
VITACEAE								
Vitis vinifera L. (2818, 2886, 2895, 2901, 2923)	5	Üzüm	Fr.	Hemorrhoids; as described for *Teucrium polium*	For abscess, hair restorer, wounds, constipation, hemorrhoids, bruises, rheumatism, cancer, cold, sun stroke, as tonic (Yeşilada et al., 1995; Sezik et al., 1997; Tuzlacı and Erol, 1999; Sezik et al., 2001)	5	0.12	0.09
	34	Üzüm	Fr.	Fever; vinegar prepared from the fruit is applied to the whole body.				
	35	Üzüm	S.s.	To reproduce hair; hair is washed with stem sap				
	39, 41	Üzüm, karaüzüm	Fr.	Broken or dislocated bone; crushed and app. aff.				

*Different usages of common folk medicines determined in Çamlıdere.

[a] The localities that correspond to these number are given in Figure 1.

[b]Abbreviations: A.p.; aerial parts, app. aff; applied to the affected area, B.; bark, Bu.; bulb, B.l.; basal leaf, Br.; branch, B.t.; branch tip, C.; cone, cit.; citation, dec.; decoction as tea, e.d.; eaten directly, F.; flower, Fr.; fruit, F.s.; fruit shell, Fr. s.; fruit stalk, I.; inflorescence, inf.; infusion as tea, L.; leaf, N.r.; no record has been found, Ph.; phloem, Pl.; placenta, po. m.; poultice with milk, po. w.; poultice with water, R.; resin, R.b.; root bark, Ro.; root, R.s.; root sap, S.; stem, Se.; seed, S.s.; stem sap, St.; stilus; Tb.; tuber, vap. inh.; vapor is inhaled, W.p.; whole plant.