



Medicinal plants and their use properties of sold in herbal market in Bingöl (Turkey) district

Rıdvan POLAT ¹, Fatih SATIL ², Uğur ÇAKILCIOĞLU ^{* 3}

¹ Bingöl Directorate of National Education, Bingöl 12100, Turkey

² Department of Biology, Balıkesir University, Balıkesir 10145, Turkey

^{*3} Elazığ Directorate of National Education, Elazığ 23100, Turkey

Abstract

In this study, the medicinal plants which are frequently sold at the herbal market in Bingöl district are researched. Within the scope of the study, the herbalists located in the region are examined; and what types of medicinal plants are sold is determined as well as for what purposes these plants are used. In the study, 50 plants, which have various uses in the region, concerning 25 families are determined. Medical use characteristics of these plants are investigated locally by examining these plants. Furthermore, it is researched that which of these plants are collected.

Key words: Ethnobotanic, Medicinal plants, Herbal market, Bingöl

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Bingöl (Türkiye) yöresindeki aktarlarda satılan tıbbi bitkiler ve kullanım özellikleri

Özet

Bu çalışmada Bingöl yöresinde bulunan aktarlarda tıbbi amaçla yoğun olarak satılan bitkiler araştırılmıştır. Çalışma kapsamında yöredeki aktarlar gezilmiş ve satılan tıbbi bitkilerin hangileri olduğu ve bu bitkilerin hangi amaçlarla nasıl kullanıldığı belirlenmiştir. Araştırmada yörede en çok kullanıma sahip olan 25 familyaya ait 50 bitki belirlenmiştir. Bu bitkilerin teşhisleri yapılarak tıbbi kullanım özellikleri yöresel olarak araştırılmıştır. Ayrıca satışı yapılan bitkilerin, hangilerinin yöreden toplandığı araştırılmıştır.

Anahtar kelimeler: Ethnobotanik, Tıbbi bitkiler, Aktar, Bingöl

1. Introduction

Human-being has benefitted from plants as nutrition, decoration plant, to obtain paint, to heal since the ancient times. It is reported that the number of plants which are used as a spice is around 20.000 by World Health Organization (Kalaycıoğlu and Öner, 1994). The amount of plants used for remedies and treatment has shown a continuous increase since the ancient times. The number of herbal drugs used at the time of the Mesopotamian civilization was about 250. The ancient Greeks used about 600 medicinal plants (Saber, 1982). The amount of herbal drugs at the time of the Arabic-Persian civilization was as high as 4000 (Levey, 1973). Historical records show that a great number of herbal drugs were exported at the time of the Ottoman Empire (Bavlav, 1940). It is mentioned in publications on herbal drugs at the Republican period that approximately 70 plants were exported (Baytop, 1963). Today there are 20.000 herbal plants used for medication and 600 of these are known to be grown in Turkey (Baytop, 1999). Although 20 plants are extensively exported from Turkey, it is known that a total of 347 plants are used, 139 of which are exported (Özğüven et al., 2005).

The demand for medicinal plants has been on a rapid increase. According to the data released by the United Nations Conference on Trade and Development (UNCTAD), the annual market volume of the medicinal plants market

* Corresponding author / Haberleşmeden sorumlu yazar: Tel.: +905067936609; Fax.: +904242242795; E-mail: ucakilcioglu@yahoo.com

in the world has reached to \$ 40 billion. The leading countries in medicinal plant trade are China, India and Germany respectively (Bayramoğlu et al., 2009). The export rates of Turkey between 1993 and 2003 in medicinal and aromatic plants vary between 33.000 and 55.000 tons (Özgüven et al., 2005).

Inventory of the used species have been prepared in recent years in our country by ethnobotanic studies. (Sezik et al., 1991; Ertuğ, 2000; Ertuğ, 2004; Satıl et al., 2007; Satıl et al., 2008; Cakilcioglu and Turkoglu, 2010; Cansaran and Kaya, 2010; Koyuncu et al., 2010; Polat and Satıl, 2010; Uysal et al., 2010; Öztürk and Ölçücü, 2011; Bulut, 2011).

Another way of obtaining medicinal plant is herbalists. It is important to compile the knowledge of use about the herbs, which has been tested for a long time, from local people and the people who earn their life from herbs. This knowledge which directly concerns public health can be compared with the information given in the literature. There have been several studies conducted on medicinal plants that sold in herbal markets in the different part of the world (Bye, 1986; Lev and Amar, 2000; Lev and Amar, 2002; Gazzaneo et al., 2005; Albuquerque et al., 2006; Lev, 2006; Monteiro et al., 2010; Mati and de Boer, 2010; Karousou and Deirmentzoglou, 2011). As the number of inventory studies about the medicinal plants is increasing in our country, there are only limited numbers of studies, which are conducted about the herbalists (Karademir and Öztürk 2004; Akgün et al., 2004; Malyer et al., 2004; Çömlekçioglu and Karaman, 2008; Toksoy et al., 2010).

In the research having been conducted within the scope study, it is seen that there is no other prior study which has been conducted about the medicinal plants growing in Bingöl District. Meanwhile, there is no flora study covering the region. However, there isn't any study about the herbs growing in the Bingöl district, there are some studies about the herbs around the bordering areas (Özgen et. al., 2004; Ufuk et al., 2004; Tuzlacı and Doğan, 2010; Cakilcioglu and Turkoglu, 2010; Cakilcioglu et al., 2011).

2. Materials and methods

2.1. Study area

Bingöl, which is located in the Upper Euphrates Section of Eastern Anatolian Region, lies between 38° 27' and 40° 27' eastern longitudes and 41° 20' and 39° 54' northern latitudes (Figure 1). Bingöl is neighbor to Muş in the east, Erzincan and Erzurum in the north, Tunceli in west and Diyarbakır in the south. Mean daily temperature is 12.1 degrees. Annual rainfall is 873.7 mm. and the number of days on which it snows is 24.5 days (Bakoğlu, 2004). Study area was located on the east of Anatolian diagonal, in the skirts of South-Eastern Taurus Mountains (Cakilcioglu et al., 2008), in the Upper Euphrates Region of the Eastern Anatolia Region (Şengün, 2007).



Figure 1. Geographical location of the study area

According to the data obtained from the website of Bingöl Provice Administration (<http://www.bingol.gov.tr/>). Bingöl is is very mountainy area. There are mountains heights of which reach 3000 meters (Bingöl mountains 3250 m, Çötele mountains 2940 m, Şeytan mountains 2906 m). The heights of the plateaus and plains on the mountains do not fall down less than 2000 meters. Even heights of the places like meadows do not fall down less than 1000 meters. Climax and glacial lakes cover the heighest parts of the mountains; skirts of the mountains are covered by moraine. Mountains are generally covered by straggly forests; some parts of the south regions are stark. Oak forests are found at the parts which are lower than 1800 meters. The total population is 256 thousand while the central population is around 90 thousand according to population census in 2009.

The Zazas are of the major ethnic group in the region, with small minorities of Turkish and Kurdish groups in the county. The Zazas' native language is Zazaki, which belongs to the Iranian group of the Indo-European family of languages. The Zazas mostly live in the Eastern Anatolia Region of Turkey (Arakelova, 1999-2000).

2.2. Interviews with local herbalist

Within the scope of the study, the medicinal plants being presented to the public at the 6 herbal market located in Bingöl centrum are determined. In this respect, 50 drug samples, which are commonly used in the region, are taken and examined. Which of the taken samples are collected from the region is examined. A questionnaire including 11 questions is applied to the visited herbalists (Appendix A). The photographs of the places, where the drugs are presented to the public, are taken (Figure 2, 3).



Figure 2. Local herbal market



Figure 3. Local herbal market

The investigated herbal markets;

1. Tijda Baharat
2. Nur Baharat
3. Doğa Baharat
4. Nurs Baharat
5. Ebru Baharat
6. Tijda-2 Baharat

2.3. Plant materials

Field study was carried out over a period of approximately two years (2010–2011). During this period, 60 vascular plant specimens were collected. The plants were pressed in the field and prepared for identification. Plants were identified using the standard text, 'Flora of Turkey and the East Aegean Islands' (Davis, 1965–1985; Davis et al., 1988). Species identification of some of the plants being used in the region is performed by us from the samples taken from the herbalists. The herbs being sold at the herbalists and grown in the region are photographed by site studies and herbarium samples are prepared. The names of plant families were listed in alphabetic order. Threatened categories are proposed for endemic taxa according to IUCN risk categories (Ekim et al., 2000). Scientific names of plant species were identified according to the International Plant Name Index (IPNI: <http://www.ipni.org>). Latin name, families, local name and names of the herbs, which parts of the herb is used, intended use and literature information about the herb are given in the Table 1.

3. Result and discussion

Information about the 50 species of 25 families being collected from the investigation is given in Table 1. 15 of the 50 medicinal plants being sold by herbalists are found to be collected from the site area.

Within the scope of the study, it is determined that 50 medicinal plant species of 25 families are commonly sold at the herbalists in Bingöl region. Medicinal plant samples are taken; after identification, their scientific names and uses are given in Table 1. It is indicated that there are total of 80-100 drugs are sold at the herbalists as a result of the investigation conducted in the region. It is ascertained that 15 of 50 medicinal species, which are sold, are collected from the region. It is found that the herbs being collected by villagers and sold to the herbalists are; *Alcea officinalis* L., *Crataegus monogyna* Jacq. subsp. *monogyna* Jacq., *Crataegus orientalis* Pallas, *Hypericum scabrum* L., *Hypericum perforatum* L., *Helichrysum* sp., *Salvia officinalis* Miller, *Tribulus terrestris* L., *Onopordum acanthium* L., *Teucrium polium* L., *Thymus* sp., *Rosa canina* L., *Rosa dumalis* Bechst. subsp. *boissieri* (Crepin) Ö. Nilsson var. *boissieri* (Crepin) Ö. Nilsson, *Rhus coriaria* L., *Rheum ribes* L., *Urtica dioica* L. (Figure 4, 5).

Figure 4. *Creatagus* sp. commonly collected in the districtFigure 5. *Rhus coriaria* L. collected from the villages in the district

However herbs are collected from many regions of the study area, it is indicated that the herbs are generally collected from the Genç County and Ilicalar Town for the herbal market.

Most of the plant parts are used by preparing a solution. The most widely used methods for solution preparation are infusion and decoction. Other methods are; pulping the plants, mixing the plant with honey. One kind or one part of species can be used as preparing solution or pulp as well as more than one herb can be used collectively. It is stated that some mixtures obtained by mixing several herbs are frequently sold. First of these are the teas being prepared by mixing; *Cassia angustifolia* Vahl. (cassia), *Pimpinella anisum* L. (anasone), *Foeniculum vulgare* Miller, *Laurus nobilis* L. (heather leaf), *Rosmarinus officinalis* L. (mooroworth), *Origanum* sp. (thyme), *Zea mays* L. (corn silk), *Cerasus* sp. (cherry stalk), *Petroselinum sativum* Hoffm. (parsley seed). Other mixture is *Zingiber officinale* Rosc. (zencefil), *Syzygium aromaticum* (L.) Merr at Perry (cloves), *Cinnamomum verum* Predl.(cinnamın), *Hibiscus* sp. (Hibiscus), *Origanum* sp. (thyme), *Mentha longifolia* (L) Hudson (mint), *Tillia* sp. (linden), *Laurus nobilis* L. (daphne leaf) are drunk as infusion tea. These mixtures are generally presented as metabolism accelerators, digestive, carminative, accelerator for fat-burn.

After the results of the questionnaire, which is applied to the herbalists are evaluated within the scope of the study, it is found that the most frequently sold herbs are; *Cassia angustifolia* Vahl. (cassia), *Melissa officinalis* L. (melissa), *Tilia* sp. (tilia), *Sideritis athoa* Papanikolaou and Kokkini (salvia), *Salvia tomentosa* Miller (salvia), *Laurus nobilis* L. (heather), *Rosmarinus officinalis* L. (mooroworth), *Rosa* sp. (rose hip), *Achillea millefolium* L. (yarrow), *Helychrysum* sp. (scaly fern), *Lavandula stoechas* L., *Equisetum* sp. (horsetail). The digestive plants, which are thought to help loosing weight, appear to be the best seller among the frequently sold drugs. Moreover, it can be said that also the plants which helps passing kidney stone, diabetes, sedative (stress - anxiety reliever). The reported ailments were grouped into 8 categories based on the information gathered from the interviewees (Table 2).

Table 2. Category of ailments

No	Ailments	Use citations	All use citations (%)
1	Respiratory system disorders	28	27.5
2	Intestinal-digestive disorders	18	17.6
3	Diabetes	5	4.9
4	Skin disorders	5	4.9
5	Heart disorders	4	3.9
6	Weight loss	4	3.9
7	Gynecological disorders	3	2.9
8	Other ailments	35	34.3

After one-by-one meetings made with each herbalist, it is concluded that sold drug varies between approximately 600 and 1.500 kg. The period in which medicinal plants are sold most frequently is winter period in which cold, coughing, influenza are commonly seen. It is indicated that medicinal plants are sold as in an annual cycles by the herbalists and their shelf life is about 1 year. Moreover, the herbalists in Bingöl region procure medicinal plants, which they require, from Adana, Mersin and Antep. After the study being conducted in the region is evaluated, one of the most prominent outcomes is the customer profiles. According to the meetings being made with herbalists in the

region and various visits being done, it is observed that the customers generally (70%) comprise of middle-age women. It is indicated that teenagers are interested in medicinal plants such as almond oil, apricot oil, lavender oil etc.

When considering the literature records about the herb species which are sold frequently at the herbalists, analogy between use and the literature can be observed. However, it is firstly recorded that different use of *Onopordum acanthium* L., *Cassia angustifolia* Vahl., *Hypericum scabrum* L., *Rubus sanctus* Schreber, *Urtica dioica* L., *Rheum ribes* L. species other than the use indicated in the literature was observed. Infusions which are prepared by using *Urtica dioica* and *Cassia angustifolia* are used against oily hair and scuff as washing hair. Decoctions being prepared from roots of *Rheum ribes* are taken to pass kidney stones. Besides, *Hypericum scabrum* L. plant, which is commonly collected from the region, are used against stomach diseases and hepatitis while infusion of *Thymus* sp. Plant is used against diabetes (Figure 6, 7).



Figure 6. *Hypericum scabrum* L. infusion of which is used against hepatitis and digestion problems



Figure 7. *Thymus* sp., which is collected from the region and infusion of which is used against diabetes

Cassia angustifolia, *Hibiscus* sp., *Cinnamomum verum*, *Syzygium aromaticum* were found to be the egzotic plants used for medical purposes in Bingöl. *Alchemilla bursensis* B. Pawl. is an endemic plant within the EN (Endangered) category.

As a result of sudden raising interest to the alternative medicine in the world and our country, the interest in medicinal plants is raising as well. Medicinal plant books, numbers of which have been increasing in recent years, intensive interest of written and visual media in medicinal plants enable sudden developments in the concerning trade sector. Medicinal plant use bears special importance since it directly affects human health. Collecting, diagnosing, stocking and selling medicinal plants should be investigated diligently. The people, who acquire one of the medicinal plant books, choosing collecting medicinal plants completely according to the figures in those books and earning financial profit brings about serious dangers for the sector. The investigation mechanism concerning the sector being insufficient, the herbs being collected by insensible and unqualified people, storing in inappropriate environments etc. confronts consumers with serious problems. "Traditional Herbal Medicinal Products Regulation" which was published by Ministry of Health in 2010 did not end the discussions.

The number of herbalists is increasing prominently in our country in recent years. Herbalists are important in terms of increasing the number of scientific studies in this sector, revealing wrong applications.

Appendix. A.

1. What the most frequently sold drugs.
2. From which sources and how the drugs are obtained
3. Number of drugs which they sell
4. For what type of sicknesses are these species are used
5. Do they have any information about the active substance of the drugs
6. Storing conditions
7. Shelf life of the drugs
8. What are the plants being collected from the region
9. How and from which places are the medicinal plants are collected
10. Which resources have the Herbalists benefitted
Who comprises of customer profile.

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Table 1. Medicinal plants sold in local herbalist

No	Plant species	Family name	Sample No	Local names (for herbalist)	Part used	Utilization method	Use	Recorded literature uses
1	<i>Achillea millefolium</i> L.	Asteraceae	14	Civanperçemi	Flowering stems	Infusion	Menstruation disorders, wound healing	Anaemia, antianemic, antispasmodic, cough, kidney ache, stomach ache, stomach disorders (2,3,9,10)
2	<i>Alchemilla bursensis</i> B. Pawl.*	Rosaceae	34	Aslanpençesi	Leaves	Infusion	Menstruation disorders	Not reported
3	<i>Althaea officinalis</i> L.	Malvaceae	15	Hatmi	Flowers	Infusion	Bronchitis, common cold	Bronchitis, cough (9)
4	<i>Amygdalus communis</i> L.	Rosaceae	16	Badem	Fruits juice	Oil (external)	Skin diseases, wounds and cuts	Cough, diabetes, hoarseness, high cholesterol, inflammation, kidney disorders, kidney stones (2, 4,9,10)
5	<i>Anchusa azurea</i> Miller var. <i>azurea</i> Mill.	Boraginaceae	49	Sığırdili	Flowering branches	Infusion	Depression	Diaphoretic, snake bite, stomach ache (2,4)
6	<i>Cassia angustifolia</i> Vahl.**	Caesalpiniaceae	33	Sinameki	Leaves	Infusion (external washing)	Digestive, hair disorders, weight loss	Constipation (9)
7	<i>Cerasus</i> sp.	Rosaceae	17	Kiraz sapı	Fruit stalk	Decoction	Kidney stones, weight loss	Diabetes, inflammation, kidney stones (2,5,10)
8	<i>Ceratonia siliqua</i> L.	Fabaceae	18	Keçiboynuzu	Fruits	Decoction	Anaemia, liver disorders	Cough, bronchitis, diarrhea, kidney stones (6,11)
9	<i>Cinnamomum verum</i> Predl.**	Lauraceae	48	Tarçın	Bark	Decoction	Common cold, cough	Not reported
10	<i>Crataegus monogyna</i> Jacq. subsp. <i>monogyna</i> Jacq.	Rosaceae	31	Sinz, Aliç	Fruits	Decoction	Cardiac disorder, cardiotonic, vasodilators	Bronchitis, cardiovascular disorder, diabetes, hypertension, kidney stones (10,12,13,14)
11	<i>Crataegus orientalis</i> Pallas ex Bieb. var. <i>orientalis</i> Pallas ex Bieb.	Rosaceae	32	Sinz, Aliç	Fruits	Decoction	Cardiac disorder, cardiotonic, vasodilators	Vasodilators (2)
12	<i>Cydonia oblonga</i> Miller	Rosaceae	35	Ayva yaprağı	Leaves	Infusion	Diabetes, tonsillitis	Not reported
13	<i>Equisetum arvense</i> L.	Equisetaceae	50	Kırkkilit otu	Leaves	Infusion	Kidney stones	Kidney stones, stomach disorders (3)
14	<i>Foeniculum vulgare</i> Miller	Apiaceae	47	Rezene	Branches	Infusion	Abdominal ache, carminative (for babies)	Not reported
15	<i>Glycyrrhiza glabra</i> L.	Fabaceae	19	Meyan kökü	Roots	Decoction	Digestive	Sedative, stomach, kidney disorders (1,3)
16	<i>Helichrysum</i> sp.	Asteraceae	3	Sesum, Altın otu	Flowering branches	Infusion	Kidney stones	Cancers, diabetes, tumors (3,10)

Table 1. (Continued)

17	<i>Hibiscus</i> sp.**	Malvaceae	30	Hibiscus	Flowers	Infusion	Constipation, weight loss	Not reported
18	<i>Hypericum perforatum</i> L.	Hypericaceae	13	Kantaron, Sarı kantaron	Flowering stems	Infusion	Abdominal ache, digestive, hepatitis, stomach ache	Anthelmintic, appetizer, burns, calmative, cough, hemorrhoids, gastrit, gastrointestinal disorders, malaria, menstruation disorders, rheumatism, ulcer, wounds healing (2,9,10,12,13,14,15)
19	<i>Hypericum scabrum</i> L.	Hypericaceae	2	Kantaron	Aerial parts	Infusion	Gastrointestinal disorders, hepatitis, stomach ache	Hemorrhoids (2)
20	<i>Laurus nobilis</i> L.	Lauraceae	4	Defne yaprağı	Leaves	Decoction	Digestive, weight loss	Diaphoretic, diuretic, shortness of breath, stomach disorders (5,6,12,14)
21	<i>Lavandula stoechas</i> L.	Lamiaceae	36	Karabaş otu	Flowering branches	Infusion	Analgesic, carminative, high cholesterol, rheumatism, vasodilators	Arrhythmia, calmative, diabetes, hypertension, insomnia, shortness of breath, stomach disorders, vasodilators (9,11,12,14)
22	<i>Linum usitatissimum</i> L.	Liliaceae	29	Keten tohumu	Seeds	Decoction	High cholesterol	Asthma, bronchitis, cough, kidney stones (4,9)
23	<i>Malva neglecta</i> Wallr.	Malvaceae	12	Ebegümeçi, Verarejik	Leaves, branches	Infusion	Kidney stones, liver disorders	Gastrointestinal inflammation, hemorrhoids, urinary inflammations, (2,3,10,11)
24	<i>Matricaria chamomilla</i> L.	Asteraceae	11	Mayıs papatyası	Flowers	Infusion	Abdominal ache, carminative, diarrhea, stomach disorders	Anthelmintic, appetizer, diuretic, dyspepsia, gastrointestinal disorders, menoz, migraine, rheumatism sedative, ulcer (1,4,8,9)
25	<i>Melissa officinalis</i> L.	Lamiaceae	20	Oğul otu, Melisa	Flowering branches	Infusion	Depression, insomnia, sedative	Antiseptic, asthma, cardiac disorder, expectorant, sedative (2,3,7,9,12)
26	<i>Mentha longifolia</i> (L.) Hudson subsp. <i>typhoides</i> Briq.) Harley var. <i>typhoides</i> (L.) Hudson	Lamiaceae	37	Nane, Pune, Yabani nane	Flowering branches	Infusion	Abdominal ache, common cold	Asthma, calmative, cancer, constipation, cough, inflammation, itchinness, rheumatism, sedative, stomach, kidney ache, tuberculoses (2,3,7,12,13)
27	<i>Nigella sativa</i> L.	Ranunculaceae	45	Çörek otu	Seeds	Decoction	Diabetes	Shortness of breath, vasodilators (9)

Table 1. (Continued)

28	<i>Olea europaea</i> L.	Oleaceae	28	Zeytin yaprağı	Leaves	Decoction	Diabetes	Antipyretic, diabetes, high cholesterol, hypertension, shortness of breath, wounds healing (12,13)
29	<i>Onopordum acanthium</i> L.	Asteraceae	38	Kenger	Seeds	Decoction	Liver inflammation, hemorrhoids	Not reported
30	<i>Origanum</i> sp.	Lamiaceae	39	Kekik, Onıg	Flowering branches	Infusion	Common cold, flu	Cough, diabetes, stomach disorders (3,12)
31	<i>Paliurus spina-christi</i> Miller	Rhamnaceae	21	Karaçalı	Fruits	Decoction	Asthma	Antipyretic, bronchitis, burns, cardiac disorder, diarrhea, diuretic, inflammation (2,4,11,12,13)
32	<i>Pinus brutia</i> Ten.	Pinaceae	27	Çam sakızı	Resin	Chewing	Diabetes	Aparthrosis, cuts, diabetes, shortness of breath, stomach disorders (12,14,16)
33	<i>Plantago major</i> L.	Plantaginaceae	22	Sinir otu	Leaves	Infusion	Asthma, gastrointestinal disorders, herpes, stomach disorders, wounds (external)	Diabetes, hemorrhoids, herpes, insect bite, wounds healing (3,7,12,13,14)
34	<i>Punica granatum</i> L.	Punicaceae	40	Nar çiçeği	Fruits juice, flowers	Infusion	Depression, diabetes	Aphrodisiac, hypertension, immunity booster (3,11)
35	<i>Rheum ribes</i> L.	Polygonaceae	1	Ribes, Işkın	Roots	Decoction	Inflammation, kidney stones	Diabetes, stomach ache (3,7)
36	<i>Rhus coriaria</i> L.	Anacardiaceae	5	Sumak	Flowering branches	Infusion	Antiseptic, mouthwash (garle)	antipyretic, antiseptic, astringent diarrhea, wounds scrubber (2,6,10)
37	<i>Rosa canina</i> L.	Rosaceae	6	Sırgul, Şilan, Kuşburnu	Fruits	Decoction	Common cold, cough	Bronchitis, common cold, hemorrhoids, hepatitis, malaria, stomach disorders (12,13,14)
38	<i>Rosa dumalis</i> Bechst. subsp. <i>boissieri</i> (Crepin) Ö. Nilsson var. <i>boissieri</i> (Crepin) Ö. Nilsson	Rosaceae	26	Sırgul, Şilan, Kuşburnu	Fruits	Decoction	Common cold, cough	Not reported
39	<i>Rosmarinus officinalis</i> L.	Lamiaceae	7	Biberiye	Branches	Infusion	Abdominal ache, carminative	Cardiac disorder, common cold, high cholesterol, hypertension, stomach ache (11,12)
40	<i>Rubus sanctus</i> Schreber	Rosaceae	10	Dırık, Böğürtlen	Roots, branches	Decoction	Menstruation disorders	Cough, diabetes (12)

Table 1. (Continued)

41	<i>Salvia tomentosa</i> Miller	Lamiaceae	41	Adaçayı	Branches	Infusion	Common cold, flu	Abdominal ache, bronchitis, common cold, tonsillitis (5,14)
42	<i>Sideritis athoa</i> Papanikolaou et Kokkini	Lamiaceae	9	Adaçayı	Aerial parts	Infusion	Common cold, flu	Common cold (17)
43	<i>Syzygium aromaticum</i> (L.) Merr. et L.M. Perry**	Myrtaceae	8	Karanfil	Branches	Infusion	Common cold, flu	Not reported
44	<i>Teucrium polium</i> L.	Lamiaceae	42	Meyremhort	Flowering branches	Infusion	Common cold	Abdominal ache, anthelmintic, diabetes, hypertension, stomach disorders (1,2,3,4)
45	<i>Thymus</i> sp.	Lamiaceae	43	Kekik	Leaves	Infusion	Common cold, cough, flu	Diaphoretic (2)
46	<i>Tilia</i> sp.	Tiliaceae	23	Ihlamur	Flowers	Infusion	Common cold, cough	Arrhythmia, common cold, dyspepsia, liver disorders (9,12,14)
47	<i>Tribulus terrestris</i> L.	Zygophyllaceae	46	Guerçal, Demir diken	Aerial parts	Infusion	Kidney stones, vasodilators	Cardiac disorder, hypertension, kidney ache (11,12)
48	<i>Urtica dioica</i> L.	Urticaceae	44	Derzink, Gerzink, Isırgan	Leaves	Infusion	Cancers, hair cleaning	Arthralgia, bronchitis, cancer, calmativ, common cold, diabetes, eczema, hemorrhoids, kidney disorders, rheumatism (2,3,5,7,9,11,12,14)
49	<i>Viscum album</i> L. subsp. <i>album</i> L.	Loranthaceae	24	Ökseotu	Fruits, leaves	Decoction	Immunity booster	Cancer, diabetes, dizziness, epilepsy, hemorrhoids, immunity booster, menstruation regulator, rheumatism (3,7,12,14)
50	<i>Zingiber officinale</i> Roscoe	Zingiberaceae	25	Zencefil	Rhizomes	Decoction	Common cold, flu	Bronchitis, common cold, cough, rheumatism (9)

Recorded literature uses: (1) Akan et al., 2008; (2) Cakilcioglu and Turkoglu, 2010; (3) Öztürk and Ölçücü, 2011; (4) Yapıcı et al., 2009; (5) Akgün et al., 2004; (6) Fidan et al., 2004; (7) Tuzlacı and Doğan, 2010; (8) Yıldız et al., 2010; (9) Malyer et al., 2004; (10) Cakilcioglu et al., 2010; (11) Ertuğ, 2004; (12) Bulut, 2011; (13) Koçyiğit and Özhatay, 2009; (14) Tuzlacı and Aymaz, 2001; (15) Satıl et al., 2007; (16) Ertuğ et al., 2003; (17) Satıl et al., 2008.

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