

Folk medicines in the villages of Ilıca District (Erzurum, Turkey)

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Abstract: The villages of Ilıca District in Erzurum Province, Turkey, were surveyed in terms of plants and animals used traditionally for medicinal purposes. Plants were compiled according to their families, botanical names, local names, usages, and applications. A total of 70 plant species belonging to 29 families are used by village people to treat a wide range of complaints, such as hemorrhoids, urinary system infections, stomach disorders, respiratory diseases, skin diseases, rheumatism, and jaundice. In addition, 3 animal species are used for the treatment of some diseases. The collected data were compared with those formerly recorded.

Key words: Folk medicine, Ilıca District, Erzurum, Turkey

Ilıca (Erzurum, Türkiye) köylerinde halk ilaçları

Özet: Erzurum İline bağlı Ilıca ilçesinin köyleri geleneksel olarak tedavi amacıyla kullanılan bitki ve hayvanlar bakımından araştırılmıştır. Tedavide kullanılan bitkilerin familyaları, latince isimleri, yöresel isimleri, kullanımları ve uygulama şekilleri verilmiştir. Köy halkı tarafından, 29 familyaya ait 70 tür, romatizma, deri hastalıkları, solunum hastalıkları, mide rahatsızlıkları, üriner sistem enfeksiyonları ve hemoroit gibi rahatsızlıklarda kullanılmaktadır. Ayrıca, 3 hayvan türü bazı hastalıkların tedavisinde kullanılmaktadır. Elde edilen bilgiler, ülkemizde yapılan benzer çalışmalarda daha önce elde edilen bilgilerle karşılaştırılmıştır.

Anahtar sözcükler: Halk ilacı, Ilıca İlçesi, Erzurum, Türkiye

Introduction

The flora of Turkey comprises about 9500 species, 30% of which are endemic (1). As in most societies, Turkish people have utilized plants as medicinal remedies, as well as for food, fuel, dyes, furniture, ornament, agricultural tools, and construction materials, for many years. Ethnobotanic studies have been car-

ried out in Turkey since the early years of the 19th century (2), and a bibliography on this subject was published in 1997 (3).

The ethnobotany of some districts of Erzurum has been investigated by a few investigators (4-6), and studies in 2 Ilıca District villages have been recently reported (5).

This study is a more detailed survey involving all of the villages of Ilıca.

Ilıca District had a population of 35,300 in 2000. All villages are very similar with respect to agricultural, social, and economic life.

The aim of this study was to record and identify the therapeutic effects and medicinal efficacy of the wild herbs administered by people in the villages to cure various ailments. Recently, the practice of herbal medicine has been diminishing in such rural areas, which could easily lead to the loss of valuable information about healing herbs. Although the use of plants in medicine has decreased, at present a substantial amount of information about folk medicine still remains among the population. It is important to record this information immediately, and a research focus on the ethnopharmacy of small areas permits the 'rediscovery' of the last traces of retained traditional knowledge.

Erzurum Province is located in the Eastern Anatolia Region (Figure 1), one of the 7 subdivisions of Turkey, and has 18 districts (Figure 2). Ilıca District belongs to Erzurum Province and has 60 villages. Ilıca District is located northwest of Erzurum, situated between 39°50'N and 40°18'N and between 40°37'E and 41°15'E. Its area is 1702 km². The soil is made up primarily of limestone and clay and is suitable for agriculture and stockbreeding. The altitude ranges from 1730 to 2300 m, and the dominant vegetation is grassland with no substantial forests or woods.

The climate is cold and snowy in winter, while hot and dry in summer. The annual mean temperature value is 5.9 °C; the low is -40 °C and the high is 34 °C. The area is covered with snow from November to April.

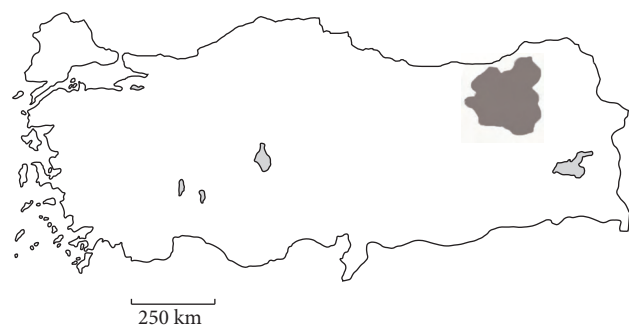


Figure 1. Map of Turkey, ■ Erzurum.

Material and method

The field work was performed during 2 successive years (1999 and 2000) from June to October, when plants are in the flowering and fruiting periods. All villages were screened, and ethnobotanical information was collected using semistructured and structured questionnaires containing identification data such as name and surname, age, and phone number of the interviewees and, for plants, local name, part used, and medicinal usage. Interviews were held with 130 people (63 women, 67 men) ranging in age from 16 to 75 years. Most of the interviewees were over 40 years old and belonged to families that still have a strong connection with traditional agricultural and pastoral activities, mainly sheep or goat breeding. The interviews were performed in group sessions. All species mentioned were collected by the informants and then identified.

In the first phase of the field study, people were asked to freely recall all medicinal plants and other natural remedies that they used currently or had used in the past. More specific information was recorded later in structured interviews, during which the specifically developed questionnaire was completed.

People were asked to precisely describe the method of use and preparation of the folk medical remedies

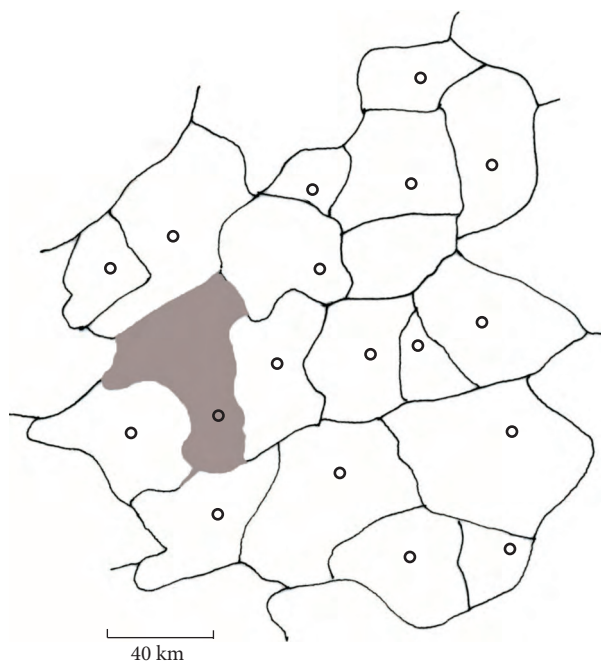


Figure 2. Map of Erzurum, ■ Ilıca.

for each folk taxon quoted. During the interviews, several fresh plant specimens or dried samples stocked in a small transportable field herbarium were shown to the interviewees. Materials of both animal and plant origin were considered.

Voucher specimens were deposited in the Ankara University Pharmacy Faculty Herbarium (AEF) and the Atatürk University Faculty of Sciences Herbarium (ATA). Details of voucher specimens are given in Table 1. In addition, the ethnomedicinal data were analyzed according to distribution in botanical families, main traditional preparation, and plant part used.

Results and discussion

In the field study, 350 samples were collected. A total of 70 specimens belonging to 29 plant families, 51 plant genera, and 3 animals were recorded as folk medicines being used in the villages of Ilıca District. Based on the 70 specimens, 213 medicinal plant usages (and an additional 5 usages from the 3 animal species) were described for 88 folk remedies. The results obtained are presented in Table 1, which lists plants used as remedies in alphabetical order by family.

The families with the highest number of reported medicinal species were Asteraceae (11 specimens recorded), Rosaceae (6 specimens), Lamiaceae (5 specimens), and Polygonaceae (5 specimens).

For each species, the following ethnobotanical and pharmacognostic information is provided: scientific name, specimen number, local (vernacular) name, parts used, preparations, main therapeutic uses, number of citations, and relevant percentage of the total number of reports, which was 421.

The 70 medicinal plant species recorded in Table 1 were collected by local people from the wild, and none were from cultivated material. The species with the highest number of reported uses as herbal medicine were *Urtica dioica* (8.8%), *Plantago major* (7.6%), *Rumex crispus* (7.36%), *Malva neglecta* (6.9%), *Rosa* sp. (6%), *Tripleurospermum oreades* var. *oreades* (4.75%), and *Onosma armeniacum* (3.8%) (Table 1).

The frequency of the use of the different plant parts in herbal remedy preparation is shown in Table 2. Herbs and leaves are the parts most widely used (30.7% and 15.9%, respectively), followed by fruit (12.5%), roots (11.4%), and flowers and seeds (9.1% each). Stems (4.5%), shoots and branches (2.3% each), and latex and gum (1.1% each) are less commonly utilized. The higher frequency of use of herbs and leaves in herbal remedy preparation is largely due to the fact that they can be collected easily and are readily available. The traditional forms of preparation and application are listed in Table 3. Decoctions are the main traditional preparation (35.8% of the total). They are simple, effective preparations that are sufficient to make the active ingredients readily available without any further extraction.

In Table 4, the disease states treated (expressed as percentage of the total records) are summarized. The local people choose herbal remedies mainly for treatment of skin disorders (14.5%), digestive system diseases (13.6%), respiratory diseases (12.7%), hemorrhoids (10.8%), urinary system disorders (8.5%), internal diseases (7%), complaints and relief of general pains (6.6%), rheumatism (5.2%), and gynecological diseases (for women) and diabetes (4.2% each).

All collected information was compared with information formerly recorded. Data obtained from village people were compared with data collected from other regions of Turkey as well as earlier data from the same area (2,4-15). The most widely used species in the villages of Ilıca are *Urtica dioica*, *Malva neglecta*, *Plantago major*, *Rumex crispus*, and *Rosa* sp.

Some species are used for similar purposes in other areas of Turkey (Table 5). These species are *Cichorium intybus* (for hemorrhoids), *Juniperus communis* subsp. *alpina* (for hemorrhoids), *Mentha longifolia* subsp. *longifolia* (against stomachache), *Malva neglecta* (against gastric ulcer and stomachache, as an analgesic, and to treat infertility), *Plantago major* subsp. *intermedia* and *Plantago major* subsp. *major* (for maturation of abscess, against stomachache, against gastric ulcer), *Rheum ribes* (for hemorrhoids), *Rosa canina* (for hemorrhoids, itching, and gastric ulcer), *Salix alba* (against rheumatism), *Hyoscyamus niger* (against toothache and itching), and *Urtica dioica* (for rheumatism and hemorrhoids, against stomach disorders and cancer) (2,4-15).

Table 1. Medicinal plants used in the villages of İlica District, Erzurum, Turkey.

Botanical name and voucher specimen	Local names	Parts used	Uses/ailments treated	Preparations	Citations	
					(n)	(%)
ACERACEAE						
<i>Acer negundo</i> L. (AEF 21194)	Akçağaç	Seed	For cough	Decoction	1	0.24
APIACEAE						
<i>Eryngium billardieri</i> F. Delaroche (AEF 21227)	Boğa dikeneni	Root	For hemorrhoids	Decoction	1	0.24
<i>Opopanax hispidus</i> (Friv.) Gris. (ATA 9693)	Kekire	Stem	To treat infertility (for women)	Eaten fresh	1	0.24
<i>Prangos ferulacea</i> (L.) Lindley (AEF 21165)	Çağsır	Stem	Against diabetes, hypertension; as a digestive	Cooked	12	2.85
ASTERACEAE						
<i>Achillea biebersteinii</i> Afan. (AEF 21170)	Pazıma, Pazvanat, Pazvana, Paspanos	Flower	For hemorrhoids, stomachache	Powder (eaten with honey)	5	1.19
		Herb	Against dyspnea, gynecological diseases, urinary system infections	Decoction		
<i>Achillea wilhelmsii</i> C. Koch. (AEF 21169)	Pazvat, Pesvana	Flower	For wound healing	Powder (sprinkled on wounds)	3	0.7
			Abortifacient	Decoction		
<i>Arctium minus</i> (Hill) Bernh. subsp. <i>pubens</i> (Bab.) Arènes (AEF 21191)	Kalağan, Zirolük	Leaves	Against rheumatism	Poultice	4	0.95
<i>Artemisia absinthium</i> L. (AEF 21140)	Pire otu	Herb	To remove flea and insects	Hung up on the wall or spread out on floor of the house	2	0.48
			Against urinary system infections	Decoction		
<i>Artemisia austriaca</i> Jacq. (AEF 21139)	Yavşan	Herb	To alleviate abdominal pain	Eaten fresh	10	2.38
			Against dyspnea	Decoction or powder (as a cigarette)		
			As emetic	Eaten fresh		
			For hemorrhoids	Decoction		
			For wound healing and eczema	Powder		
<i>Cichorium intybus</i> L. (AEF 21144)	Çatlangoz, Çatlanguş	Root	For eczema	Decoction	11	2.61
		Herb	For eczema and hemorrhoids	Decoction		
			To treat facial wounds in children	Its ash is mixed with cream and then applied		
			To treat fissures on hand and breast	Its ash is mixed with butter and then applied		
		Flower	For hemorrhoids	Decoction		

Table 1. (Continued).

<i>Helichrysum arenarium</i> (L.) Moench subsp. <i>rubicundum</i> (C. Koch.) Davis & Kupicha (AEF 21145)	Sarı çiçek	Flower	Against dyspnea, kidney stones, internal diseases, itching and diabetes; as antifungal	Decoction	12	2.85
			To treat stomach ulcer	Powder (mixed with honey)		
			To treat facials wounds	Its ash is mixed with cream or butter and then applied		
<i>Onopordum acanthium</i> L. (AEF 21162)	Kavlugan	Stem	To treat gynecological diseases	Eaten fresh (after peeling)	5	1.19
			To treat facial wounds in children	Its ash is mixed with butter and applied		
		Seed	Against kidney stones, to treat cancer	Powder (mixed with honey)		
		Herb	Against dyspnea	Decoction		
<i>Tragopogon buphtalmoides</i> (DC.) Boiss. var. <i>buphtalmoides</i> (AEF 21189)	Yemlik	Leaves	Against rheumatism, kidney stones,	Eaten fresh	4	0.95
<i>Tragopogon aureus</i> Boiss. (ATA 9707)		Leaves	Stomach diseases, as anthelmintic	Eaten fresh	1	0.24
<i>Tripleurospermum oreades</i> (Boiss.) Rech var. <i>oreades</i> (AEF 21190)	Papatya, Oşoş	Flower	Against dyspnea, abdominal pain, gynecological diseases, arrhythmia, urinary system infections	Decoction	20	4.75
		Herb	For wound healing	Powder (sprinkled on wounds)		
			Against alopecia, digestion and urinary system infections, stomachache, headache, abdominal pain, external infections, hemorrhoids, eczema, rheumatism, hypertension, dyspnea, cough; for mouth wounds and hair bleaching	Decoction		
BERBERIDACEAE						
<i>Berberis integerrima</i> Bunge (AEF 21164)	Kızambuk, Kızambık	Shoot	For hemorrhoids	Decoction	2	0.48
		Fruit	Against diabetes	Eaten fresh		
<i>Berberis vulgaris</i> L. (ATA 9722)	Kızambuk, Kızambık	Root	Against jaundice	Decoction (bath)	3	0.7
BORAGINACEAE						
<i>Asperugo procumbens</i> L. (AEF 21149)	Nevazil otu	Herb	For wounds in mouth cavity	Decoction (gargle)	1	0.24
<i>Onosma armeniacum</i> Klokov (AEF 23796)	Havaciva	Root	For wounds and burns	Ointment (heated with butter, filtered and spread)	16	3.8

Table 1. (Continued).

			Against dyspnea, hoarseness, stomach ulcer	Ointment (heated with butter -sometimes together with olive oil- then filtered and eaten)		
			For hemorrhoids	Suppository (heated with butter and beeswax) or decoction		
			To treat tonsillitis and against abdominal pain	Ointment (heated with butter and eaten)		
BRASSICACEAE						
<i>Nasturtium officinale</i> R. Br. (AEF 21158)	Su teresi	Herb	For intestinal disease	Eaten fresh	1	0.24
<i>Raphanus raphanistrum</i> L. (AEF 21180)	Mamanik, Yaban çeçi	Leaves	For internal infections	Cooked or eaten fresh	1	0.24
CAPRIFOLIACEAE						
<i>Viburnum lantana</i> L. (AEF 21178)	Germeşe	Fruit	For hemorrhoids, itching	Eaten fresh or decoction	3	0.7
CHENOPODIACEAE						
<i>Beta corolliflora</i> Zosimović ex Buttler (ATA 9692)	Kızılca	Herb	For internal diseases	Cooked	2	0.48
<i>Chenopodium foliosum</i> (Moench) Asch. (AEF 21143)	İt üzümü	Fruit	Against dyspnea	Eaten fresh	1	0.24
CRASSULACEAE						
<i>Sedum sempervivoides</i> M. Bieb. (AEF 21141)	Horozlelesi	Herb Root	Against urinary system infections	Decoction	1	0.24
CUPRESSACEAE						
<i>Juniperus communis</i> L. subsp. <i>alpina</i> (Sm.) Čelak. (AEF 21145)	Çeçem gagası	Fruit	For hemorrhoids	Eaten fresh	1	0.24
<i>Juniperus sabina</i> L. (AEF 21193)	Ardıç, Çeçem	Shoot	Against diabetes	Decoction	1	0.24
DIPSACACEAE						
<i>Cephalaria procera</i> Fisch. & Lall. (AEF 21181)	Cevrük	Stem	For wound healing and antihemorrhagic	Fresh (externally; fluid that flows when the stem is split is spread)	2	0.48
ELAEAGNACEAE						
<i>Hippophae rhamnoides</i> L. (AEF 21142)	Sincan, Çalı, Ekşi	Fruit	Against constipation	Eaten fresh	2	0.48
EUPHORBIACEAE						
<i>Euphorbia virgata</i> Waldst. & Kit. (AEF 21148)	Sütlücan	Latex	To stop bleeding	Fresh (externally)	3	0.7
			For children who start walking late	Fresh (externally; spread on waists of children, outdoors in the sun)		
FABACEAE						
<i>Astragalus microcephalus</i> Willd. (AEF 21198)	Geven	Gum	As tonic	Eaten fresh or dry	2	0.48

Table 1. (Continued).

FUMARIACEAE

<i>Fumaria asepalae</i> Boiss. (AEF 21168)	Şahtere	Herb	Against dyspnea and goiter	Powder (as a cigarette)	2	0.48
			Against eczema and pains	Eaten fresh or as powder (mixed with honey)		
<i>Fumaria vailantii</i> Loisel. (AEF 21167)	Şahtere	Herb	Against dyspnea, toothache, stomachache, vertigo	Decoction	8	1.9

GENTIANACEAE

<i>Gentiana gelida</i> M. Bieb. (AEF 21182)	Sarılk otu	Herb	Against jaundice	Powder (eaten with honey) or decoction	1	0.24
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GERANIACEAE

<i>Erodium cicutarium</i> (L.) L'Hér. subsp. <i>cutarium</i> (AEF 21150)	Potot	Herb	For hemorrhoids	Decoction	1	0.24
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GROSSULARIACEAE

<i>Ribes biebersteinii</i> Berl. ex DC. (AEF 21152)	Üzüm	Fruit	Against anemia	Eaten fresh or dry	1	0.24
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LAMIACEAE

<i>Mentha longifolia</i> (L.) Huds. subsp. <i>longifolia</i> (AEF 21171)	Yarpuz	Herb	Against dyspnea, cough, stomachache, hemorrhoids, and pains; for wound healing	Decoction	10	2.38
<i>Salvia limbata</i> C.A. Mey. (AEF 21163)	Kedi kuyruğu	Herb	Against toothache	Decoction (gargle)	1	0.24
<i>Teucrium chamaedrys</i> L. (AEF 21179)	Basur otu, Mayasıl otu, Acı ot	Herb	For hemorrhoids	Powder (mixed with honey and eaten)	11	2.61
			Against gall bladder stones and kidney stones	Decoction		
<i>Thymus fallax</i> Fisch. & Mey. (AEF 21199)	Kekik otu	Herb	Against stomachache, gastric ulcer, tonsillitis, urinary system diseases, internal diseases, dyspnea; for eczema and hemorrhoids	Decoction	12	2.85
<i>Thymus sypileus</i> Boiss. subsp. <i>sypileus</i> var. <i>sypileus</i> (ATA 9718)	Keklik otu				5	1.19

MALVACEAE

<i>Malva neglecta</i> Wallr. (AEF 21173)	Ebenkömeyi, Ebenkömeci, Ebengümeçi	Herb	For hemorrhoids	Eaten fresh or poultice (with olive oil)	29	6.9
			For inflammation of skin	Poultice		
			Against gastric ulcer, rheumatism, stomachache, sinusitis, internal infections, liver diseases, as analgesic	Eaten fresh, poultice, or decoction		

Table 1. (Continued).

			To treat infertility (for women)	Poultice (women sit on poultice)		
PLANTAGINACEAE						
<i>Plantago major</i> L. subsp. <i>intermedia</i> (Gilib.) Lange (AEF 21201)	Bağa yaprağı	Leaves	For maturation of abscess, eczema	Fresh (externally) or poultice	4	0.95
<i>Plantago major</i> L. subsp. <i>major</i> (AEF 21200)		Leaves	Against stomachache, gastric ulcer, dyspnea	Powder or decoction	28	6.65
			For maturation of abscess, against rheumatism	Poultice		
		Against urticaria	Eaten fresh or powder (mixed with honey and eaten)			
		Seed	Against bronchitis, as analgesic	Decoction		
POLYGONACEAE						
<i>Polygonum cognatum</i> Meisn. (AEF 21177)	Ebemekmeği, Kuşekmeği, Madımak	Herb	For gynecological diseases	Cooked (boiled with milk; women sit over its vapour)	9	2.14
			Against gastric ulcer, as laxative	Cooked		
		Leaves	For urinary system stones	Decoction		
<i>Rheum ribes</i> L. (AEF 21174)	Işgın, Eşgin	Root	Against diabetes, hemorrhoids, urinary system infections	Decoction	12	2.85
<i>Rumex crispus</i> L. (AEF 21188)	Evelik	Seed	Against kidney infection, gynecological diseases, internal diseases, diabetes	Decoction	31	7.36
		Leaves	Against diabetes, stomachache and abdominal pains, constipation, edema, tonsillitis, atherosclerosis, goiter, hemorrhoids; as laxative	Decoction or cooked		
<i>Rumex scutatus</i> L. (ATA 9696)	Kuzukulağı	Herb	Against diabetes and hypertension	Decoction	2	0.48
<i>Rumex tuberosus</i> L. (ATA 9695)	Kuzukulağı	Herb	Against diabetes	Cooked	2	0.48
RANUNCULACEAE						
<i>Caltha polypetala</i> Hochst. ex Lorent (AEF 21153)	At ayağı	Leaves	For rheumatism	Fresh (externally; pounded leaves are put inside empty walnut pericarp and applied to legs overnight)	1	0.24
<i>Ranunculus grandiflorus</i> L. (ATA 9694)	Mayıs çiçeği	Flower	For rheumatism	Fresh (externally; pounded and bandaged where pain is present; after overnight treatment, wound is opened and yellow fluid is drained)	9	2.14

Table 1. (Continued).

ROSACEAE						
<i>Cotoneaster nummularia</i> Fisch. & Mey. (ATA 9713)	Koyun gözü	Fruit	For hemorrhoids	Eaten fresh	1	0.24
<i>Rosa gallica</i> L. (AEF 21151)	Kuşburnu	Root, fruit	For hemorrhoids, urinary system infections	Decoction	3	0.7
<i>Rosa canina</i> L. (ATA 9710)	Kuşburnu	Root, fruit	Against dyspnea, rheumatism	Decoction	18	4.28
<i>Rosa dumalis</i> Bechst. subsp. <i>boissieri</i> (Crép.) Ö. Nilsson (ATA 9712)	Kuşburnu	Root, fruit	Against itching, hemorrhoids, kidney infection, gastric ulcer	Decoction	4	0.95
<i>Rosa pimpinellifolia</i> L. (AEF 21147)	Koyun gözü	Fruit	For hemorrhoids and internal infections	Eaten fresh	4	0.95
<i>Rubus idaeus</i> L. (ATA 9711)	Böğürtlen	Root	For internal diseases	Decoction	1	0.24
RUBIACEAE						
<i>Cruciata taurica</i> (Pall. ex Willd.) Ehrend. (AEF 21176)	Sarılık otu	Herb	For jaundice	Decoction	2	0.48
<i>Galium verum</i> L. subsp. <i>verum</i> (AEF 21175)	Madavur otu	Herb	For facial wounds in children	Decoction (wounds are washed)	1	0.24
SALICACEAE						
<i>Salix armenorossica</i> A. Skv. (AEF 21157)	Söğüt, Sorkun	Leaves	For sunstroke, fever, rheumatism	Fresh (externally; naked body of the patient is covered with leaves)	4	0.95
<i>Salix triandra</i> L. subsp. <i>triandra</i> (AEF 21156)	Söğüt	Leaves Branch	For cattle that eat clover excessively	Eaten fresh by cattle	3	0.7
<i>Salix alba</i> L. (ATA 9689)	Söğüt	Branch	Against rheumatism	Smoke (branches are burned and legs of patient are laid over the smoke)	3	0.7
SCROPHULARIACEAE						
<i>Verbascum cherianthifolium</i> Boiss. var. <i>asperulum</i> (Boiss.) Murb. (AEF 21184)	Sığır kuyruğu	Leaves	For wounds, as fish poison	Powder (pounded, sieved, and sprinkled on open wound in cattle)	3	0.7
<i>Verbascum cherianthifolium</i> Boiss. var. <i>cataonicum</i> (Hand.-Mazz) Murb. (AEF 21185)	Sığır kuyruğu	Leaves	For hemorrhoids	Poultice (together with <i>Malva neglecta</i>)	2	0.48
<i>Verbascum cherianthifolium</i> . Boiss. var. <i>cherianthifolium</i> (AEF 21187)	Gırç	Flower	Against stomachache	Decoction	3	0.7

Table 1. (Continued).

<i>Verbascum vulcanicum</i> Boiss. & Heldr. var. <i>vulcanicum</i> (AEF 21186)	Gırdek	Seed	Against jaundice	Decoction (kept cold 3 days before use and drunk for 3 days)	2	0.48
<i>Veronica orientalis</i> Mill. (AEF 21146)	Mavi çiçek	Flower	Against kidney disorders	Eaten fresh	1	0.24
SOLANACEAE						
<i>Hyoscyamus niger</i> L. (AEF 21161)	Batbat, Deli batbat	Seed	Against toothache, itching of the eyes, influenza, catarrh	Smoke (spread on dying embers, then eyes and mouth are exposed to fumes; village people said small worms are dropped inside a cup of water over a fire)	6	1.4
<i>Hyoscyamus reticulatus</i> L. (AEF 21160)	Batbat, Deli batbat	Seed	Against toothache, itching of the eyes, influenza, catarrh	Smoke (spread on dying embers and eyes and mouth are exposed to fume. Village people said small worms dropped inside a cup of water on fire)	10	2.38
		Herb	For cattle that eat clover excessively	Eaten fresh or dry (by cattle)		
URTICACEAE						
<i>Urtica dioica</i> L. (AEF 21172)	Isırgan	Leaves	For rheumatism	Fresh (externally)	37	8.8
		Leaves	Against kidney stones, internal infections, cancer	Decoction		
		Herb	Against goiter, hemorrhoids, urinary system infections, stomach disorders, dyspnea, bronchitis, hypertension, infertility (for women); as analgesic	Decoction		
		Seed	Against cancer, stomachache, gastric ulcer, goiter	Powder (eaten with honey)		

Table 2. Plant parts used for preparation of the 88 herbal remedies from the 70 medicinal plant species growing in the villages of Ilıca District, Erzurum, Turkey.

Plant parts used	Absolute value	Frequency (%)
Herb (aerial parts)	27	30.7
Leaves	14	15.9
Fruit	11	12.5
Root	10	11.4
Seed	8	9.1
Flower	8	9.1
Stem	4	4.5
Shoot	2	2.3
Branch	2	2.3
Latex	1	1.1
Gum	1	1.1
Total	88	100

Table 3. Local forms of preparation and application of the 88 herbal remedies from 70 medicinal plant species growing in the villages of Ilıca District, Erzurum, Turkey.

Medicinal preparation	Absolute value	Frequency (%)
Decoction (as tea)	44	35.8
Decoction (as bath)	1	0.8
Decoction (as gargle)	2	1.6
Eaten fresh	22	17.9
Powder	15	12.2
Poultice	8	6.5
Fresh (externally)	8	6.5
Cooked	7	5.7
Ash	4	3.3
Ointment	3	2.4
Eaten fresh (externally, for veterinary purposes)	3	2.4
Eaten dry	2	1.6
Smoke	2	1.6
Suppository	1	0.8
Hung on the wall or spread out on ground	1	0.8
Total	123	99.9

Table 4. Therapeutic uses of the 88 herbal remedies from 70 medicinal plants growing in the villages of Ilıca District, Erzurum, Turkey.

Therapeutic uses/ailments treated	Absolute value	Incidence (%)
Skin disorders	31	14.5
Digestive system diseases	29	13.6
Respiratory diseases	27	12.7
Hemorrhoids	23	10.8
Urinary system disorders	18	8.5
Internal diseases	15	7.0
Pains	14	6.6
Rheumatism	11	5.2
Gynecological diseases (for women)	9	4.2
Diabetes	9	4.2
Hypertension	4	1.9
Goiter	4	1.9
Cancer	3	1.4
To remove fleas and insects	1	0.5
To stop bleeding	1	0.5
Anthelmintic	1	0.5
Arrhythmia	1	0.5
For children who start walking late	1	0.5
Tonic	1	0.5
Vertigo	1	0.5
Anemia	1	0.5
Edema	1	0.5
Atherosclerosis	1	0.5
Sunstroke	1	0.5
Fever	1	0.5
Itching of the eyes	1	0.5
Fish poison	1	0.5
For veterinary purposes	1	0.5
Cosmetics	1	0.5
Total	213	100.5

Table 5. Plants used for similar purposes in other areas of Turkey.

Species	Uses/ailments treated
<i>Cichorium intybus</i>	For hemorrhoids
<i>Juniperus communis</i> subsp. <i>alpina</i>	For hemorrhoids
<i>Mentha longifolia</i> subsp. <i>longifolia</i>	Against stomachache
<i>Malva neglecta</i>	Against gastric ulcer, stomachache; as an analgesic; to treat infertility
<i>Plantago major</i> subsp. <i>intermedia</i>	For maturation of abscess; against stomachache and gastric ulcer
<i>Plantago major</i> subsp. <i>major</i>	
<i>Rheum ribes</i>	For hemorrhoids
<i>Rosa canina</i>	For hemorrhoids, itching, gastric ulcer
<i>Salix alba</i>	Against rheumatism
<i>Hyoscyamus niger</i>	Against toothache and itching
<i>Urtica dioica</i>	For rheumatism and hemorrhoids; against stomach disorders and cancer

This is the first report of some plant species being used in folk medicine in Erzurum, and indeed in Turkey. The species concerned are *Acer negundo*, *Asperugo procumbens*, *Berberis integerrima*, *Cephalaria procera*, *Chenopodium foliosum*, *Gentiana gelida*, *Helichrysum arenarium* subsp. *rubicundum*, *Onopordum acanthium*, *Onosma armeniacum*, *Opopanax hispidus*, *Prangos ferulacea*, *Ribes biebersteinii*, *Rosa dumalis* subsp.

boissieri, *R. pimpinellifolia*, *Sedum sempervivoides*, *Salix armenorossica*, *S. triandra* subsp. *triandra*, *Salvia limbata*, *Thymus fallax*, *Tripleurospermum oreades* var. *oreades*, *Verbascum cherianthifolium* var. *asperulum*, *V. cherianthifolium* var. *cataonicum*, *V. vulcanicum* var. *vulcanicum*, and *Viburnum lantana*.

In addition to the use of plants, the use of some animals, i.e. cattle, trout, and wolves, has been recorded here for the first time (Table 6).

Table 6. Animals used in the villages of Ilca District, Erzurum, Turkey.

Species	Local name	Parts used	Uses/ailments treated	Preparations
Cattle	Sığır	Bile	For eczema	Poured on roasted chickpeas and used as pills after dried
Wolf	Kurt	Bone	Against goiter	Bone ash (eaten with honey)
Trout	Alabalık	Head	Against gastric ulcer For fractured bones	Cooked Applied to broken bones while raw
		Young animal	Against stomach disorders	Eaten raw

These data show the high herbal diversity of medicinal plants in this area. The goal of subsequent studies will be the possible introduction of phytomedicines, standardized for efficacy and safety, for use in primary health care. Despite the availability of medicinal plants, most people tend to abandon the old practices and prefer synthetic medicines because they are easier to find and administer.

From the survey carried out in İlica District, we can conclude that local traditions surrounding the use of plants in popular medicine are still extensive and quite varied.

References

1. Davis PH. Flora of Turkey and the East Aegean Islands. Vol. 10. Edinburgh University Press. Edinburgh; 1988.
2. Baytop T. Therapy with Medicinal Plants in Turkey (Past and Present). İstanbul University Publications, No: 3255/40. İstanbul (in Turkish); 1984.
3. Alpınar K, Saçlı S. A bibliography about ethnobotanic studies in Turkey. Proceedings of the XIth Symposium on Plant Originated Crude Drugs, 22-24 May, Ankara (in Turkish); 1997: pp. 157-166.
4. Öztürk A. Short identifications in respect to vernacular names and usages of useful and medicinal plants around Erzurum. IX. National Biology Congress, Cumhuriyet University, Art and Science Faculty, Biology Department, 21-23 September, Sivas (in Turkish); 1988: p. 77.
5. Sezik E, Yeşilada E, Tabata M et al. Traditional medicine in Turkey VIII. Folk medicine in East Anatolia; Erzurum, Erzincan, Ağrı, Kars, Iğdır Provinces. *Econ Bot* 51: 195-211, 1997.
6. Başar Z. Medicinal and Mystical Folkloric Researches in Erzurum. Atatürk University Publications, No: 217/11. Ankara (in Turkish); 1972.
7. Fujita T, Sezik E, Tabata M et al. Traditional medicine in Turkey VII. *Econ Bot* 49: 406-422, 1995.
8. Tonbul S, Altan Y. Some plants that people use for several purposes around Elazığ. *Journal of Fırat University (Social Science)* 3: 267-278, 1989 (in Turkish).
9. Yeşilada E, Sezik E, Honda G et al. Traditional medicine in Turkey IX: Folk medicine in north-west Anatolia. *J Ethnopharmacol* 64: 195-210, 1999.
10. Yıldırım Ş. Vernacular names and some usages of plants of the Munzur Mountains. *Doğa Bilim Dergisi A(2)* 9: 593-597, 1985 (in Turkish).
11. Ertuğ F. An ethnobotanical study in Central Anatolia (Turkey). *Econ Bot* 54: 155-182, 2000.
12. Tabata M, Honda G, Sezik E. A Report on Traditional Medicine and Medicinal Plants in Turkey (1986). Faculty of Pharmaceutical Sciences, Kyoto University. Kyoto; 1988.
13. Tabata M, Sezik E, Honda G et al. Traditional medicine in Turkey III. Folk medicine in East Anatolia; Van and Bitlis provinces. *Int J Pharmacogn* 32: 3-12, 1994.
14. Honda G, Yeşilada E, Tabata M. Traditional medicine in Turkey VI. Folk medicine in West Anatolia: Afyon, Kütahya, Denizli, Muğla, Aydın provinces. *J Ethnopharmacol* 53: 75-87, 1996.
15. Gençler Özkan AM, Koyuncu M. Traditional medicinal plants used in Pınarbaşı area (Kayseri-Turkey). *Turkish Journal of Pharmaceutical Sciences* 2: 63-82, 2005.

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QUESTIONNAIRE

Province: ERZURUM

District: ILICA

Total number of people, obtained information in district:

The name of the village:

The population of the village:

Total number of people in village, obtained information:

Name of village headman:

Name, age, sex, code, and tel. no. of source:

Name:

Age:

Sex:

Name:

Code:

Tel. no:

1. For what purposes are the naturally grown plants around your village used?

Food	Decoration
Fuel	Household furniture
Medicine	Agricultural equipment
Fabric weaving	Income
Fabric dying	

2. For what purposes are the plants cultivated by people around your village used?

Food	Decoration
Fuel	Household furniture
Medicine	Agricultural equipment
Fabric weaving	Income
Fabric dying	

3. Which plants are naturally grown and used as food?

Local name	Preparation		Parts used						
	Fresh	By boiling	Herb	Stem	Leaf	Flower	Fruit	Seed	Root

4. Which plants are naturally grown and used as fuel?

<u>Name</u>	<u>Part used</u>	<u>Amount/year</u>
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5. Which plants are naturally grown and used as medicine?

Local name	Part used	Aim	Internal/external	Fresh/dried	Preparation method	Usage (dose)

6. Which plants are grown by people and used as food?

Local name	Preparation		Parts used						
	Fresh	By boiling	Herb	Stem	Leaf	Flower	Fruit	Seed	Root

7. Which plants are grown by people and used as fuel?

Name Part used Amount/year

8. Which plants are grown by people and used as medicine?

Local name	Part(s) used	Aim	Internal/external	Fresh/dried	Preparation method	Usage (dose)

9. Are there any plants obtained from town centers (Ilica, Erzurum, and other towns) and used as medicine? If yes:

Local name	Part(s) used	Aim	Internal/external	Fresh/dried	Preparation method	Usage (dose)

10. Additional information