

## AN ETHNOBOTANICAL STUDY IN KAHRAMANMARAŞ (TURKEY); WILD PLANTS USED FOR MEDICINAL PURPOSE IN ANDIRIN, KAHRAMANMARAŞ

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### Abstract

*In this study, 92 wild plant taxa belonging to 41 families that are used as medicine are documented in Andırın (Kahramanmaraş). The most encountered medicinal plant families were Labiatae (16 taxa), Compositae (15 taxa), Rosaceae (6 taxa), Liliaceae (4 taxa); the most common preparations were infusion and decoction. These folk medicinal plants are mostly used for treatment of kidney stones, colds and flu, analgesic, for skin diseases, cough and diabetes diseases. All settlements in Andırın township (52 villages) were visited during the field works. The plants that collected with folk medicinal plant user were identified and prepared voucher specimens were kept in the Herbarium of Istanbul University Faculty of Pharmacy (ISTE).*

**Key words:** *Ethnobotany, Medicinal plants, Traditional medicine, Andırın, Kahramanmaraş.*

### Kahramanmaraş (Türkiye)' da Etnobotanik Bir Araştırma; Andırın'da Tıbbi Amaçla Kullanılan Doğal Bitkiler

*Bu çalışmada, Andırın ilçesinde (Kahramanmaraş) tıbbi amaçla kullanılan 41 familyaya ait, 92 doğal bitki taksonu kaydedilmiştir. Tıbbi amaçla en çok kullanılan familyaların takson sayıları, Labiatae (16 takson), Compositae (15 takson), Rosaceae (6 takson), Liliaceae (4 takson), en çok preparat hazırlama şekli ise infüzyom ve dekoksilyondur. Kaydedilen bitkiler başlıca böbrek taşı düşürücü, soğuk algınlığı, ağrı kesici, cilt rahatsızlıkları, öksürük kesici ve şeker hastalığı için kullanılmaktadır. Arazi çalışmaları boyunca bütün yerleşim yerleri (52 köy) ziyaret edilmiştir. Bilgi veren kişilerle birlikte toplanan bitkiler teşhis edilmiş ve hazırlanan herbaryum örnekleri İstanbul Üniversitesi Eczacılık Fakültesi Herbaryumu'nda (ISTE) saklanmaktadır.*

**Anahtar kelimeler:** *Etnobotanik, Tıbbi bitkiler, Geleneksel tıp, Andırın, Kahramanmaraş.*

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## INTRODUCTION

Turkey is one of the most floristically rich countries in the world with astonishing plant diversity. Its flora consists of about 10000 vascular plant and approximately one third of its flora (34.4 %) is endemic to the country. Along with its rich flora, it also has a wide diversity of habitats. However, they threatened and have declined rapidly over the last 40 years. Rare and sensitive habitats such as coastal dunes, peatlands, wetlands, heath lands, grasslands and old growth forest are under immense threat and declining fast, including many areas that have yet to be surveyed (1).

Throughout history, humans have derived many uses and benefits from the plants found in their own region. Initially, wild plants were collected from their natural habitat, followed by the cultivation of those that were used most commonly (2). Turkish people are quite interested in wild plants, due to the high proportion of people living in rural areas, and also for economic reasons. Kahramanmaraş province is situated in the Southern Turkey at the south part of Taurus mountains. Its plant diversity is very rich because of its localization meeting point of 3 phytogeographic region. While Irano-Turan elements are found in the east, Mediterranean elements are common in the South. Some formations of Euro-Siberian geographical region can also be seen in the humid areas. Much of the knowledge on medicinal plants is passed on from one generation to the next only verbally moreover, the increasing human population in the late decades has led to overexploitation of land in many areas thus reducing the biodiversity of medicinal plants (3). Thus, there is an urgent need to record and utilize the wealth of ethnobotanical knowledge. The study was carried out with the aim of preserving knowledge about local use and provides preliminary information aimed at a more detailed investigation on the bioactive studies.

## EXPERIMENTAL

Research area named (Andırın) is a township of Kahramanmaraş province. Kahramanmaraş is located in the South-East Anatolia Region of Turkey and it consists of mountains and plains. The main mountainous parts of the province are the overhangs of the Southern Taurus Mountains in east-west direction. Binboğa, Nurhak, Ahır and Engizek are the most important mountains in the North. The hilly parts of the province begin from the West and reach to the Göksun-Andırın district (1).

Kahramanmaraş has a very rich flora, ca 2500 taxa and many endemic species (20%). The main reasons of this richness are being in the transition zone of Irano-Turan and Mediterranean plant geography regions, taking place in the South of Anatolian Diagonal which is one of the remarkable floristic features of Turkey, its, geomorphologic features, microclimate and habitat diversities (4).

The study is in the township Andırın (Figure 1), the district of Kahramanmaraş province. It is composed by highland place up to 2250 m. The surveyed region distributed in 52 villages and it has a population of 40915.

The field work was carried out over as period of 9 months. During this research 52 villages have been visited, about 500 plant specimens used for local people were collected and to 265 local people are interviewed. 'An Ethnobotany info questionnaire' was administered to the local people, through face-to-face interviews. The information for these plants, such as local names, used parts, their usages, methods of preparation, administration dosage and duration treatments have been recorded by mean of "Ethnobotany info questionnaire" (Table 1). The plants were identified using the standart Floras, 'Flora of Turkey and Aegean Islands' (5-7), 'Flora Iranica' (8), 'Flora Europaea' (9) and other literature (4, 10-24). The collected specimens are kept in the Herbarium of the Faculty of Pharmacy, Istanbul University (ISTE). As a result of this identification, 147 taxa of which 10 endemic have been determined for several usages (25).

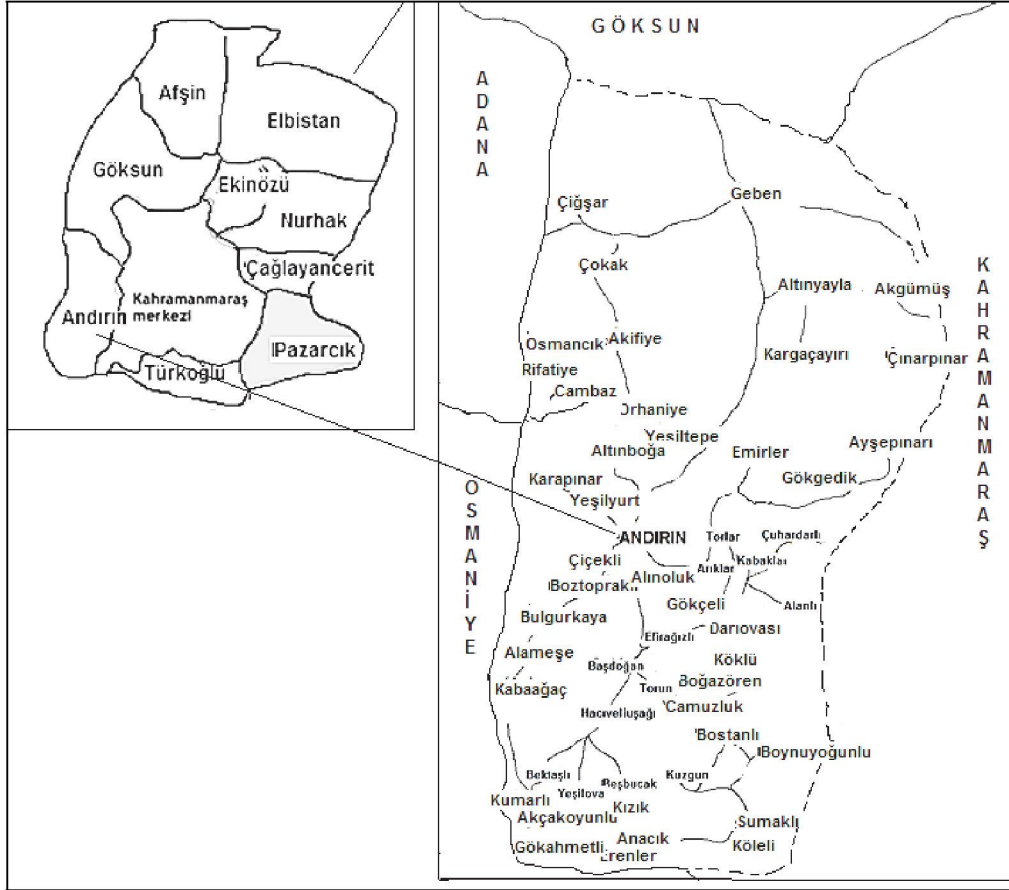


Figure 1. Study area: Kahramanmaraş and village of Andırın.

Table 1. Info questionnaire of ethnobotany.

Province/County, Village name.....
Date.....
Plant botanical name.....
Plant vernacular name.....
Which purpose collection.....
Plant population rate in this location.....
Collection time.....
Plant parts used.....
Utilization methods.....
Collection and preparation methods.....
Name/surname.....
Age/ Sex.....
Address and telephone.....

Demographic characteristics of the respondent were determined and recorded through face-to-face interviews using the questionform. Mean age of the respondents was 50 years, in 40-60 years range (Figure 2). Total respondents people are 265; child: 2, female: 75, male: 188.

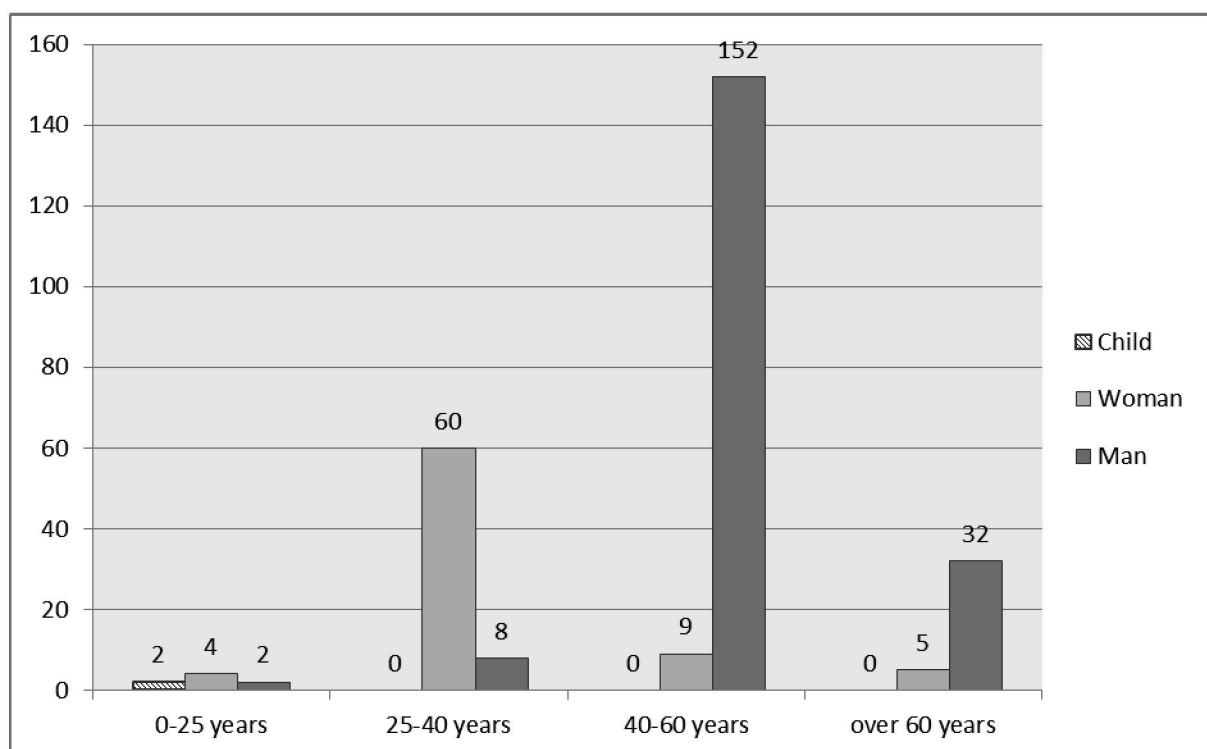


Figure 2. Valuing to ethnobotany info questionnaire

## RESULTS AND DISCUSSION

During the study 147 plant taxa were recorded used for medicinal purpose, food and others in the study area (25). A total of 92 wild plant species, belonging to 83 genera and 41 families were recorded as medicinal plant and they are utilized in Table 2 formulations. The most represented families are Labiatae, Compositae, Rosaceae with 16, 15, 6 species respectively, followed with 4 species were Liliaceae, Euphorbiaceae and Umbelliferae. In our survey, the most frequently used plant parts were, aerial parts, accounting for 40.2%, followed by leaves (16.3%), fruits (9.7%) and flowers (8.6%).

The infusion is generally the preparation method of choice, accounting for 41.8% of the recorded species, followed by decoction (23.9%), crushed (9.4%), as plaster (3.4%), removed (3.4%) and swallowed (2.5%). The other preparation methods as sirop, grape molasses, as marmalade, cooked, as fresh, mixed with olive oil, sprayed and direct in shoe enclosed.

Mode of application was reported based on the 116 formulations recorded. Internally applications are the most common way and utilised in 75% of the formulations. Internally applications mode is usually as oral administrations. Externally applications utilised in 21.5% of the formulations. Fruits of *Cotinus coggyria* Scop., *Rhus coriaria* L. and roots of *Pistacia terebinthus* L. subsp. *palaestina* (Boiss.) Engler were applied as gargle for mouth sore applied. Latex of *Euphorbia* species were as removal for curing warts.

Inhalation application mode utilized for eye pains (seeds of *Ferulago cassia* Boiss.), earache for baby (Aerial parts of *Helichrysum armenium* DC. subsp. *armenium* and *Helichrysum plicatum* DC. subsp. *plicatum* species) and throat or lung inflammations (seeds of *Hyosyamus niger* L.).

Local people used wild plants as medicinal purpose most frequently for the threatment of kidney stones (16.3%), colds and flu (13.0%), analgesic (11.9%), for skin diseases (10.8%), cough (9.7%) and diabetes diseases (8.6%)

*Arum maculatum* L. was the plant most used by the local people. The local names of this plant are “Tırşik, Andırın doktoru, Pancar” and used for hemorrhoids. *Achillea biebersteinii* Afan., *Juniperus drupacea* Lab., *Centaurea lycopifolia* Boiss. & Kotschy., *Mentha longifolia* (L.) Hudson subsp. *thyphoides* (Briq.) Harley var. *thyphoides*, *Hypericum perforatum* L., *Helichrysum plicatum* DC. subsp. *plicatum* were other commonly used plants for medicinal purposes.

*Centaurea lycopifolia* Boiss. & Kotschy, *Ferula longipedunculata* Peşmen, *Fraxinus ornus* L. subsp. *cilicica* (Lingelsh.) Yalt., *Helichrysum arenarium* (L.) Moench. subsp. *aucheri* (Boiss.) Davis & Kupicha, *Salvia cryptantha* Monbret et Aucher ex Bentham, *Satureja cilicica* P.H.Davis, *Scorzonera tomentosa* L., *Sideritis libanotica* Labill. subsp. *linearis* (Bentham) Bornm., *Teucrium chamaedrys* L. subsp. *tauricum* Rech. fil., *Verbascum pinetorum* (Boiss.) O. Kuntze were endemic to Turkey and collected for medicinal treatment in Andırın.

The medicinal plants are presented in Table 2, followed by plant botanical name, family name and herbarium numbers. In the respective columns; the Turkish vernacular names, the used plant parts, uses, utilization methods and recorded literature uses are given. In the last column, the study was compared with many articles (26-37) that the medicinal uses had been reported. 63 plant taxa were found to be used for medicinal purposes before in the literature analysis of the plants used in our study, it seems to be first record 29 taxa usage for medicinal purpose and they are marked underlined in the Table 2. They are: *Achillea kostchyii* Boiss. subsp. *kostchyii*, *Centaurea lycopifolia* Boiss. & Kotschy (endemic), *Danae racemose* (L.) Moench., *Euphorbia helioscopia* L., *Euphorbia kotschyana* Fenzl, *Euphorbia macrostegia* Boiss., *Euphorbia peplus* L. var. *minima* DC., *Ferula longipedunculata* Peşmen (endemic), *Ferulago cassia* Boiss., *Fibigia clypeata* (L.) Medik., *Fraxinus ornus* L. subsp. *cilicica* (Lingelsh.) Yalt.(endemic), *Helichrysum armenium* DC. subsp. *armenium*, *Inula montbretiana* DC., *Lecokia cretica* (Lam.) DC., *Morina persica* L. var. *persica*, *Nasturtium officinale* R.Br., *Nepeta flavida* Hub.-Mor., *Onobrychis gracilis* Besser, *Phlomis russeliana* Poiret, *Pistacia terebinthus* L. subsp. *palaestina* (Boiss.) Engler, *Polygonatum multiflorum* (L.) All., *Potentilla speciosa* Willd. var. *speciosa*, *Prunus divaricata* Ledeb. subsp. *divaricata*, *Ranunculus constantinopolitanus* DC. d’Urv., *Salvia verbenaca* L., *Satureja cilicica* P.H.Davis, *Sideritis perfoliata* L., *Tragopogon dubius* Scop., *Verbascum pinetorum* (Boiss.) O.Kuntze (endemic), *Viola kitaibeliana* Roem. & Schult.

Table 2. Wild plant species used as medicinal purpose in Andirın, Kahramanmaraş, Turkey.

<sup>a</sup> Botanical name, family	<sup>b</sup> ISTE number	Turkish vernacular name	Used plant parts	<sup>c</sup> Utilization and applications method	Uses	Recorded literature uses
<i>Abies cilicica</i> (Ant. & Kotschy.) Carr. subsp. <i>cilicica</i> (Pinaceae)	92949	Mezla, Mezda, Mezdeği, Mezda sakızı	Resin Cone	Swallowed, int. As plaster, ext. Mixed with milk, int. Infusion mixed with thyme leaves, int.	Stomach ulcers, stomach-ache Antiseptic and furuncle Colds and flu Menstrual pains	Stomach ulcers, stomach-ache (26)
<i>Achillea biebersteinii</i> Afan. (Compositae)	92807	Erkurtaran	Aerial parts	Infusion, int.	Menstrual pains, abdominal pains	Menstrual pains (27), Stomach disease (28), Colds (29)
<i>Achillea kotschyi</i> Boiss. subsp. <i>kotschyi</i> (Compositae)	92841	Erkurtaran	Aerial parts	Infusion, int.	Menstrual pains, abdominal pains	Not reported
<i>Achillea setacea</i> Waldst et Kit (Compositae)	92884	Erkurtaran	Aerial parts	Infusion, int.	Menstrual pains, abdominal pains	Menstrual pains (27), abdominal pains (28)
<i>Adiantum capillus-veneris</i> L. (Adiantaceae)	92814	İrefe otu, Erefe otu	Aerial parts	Infusion, int.	Kidney stones, for urinary inflammations, expectorant, cough	Gastrointestinal disease (29)
<i>Ajuga chamaepitys</i> (L.) Schreber subsp. <i>chia</i> (Schreber) Arcangeli var. <i>ciliata</i> Brig. (Labiatae)	92838	Mayasıl otu	Flowers	Infusion, int.	Hemorrhoids	Hemorrhoids (29, 30); healing wounds (27, 31); abdominal pains, for urinary inflammations (32); fever lowering (33)
<i>Alcea pallida</i> Waldst. & Kit. (Malvaceae)	93003	Gül hatmi, Küllük kömeci	Flower	Infusion, int.	Cough and bronchitis	Cough (26, 32, 33); Skin disease (32); Eye infection, stomachache, diarrhea (28)

<i>Anthemis tinctoria</i> L. subsp. <i>pallida</i> DC. (Compositae)	92840	Papatya	Aerial parts	Infusion, int.	Colds and flu	Fever lowering, inflammations (31)
<i>Juniperus drupacea</i> Lab. (Cupressaceae)	92796	Andız	Cone	Decoction, int.	Cough, bronchitis and asthma	Cough, animal disease (33), Blood, stomach, hemorrhoids disease (32)
<i>Artemisia absinthium</i> L. (Compositae)	92911	Pelin otu, Periyavşan	Aerial parts	Infusion, int.	Colds	Colds, digestive and gallbladder disease (33), stomach, fever flowering, menstrual pains (28)
<i>Arum maculatum</i> L. (Araceae)	92846	Andırın doktoru, Pancar, Tirşik	Cormus	Swallowed, int.	Hemorrhoids	Hemorrhoids (32)
<i>Asparagus acutifolius</i> L. (Liliaceae)	92847	Demirdelen, Kedikuyruğu	Aerial parts	Infusion, int.	Kidney stones, for urinary inflammations, flu	Refresher (33), cardiac disease (29)
<i>Bellis perennis</i> L. (Compositae)	92946	Yoğurt çiçeği	Flowers	Infusion, int.	Bronchitis, cold, dyspnea, stomach-ache, for urinary inflammations	Colds, healing wounds (33), abdominal pains, diarrhea, for urinary inflammations (34)
<i>Centaurea lycopifolia</i> Boiss. & Kotschy. (Compositae)	92801	Amaliyat otu, Acı ot, Kesik otu, Cerrah otu	Aerial parts	Infusion and with milk decoction, int.	Healing wounds	Not reported
<i>Cerasus mahaleb</i> (L.) Miller var. <i>alpina</i> Browicz. (Rosaceae)	92789	Melham, Mahlep	Fruits	As sirop and grape molasses,int.	Diabetes disease, cough	Diabetes disease (32, 34), throat pains (34), respiratory tract disease (30)
<i>Ceterach officinarum</i> DC. (Aspleniaceae)	92892	Altın otu	Leaves	Infusion, int.	Kidney stones, for urinary inflammations	Asthma, stomach ulcers (28), hemorrhoids, abdominal pains (28), kidney stones (28, 33)
<i>Cichorium intybus</i> L. (Compositae)	92907	At çitliğı, Çıtuınık, Hindiba	Aerial parts	Decoction, int. Infusion, int.	Cardiac diseases, liver diseases Cough and bronchitis	Expectorant, icterus disease, milk raising, diuretic (35), hemorrhoids, appetizing, refresher (30)

<i>Cornus mas</i> L. (Cornaceae)	92811	Kızılçik kirazi	Fruits	Decoction, int.	Diabetes	Diabetes disease, diuretic, fever lowering, mouth sore, refresher, healing wounds (33)
<i>Cotinus coggyria</i> Scop. (Anacardiaceae)	92799	Sumak, Tetiri, Tetri	Fruits	With warm water gargle, ext.	Mouth sore	Healing wounds, cough (35)
<i>Crataegus aronia</i> (L.) Bosc. ex DC. var. <i>aronia</i> (Rosaceae)	92806	Ardıç	Leaves Fruits	Decoction, int. Swallowed, int. Marmelade, int.	To reduce Cardiac diseases Stomach-ache	Diabetes disease, as vitamin C (28)
<i>Cynodon dactylon</i> (L.) Pers. var. <i>dactylon</i> (Graminae)	93079	Ayrık otu	Roots	Infusion, int.	Kidney stones	Kidney stones, prostate disease, infertility disease, vasodilator, diuretic (28)
<i>Danae racemosa</i> (L.) Moench. (Liliaceae)	92851	Kandak	Roots	Infusion, int.	Kidney stones	Not reported
<i>Ecballium elaterium</i> (L.) A. Rich. (Cucurbitaceae)		Cirtatan	Fruit juice	Sprayed, ext.	Sinusitis	Sinusitis (30, 32), colds, inflammations, malaria disease (32)
<i>Echium italicum</i> L. (Boraginaceae)	92878	Kaşıntı otu	Aerial parts	Decoction, ext.	Pruritus	For urinary inflammations (34), healing wounds (28)
<i>Equisetum ramosissimum</i> Desf. (Equisetaceae)	92887	Boğumlu ot, Ulama otu	Aerial parts	Infusion, int.	Kidney stones and for urinary inflammations	For urinary inflammations (29)
<i>Eriolobus trilobatus</i> (Poiret) Reoemer var. <i>trilobatus</i> (Rosaceae)	93107	At elması	Fruits	Decoction, int.	Cardiac diseases, diabetes disease, dyspnea disease	Cardiac diseases, intestine disease, obesity disease, rheumatism disease (33)
<i>Euphorbia helioscopia</i> L. (Euphorbiaceae)	92930	Sütteğen	Latex	Removed, ext.	Curing warts	Not reported



<u>Euphorbia kotschyana</u> Fenzl (Euphorbiaceae)	93087	Sütleğen	Latex	Removed, ext.	Curing warts	Not reported
<u>Euphorbia macrostegia</u> Boiss. (Euphorbiaceae)	93090	Sütleğen	Latex	Removed, ext.	Curing warts	Not reported
<u>Euphorbia pepus</u> L. var. <u>minima</u> DC. (Euphorbiaceae)	92955	Sütleğen	Latex	Removed, ext.	Curing warts	Not reported
<u>Ferula longipectunculata</u> Peşmen (Umbelliferae)	93011	Çağsır	Roots	Powdered drug is mixed with honey, int.	Aphrodisiac	Not reported
<u>Ferulago cassia</u> Boiss. (Umbelliferae)	92926	Rezene	Seeds	Inhalation (Eye) Crushed, int.	Eye pains Milk secretion increasing	Not reported
<u>Fibigia clypeata</u> (L.) Medik. (Cruciferae)	92910	Sancı otu	Aerial parts	Infusion, int.	Animal disease	Not reported
<u>Fraxinus ornus</u> L. subsp. <u>cilicica</u> (Lingelsh.) Yalt. (Oleaceae)	92817	Demirçik, Karadal	Bark	Infusion, int.	Influenza	Not reported
<u>Fumaria officinalis</u> L. (Fumariaceae)		Şahtere, Tere	Aerial parts	Cooked, int.	Diabetes disease	Healing wounds, liver disease (28), as digestive (30)
<u>Hedera helix</u> L. (Araliaceae)		Hebil, Yabancı tevek	Leaves	Infusion, int.	Cardiac diseases	As vermifuge (33)
<u>Helichrysum arenarium</u> (L.) Moench. subsp. <u>aucheri</u> (Boiss.) Davis et Kupicha (Compositae)	92816	Mantuvar	Aerial parts	Decoction, int.	Kidney stones	Kidney stones (29, 31)

<i>Helichrysum armenium</i> DC. subsp. <i>armenium</i> (Compositae)	93025	Mantıvar	Aerial parts	Decoction, int. Inhalation (Ear)	Kidney stones Earache (for Baby)	Not reported
<i>Helichrysum plicatum</i> DC. subsp. <i>plicatum</i> (Compositae)	92871	Mantıvar	Aerial parts	Decoction, int. Inhalation (Ear)	Kidney stones Earache (for Baby)	Kidney stones (27, 28), for urinary inflammations (33), abdominal pains, diabetes disease (27), cholesterol, diabetes disease (28)
<i>Hyosyamus niger</i> L. (Solanaceae)	92879	Kumacık otu	Seeds	Inhalation (throat)	Lung- and throat inflammation	As vermifuge (27), sedative (31)
<i>Hypericum perforatum</i> L. (Hypericaceae)	92800	Gantar otu, Kantaron, Kantarot, Kuzukıran, Koyunkıran	Flowers	Infusion, int. Mixed with olive oil (1 month), ext.	Stomachic Scorch cure	Stomachache, diuretic, hemorrhoids (31), healing wounds, stomach pains (28), as vermifuge, sedative (34)
<i>Inula montbretiana</i> DC. (Compositae)	93030	Kök çayı, Aslanpençesi	Aerial parts	Decoction with <i>Potentilla speciosa</i> , int. Decoction, int.	Cancers Colds	Not reported
<i>Juncus inflexus</i> L. (Juncaceae)	92775	Gümüştopuk	Flowers	Infusion, int. Direct in shoe enclosed, ext.	Skabies and pruritus disease, Kidney stones Foot pruritus	Kidney stones, for urinary inflammations, cough (31)
<i>Juniperus oxycedrus</i> L. subsp. <i>oxycedrus</i> (Cupressaceae)	92850	Pitik ardıcı	Cone Pitch	Decoction, int. As plaster, ext.	Cough Psoriasis	Healing wounds (31), diabetes disease (34), asthma, bronchitis disease (32), as animal medicine (29)
<i>Lecokia cretica</i> (Lam.) DC. (Umbelliferae)	92791	Baldıran	Seeds	Crushed, int.	Antihypertensive	Not reported
<i>Malva neglecta</i> Wallr. (Malvaceae)	93033	Ebegömeçi, Kömeç	Aerial parts	Infusion, int. Cooked, int.	Tension regulation Blood sugar lowering	Tension lowering, healing wounds, menstrual pains (33), for urinary inflammations (34), hemorrhoids (27), to abort (27, 31), healing wounds (27, 29, 31, 33), expectorant (28), digestive (31)

<i>Melissa officinalis</i> L. subsp. <i>inodora</i> (Bormm.) Bormm. (Labiatae)	93021	Turunçuk	Aerial parts	Decoction, int. Infusion, int.	Vasosilators Pain in head Cardiac diseases	Pain in head, cardiac, stomach and intestinal disease (33)
<i>Mentha longifolia</i> (L.) Hudson subsp. <i>thyphoides</i> (Briq.) Harley var. <i>thypoides</i> (Labiatae)	92857	Yarpuz	Leaves	Crushed, ext.	Blood ceasing	Antispasmodic (34), gastrointestinal disease (27, 31), stomach pains, colds and flu (33)
<i>Michauxia campanuloides</i> L. Herit T. ex Aiton (Campanulaceae)		Keçibicigi	Leaves	Crushed, ext.	Healing wounds	Mycosis (29)
<i>Micromeria fruticosa</i> (L.) Druce subsp. <i>brachycalyx</i> P.H.Davis (Labiatae)	93036	Taş nanesi	Aerial parts	Infusion, int.	Colds and flu	Stomachache (29)
<i>Morina persica</i> L. var. <i>persica</i> (Morinaceae)	92893	Dikenli adaçayı	Flowers	Decoction, int.	Colds	Not reported
<i>Myrtus communis</i> L. subsp. <i>communis</i> (Myrtaceae)	92798	Murt	Fruits	Decoction, int.	Blood sugar lowering	Diabetes and cholesterol disease (33)
<i>Nasturtium officinale</i> R. Br. (Cruciferae)	93088	Su teresi, Ispatan	Aerial parts	Cooked, int.	Tension lowering	Not reported
<i>Nepeta flavida</i> Hub.-Mor. (Labiatae)	92897	Püsü kuyruğu	Aerial parts	Infusion, int.	Colds	Not reported
<i>Onobrychis gracilis</i> Besser (Leguminosae)	93001	Kuyruk yaran	Aerial parts	Decoction, int.	Cold and flu	Not reported
<i>Ononis spinosa</i> L. subsp. <i>leiosperma</i> (Boiss.) Sirj. (Leguminosae)	92868	Kayışkıran	Roots	Infusion, int.	Kidney stones	Skin disease (30, 31), Healing wounds (31, 34)

<i>Origanum syriacum</i> L. var. <i>bevanii</i> (Holmes) Letswaart (Labiatae)	93019	Kekik, Dağ kekiği	Leaves	Infusion, int.	Colds	Colds (29)
<i>Paliurus spina-christi</i> Miller (Rhamnaceae)	92835	Karaçalı	Seeds	Decoction, int. Infusion, int.	Stomach ulcers, for urinary inflammations Haemorrhoids	Diuretic, constipation disease (34), stomachache (29, 33), fever lowering (36), kidney stones (32)
<i>Phlomis russeliana</i> Poirlet (Labiatae)	93007	Laden	Leaves	Infusion, int.	Prostate disease	Not reported
<i>Pinus brutia</i> Ten. (Pinaceae)	92819	Kızılcım	Stems/membran Pitch	As fresh, int. Infusion, int. As plaster, ext As plaster, ext.	Stomachache Tuberculosis disease Healing wounds Healing wounds (for animal)	Healing wounds, cough (32), asthma disease, refresher (33)
<i>Pistacia terebinthus</i> L. subsp. <i>palaestina</i> (Boiss.) Engler (Anacardiaceae)	92834	Menengiç, Çitımık	Roots	Decoction, ext.	Mouth sore	Not reported
<i>Plantago major</i> L. subsp. <i>major</i> (Plantaginaceae)	92904	Simirliot, Kırksinir otu	Leaves	Crushed, ext. Infusion, int.	Healing wounds and Blood ceasing Asthma disease	Healing wounds (27, 33), cardiac disease (28), antistress (33)
<i>Polygonatum multiflorum</i> (L.) All. (Liliaceae)	92953	Yandak	Rhizoms	Powdered drug is mixed with honey	Aphrodisiac and infertility disease	Not reported
<i>Polygonum bellardii</i> AH. (Polygonaceae)	93009	At madımağı	Aerial parts	Infusion, int.	Kidney stones	Bronchitis disease (31)
<i>Potentilla speciosa</i> Willd. var. <i>speciosa</i> (Rosaceae)	93029	Kök çayı	Aerial parts	Decoction with <i>Imula</i> <i>montbretiana</i> , int.	Cancers	Not reported
<i>Prunus divaricata</i> Ledeb. subsp. <i>divaricata</i> (Rosaceae)	93083	Yonuz eriği	Fruits	As sirop, int.	Diabetes disease	Not reported
<i>Ranunculus</i> <i>constantinopolitanus</i> DC. d'Urv. (Ranunculaceae)	92876	Çınarcık, Gağcak	Leaves	Crushed, ext.	Rheumatism and foot sore	Not reported

<i>Rheum ribes</i> L. (Polygonaceae)	92923	Işgın	Rhizoms	Infusion, int.	Osteoporosis disease	For urinary inflammations (34)
<i>Rhus coriaria</i> L. (Anacardiaceae)	93103	Sumak, Tetri, Tetiri	Fruits	Decoction, ext.	Mouth sore	Mouth sore (34)
<i>Rosa canina</i> L. (Rosaceae)	92790	Kuşburnu	Fruits	Decoction, int.	Loose weight	Colds and flu (28, 36), animal disease, hemorrhoids (27), diabetes disease, kidney stones (30, 33), stomach pains (32, 33), osteoporosis, rheumatism and dyspnea disease (33)
<i>Ruscus aculeatus</i> L. subsp. <i>angustifolius</i> Boiss. (Liliaceae)	92815	Deve dikenini, Öküz dikenini, Kızılarturuncu, Tavşanmemesi	Roots	Decoction, int.	Kidney stones and for urinary inflammations	Kidney stones (29, 32), for urinary inflammations (32)
<i>Salvia cryptantha</i> Montbret et Aucher ex Benth (Labiatae)	92898	Ökürük otu	Aerial parts	Infusion, int.	Cough and bronchitis	Stomach pains (30), colds (30, 31)
<i>Salvia verbenaca</i> L. (Labiatae)	93005	Şalba	Leaves	Infusion, ext.	Fungal infections	Not reported
<i>Sambucus ebulus</i> L. (Caprifoliaceae)	92880	Ayboğan, Yir otu	Seeds Roots Leaves	Crushed, int. Crushed, ext. Infusion, int.	Hemorrhoids and Vaso dilators Rheumatism Menstrual pains, abdominal pains	Rheumatism (29, 33), furuncle, bone disease, pain in head (33) Not reported
<i>Satureja ciliatica</i> P.H.Davis (Labiatae)	93031	Dağ kekiği	Leaves	Infusion, int.	Fungal infections	Hernia disease (26), healing wounds, stomachache (27)
<i>Scorzonera tomentosa</i> L. (Compositae)	93109	Dağ çayı, Adaçayı	Aerial parts	Infusion, int.	Colds and flu	Colds and flu (27, 28), constipations, stomachache, digestive (31)
<i>Sideritis perfoliata</i> L. (Labiatae)	92975	Adaçayı	Aerial parts	Infusion, int.	Colds	Not reported

<i>Smyrniun connatum</i> Boiss. & Kotschy. (Umbelliferae)	93057	Baldıran	Fresh stem	As fresh, int.	Dyspnea	Sedative (31)
<i>Teucrium chamaedrys</i> L. subsp. <i>tauricum</i> Rech. fil. (Labiatae)	92916	Mayasıl otu	Aerial parts	Infusion, int.	Haemorrhoids	Hemorrhoids disease (28, 31), stomachache (28, 31, 33), diabetes disease (31), constipation (28)
<i>Teucrium polium</i> L. (Labiatae)	92914	Periyavşan	Aerial parts	Decoction, int. Infusion, int.	Lung inflammations Stomach ulcers, Diabetes disease and fever lowering	Diabetes disease (27, 30-34, 37), stomachache (27, 28, 33, 36), gastrointestinal disease (28, 30, 33, 37)
<i>Thymus sipyoleus</i> Boiss. subsp. <i>rosulans</i> (Borbás) J.Jalas (Labiatae)	92920	Dağ kekiği, Erkek kekik	Aerial parts	Infusion, int.	Colds	Colds (26, 27, 30), diabetes disease (27, 30), abdominal pains (27, 28)
<i>Tragopogon dubius</i> Scop. (Compositae)	92917	Yemlik	Aerial parts	Infusion, int.	Gastrointestinal disorders	Not reported
<i>Tribulus terrestris</i> L. (Zygophyllaceae)	93093	Deveçökerten	Aerial parts	Decoction, int.	Kidney stones	Kidney stones (29, 30, 33, 34), cardiac disease (28-30), diuretic, diabetes disease (33), healing wounds (28)
<i>Tussilago farfara</i> L. (Compositae)	92886	Öksürtük otu	Aerial parts	Infusion, int.	Cough, expectorant and bronchitis	Cough (31, 34), respiratory infections (31), expectorant (34), gastrointestinal disease (33)
<i>Urtica dioica</i> L. (Urticaceae)	92809	Isırgan	Aerial parts Seeds	Infusion, int. Crushed, int.	Pain in hernial disk Aphrodisiac	Aphrodisiac (30), cough, cold, stomach ulcers (33), rheumatism (27, 28, 33), diuretic (32), as anticancer (26, 28, 29, 31, 33, 37), cardiac disease (29), hemorrhoids (26), liver disease (37), diabetes disease (34), constipation, stomach ulcers, for urinary inflammations (31)

<i>Valeriana dioscoridis</i> Sm. (Valerianaceae)	92788	Pisi otu, Pisik otu, Kedi otu	Flowers	Infusion, int.	Tension lowering	Sedative, antispazmodic, healing wounds (33)
<i>Verbascum pinetorum</i> (Boiss.) O. Kuntze (Scrophulariaceae)	92831	Gavurdengili	Leaves	Crushed, ext.	Wound healing	Not reported
<i>Verbena officinalis</i> L. (Verbenaceae)	92821	Mine çiçeği	Aerial parts	Decoction, int.	Cardiac diseases, cancers and kidney stones	Abdominal pains, milk secretion increasing (34)
<i>Viola kitambeliana</i> Roem. & Schult. (Violaceae)	92947	Menekşe	Leaves	Crushed and mixed with milk and starch, ext.	Wound healing	Not reported
<i>Viscum album</i> L. subsp. <i>album</i> (Loranthaceae)	92830	Göveldek	Flowers Leaves	Decoction, int. Infusion, int.	Cough Diabetes disease, cholesterol lowering and kidney stones	Diabetes disease (27, 28, 33), pain in head (27), as tensien regulation (28, 30), as anticancer (28,33), hemorrhoids disease, asthma disease (28), constipation (33)
<i>Ziziphora capitata</i> L. (Labiatae)	92866	Saplıcan otu	Aerial parts	Infusion, int.	Colds	Stomachache (31), cough, throat pains (29)

<sup>a</sup> Underlined species; it seems to be first record 29 taxa usage for medicinal purpose and they are marked underliner in the Table 2.

<sup>b</sup> ISTE number: Herbarium of Istanbul University Faculty of Pharmacy

<sup>c</sup> Preparations: ext, externally; int, internally

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