

Ethnobotanical purposes of plants sold by herbalists and folk bazaars in the center of Cappadocia (Nevşehir, Turkey)

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This study was carried out between the years of 2008-2012 in the herbalists and folk bazaars located in Nevşehir and its districts, Turkey. During the study, total 67 plant taxa belonging to 35 families were determined frequently using for various purposes by the local people. According to the results, the largest 5 plants families are used by the local people as Asteraceae, Apiaceae, Rosaceae, Lamiaceae, and Brassicaceae. The scientific and vernacular names, preparation, used plant parts, medicinal indication and administration of the plants were given. According to their purpose of use, the plants are mostly used for medicinal purposes, than spices, ornamental, etc. (paint, incense, amulet and such). The traditional medicinal plants were mostly used for the appetizing, expectorant, rheumatism, liver disease and diuretic.

Keywords: Medicinal plants, Vernacular names, Cappadocia, Nevşehir-Turkey

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The country has extremely rich flora thanks to its geographical location, geomorphologic structure and influence of various climate types. For a long time plants played very important role in human life. People was benefitted from plants as nutrition, animal fodder, decoration and ailment in Turkey. They used in different methods for example decoration, indication, grinded, etc. So many various plants used during the historical periods in Anatolia, because it served as a bridge between the Europe and Asia. People transferred their culture from Asia to Europe. Botanical studies have considerably increased in recent years¹⁻⁹. Today there are 20.000 herbal plants used for medicinal purposes in the world and 600 of these are known to be grow in Turkey¹⁰.

This study is very important due to the human history of the Cappadocia, where located in the center of Anatolia, Turkey, back to late 6th century of BC. Since then the area home to different cultures, i.e., Hittite, Byzantium, Seljuks and Ottoman empire. Because of the extraordinary landscape and fairy chimneys, some part of the study area are included

in UNESCO World Heritage Site, therefore some parts of the study area particularly Ürgüp, Göreme and Avanos are very well known touristic center in Turkey and in the world¹¹. In the area, most of the tourists are buying to these local plants, as well. However, until now, there are no ethnobotanical studies have been done including all parts of the Nevşehir and explained all selling plants in the herbalists and folk bazaars, but only Ürgüp district has been partly studied¹². Therefore, we believe that this study is quite important for not only the local people but also visiting tourist from all over the world.

The aim of the study is two-fold; (1) to document the medicinal and magical uses of plants sold in the herbalists and folk bazaars in the Nevşehir, Cappadocia, Turkey; (2) to gather information on vernacular names, plant parts used, preparation methods and medicinal education.

Materials and methods

Study area

In this study, commonly used wild and cultivated plants sold in herbalists and folk bazaars in Nevşehir

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and its districts (Cappadocica, Turkey) for four years (2008-2012) were studied (Fig. 1). Nevşehir (Fig. 2) province is located ($38^{\circ} 12' -39^{\circ} 20' N$, $34^{\circ} 11' -35^{\circ} 06' E$) in the Central Anatolia of Turkey at an average altitude of 1150 m above sea level and covers an area of 5467 km². Nevşehir is a province which is bordered by the Kayseri, Niğde, Aksaray, Kırşehir and Yozgat. It has located on a wide plateau which is formed by the deposition of ash and lavas old volcanoes. The rainfall mostly occurs in spring. The flora is mainly on the steppe character and comprises Iran-Turan elements with natural meadows, expanded forests¹³. Source of livelihood of the people are agriculture, animal husbandry and tourism. People cultivated grain, potato, grape, cucurbita and many kinds of fruits and vegetables. The land is suitable for a wide variety of grapes grown. It has an important role in wine production region in Turkey.



Fig. 1—Herbalists in Nevşehir

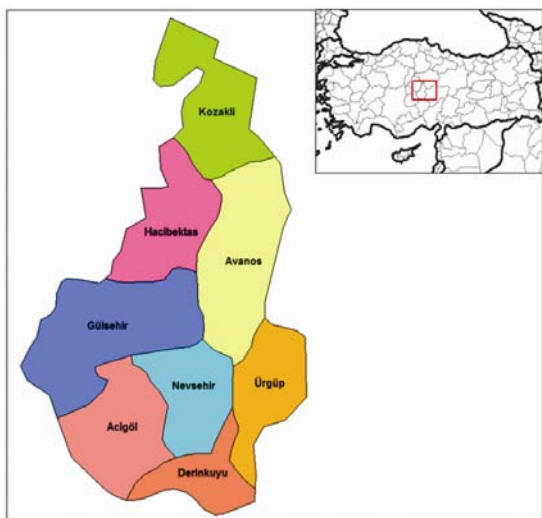


Fig. 2—Towns on Nevşehir map

Plant materials

The information obtained through interview questions and answers in the form of conjugate herbalists related to this field by controlling the sources are compared. 67 plants were investigated and selected for use with most vernacular names, and medicinal use. Species identifications were made based on these specimens taken from these plants which are sold. We basically identified these specimens thanks to the Flora of Turkey and East Aegean Islands¹⁴⁻¹⁶. Plants are represented in with their scientific names, family, vernacular name, preparation, parts used, medicinal uses and administration (Table 1). Plants are listed in alphabetical order. Information is taken from the herbalists and their names are listed below:

1-Zencefil Aktar, 2-Ürgüp Arı Ticaret, 3-Mısır Çarşısı, 4-Şayak Ticaret, 5-Lokman Hekim Baharat, 6-Ürgüp Pazarı Aktarı, 7-Aydın Kuruyemiş, 8-Yörem Kuruyemiş, 9-Naturel Kuruyemiş, 10-Deva Lokman Aktar, 11-Demircioğlu Ticaret.

Results and discussion

Until now, there have been no studies surprisingly done including all parts of the Nevşehir city but only Ürgüp district partly studied. Therefore, most of our findings is new for the region, the society, farmers and researchers. During the study, total 67 plant taxa belonging to 35 families were determined frequently using for various purposes by the local people. According to the results, the largest 5 plants families are Asteraceae has 9 taxa (13.4 %), Apiaceae with 7 taxa (10.4%), Rosaceae with 7 taxa (10.4%), Lamiaceae with 6 taxa (9.0%), Brassicaceae with 3 taxa (4.5%) and the other families have 35 taxa (52.3%) (Table 2).

The most frequently used medicinal plant species were *Vitis vinifera* L., *Matricaria chamomilla* Blanco, *Crataegus monogyna* Jackq., *Mentha longifolia* (L.) L., *Thymus* sp., *Urtica dioica* L. and *Viburnum opulus* L. The most common preparations methods were infusion (33%), crude (23%), decoction (17%), dried (10%), grinded (8%) and the other preparation methods (9%) as respectively. The most common parts used were leaf (33%), fruit (19%), flower (15%), root (12%), stem (7%) and the other plant parts (14%), respectively.

Sometimes local people also used other content for example honey. The traditional medicinal plants were mostly used for the a ppetizing (6%), expectorant and

Table 1—Medicinal plants found in research area

Botanical name, voucher specimen	Family	Vernacular names (Turkish)	Preparations	Plant parts used	Ailments treated	Administration
<i>Achillea millefolium</i> L. GN-46	Asteraceae	<i>Civanperçemi,</i> <i>kedi turnağı,</i> <i>binbir yaprak</i> <i>otu kahra</i>	Eaten with honey, decoction	Root -Stem Flower	Aphrodisiac -Carminative, hemostatic Skin care	O.Ad., Ext.
<i>Alcea rosea</i> L. GN-4	Malvaceae	<i>Gül hatmi,</i> <i>deve güllü</i>	Infusion	Leaf-Root Flower	Thorax, relaxation-Urethra disease Cold, cough	O.Ad.
<i>Alkanna tinctoria</i> L. Tausch GN-70	Boraginaceae	<i>Havaciva otu,</i> <i>eşek marulu,</i> <i>tüylü boya</i>	Decoction	Root, leaf +Flower	Dyeing +Cold	O.Ad., Ext.
<i>Allium cepa</i> L. GN-100	Amaryllidaceae	<i>Soğan granül</i>	Dried and grinded	Stem	Food flavor	O.Ad.
<i>Allium sativum</i> L. GN-101	Amaryllidaceae	<i>Sarımsak</i>	Crude	Stem	Antiseptic, appetizing, hipertansion	O.Ad., Ext.
<i>Anethum graveolens</i> L. GN-130	Apiaceae	<i>Dereotu</i>	Dried	Leaf	Analgesic, cough, wound, liver disease, gallbladder disease, insect bites	O.Ad., Ext.
<i>Anthemis</i> sp. GN-5	Asteraceae	<i>Papatya</i>	Infusion	Flower	Tonsil disesae, cold, menopause	O.Ad.
<i>Apium graveolens</i> L. GN-16	Apiaceae	<i>Kereviz</i>	Infusion	Seed, root	Prostate	O.Ad.
<i>Artemisia</i> sp. GN-30	Asteraceae	<i>Peri yavşanı,</i> <i>yavşan</i>	Infusion	Flower	Toothache, halitosis, appetizing, stomachache, diabetes	O.Ad.
<i>Astracantha gummifera</i> (Labill.) Poedlech GN-45	Fabaceae	<i>Kitr, geven balt,</i> <i>pus geveni</i>	Grinded, eat with honey	Root	Dyeing, appetizing, glue	O.Ad., Ext.
<i>Berberis vulgaris</i> L. GN-55	Berberideceae	<i>Kaduntuzluğu,</i> <i>karamuk,</i> <i>diken üzümü,</i> <i>amberfaris</i>	Crude, dried and decoction	Root -Leaf Flower, fruit	Intestinal ulcer, resistance -Menopause Hypertension, varicose	O.Ad.
<i>Beta vulgaris</i> L. GN-26	Amaranthaceae	<i>Pancar turşusu</i> <i>ve suyu</i>	Crude	Root	Appetizing	O.Ad.
<i>Capsella bursa</i> <i>-pastoris</i> Medik. GN-68	Brassicaceae	<i>Çobançantası</i>	Infusion	Aerial parts	Female reproductive system disease	O.Ad.
<i>Capsicum annuum</i> L. GN-110	Solanaceae	<i>Kırmızıbiber</i> <i>kurusu</i>	Dried	Fruit	Appetizing, diuretic, anemia	O.Ad.
<i>Carthamus tinctorius</i> L. GN-123	Asteraceae	<i>Haspir,</i> <i>yalancı safran</i>	Dried, decoction, grinded and eat with honey	Flower	Liver disease, breast milk	O.Ad.
<i>Cichorium intybus</i> L. GN-73	Asteraceae	<i>Hindiba</i>	Infusion	Leaf, stem -Root	Rheumatism-Insomnia, eye disease	O.Ad., Ext.
<i>Coriandrum sativum</i> L. GN-111	Apiaceae	<i>Kişniş,Çin</i> <i>maydonozu</i>	Infusion and dried	Seed	Carminative, headache, rheumatism, aphrodisiac, female reproductive system	O.Ad.
<i>Cotoneaster salicifolia</i> Franch GN-91	Rosaceae	<i>Muşmula,</i> <i>beşbüyük</i>	Crude	Fruit	Intestinal disease, laxative	O.Ad.
<i>Crataegus monogyna</i> Jackq. GN-83	Rosaceae	<i>Alıç</i>	Infusion	Leaf, -Flower, fruit	Kidney disease -Heart disease, hypertension	O.Ad.
<i>Crocus sativus</i> Mill. GN-65	Iridaceae	<i>Safran</i>	Infusion	Flower	Appetizing, stomachache, skin care, diuretic	O.Ad., Ext.

(Contd.)

Table 1—Medicinal plants found in research area (Contd.)

Botanical name, voucher specimen	Family	Vernacular names (Turkish)	Preparations	Plant parts used	Ailments treated	Administration
<i>Cupressus sempervirens</i> L. GN-99	Cupressaceae	<i>Servi kozalağı, servi ağacı, selvi</i>	Decoction and eaten with honey	Resins, cone, leaf	Kidney and urethra disease	O.Ad.
<i>Cuscuta</i> sp. GN-66	Cuscutaceae	<i>Çin saçı</i>	Dried	Whole plant	Wound and laxative	O.Ad., Ext.
<i>Cynodon dactylon</i> (L.) Pers GN-112	Poaceae	<i>Ayrık otu</i>	Decoction	Root	Kidney disease, female reproductive system disease, diuretic, expectorant, toothache, prostate	O.Ad.
<i>Dianthus</i> sp. GN-126	Caryophyllaceae	<i>Karanfil</i>	Infusion	Flower, seed	Expectorant, cough	O.Ad.
<i>Elaeagnus pungens</i> Thunb. GN-72	Elaeagnaceae	<i>İğde</i>	Crude and infusion	Fruit, -Leaf flower	Diuretic-Antipyretic	O.Ad.
<i>Elymus repens</i> L. Gould GN-88	Poaceae	<i>Ayrık otu</i>	Infusion	Root	Urethra disease	O.Ad.
<i>Ferula assa-foetida</i> L. GN-93	Apiaceae	<i>Şeytintersi</i>	Macerated, crude and decoction	Root-Leaf Resins	Relaxation, indigestion-Hair Wart	O.Ad., Ext.
<i>Ferula communis</i> L. GN-125	Apiaceae	<i>Çakşır otu, oğlan aşısı, çağşır, çakşır, kitlik</i>	Infusion	Leaf, root, root latexes and fruit	Resistance	O.Ad.
<i>Foeniculum vulgare</i> Mill. GN-76	Apiaceae	<i>Rezene</i>	Infusion	Seed	Appetizing, breast milk, carminative, menstrual regularity	O.Ad.
<i>Fumaria officinalis</i> L. GN-131	Fumariaceae	<i>Şahtere</i>	Infusion	Aerial parts	Eczema, scabies	Ext.
<i>Galium</i> sp. GN-41	Rubiaceae	<i>Yoğurt otu</i>	Infusion	Stem and leaf	Wound, diuretic, cholesterol	O.Ad.
<i>Helichrysum</i> sp. GN-114	Asteraceae	<i>Altın otu, ölmez çiçek, arı çiçeği, salidi</i>	Infusion	Leaf -Flower	Kidney disease, diabetes-Cold, diaphoretic	O.Ad.
<i>Hypericum perforatum</i> L. GN-95	Hypericaceae	<i>Kantoron</i>	Infusion	Leaf -Flower	Relaxation-Insomnia	O.Ad.
<i>Inula helenium</i> L. GN-81	Asteraceae	<i>Andız kökü, andız otu, at gözü</i>	Infusion	Root	Bile disease, expectorant, carminative, liver disease, spleen disease, headache, lung cancer, heart disease, vascular disease, cold	O.Ad.
<i>Juglans regia</i> L. GN-17	Juglandaceae	<i>Ceviz içi</i>	Crude	Fruit -Leaf	Appetizing, diabetes-Laxative	O.Ad.
<i>Juniperus communis</i> L. GN-63	Cupressaceae	<i>Ardıç</i>	Eat with honey	Seed	Appetizing, diuretic, rheumatism	O.Ad.
<i>Laurus nobilis</i> Cav. GN-50	Lauraceae	<i>Defne</i>	Infusion	Leaf	Antipyretic, rheumatism, halitosis, diaphoretic, antiseptic	O.Ad., Ext.
<i>Lepidium sativum</i> L. GN-116	Brassicaceae	<i>Tere tohumu</i>	Grinded and eat with honey	Seed	Aphrodisiac, diabetes, anemia	O.Ad.
<i>Linum</i> sp. GN-47	Linaceae	<i>Keten tohumu</i>	Grinded and chewed	Seed	Laxative, stomachache, bronchitis, cough	O.Ad.
<i>Malva sylvestris</i> L. GN-117	Malvaceae	<i>Ebe gömeci</i>	Infusion or crude	Aerial parts	Stomachache, tonsil, expectorant	O.Ad.
<i>Matricaria chamomilla</i> Blanco GN-77	Asteraceae	<i>Papatya, yoğurt çiçeği</i>	Infusion	Flower	Relaxation, sinusitis, white for cold, yellow for painkiller	O.Ad.
<i>Melissa officinalis</i> L. GN-49	Lamiaceae	<i>Melisa, oğul otu</i>	Infusion	Leaf	Carminative, anemia, diabetes, memory	O.Ad.
<i>Mentha longifolia</i> (L.) L. GN-79	Lamiaceae	<i>Nane</i>	Dried and infusion	Leaf	Antinausea	O.Ad.

(Contd.)

Table 1—Medicinal plants found in research area (*Contd.*)

Botanical name, voucher specimen	Family	Vernacular names (Turkish)	Preparations	Plant parts used	Ailments treated	Administration
<i>Ocimum bacilicum</i> L. GN-61	Lamiaceae	<i>Fesleğen, reyhan</i>	Dried	Leaf-Fresh flower of branch, seed	Heart disease-Hemorrhoid, indigestion, dizziness, cough	O.Ad., Ext.
<i>Peganum harmala</i> L. GN-48	Zygophyllaceae	<i>Üzerlik</i>	Eaten with honey	Whole plant	Hemorrhoid, laxative and amulet	O.Ad., Ext.
<i>Pimpinella anisum</i> L. GN-19	Apiaceae	<i>Anason (ezentere)</i>	Infusion	Seed	Indigestion, cold, expectorant, carminative, breast milk	O.Ad.
<i>Plantago lanceolata</i> L. GN-57	Plantaginaceae	<i>Sinirli ot, ateş yaprağı, boğa yaprağı</i>	Infusion	Aerial parts	Asthma, expectorant	O.Ad.
<i>Prunus dulcis</i> (Mill.) D.A. Webb. GN-54	Rosaceae	<i>Badem</i>	Pressed	Seed	Laxative, wound	O.Ad., Ext.
<i>Quercus</i> sp. GN-25	Fagaceae	<i>Meşe palamudu, pelit, meşe kozası, bişe gezengevi</i>	Decoction, crude, eaten with honey	Leaf -Bonito	Diarrhea, eye disease-Kidney and urethra disease, hemorrhoids, rheumatism	O.Ad., Ext.
<i>Raphanus raphanistrum</i> subsp. <i>sativus</i> (L.) Domin. GN-121	Brassicaceae	<i>Turp tohumu</i>	Decoction	Seed	Appetizing, expectorant	O.Ad.
<i>Rhus coriaria</i> L. GN-34	Anacardiaceae	<i>Sumak, teti, turmlt, teter</i>	Dried and decoction	Leaf -Fruit	Indigestion, diabetes-Urethra, relaxation, rheumatism, cold	O.Ad.
<i>Rosa canina</i> L. GN-10	Rosaceae	<i>Kuşburnu, itburnu, gül burnu</i>	Infusion	Fruit	Flu	O.Ad.
<i>Rubus</i> sp. GN-20	Rosaceae	<i>Böğürtlen yaprağı</i>	Decoction	Root, leaf and flower	Cholesterol	O.Ad.
<i>Satureja</i> sp. GN-58	Lamiaceae	<i>Satureje, kekik</i>	Infusion and dried	Stem-Leaf, flower	Appetizing -Carminative, diuretic	O.Ad.
<i>Sideritis</i> sp. GN-103	Lamiaceae	<i>Dağ çayı</i>	Infusion	Flower and leaf	Appetizing, stomachache	O.Ad.
<i>Silybum marianum</i> Gaertn. GN-36	Asteraceae	<i>Deve dikenini tohumu</i>	Infusion	Seed	Appetizing, rheumatism, antipyretic	O.Ad.
<i>Sorbus aria</i> (L.) Crantz GN-8	Rosaceae	<i>Kuş üzümü</i>	Crude	Fruit	Blood pressure	O.Ad.
<i>Thymus</i> sp. GN-3	Lamiaceae	<i>Kekik</i>	Dried	Leaf	Antiseptic, expectorant, carminative, appetizing, indigestion	O.Ad., Ext.
<i>Tilia</i> sp. GN-24	Tiliaceae	<i>Ihlamur</i>	Infusion	Bracts	Cold, flu	O.Ad.
<i>Tribulus terrestris</i> L. GN-37	Zygophyllaceae	<i>Deve çökerten, çoban çökerten Deve dikenini</i>	Infusion	Leaf	Liver disease, tonsil disease	O.Ad.
<i>Urtica dioica</i> L. GN-120	Urticaceae	<i>Isırgan, cızlağan</i>	Decoction	Seed -Leaf, stem	Breast milk -Headache, eczema, skin care, edema, hair	O.Ad., Ext.
<i>Valeriana officinalis</i> L. GN-12	Valerianaceae	<i>Kedi otu</i>	Infusion	Root	Insomnia, relaxation	O.Ad.
<i>Viburnum opulus</i> L. GN-89	Caprifoliaceae	<i>Gilaboru</i>	Infusion	Fruit	Gall bladder and liver disease	O.Ad.
<i>Viscum album</i> L. GN-33	Loranthaceae	<i>Ökse otu, güvelek</i>	Infusion	Leaf and fruit	Liver disease	O.Ad.
<i>Vitis vinifera</i> L. GN-38	Vitaceae	<i>Siyah üzüm, üzüm çekirdeği</i>	Grinded and eat wih honey	Seed	Anemia	O.Ad.
<i>Zea mays</i> L. GN-60	Poaceae	<i>Mısır püskülü</i>	Infusion	Fruit tassel	Diuretic, urethra, relaxation	O.Ad.
<i>Zizyphus jujuba</i> Mill. GN-29	Rhamnaceae	<i>Hünnap</i>	Decoction	Fruit	Cough	O.Ad.

The abbreviation; O.Ad., oral administration; Ext., external use.

Table 2—The most families which contain taxa

Family name	The number of taxa	Rates %
Asteraceae	9	13.4
Apiaceae	7	10.4
Rosaceae	7	10.4
Lamiaceae	6	9.0
Brassicaceae	3	4.5
Others	35	52.3
Total	67	100

relation (5%), rheumatism, liver disease and diuretic (4%), kidney disease, cold, cough, laxative and carminative (4%), diabetes (4%) and the others medicinal indication (77%) as respectively and the other illness where urethra disease, respiration, skin care, intestinal disease and bronchitis. There are two administration type oral (80%) and external (20%). The use of medicinal plants has widespread among the people in Nevşehir.

In the literature review of the plants used in our study, we found out that 67 plants taxa and one mushroom are already used for medicinal purposes; however we could not find any literature use record for 6 plants. We report for the first time the medicinal uses of following plants as found in our research area: *Artemisia* sp. (halitosis), *Anethum graveolens* Ucria (gall bladder disease), *Capsella bursa-pastoris* Medik. (female reproductive system), *Coriandrum sativum* L. (female reproductive system), *Ferula assafoetida* H. Karst. (wart), *Inula helenium* L. (bile disease, spleen disease).

Conclusion

Sixty seven medicinal plant species belonging to 35 families have found in the research area; however we could not find any literature use record for 6 plants. These plants are used in the treatment of many diseases. By drying and making infusions or decoctions of these plants are used by local people during the whole year. The most frequently used medicinal plant species are *Vitis vinifera* L., *Matricaria chamomilla* Blanco, *Crataegus monogyna* Jackq., *Mentha longifolia* (L.) L., *Thymus* sp., *Urtica dioica* L. and *Viburnum opulus* L. Medicinal plant use

bears special importance since it directly affects human health. It would be beneficial to conduct pharmacologic studies on such plants.

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