

## Plants used as painkiller in traditional treatment in Turkey - II Headache

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**ABSTRACT:** Turkey has many plants used by public for the treatment of various diseases. The usage of these plants has been transferred from generation to generation. Ethnobotanical studies carried out by traditional methods of treatment are recorded and this information is aimed to contribute to the development of the drug. In this study, it has been reached to 88 taxa that is used in traditional treatment against headache in Turkey and aimed to give information about scientific and local names, families, used parts and usage of these taxa in headache. in headache.

**KEYWORDS:** Headache, medicinal plants, traditional treatment, Turkey.

### 1. INTRODUCTION

Pain is an important health problem that affects millions of people every year and develops due to various causes and has a negative impact on quality of life. International health care organizations have defined pain as a sign of disease [1]. It is also accepted that pain is a disease in itself [2].

Turkey has a great diversity in terms of climate and geographical conditions. This diversity brings the advantage of having a rich plant cover. Approximately eleven thousand plant species are growing in our country, and three thousand of them are endemic [3-5]. From the early ages, the plants are used by people as food or to prevent health problems. Medicinal plants, which have been traditionally used by the public at the time, are recorded with ethnobotanical investigations. Such studies are a very important source of information for drug research. Folk medicine has an important place both in the world and in our country in health field. Traditional treatment is frequently used in the treatment of diseases, especially in less developed regions. In this study, plants which have traditionally been used as painkillers in Turkey have been identified by screening ethnobotanical studies. The findings are classified according to pain types and will be published as an article series. This study, which is second article of series, contains the plants used against headache.

Headache is the most common type of sickness. It may be caused by cold and fatigue or can be a symptom of a serious illness. Some disorders such as ocular disorders, high blood

pressure, presence of urine in the head and neck region, meningitis, sinusitis, otitis, head trauma and tension lead to headaches. For the treatment of continuous headache, sudden onset of severe headache, or headache that causes visual and hearing complaints, drowsiness in crows and stools, daytime headache and aggravated headaches, time should not be wasted by self-treatment and should be referred to a doctor [6]. In simple headaches, various plants can be used to relieve pain.

### 2. MATERIAL AND METHODS

This study is prepared by searching thesis at the Council of Higher Education theses Center and ethnobotanical studies conducted in various parts of the Turkey with selecting plants used for headache.

### 3. RESULTS AND DISCUSSION

This study reached 88 taxa traditionally used against headache in Turkey. The information of the plant taxa (scientific and local names, families, used parts and usage in headache) in this research is given in Table 1.

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**Table 1.** The plants used in traditional treatment against headache in Turkey.

Botanical name	Family	Local name	Plant part used	Preparation, administration and use	Ref.
<i>Achillea biebersteinii</i> Afan.	Asteraceae	Arı çiçeği, Erkurtaran, Girtkesan, Çiçege maran, Sarı çiçek, Ayvadana, Sancı çiçeği	Aerial part	Inf., Int.	[7]
<i>A. millefolium</i> L. subsp. <i>pannonica</i> (Scheele) Hayek	Asteraceae	Ayvadana, Civanperçemi, Kurpotu, Ronağvaç, Sporiş, Krannavaz	Leaf	Dec., Int.	[8]
<i>A. nobilis</i> L. subsp. <i>neilreichii</i> (Kerner) Formanek	Asteraceae	Civanperçemi, Ayvadana, Aslan bıyığı, Kurt otu	Aerial part	Dec., Int.	[9]
<i>Acorus calamus</i> L.	Araceae	Eğir, Hazanbel, Azak eğiri	Root	Inf.	[10]
<i>Alcea hohenackeri</i> (Boiss.&Huet.) Boiss.	Malvaceae	Hero	Root	Dec., Int.	[11]
<i>Allium cepa</i> L.	Amaryllidaceae	Soğan, Pivaz, Kıska, Arpacık soğanı, Karacasoğan	Stem, Root and Leaf	Eaten	[12]
<i>A. sativum</i> L.	Amaryllidaceae	Sarımsak	Bulb	Eaten Crushed, Ext.	[13; 12] [9]
<i>Anethum graveolens</i> L.	Apiaceae	Tere otu, Dereotu, Arapsaçı, Çarşır, Kırca, Tere	Seed	Eaten	[9]
<i>Arum conophalloides</i> Kotschy ex Schott	Araceae	Yılan bıçağı	Leaf	Heated, Ext.	[14]
<i>A. elongatum</i> Steven	Araceae	El kabartan, Gavur otu, Kabarcık, Kabarağı, Yılandık, Yılan dili	Leaf	Ext.	[15]
<i>Artemisia absinthium</i> L.	Asteraceae	Granguruh, Tahliş, Pelin otu, Acı yavşan	Aerial part	Dec., Int.	[11]
<i>A. spicigera</i> C.Koch	Asteraceae	Gıyabend	Aerial part	Dec., Int.	[16]
<i>Ballota nigra</i> L. subsp. <i>anatolica</i> P.H. Davis	Lamiaceae	Arı otu	Leaf	Dec., Int.	[17]
<i>Bellis perennis</i> L.	Asteraceae	Yoğurt çiçeği, Papatya, Beyaz papatya	Aerial part Whole plant Flower	Dec., Int. + <i>Lawsonia inermis</i> , Ext. Not stated	[18] [19] [20]
<i>Buxus sempervirens</i> L.	Buxaceae	Şimşir	Leaf	Dec., Int.	[21]
<i>Cerasus avium</i> (L.) Moench	Rosaceae	Kiraz	Fruit	Fresh or dried eaten	[11]
<i>C. brachypetala</i> Boiss. var. <i>bornmuelleri</i> (Schneider) Browicz	Rosaceae	Helhelok	Fruit	Fresh or dried eaten	[11]
<i>Cistus creticus</i> L.	Cistaceae	Pambulcuk, Pamukla otu, Çoban çırısı, Karahan, Garahan	Aerial part	Incense, Ext.	[9]
<i>Citrus limonum</i> (L.) Burnm. fil.	Rutaceae	Limon	Pericarp	Ext.	[22]
<i>C. sinensis</i> (L.) Osbeck	Rutaceae	Portakal	Pericarp	Ext.	[22]
<i>Coffea arabica</i> L.	Rubiaceae	Kahve	Seed	Inf., Int.	[23]

<i>Cornus mas L.</i>	Cornaceae	Kızılık, Püren	Fruit	Paste, Int.	[24]
<i>Crataegus aronia (L.) Bosc.ex DC. var. aronia</i>	Rosaceae	Sarı alıç, Ahlat, Alıç	Fruit	Crushed, +Sugar, Int.	[22]
<i>Cucumis sativus L.</i>	Cucurbitaceae	Salatalık, Siğilli salatalık, Acur	Fruit	Eaten on an empty stomach	[9]
<i>Cydonia oblonga Miller</i>	Rosaceae	Ayva, Verekilfercel	Leaf	Dec., Int.	[8; 25; 26]
<i>Cynodon dactylon (L.) Pers. var. villosus Regel</i>	Poaceae	Ayrık, Ayrık otu	Rhizome	Chewed, Int.	[13]
<i>Dracunculus vulgaris Schott</i>	Araceae	Yılan pancarı, Yılan ebesi, Yılan burçağı, Yılanbaşı, Yılan darısı	Leaf	Ext.	[27]
<i>Ecballium elaterium (L.) A. Rich.</i>	Cucurbitaceae	Acı kavun, Şeytan kavunu, Cırtlak, Eşek hıyarı, Ebuçeyil kavunu, Gargadüneği, Acı bostan, Acı kelek, Şeytan keleş	Fruit juice Root	Dropped into the nostrils Crushed, Ext.	[9; 28] [29]
<i>Ephedra major Host</i>	Ephedraceae	Deniz üzümü	Fruit	Inf., Int.	[30]
<i>Eremurus spectabilis Bieb.</i>	Liliaceae	Helige, Çiriş	Root	Crushed, Ext.	[31; 32]
<i>Ficus carica L. subsp. carica</i>	Moraceae	İncir	Leaf	Ext.	[15]
<i>Fritillaria acmopetala Boiss. subsp. wendelboi Pax</i>	Liliaceae	Ağlayan gelin	Bulb	Cooked, Mush, Ext.	[33]
<i>Glaucium leiocarpum Boiss.</i>	Papaveraceae	Gelincik	Leaf	Ext., Cigaret	[30; 34]
<i>Hordeum murinum L.</i>	Poaceae	Kılçık otu, Arpa	Leaf	Eaten	[35]
<i>Hypericum scabrum L.</i>	Hypericaceae	Kantaron	Aerial part	Inf., Int.	[12]
<i>Inula heterolepis Boiss.</i>	Asteraceae	Caye röe, Çayotu	Aerial part	Inf., Int.	[30; 36]
<i>Juglans regia L.</i>	Juglandaceae	Ceviz	Leaf Pericarp	Mush, Ext. + <i>Lawsonia inermis</i> , Ext. Dec., Int.	[37] [15] [38]
<i>Juniperus oxycedrus L.</i>	Cupressaceae	Ardıç	Fruit	Eaten, In the morning on an empty stomach	[15]
<i>Lagenaria siceraria (Mol.) Standl. var. clavata</i>	Cucurbitaceae	Su kabağı	Leaf	Ext.	[22]
<i>Laurocerasus officinalis Roem.</i>	Rosaceae	Karayemiş	Leaf	Eaten	[39]
<i>Lavandula officinalis Chaix</i>	Lamiaceae	Lavanta	Aerial part	Inf.	[10]
<i>L. stoechas L.</i>	Lamiaceae	Karabaş otu, Kocabaş otu	Aerial part	Dec., Int.	[14; 21; 40]
<i>L. stoechas L. subsp. stoechas</i>	Lamiaceae	Karahan, Karabaş, Karabaş otu, Dede burnu, Karaburun, Morbaş	Flowering branch	Inf., Int.	[41]
<i>Lycopodium clavatum L.</i>	Lycopodiaceae	Aslan pençesi	Leaf	Inf./Dec.	[21]
<i>Malus slyvestris Mill. subsp. orientalis (uglitzk.) Browicz var. orientalis</i>	Rosaceae	Sevтіrşk, Yabani elma, Domuz elması, Ekşi elma	Fruit	Dec., Int.	[11]

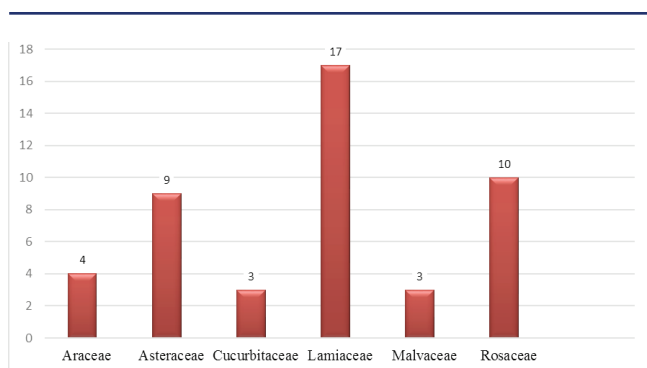
<i>Malva neglecta</i> Wallr.	Malvaceae	Tolk, Tolga küvi, Tolga badinga, Ebegümeçi, Ebem ekmeği, Gömeç	Leaf	Inf., Int.	[13]
<i>M. sylvestris</i> L.	Malvaceae	Ebegümeçi, Kabaot, Usluebegüm eci, Develik, Kedigözü, Evelik, Gömeç	Flower	Inf., Int.	[29]
<i>Matricaria chamomilla</i> L.	Asteraceae	Bopatça, Bupatçe, Papatça, Papatya, Keloğlan çiçeği	Capitulum	Inf., Int.	[15]
<i>Melissa officinalis</i> L. subsp. <i>inodora</i> (Bornm.) Bornm	Lamiaceae	Turunçcuk	Aerial part	Inf.	[42]
<i>Mentha spicata</i> L. subsp. <i>tomentosa</i> (Briq.) Harley	Lamiaceae	Yarpız	Leaf	Inf., Int.	[33]
<i>Nasturtium officinale</i> R.Br.	Brassicaceae	Su gedimesi, Dere gedimesi, Gädime, Kaz aya, Tujik, Su teresi, Deli kereviz, Su kazayağı	Whole plant	Eaten, Int.	[43]
<i>Ononis spinosa</i> L. subsp. <i>leiosperma</i> (Boiss.) Sirj.	Fabaceae	Siyek	Aerial part	Ashes of burned, (+egg), Wrapped in a cloth, Ext.	[13]
<i>Origanum onites</i> L.	Lamiaceae	Kekik, Eşek kekiği, Beyaz kekik, Deli kekik, Kara kekik, Taş kekiği, Akbaş kekik	Aerial part	Essential oil, Ext.	[22]
<i>O. vulgare</i> L. subsp. <i>hirtum</i> (Link) Ietswaart	Lamiaceae	Kekik, Kekikotu, Köfteotu, deli kekik, Karakekik, Güve kekiği, Yer kekiği, Keklik, Ak kekik, Ayaklı kekik, Mercan köşk	Leaf	Chewed	[8]
<i>Peganum harmala</i> L.	Zygophyllaceae	Üzerlik, Harmal, Boğir, Bohol, Mekeç, Nazarlık otu	Seed	Dec./Inf., Int.	[44]
<i>Pistacia terebinthus</i> L. subsp. <i>palaestina</i> (Boiss.)Engler	Anacardiaceae	Çöğüre, Menengiç, Çıtırmaç, Sakızlık	Leaf	Ext.	[14]
<i>Potentilla anserina</i> L.	Rosaceae	Aslan kecesi	Whole plant	Dec.	[45]
<i>Primula vulgaris</i> Huds. subsp. <i>sibthorpii</i> (Hoffmans.) W.W.S.M. et. Forest	Primulaceae	Yabani menekşe, Yaban marulu	Leaf and Flower	Inf., Int.	[46]
<i>Prunus x domestica</i> L.	Rosaceae	Huluk	Fruit	Dec., Int.	[11]
<i>Punica granatum</i> L.	Punicaceae	Hınar, Nar, İnar, Hicaz narı	Fruit	Eaten	[47]
<i>Raphanus sativus</i> L.	Brassicaceae	Turp, Yabani turp otu, Deli turp otu, Karaturp	Aerial part	Eaten	[9]
<i>Rheum ribes</i> L.	Polygonaceae	Revas, Işkın	Root	Crushed, + <i>Lawsonia inermis</i> , Ext.	[11]
<i>Rhododendron ponticum</i> L. subsp. <i>ponticum</i>	Ericaceae	Mor çiçekli orman gülü, Komar, Ağu	Leaf Aerial part	Eaten Ext.	[39] [48; 49]
<i>Rhus coriaria</i> L.	Anacardiaceae	Sumak, Somak, Somak otu	Leaf	Dec., Ext.	[14]

<i>Robinia pseudoacacia</i> L.	Fabaceae	Akasya	Flower	Eaten	[50]
<i>Rosa canina</i> L.	Rosaceae	Kuşburnu, İt burnu, Öküzgözü, Yaban gülü, Kozalak	Leaf	Inf., Int.	[7; 9; 29; 51]
<i>Rubia tinctorum</i> L.	Rubiaceae	Rünas, Boya otu, Böğürtlen, Kızılboya	Root	Crushed, + <i>Lawsonia inermis</i> , Ext.	[11]
<i>Rubus sanctus</i> Schreber	Rosaceae	Böğürtlen, Börtlen, Orman üzümü, Orman gülü, Kür	Fruit	Eaten	[15]
<i>Rumex acetosella</i> L.	Polygonaceae	Küçük kuzu kulağı, Ekşi kulak, İlibada, Kemekulağı	Aerial part	Granulated, Int.	[52]
<i>Salix alba</i> L.	Salicaceae	Söğüt	Leaf	Dec./Inf., Int.	[8; 53]
<i>S. babylonica</i> L.	Salicaceae	Salkım söğüt	Leaf	Inf., Int.	[53]
<i>Salvia fruticosa</i> Miller	Lamiaceae	Adaçayı, Almageyik, Şapla, Yakı otu	Aerial part	Inf., Int.	[15]
<i>S. tomentosa</i> Miller	Lamiaceae	Adaçayı, Şaplağa, Yakı otu, Şalpa, Sancı otu, Ellik otu, Kancık, Hoşafıma, Moşafı, Muşafı	Aerial part	Inf., Int.	[15]
<i>Satureja hortensis</i> L.	Lamiaceae	Dağ kekiği, Zahter	Aerial part	Inf., Int.	[12]
<i>Scutellaria orientalis</i> L. subsp. <i>pichleri</i> (Stapf) Edmondson	Lamiaceae	Kesel Mahmut	Aerial part	Eaten	[11]
<i>S. orientalis</i> L. subsp. <i>virens</i> (Boiss.& Kotschy) Edmondson	Lamiaceae	Kesel Mahmut, Ververk	Aerial part Leaf	Eaten Dec., Int.	[11] [54]
<i>Sinapis arvensis</i> L.	Brassicaceae	Hardal, Sarı hardal, Hardal otu, Gıcı, Kara hardal	Root Leaf	Chewed, Int. Not stated	[13] [55]
<i>Solanum tuberosum</i> L.	Solanaceae	Patates Gumpir	Tuber Tuber cortex	Sliced, Ext. Ext.	[9; 40; 56; 57; 58] [14]
<i>Stachys lavandulifolia</i> Vahl.	Lamiaceae	Devegülü, Tüylü çay	Flower	Inf., Int.	[59]
<i>S. mardinensis</i> (Post) R.Mill.	Lamiaceae	Kaya pungu, Punge tehta	Whole plant	Not stated	[60]
<i>Stellaria media</i> (L.) Vill. subsp. <i>media</i>	Caprifoliaceae	Zurzula	Stem and leaf	Cooked, Eaten	[24]
<i>Tanacetum balsamita</i> L.	Asteraceae	Marsuvan otu	Aerial part	Inf., Int.	[30]
<i>Thymbra spicata</i> L. var. <i>spicata</i>	Lamiaceae	Seyil kekiği, Kara kekik, Karaçekme, Zahter, Eşek zahteri, Kırçayı, Bayır kekiği, Karabaş otu, Kaya kekiği, Şeker otu	Aerial part Flower	Inf., Int. Dec.	[9; 27] [9]
<i>Tilia argentea</i> Desf. ex DC.	Tiliaceae	Ihlamur	Flower	Dec., Int.	[29]
<i>Urtica pilulifera</i> L.	Urticaceae	Isırgan, İstirgaç	Aerial part	Inf., Int./Ext.	[9]
<i>Viola occulta</i> Lehm.	Violaceae	Menekşe	Flowering leaf	Dec., Int.	[50]
<i>Viscum album</i> L. subsp. <i>album</i>	Loranthaceae	Ökse otu, Büvelek otu, Burç, Buruç, Güvelek, Puruş	Aerial part Fruit	Dec., Mouthwash Dec., Int.	[9] [61]
<i>Vitex agnus-castus</i> L.	Verbenaceae	Hayıt, Ayıt	Leaf	Ext.	[41]

Inf: Infusion, Dec: Decoction, Int: Internal, Ext: External

Turkey has many plants used by public for the treatment of various diseases. The usage of these folk medicine which is prepared by these plants has been transferred from generation to generation. Ethnobotanical studies carried out by traditional methods of treatment are recorded and this information is aimed to contribute to the development of the drug.

This study reached 88 taxa traditionally used against headache in Turkey. These plants are mainly from Lamiaceae (17 taxa), Rosaceae (10 taxa), Asteraceae (9 taxa), Araceae (4 taxa), Cucurbitaceae (3 taxa) and Malvaceae (3 taxa) families (Figure 1).



**Figure 1.** Graph of main families used in traditional treatment against headache in Turkey.

Most used plants as painkillers in traditional treatment against headache in Turkey are *Solanum tuberosum*, *Rosa canina*, *Allium sativum*, *Bellis perennis*, *Cydonia oblonga*, *Ecballium elaterium*, *Juglans regia*, *Lavandula stoechas*, *Thymbra spicata* var. *spicata*. Some of the plants in the table (*Arum* sp., *Buxus sempervirens*, *Ecballium elaterium*, *Fritillaria acmopetala*, *Glaucium leiocarpum*, *Hypericum scabrum*, *Inula heterolepis*, *Laurocerasus officinalis*, *Peganum harmala*, *Primula vulgaris* subsp. *sibthorpii*, *Prunus domestica*, *Rhododendron ponticum* subsp. *ponticum*, *Robinia pseudoacacia*, *Tanacetum balsamita*, *Viscum album*) are known as poisonous. It is important to note that some of the poisonous plants are being used internally.

The most used families such as Lamiaceae, Rosaceae and Asteraceae are rich in essential oil. Essential oils have sedative and antispasmodic effects. Because of these effects, the plants belong to these families are used against headache. These compounds (especially menthol) provide constriction of loose veins. In the brain, the veins that relax and compress the nerves become narrowed by the effect of these compounds and the headache is reduced. Except for this effect, plants used are also known to contain analgesic, anti-inflammatory and tranquilizing compounds. These effects can also treat simple causes underlying the headache. The most commonly used parts of plants are; leaves, aerial parts, fruits, flowers and roots. Generally, parts such as leaves, flowers and aerial parts

are used externally or by wrapping around after decoction or infusion is made. Parts such as root, seed and aerial parts are crushed and put into a mush and then wrapped around head and used externally. Fruits fresh or dried are usually eaten against headache.

We hope that this study will contribute to the development of new drugs to be used in the treatment of headache.

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