

Plants used as painkiller in folk medicine in Turkey – III: Rheumatic pain

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ABSTRACT: There are many plants used by the public in the treatment of various diseases in Turkey. The folk remedies prepared with these plants from which treatment and how they used have been reached to day-to-day by transferring the generations. The traditional treatment methods are recorded by ethnobotanical researches and it is aimed to contribute to drug development studies. In this study, which was prepared by screening of ethnobotanical researches, 72 taxa which used in traditional treatment against rheumatic pain in Turkey are reached and the scientific and local names, families, used parts of these taxa and the use forms in rheumatic pain were compiled. According to the research done, families that are commonly used for rheumatic pain are Ranunculaceae (8 taxa), Asteraceae (5 taxa), Brassicaceae (5 taxa), Lamiaceae (5 taxa), Apiaceae (4 taxa) and Liliaceae (4 taxa). The plants used for rheumatic pain contain analgesic, anti-inflammatory, antiseptic and rubefian compounds. Rubefian compound containing species are applied externally to the rheumatoid region and act by increasing the blood supply of the region. Analgesic, anti-inflammatory and antiseptic active species are used in the form of decoction / infusion both internally and externally.

KEYWORDS: Rheumatic pain; Traditional treatment; Medicinal plants; 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 third article of series, contains the plants used against rheumatic pain.

Diseases that cause swelling, pain, restriction of movement, and various disorders in the internal organs are called rheumatism. Factors such as genetic, age, gender, some medications, accidental injuries, climate, some diseases affect the pattern and severity of the disease. Rheumatism is divided into two, as inflammatory and non-inflammatory. Inflammatory rheumatism is the rheumatism caused by microbes that break down the immune system. In non-inflamed rheumatism, thinning and erosion occurs in the joints. Bone peel may occur. It can be caused by an accident.

Rheumatic diseases can be divided into 4 groups depending on where they are:

- Soft tissue rheumatism (the most important and most common type.)
- Rheumatoid arthritis
- Internal organ rheumatism
- Multiple facts [6].

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Rheumatic symptoms are distinguished by the following seven characteristics: 1. pain or discomfort, usually perceived in the vicinity of one or more joints (including the spine); 2. pain on motion of the affected area(s); 3. soreness (to the touch) of the affected region(s); 4. stiffness of the affected part(s), especially after a period of immobility; 5. symptomatic improvement after mild exercise, but worsening after vigorous exercise; 6. symptomatic worsening in response to climatic factors, especially falling barometric pressure and rising humidity; 7. symptomatic improvement in response to warming the affected area(s). Not all rheumatic pain syndromes have all seven characteristics, but most will at least have the first four. Rheumatic pain is almost always localized. It may be localized to one region of the body (e.g., one shoulder girdle) or to a single structure at multiple sites (e.g., the peripheral joints) [7].

Once the underlying cause of the disease is diagnosed in rheumatism treatment, the appropriate treatment method is determined. Analgesic and anti-inflammatory drug groups are preferred for rheumatic pain. Due to various side effects, drug interactions and high cost in synthetic drugs, interest in herbal medicines is increasing day by day. Among the population, the variety of plants used against rheumatic pain is quite high.

2. RESULTS

In this study, 72 taxa were obtained against various rheumatic pain in various regions of Turkey. Scientific names, families, local names, used parts and usage of these taxa are shown in Table 1.

Table 1. The plants used in traditional treatment against rheumatic pain in Turkey.

Botanical name	Family	Local name	Plant part used	Preparation, administration and use	Ref.
<i>Anemone coronaria</i> L.	Ranunculaceae	Lale, Yelotu	Flower	Ext. to rheumatic area	[8]
<i>Apium graveolens</i> L.	Apiaceae	Kereviz	Seed and leaf	Dec.	[9]
<i>Arctium minus</i> (Hill.) Bernh. subsp. <i>pubens</i> (Bab.) Arenes	Asteraceae	Kuncurk, Belg misek, Acı kalabak, Kalağan	Leaf	Ext. to rheumatic area	[10; 11; 12]
<i>Arum elongatum</i> Steven	Araceae	El kabartan, Gavur otu, Kabarcık, Kabarağı, Yılançık, Yılan dili	Root	Ext. to rheumatic area	[13]
<i>Artemisia spicigera</i> C.Koch	Asteraceae	Gıyabend	Aerial part	Dec., Int.	[10]
<i>Brassica elongata</i> Ehrh	Brassicaceae	Hardal otu, İstapan	Seed	Mush, Ext. to rheumatic area	[14]
<i>B. oleracea</i> L. var. <i>acephala</i> DC.	Brassicaceae	Karalahana, Pali	Leaf	Heated, Ext. to rheumatic area	[5]
<i>B. rapa</i> L. var. <i>rapa</i>	Brassicaceae	Şalgam	Root	Grated, Ext. to rheumatic area	[16]
<i>Bryonia alba</i> L.	Cucurbitaceae	Yer kabağı	Tuber	Ext. to rheumatic area	[11; 19]
<i>Capparis spinosa</i> L. var. <i>spinosa</i>	Capparaceae	Gebere, Gevil, Kapari, Kebere	Leaf	Ext. to rheumatic area	[8; 18]
<i>Caucalis platycarpus</i> L.	Apiaceae	Pıtrak, Bitrak, Dügünotu	Aerial part	Crushed, Ext. to rheumatic area	[19]
<i>Cistus laurifolius</i> L.	Cistaceae	Yavşanak, Tavşanak, Tavşancık, Ladenotu, İldon, Murt	Leaf	Crushed, Mush Ext. to rheumatic area	[20]

Table 1. (Continued) The plants used in traditional treatment against rheumatic pain in Turkey.

Botanical name	Family	Local name	Plant part used	Preparation, administration and use	Ref.
<i>C. salvifolius</i> L.	Cistaceae	Tavşanak, Tavşancık	Leaf	Crushed, Mush, Ext. to rheumatic area	[20]
<i>Clematis flammula</i> L.	Ranunculaceae	Manzaotu, Bahar	Aerial part	Ext. to rheumatic area	[17]
<i>C. vitalba</i> L.	Ranunculaceae	Karabağ, Deli asma, Diş otu, Sarmaşık, Kedi bağırsağı, Akbağ, Akçabağ	Stem bark	+Olive oil, Waited, Ext. to rheumatic area	[11]
<i>Colchicum speciosum</i> Steven	Liliaceae	Vargit, Kalkgit, Çumak, Zumak	Seed	Crushed, Ext. to rheumatic area	[21]
<i>Cynodon dactylon</i> (L.) Pers. var. <i>dactylon</i>	Poaceae	Beygit otu, Ayrık otu, Bırcırgan, Eklem otu	Aerial part	Dec., Int.	[13]
<i>C. dactylon</i> (L.) Pers. var. <i>villosus</i> Regel	Poaceae	Ayrık, Ayrık otu	Rhizome	Dec., Int.	[11]
<i>Daphne mucronata</i> Royle	Thymelaeaceae	Tevri	Stem bark	Crushed, Cooked, Mush, Ext. to rheumatic area	[22]
<i>Dioscorea communis</i> (L.)Caddick & Wilkin	Dioscoreaceae	Dolanbaç, Acı filiz, Acı ot, Adem otu, Akıllı sarmaşık, Köpek üzümü	Root	Grated, Ext. to rheumatic area	[13]
<i>Diplotaenia cachrydifolia</i> Boiss.	Apiaceae	Siyabu	Root	Dec., Int.	[10; 22]
<i>Echium italicum</i> L.	Boraginaceae	Kuşkonmaz diken	Aerial part	Ext. to rheumatic area	[17]
<i>Equisetum arvense</i> L.	Equisetaceae	Su otu, Kırk kilitliot, Minarecik, At kuyruğu, Eklemeli ot, Eklice otu, Kırkkilit, Kilit otu, Mide otu	Aerial part	Dec., Ext. to rheumatic area	[13]
<i>Eryngium bithynicum</i> Boiss.	Apiaceae	Boğa diken	Aerial part	Dec., Ext. to rheumatic area	[23]
<i>Eucalyptus camaldulensis</i> Dehnh.	Myrtaceae	Okalıptus, Sulfata	Leaf	Essential oil, Ext. to rheumatic area Dec., Ext. to rheumatic area	[8] [24]
<i>Fritillaria acmopetala</i> Boiss. subsp. <i>wendelboi</i> Pax	Liliaceae	Ağlayan gelin	Bulb	Cooked, Mush, Ext. to rheumatic area	[25]
<i>Galium aparine</i> L.	Rubiaceae	Yapışkan otu	Whole plant	Inf., Int.	[18]
<i>Hordeum murinum</i> L.	Poaceae	Kılçık otu, Arpa	Aerial part	Dec., Ext. to rheumatic area	[26]

Table 1. (Continued) The plants used in traditional treatment against rheumatic pain in Turkey.

Botanical name	Family	Local name	Plant part used	Preparation, administration and use	Ref.
<i>Hypericum perforatum</i> L.	Hypericaceae	Sarı kantaron, Kanter çiçeği, Alaçay, Boyalık otu, Çayotu, Kantarot	Aerial part	Crushed in olive oil, Ext. to rheumatic area	[27; 28; 29]
<i>Juglans regia</i> L.	Juglandaceae	Ceviz	Fruit	Dec., Ext. to rheumatic area Mush, Ext. to rheumatic area Dec., Ext. to rheumatic area Ext. to rheumatic area	[8] [15] [19] [16; 13]
<i>Laurus nobilis</i> L.	Lauraceae	Akdeniz defnesi, Tenel, Tehnel, Defne	Seed Oil	Crushed, +Honey, Eaten Ext. to rheumatic area	[27; 30] [31]
<i>Lavandula officinalis</i> Chaix	Lamiaceae	Lavanta	Aerial part	Inf.	[32]
<i>Linum usitatissimum</i> L.	Linaceae	Keten	Seed	+Milk, Ext. to rheumatic area	[33]
<i>Matricaria aurea</i> (Loefl.) Sch.Bip.	Asteraceae	Beybunıç, Gayeka seva, Gihake seva, Çiçeğe zer	Aerial part	Mush, Ext. to rheumatic area	[34]
<i>M. chamomilla</i> L.	Asteraceae	Bopatça, Papatça, Papatya, Keloğlan çiçeği	Flower	Inf., Ext. to rheumatic area	[13]
<i>Medicago rigidula</i> (L.) All. var. <i>rigidula</i>	Fabaceae	Çakırdikeni	Aerial part	Dec., Int./Mush, Ext. to rheumatic area	[18]
<i>Mentha longifolia</i> (L.) Hudson subsp. <i>longifolia</i>	Lamiaceae	Nane, Su nanesi, Deli nana, Yarpuz, Kokulu nane	Leaf	Mush, Ext. to rheumatic area	[9]
<i>Opuntia ficus-indica</i> (L.) Miller	Cactaceae	Lap inciri, Dikenli yemiş, Eşek dikeni, Kaynana dili	Leaf	Dec., Int.	[13]
<i>Paeonia peregrina</i> Mill.	Paeoniaceae	Ay gülü, Beşparmak, Dolaman, Geyik lalesi, Top lale	Root	Ext. to rheumatic area	[13]
<i>Pinus nigra</i> Am. subsp. <i>pallasiana</i> (Lamb.) Holmboe	Pinaceae	Karaçam	Resin	+Milk, Cooked, Ext. to rheumatic area	[23]
<i>Pistacia khinjuk</i> Stocks	Anacardiaceae	Gezan, Bittim	Gum	Ext. to rheumatic area	[34]

Table 1. (Continued) The plants used in traditional treatment against rheumatic pain in Turkey.

Botanical name	Family	Local name	Plant part used	Preparation, administration and use	Ref.
<i>P. terebinthus</i> L. subsp. <i>terebinthus</i>	Anacardiaceae	Çitlembik, Çitlemik, Çetlemik	Seed	Oil, Ext. to rheumatic area	[35]
<i>Platanus orientalis</i> L.	Platanaceae	Çınar	Leaf	Inf., Int. Dec., Int.	[9] [13]
<i>Primula acaulis</i> (L.) L.	Primulaceae	Zimbon otu, Menekşe	Flower	Crushed	[21]
<i>Prunus spinosa</i> L.	Rosaceae	Ekşi erik, Dağ eriği	Fruit	Compote, Int.	[36]
<i>Ranunculus arvensis</i> L.	Ranunculaceae	Su pıtrağı, Başdırnağı, Pıtrak, Sarı pıtrak	Aerial part	Crushed, Ext. to rheumatic area	[20]
<i>R. constantinopolitanus</i> (DC.) Dá'urv.	Ranunculaceae	Çınarcık, Gağcak, Sakız otu	Leaf	Mush, Ext. to rheumatic area	[37]
<i>R. kotschyi</i> Boiss.	Ranunculaceae	Sarı çiçek	Leaf	Mush, Ext. to rheumatic area	[22]
<i>R. muricatus</i> L.	Ranunculaceae	Çayır otu	Aerial part	Crushed, Ext. to rheumatic area	[27]
<i>R. pinardii</i> (Stev.) Boiss.	Ranunculaceae	Gazyacağı otu, Karaz	Aerial part	Crushed, Ext. to rheumatic area	[38]
<i>Raphanus sativus</i> L.	Brassicaceae	Turp, Yabani turp otu, Deli turp otu, Karaturp	Root	Grated, Ext. to rheumatic area	[39]
<i>Rosmarinus officinalis</i> L.	Lamiaceae	Biberiye, kisre	Leaf	Cooked, Ext. to rheumatic area	[40; 41]
<i>Rubus sanctus</i> Schreber	Rosaceae	Böğürtlen, Börtlen, Orman üzümü, Orman gülü, Kür, Kocagız kürü	Flower	Inf., Int.	[9]
<i>Salix alba</i> L.	Salicaceae	Söğüt	Leaf	Ext. to rheumatic area	[18]
<i>S. viminalis</i> L.	Salicaceae	Söğüt	Leaf	Dec., Int.	[39]
<i>Sambucus ebulus</i> L.	Caprifoliaceae	Otsu mürver, Yir otu, Ayıboğan, Şahmelek otu, Piran, Lüver, Lor, Mürver, Memer, Sultan otu, Buzka	Leaf	+ <i>Hederae helicis</i> folium Inf., Ext. to rheumatic area	[30]
			Root	Crushed, Ext. to rheumatic area	[37]
			Aerial part	Dec., Ext. to rheumatic area	[27; 33]
<i>S. nigra</i> L.	Caprifoliaceae	Siltan otu, Bızga, Kokar ot, Şahmelik, Lüvor, Melikşah, Deve kulağı	Leafy branch	Cooked, Ext. to rheumatic area	[11]

Table 1. (Continued) The plants used in traditional treatment against rheumatic pain in Turkey.

Botanical name	Family	Local name	Plant part used	Preparation, administration and use	Ref.
<i>Sinapis arvensis</i> L.	Brassicaceae	Hardal, Sarı hardal, Kara hardal	Young branch	Chopped, Ext. to rheumatic area	[27]
<i>Smilax excelsa</i> L.	Smilacaceae	Acıfiliz	Tuber	Ext. to rheumatic area	[42]
<i>Solanum melongena</i> L.	Solanaceae	Patlıcan	Fruit stalk	Cooked in water, Sediment +Olive oil, Ext. to rheumatic area	[43]
<i>Tamus communis</i> L.	Dioscoreaceae	Tarla sarmaşığı, Kır sarmaşığı, Çertlemik, Sincan, Acıot, Ölüm körü	Whole plant	Ext. to rheumatic area	[44]
			Rhizome	Crushed, Ext. to rheumatic area	[31]
<i>T. communis</i> L. subsp. <i>cretica</i> (L.) Kit Tan	Dioscoreaceae	Sarmaşık, Yandıran, Tilki üzümü	Fruit	Ext. to rheumatic area	[11]
			Root	Cuttet, Ext. to rheumatic area	[24]
<i>Teucrium chamaedrys</i> L. subsp. <i>sinuatum</i> (Celak) Rech.F.	Lamiaceae	Keselmehmut, Derman	Aerial part	Eaten	[22]
<i>Thymbra spicata</i> L. var. <i>spicata</i>	Lamiaceae	Seyil kekiği, Kara kekik, Karaçekme, Zahter, Bayır kekiği, Karabaş otu, Kaya kekiği, Şeker otu	Aerial part	Inf., Int.	[13]
<i>Tilia argentea</i> Desf. ex. DC.	Tiliaceae	İhlamur	Cortex	Heated, Ext. to rheumatic area	[9]
<i>Urginea maritima</i> (L.)Baker	Asparagaceae	Şalgaba, Yakıcı soğan	Bulb	Core, Ext. to rheumatic area	[24]
				Ext. to rheumatic area	[23]
<i>Urtica dioica</i> L.	Urticaceae	Acı ısırgan, Büyük ısırgan otu, Gezınk, Cızlağan, Dızlağan, Koprıga	Leaf	Ext. to rheumatic area/Dec., Ext. to rheumatic area	[30; 22; 15; 44; 45]
			Aerial part	Cooked, Mush, Ext. to rheumatic area	[46]
				Ext. to rheumatic area	
<i>U. membranacea</i> Poiret	Urticaceae	Isırgan, Karasırgan, Dalan	Aerial part	Cooked, Ext. to rheumatic area	[11]
				Ext. to rheumatic area	[8]

Table 1. (Continued) The plants used in traditional treatment against rheumatic pain in Turkey.

Botanical name	Family	Local name	Plant part used	Preparation, administration and use	Ref.
<i>U. urens</i> L.	Urticaceae	Cızlağan, Dızlağan, Isırgan, Isıran	Aerial part Leaf	Inf., Int. Crushed, Ext. to rheumatic area	[24]
<i>Verbascum cheiranthifolium</i> Boiss. var. <i>cheiranthifolium</i>	Scrophulariaceae	Masicerk, Bozkulak, Gırç, Calba, Yalangi	Leaf	Crushed/ Cooked, Mush, Ext. to rheumatic area	[10]
<i>V. oreophilum</i> C. Koch var. <i>joannis</i> (Bords) Hub.- Mor.	Scrophulariaceae	Masicerk	Leaf	Crushed/ Cooked, Mush, Ext. to rheumatic area	[10]
<i>V. pyramidatum</i> M. Bieb.	Scrophulariaceae	Masicerk	Leaf	Crushed/ Cooked, Mush, Ext. to rheumatic area	[10]

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

Because of its geographical features, Turkey has a very dense plant variety and the use of medicinal plants for the treatment of various diseases among the public since ancient times is widespread. Traditional treatment methods are recorded through ethnobotanical researches and it is aimed to contribute to drug development studies. This study, prepared by screening of ethnobotics researches, revealed 72 taxa that were used against rheumatic pain among the population. These plants are mainly from Ranunculaceae, Asteraceae, Brassicaceae, Lamiaceae, Apiaceae, Liliaceae (Figure 1). Ranunculaceae family contains alkaloids, cardiac and cyanogenetic glycosides; Asteraceae contains volatile oil; Brassicaceae contains mustard-oil glycosides, mucilage and fixed oil; Lamiaceae contains volatile oil; Apiaceae contains volatile oil, coumarins, terpenes and sesquiterpenes, triterpenoid saponins and acetylenic compounds; Liliaceae contains alkaloids, sterols, cardenolides, bufadienolides, steroidal saponins, flavonoids and volatile oil [47]. In these families, some plants contains toxic compounds. But they are usually used externally.

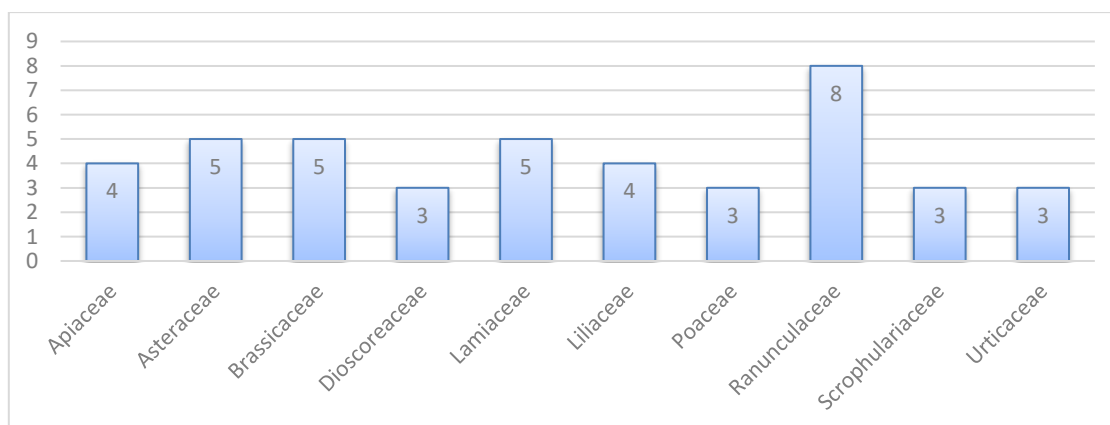


Figure 1. Main families used in traditional treatment against rheumatic pain in Turkey.

Reasons of the usage of plants for the treatment of rheumatoid arthritis is that they contain analgesic, anti-inflammatory, antiseptic, diuretic and rubefacient compounds. For example, the Ranunculaceae family of plants are usually poisonous and contain intensely diverse rubefian substances. Plants containing rubefian compounds (eg Ranunculaceae, Scrophulariaceae, Liliaceae, Dioscoreaceae plants) are applied externally to the rheumatoid area and act by increasing the blood supply of the region. In addition, species exhibiting analgesic, anti-inflammatory (eg *Salix alba* L.) and antiseptic activity (eg Asteraceae, Lamiaceae, Apiaceae, Urticaceae plants) are also used as decoction / infusion both internally and externally to relieve rheumatic pain. We hope that our study will contribute to new drug development studies that can be used for rheumatic pain.

3. MATERIAL AND METHODS

This study is prepared by searching MSc and PhD theses at the National Higher Education Center and ethnobotanical surveys conducted in various parts of the Turkey with selecting regional plants used for rheumatic pain.

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