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An ethnopharmacological review on the Turkish Apiaceae species

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Abstract: Apiaceae is one of the richest families in the flora of Turkey. And it is also one of the most important families in which there are many popular plants used in traditional therapy in Turkey. The aim of this study is a revision on the Turkish folk medicinal plants of the Apiaceae family according to our investigations and scientific literature records. Our studies are based on mainly local ethnobotanical investigations. The ethnopharmacological information was obtained through open and semi-structured interviews from the local people. The specimens of the folk medicinal plants were collected during the field works and then identified. In addition, the scientific literature records on the subject were revised.

According to the list based on our investigations and the literature records, 70 species of Apiaceae are used in therapy in Turkey. The plants are mostly used for the digestive system diseases, hemorrhoids, diabetes and as aphrodisiac and sedative.

Key words : Ethnobotany, folk medicinal plants, Apiaceae, Turkey.

Introduction

Ethnobotanical studies are very important to reveal the past and present culture about the plants in the world. Since the ancient times people have used the plants as a source of medicine. Around 80% of general population in the world use plants to treat several illnesses (UICN et al., 1993). Medicinal plants are an important source of current drugs and about 25% of the drugs prescribed worldwide come from plants (Rates, 2001).

The Turkish flora contains 9582 species of vascular plants and about 3155 of them are endemic (Özhatay et al., 2012). Turkey has many

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Anatolian civilizations and therefore this region has various historical and cultural richness. Due to this richness, traditional herbal medicine has asignificant role in Turkey. Many ethnobotanical studies have been done by researchers in Turkey (Bulut & Tuzlacı, 2013).

Apiaceae is one of the richest families in the flora of Turkey. This family includes annual to perennial herbaceous plants or rarely shrubbs. It is a prominent family rich with essential oil. The ratio of endemism is high (30.1%) (Özhatay et al., 2005). Monotypic plants, *Olymposciadium caespitosum* (Sm.) Wolff. et Heldr. and *Ekimia bornmuelleri* (Hub.-Mor. Et Reese) H. Duman et M.F. Watson, are endemic to Turkey (Davis, 1972).

Apiaceae is also one of the most important families in which there are many popular plants used in traditional therapy in Turkey. The aim of this study is a revision on the Turkish folk medicinal plants of the Apiaceae family according to our investigations and scientific literature records (presented in references). Our studies are based on mainly local ethnobotanical investigations.

Material and methods

The ethnopharmacological information was obtained through open and semi-structured interviews from the local people (Alexiades, 1996). The specimens of the folk medicinal plants were collected during the field works and then identified. The plant specimens are kept in the Herbarium of Faculty of Pharmacy, University of Marmara (MARE). In addition, the scientific literature records on the subject were revised.

Results and discussion

Results were represented in Table 1 in alphabetical order according to their Latin names. If present, subspecies and/or variety, they were excluded in these tables.

Table 1. Folk medicinal plants of Apiaceae family

Botanical name	Plant part used	Ailments treated/ Therapeutic effect	Preparation	Administration
Ammi visnaga (L.) Lam.	Fruits Fruits	Cough, Kidney stones, intestinal diseases Dental diseases, atherosclerosis	– Infusion	Int. Int.
Anethum graveolens L.	Aerial parts Leaves Fruits Fruits Leaves Fruits Aerial parts & leaves Fruits Leaves	Digestive, gynecological disorders, goiter Digestive, dyspepsia, kidney ailments, increasing milk secretion, Badbreath Digestive Intestinal diseases Against hiccup Antihypertensive, stomach ailments, hemorrhoids Digestive Hairloss	Infusion — Decoction — — Decoction Decoction Infusion Boiled	Int. Eaten Int. Int. Int. Int. Int. Int. Ext.
Anthriscus cerefolium (L.) Hoffm.	Leaves	Stomachache	Boiled	Int.
Anthriscus nemorosa (M. Bieb.) Spreng.	Fruits	Digestive	Decoction	Int.
Anthriscus sylvestris(L.) Hoffm.	Fruits	Digestive	Decoction	Int.
Apium graveolens L.	Fruits Fruits Rhizome Whole plants	Urinary system diseases, Kidney ailments Aphrodisiac Kidney stones Abdominal pain, prostate ailments	Decoction — Decoction Decoction	Int. Int. Int. Int.
Apium nodiflorum (L.) Lag.	Aerial parts	Appetizer, antihypertensive	—	Eaten
Artedia squamata L.	Leaves	Antihypertensive	Infusion	Int.
Bifora radians M. Bieb.	Aerial parts	Digestive	Added in the meal	Eaten
Bifora testiculata (L.) Roth	Aerial parts	Stomachache, sedative	Infusion	Int.
Carum carvi L.	Fruits Fruits	Appetizer, digestive Aphrodisiac	Crushed —	Int . Int.

Caucalis platycarpos L.	Aerial parts Aerial parts Aerial parts Leaves Fruits Root	Increasing milk secretion (animal) Hemorrhoids Rheumatism Rheumatism Rheumatism Wound, eczema	Added in the fodder Decoction Crushed — Crushed Crushed	Eaten Int. Wrapped in a cloth, ext. Ext. Wrapped in a cloth, ext.
Chaerophyllum aromaticum L.	Aerial parts Young stem	Digestive Constipation	Cooked Peeled	Eaten Eaten
Chaerophyllum bulbosum L.	Rhizome Leaves	Appetizer, diabetes, high cholesterol Antihypertensive	— Infusion	Eaten Int.
Coniumma culatum L.	Aerial parts Aerial parts Aerial parts	Cold (animals) Cold (aimals) Rheumatism	Decoction — Crushed	Ext. Wrapped in a cloth, ext. Wrapped in a cloth, ext.
Coriandrum sativum L.	Fruits Fruits Fruits Fruits Fruits	Headache Headache Dizziness, dyspepsia, stomachache Appetizer, digestive Insect repellent	Decoction — Decoction Infusion Crushed	Int. Incense Int., before meal Int., before meal Ext.
Coriandrum tordylium (Fenzl) Bornm.	Leaves	Appetizer	—	Eaten
Daucus carota L.	Aerial parts Aerial parts Aerial parts Fruits Root Root Root	Intestinal diseases Diabetes, hemorrhoids Intestinal diseases Eye diseases Increasing milk secretion Abortive Diarrhea, expectorant	Infusion Infusion Decoction Decoction Peeled — Decoction	Int. Int. Int. Int. Int. Ext. Int.
Echinophora tenuifolia L.	Aerial parts Aerial parts Aerial parts Aerial parts	Cold Antispasmodic, digestive, increasing milk secretion Dyspepsia, digestive, appetizer Stomachache	Crushed Infusion Decoction Chewed	Ext. Int., after meal Int. Int.
Echinophora tournefortii Jaub. et Spach	Stem	Toothache	Peeled	Chewed

Eryngium billardieri Delar.	Root Root Root Root Aerial parts Aerial parts Root Young stem	Wound Cold, sinusitis Hemorrhoids Toothache Wound Urinary system diseases, aphrodisiac Wound Kidney ailments	Driedthencrushed Crushed Decoction Decoction Driedthencrushed Infusion — —	Ext. Dropped into the nostrils Int. Ext. Ext. Int. Ext. Eaten
Eryngium bithynicum Boiss.	Root Root Aerial parts	Goiter Wound Rheumatism	Peeled Boiled in water / milk Decoction	Eaten Ext. Ext.
Eryngium campestre L.	Root Root Root Stem Stem Stem Flowering branches Flowering branches Flowering branches Aerial parts Whole plant Whole plant Leaves & root Aerial parts	Leucemi, prostate ailments, hemorrhoids Insect bite Aphrodisiac Hemorrhoids, diabetes, eye ailments Psoriasis Leucemia, hemorrhoids Kidney stones Aphrodisiac Immunostimulant Kidney stones Lung diseases (animal) Ulcer Icterus, digestive Wound	Decoction Crushed Planed Peeled Crushed Decoction Infusion Infusion Decoction Decoction Decoction Decoction Decoction Crushed	Int. Wrapped in a cloth, ext. Eaten Eaten Ext. Int. Int. Int. Int. Int. Dropped into the nostrils Int. Int. Ext.
Eryngium creticum Lam.	Whole plant Flowering branches	Ulcer Cough, diuretic	Decoction Infusion	Int. Int.
Eryngium giganteum Bieb.	Aerial parts	Wound	Crushed	Ext.
Ferula caspica Bieb.	Aerial parts	Diabetes, gynecological disorders	Decoction	Int.
Ferula elaeochytris Korovin	Root Root Whole plant	Aphrodisiac Stomachache, ulcer Increasing milk and meat (animals)	Crushed (+ honey) Decoction —	Eaten Int. Eaten
Ferula haussknechtii Wolff ex Rech. fil.	Root	Wound	Crushed	Ext.
Ferula longipedunculata Peãmen	Root	Aphrodisiac	Crushed (+ honey)	Eaten

Ferula orientalis L.	Whole plants Inflorescence Aerial parts	Immunostimulant Stomach ailments Diabetes, antihypertensive	Decoction Infusion Infusion	Int. Int. Int.
Ferula rigudula DC.	Aerial parts Aerial parts	Diabetes High cholesterol	Pickle Pickle	Int. Int.
Ferulago cassiaBoiss.	Fruits Fruits	Eye diseases Increasing milk secretion	Decoction —	Ext. Int.
Ferulago pachyloba (Fenzl) Boiss.	Fruits &leaves	Immunostimulant, sedative	Infusion	Int.
Ferulago confusa Velen.	Inflorescence	Bronchitis	Infusion	Int.
Ferulago sylvatica (Besser) Reichb.	Root	Skin diseases	Decoction	Int.
Ferulago thirkeana (Boiss.) Boiss.	Flowers	Sedative, anarthria	Infusion (+*Potentillarecta*)	Int.
Ferulag otrachycarpa Boiss.	Roots Roots Roots & leaves	Aphrodisiac Aphrodisiac Stomach ailments, appetizer	Peeled Decoction Crushed	Eaten Int. Int.
Foeniculum vulgare Miller	Aerial parts Aerial parts Aerial parts Fruits Fruits Leaves Leaves Leaves Aerial parts	Stomach ailments, insomnia, dyspepsia Digestive, dyspepsia, Sedative Digestive Stomach ailments, dyspepsia, cough, sedative, increasing milk secretion Bronchitis, abdominal pain Digestive, dyspepsia, increasing milk secretion Stomachache, digestive, abdominal pain, expectorant, cold, against intestinal flatworm, eye diseases, diarrhea, appetizer Dyspepsia, agalactia (animal)	Infusion Cooked Decoction Infusion Decoction Dried Infusion Decoction —	Int. Eaten Int. Int. Int. Eaten as a spice Int. Int. Eaten
Glaucosciadium cordifolium (Boiss.) B.L.Burtt et P.H.Davis	Roots Roots Roots & leaves Whole plant	Aphrodisiac Aphrodisiac Stomach ailments, appetizer Aphrodisiac (animals)	Chewed / crushed with honey Decoction Crushed —	Int. Int. Int. Eaten
Grammosciadium platycarpum Boiss. et Hausskn.	Aerial parts	Gastric pain	Infusion	Int.

Heracleum antiasiaticum Manden.	Leaves	Wound	Crushed	Ext.
Heracleum pastinacifolium C. Koch	Leaves	Rheumatism	—	Wrapped in a cloth, ext.
Heracleum trachyloma Fisch. et Mey.	Leaves Stem Young stem	Increasing milk secretion Stomachache, cancer Stomach ailments	Cooked Decoction —/ Pickle	Eaten Int. Eaten
Johrenia dichotoma DC.	Aerial parts	Wound	—	Ext.
Laser trilobum (L.) Borkh.	Fruits Fruits	Digestive Abdominal pain	Dried then crushed Decoction	Int. Int.
Laserpitium glaucum Post	Root	Sedative	—	Int.
Lagoecia cuminoides L.	Whole plant	Abdominal pain	Infusion	Int.
Lecokia cretica (Lam.) DC.	Fruits	Antihypertensive	—	Int.
Malabaila dasyantha(C. Koch) Grossh.	Leaves & flowers Leaves & flowers	Nail disorders Stomachache	Boiled in water Infusion	Ext. Int.
Malabaila lasiocarpa Boiss.	Aerial parts	Intestinal diseases	Infusion	Int.
Malabaila secacul Banks et Sol.	Leaves	Hemorrhoids	Dried then crushed	Eaten, before breakfast
Oenanthe pimpinelloides L.	Aerial parts Aerial parts	Burned Antihypertensive, analgesic	Crushed Decoction	Wrapped in a cloth, ext. Int.
Opopanax hispidus (Friv.) Gris.	Leaves	Hemorrhoids	Dried then crushed	Eaten, 1-2 spoonful

Petroselinum crispum (Miller) A.W.Hill	Leaves Leaves Leaves Leaves Leaves Aerial parts Aerial parts Aerial parts Aerial parts Aerial parts Whole plant Root Leaves	Diabetes Anaemia, anticoagulant, cold, urinary system diseases, kidney ailments, high cholesterol, antihypertensive, stomach ailments, hemorrhoids, gynecological disorders Gynecological disorders Diuretic, antihypertensive Urinary system diseases Kidney stones, diuretic Eczema, urinary system diseases, stomach ailments, emmenagogue Urinary system diseases, shortness of breath, diuretic, hemorrhoids, aprodisiac Sprain High cholesterol Backache Knee pain High cholesterol, kidney stones Urinary system diseases, diuretic, stomach ailments	Decoction (with lemon) Decoction —/boiled — — Decoction Infusion Decoction Mixed with olive oil — Cooked with cornflour, sugar, water Cooked Decoction Infusion	Int. Int. Eaten / ext. Int. Eaten Int. Int. Int. Ext. Eaten Ext. Ext. Int. Int.
Peucedanum longifolium Waldst. et Kit.	Aerial parts	High cholesterol, diabetes	Pickle	Eaten
Pimpinella anisum L.	Fruits Fruits Fruits Fruits	Burn Burn Stomach ailments, cold, abdominal pain, dyspepsia Sedative, insomnia	Crushed Decoction Decoction Decoction (especially babies)	Ext. Ext. Int. , 3-4 x 1 tea cup Int., before sleep
Pimpinella cappadocica Boiss. et Bal.	Fruits Aerial parts	Sedative, dyspepsia Diarrhea	Decoction Decoction	Int. Int.
Pimpinella kotschyana Boiss.	Aerial parts	Kidney ailments	Decoction	Int.
Pimpinella olivieroides Boiss. et Hausskn.	Roots	Asthma, menstrual disorders	Decoction	Int.

Prangos ferulacea (L.) Lindl.	Root Young shoots Leaves Aerial parts	Aprodisiac Diabetes, antihypertensive Antihypertensive Aprodisiac	Planed (+ honey) Boiled Infusion Decoction	Eaten Int. Int. Int.
Prangos meliocarpoides Boiss.	Root	Aprodisiac	Planed (+ honey)	Eaten
Prangos pabularia Lindl.	Root Root Leaves	Aprodisiac Wound Dyspepsia	Planed (+ honey) Crushed Decoction	Eaten Ext. Int.
Prangos platychlaena Boiss.	Root Root Root	Wound (animal) Aprodisiac Intestinal diseases	Dried then crushed Planed (+ honey) Gum	Ext. Int. Int.
Prangos uechtritzii Boiss. et Hausskn.	Whole plant	Hemorrhoids	Boiled in vinegar	Ext.
Scandix pecten-veneris L.	Aerial parts	Bad breath	Chewed	Int.
Smyrnium connatum Boiss. et Kotschy	Young stem	Shortness of breath	Peeled	Eaten
Smyrnium olusatrum L.	Root	Abortive	Decoction	Int.
Torilis arvensis (Huds.) Link	Aerial parts	Abdominal pain (children)	Boiled	Wrapped in a cloth, ext.
Torilis leptophylla (L.) Reichb.	Leaves Aerial parts Aerial parts	Bad breath Asthma Toothache	— Decoction Decoction	Eaten Int. Gargle
Turgenia latifolia(L.) Hoffm.	Aerial parts	Rheumatism	Crushed	Wrapped in a cloth, ext.

According to the list based on our investigations and the literature records, 70 species of Apiaceae are used in therapy in Turkey. Among them, *Petroselinum crispum, Foeniculum vulgare, Anethum graveolens, Eryngium campestre, Eryngium billardieri, Daucus carota, Ammi visnaga, Coriandrum sativum, Echinophora tenuifolia* and *Pimpinella anisum* are the most popular plants and they are used in many localities of Turkey. The plants are mostly used for the digestive system diseases, hemorrhoids, diabetes and as aphrodisiac and sedative.

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