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REVIEW ARTICLE / DERLEME MAKALE

MEDICINAL PLANTS TRADITIONALLY USED TO TREAT SKIN DISEASES IN TURKEY – ECZEMA, PSORIASIS, VITILIGO

TÜRKİYE'DE HALK ARASINDA CİLT HASTALIKLARININ TEDAVİSİNDE KULLANILAN TIBBİ BİTKİLER – EGZAMA, SEDEF HASTALIĞI, VİTİLİGO

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ABSTRACT

Objective: *Different types of skin diseases negatively affect the lives of many people, both physically and mentally. Here, we aimed to document medicinal plants used as traditional folk medicine for the treatment of eczema, psoriasis and vitiligo in Turkey.*

Material and Method: *Literature search was conducted by screening ethnobotanical studies. Moreover, pharmacological and phytochemical studies were reviewed to assess the efficacy of the most commonly used plants on skin diseases.*

Result and Discussion: *In total, 191 taxa belonging to 134 genera and 64 families were determined as being traditional herbal medicines used in defined skin diseases. Based on their number of citations, the most frequently used medicinal plant species are Juglans regia L. (19), Urtica dioica L. (18), Juniperus oxycedrus L. (9), Chelidonium majus L. (8), Dracunculus vulgaris Schott (7), Ecballium elaterium (L.) A. Rich. (6), Ficus carica L. (6), Malva sylvestris L. (6) and Rosa canina L. (6), respectively. It is concluded that several pharmacological and phytochemical studies support the traditional usage of plants, but further studies are needed. All findings are expected to be the basis for novel pharmaceutical products and a handbook for healthcare professionals.*

Keywords: *Ethnobotany; medicinal plants; skin diseases; traditional medicine; Turkey*

ÖZ

Amaç: *Farklı tipteki cilt hastalıkları birçok insanın yaşamını hem fiziksel hem de ruhsal olarak olumsuz yönde etkiler. Bu çalışmada, Türkiye'de egzama, sedef hastalığı ve vitiligo tedavisinde geleneksel halk ilacı olarak kullanılan tıbbi bitkilerin derlenmesi amaçlanmıştır.*

Gereç ve Yöntem: *Etnobotanik çalışmalar taranarak literatür araştırması yapılmıştır. Bununla birlikte, en sık kullanılan bitkilerin cilt hastalıkları üzerindeki etkinliğini değerlendirmek amacıyla farmakolojik ve fitokimyasal çalışmalar incelenmiştir.*

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Sonuç ve Tartışma: *Toplamda 134 cins ve 64 familyaya ait 191 taksonun geleneksel bitkisel ilaçlar olarak egzama, sedef hastalığı ve vitiligo tedavisinde kullanıldığı saptanmıştır. Aldıkları atıf sayısına göre en sık kullanılan tıbbi bitki türleri sırasıyla Juglans regia L. (19), Urtica dioica L. (18), Juniperus oxycedrus L. (9), Chelidonium majus L. (8), Dracunculus vulgaris Schott (7), Ecballium elaterium (L.) A. Rich. (6), Ficus carica L. (6), Malva sylvestris L. (6) ve Rosa canina L. (6) olarak belirlenmiştir. Birçok farmakolojik ve fitokimyasal çalışmanın bitkilerin geleneksel kullanımını desteklediği, ancak daha fazla çalışmaya ihtiyaç duyulduğu sonucuna varılmıştır. Tüm bulguların yeni farmasötik ürünler için temel oluşturması ve sağlık çalışanları için bir başvuru kitabı olması beklenmektedir.*
Anahtar Kelimeler: *Cilt hastalıkları; etnobotanik; geleneksel tıp; tıbbi bitkiler; Türkiye*

INTRODUCTION

Skin diseases are extremely common worldwide and various types of them affect patients mentally and physically. Skin, the largest organ in the human body, forms a physical barrier against harmful effects of chemical, mechanical, thermal and microbial factors. Most people care about their physical appearance which promote mental health by increasing the self-confidence of the person. Due to their visibility, patients primarily require treatment of skin diseases [1, 2]. Some of them tend to be persistent and have a higher prevalence in public. Especially, eczema, psoriasis and vitiligo are most conspicuous skin diseases among them [3, 4].

Eczema is a non-infective chronic inflammatory skin condition that cause severe pruritus and red rash [5, 6]. About 5 to 20% of people are affected by this disease at some stage in their lifetime (especially in childhood) [5, 7]. The cause of the eczema varies according to the type of the disease. Although there are many theories about the reason of the eczema, it is characterized by majority of activated T lymphocytes [7]. Eczema is often accompanied by atopic diseases such as asthma, allergic rhinitis and more [5]. Treatment of eczema helps to relief both skin inflammation and itching. The most commonly used treatment today is topical steroids due to their immunosuppressive activity [7]. Psoriasis, the most common immune-mediated skin disorder, affects millions of people around the world. Its prevalence in the general population is assumed to be 1.5-2% [8, 9]. It can be recognized by circumscribed, red, thickened plaques with an overlying silver white scale [10,11]. Cause of psoriasis couldn't be enlightened despite recent researches [12]. It is known as an organ-specific autoimmune disease which is triggered by an activated cellular immune system [8]. Psoriasis has several treatment modalities which are topical (corticosteroids, anthralin, retinoids, coal tar, etc.), phototherapy (UVA, PUVA, UVB) or systemic-biological (acitretin, cyclosporine, methotrexate) [13]. Vitiligo, whose prevalence is probably lower than other skin diseases, is a hereditary or acquired disease [14, 15]. It is characterized by destruction of melanocytes in the skin that causes sharply demarcated depigmented lesions of variable size and shape [15]. Although its etiology cannot be clearly explained, genetic predisposition, a number of triggering factors such as stress, systemic diseases and physical trauma are also prominent [15, 16]. The main purpose of the treatment is to obtain skin repigmentation. Topical steroids, calcineurin inhibitors, systemic, physical and surgical therapy are therefore needed [15, 17].

In addition to conventional medicine, traditional medicine also plays an important role in the treatment of skin diseases. The therapeutic use of medicinal plants is still popular today as in the past [18]. Herbal remedies are greatly preferred by patients because of the belief that herbal therapy is less harmful than conventional therapy [18, 19]. So far numerous medicinal plants have been reported to be used in skin diseases and many studies that demonstrate effectiveness of herbal remedies have been carried out [1, 2, 20-23].

It is known that the most proper way to find out the plants used in traditional medicine is ethnobotanical studies. Ethnobotanical studies not only document the interaction of mankind with plants in historical process, but also determine medicinal plants which have an important place in human health [24]. Since ancient times local people have benefited primarily from plants to feed and resolve health issues. This extensive knowledge on traditional medicine has attracted the attention of many researchers. As a result, ethobotanical studies, based largely on observation and documentation of the usage of plants by people, have begun to perform. In recent years, there has been an increasing number of reports on ethnobotanical knowledge throughout the world and many of them have been conducted in Turkey. Furthermore, medicinal plants which take place in ethnobotanical studies become recognised as a valuable source for pharmacological studies and pharmaceutical industry [24, 25].

Thanks to the floristic richness that it has, Turkey is one of the leading countries in terms of the accumulation of ethnobotanical knowledge [24, 26]. According to the latest data, more than 10.000 plant species have been identified within its borders and approximately 31% of them is endemic [27]. Geological and geomorphological diversity, geographical location, various climate types and topographical structure are the main factors of the floristic richness and the high rate of endemism in Turkey [28].

On account of the fact that medicinal plants have a significant position in medical therapy, it is necessary to determine those that are effective in dermatological treatment. The aim of our study is to define medicinal plants traditionally used for the treatment of eczema, psoriasis and vitiligo in Turkey. Moreover, in order to identify gaps in research field, the efficiency of medicinal plants that could be candidate for new pharmaceuticals was researched by screening pharmacological and phytochemical studies.

MATERIAL AND METHOD

A literature search was conducted on medicinal plants used for eczema, psoriasis and vitiligo in Turkey by referencing studies published in journals, reports and books from 1994 to 2019. Detailed information about taxa such as botanical, family and local names, used parts, preparation methods, administration/dosage and duration of the treatment, ailments treated/therapeutic effects were given in Table 1. Based on the data, the most frequently used plant families and taxa for each stated disease are

presented in charts. The scientific names of plants and plant families were verified using The International Plant Names Index (IPNI). Furthermore, pharmacological and phytochemical studies are searched with a view to evaluating efficacy of the most commonly used plants on skin diseases.

RESULT AND DISCUSSION

In this review, a total of 191 taxa belonging to 134 genera and 64 families were determined as being traditionally used for the treatment of eczema, psoriasis and vitiligo in Turkey. These medicinal plants are arranged in alphabetical order of their families and presented in Table 1 with the relevant information. The number of taxa used in each disease category (eczema, psoriasis and vitiligo) was found to be as 176 taxa (59 families), 38 taxa (29 families) and 2 taxa (2 families), respectively. Only a minority of the plants (*Juglans regia* L. and *Gundelia tournefortii* L.) are used to treat vitiligo. It has been observed that some taxa used in both diseases, for example, 15 taxa are used in both eczema and psoriasis, and 1 taxon is used in both eczema and vitiligo. According to the results, most widely used medicinal plant species to treat skin diseases (eczema, psoriasis, vitiligo) are *Juglans regia* L. (19), *Urtica dioica* L. (18), *Juniperus oxycedrus* L. (9), *Chelidonium majus* L. (8), *Dracunculus vulgaris* Schott (7), *Ecballium elaterium* (L.) A.Rich. (6), *Ficus carica* L. (6), *Malva sylvestris* L. (6) and *Rosa canina* L. (6), their usage quantities defined by number of citations for each disease category are given in Figure 1. Moreover, the most commonly used plant families for treatment are listed as follows: Asteraceae (20 taxa), Lamiaceae (11 taxa), Polygonaceae (10 taxa), Euphorbiaceae (9 taxa) and Rosaceae (9 taxa) (Figure 2).

People benefit from various plant parts such as leaf, fruit, aerial parts, flower, root, branch, bark, seed and latex. It was found that the leaves are the most commonly used part of the plant (20%), for the treatment of skin diseases. Aerial parts are the second most commonly used part of the plant, accounting for 16%. Also, in some studies the plant parts were not mentioned and the ratio of these unspecified parts was found to be 7% (Figure 3). As a result of review, different forms of preparation like decoction (30%), infusion (11%), mash (8%), powder (3%) and maceration (2%) were detected (Figure 4). These preparations are applied more externally (39%) than internally (32%), the ratio of unspecified application method is 29%.

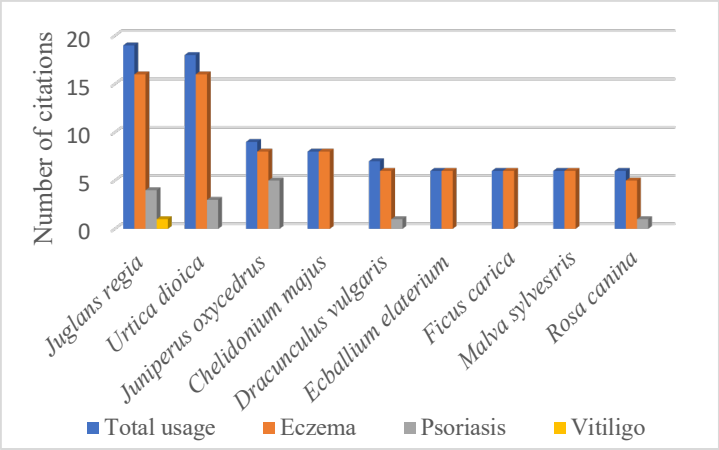

Figure 1. Most frequently used plants in eczema, psoriasis and vitiligo.

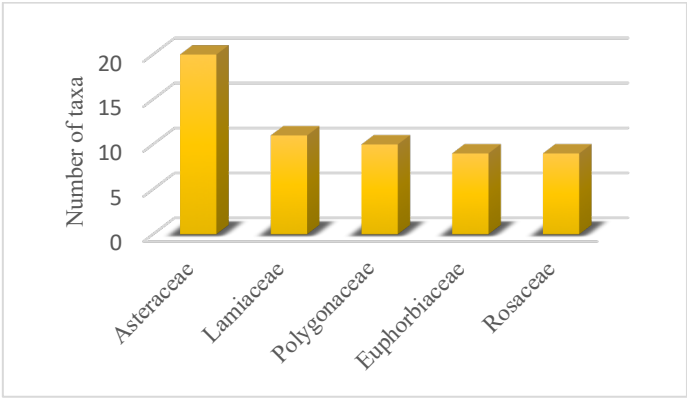

Figure 2. Most frequently used families in eczema, psoriasis and vitiligo.

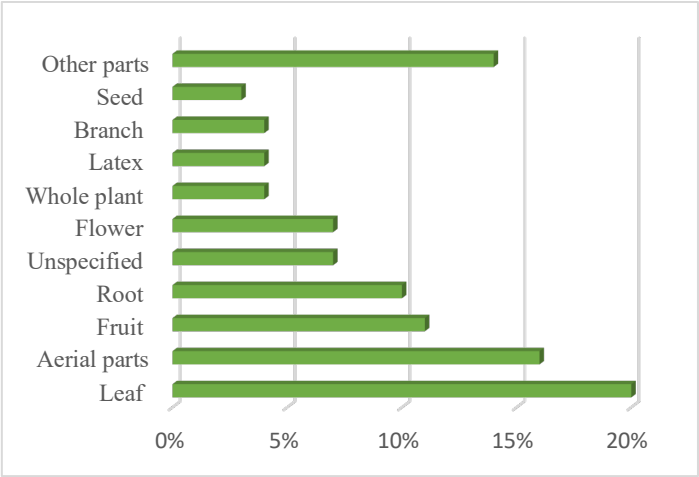

Figure 3. Plant parts used to treat eczema, psoriasis and vitiligo.

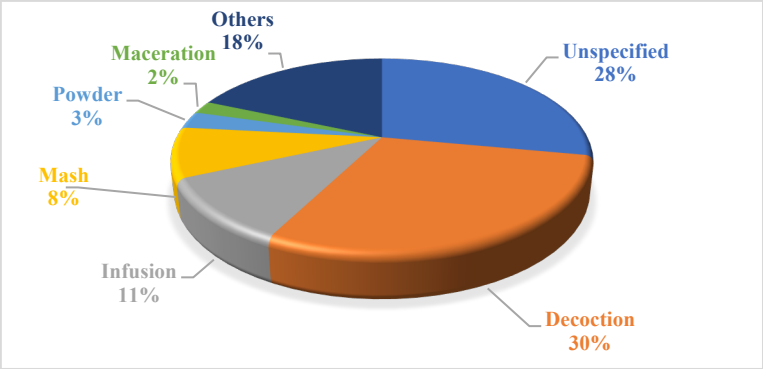

Figure 4. Preparation methods of the plants used to treat eczema, psoriasis and vitiligo.

Although evidence on the use of herbal therapy in dermatologic conditions is relatively sparse, herbal remedies were reported as the most commonly used complementary and alternative medicine method among patients [19,29]. Many studies conducted in the world from past to present have emphasized the usage of plants in skin diseases including eczema, psoriasis and vitiligo. Some commonly used medicinal plants reported in those studies are similar to our findings like *Juglans regia*, *Ecballium elaterium*, *Ficus carica*, *Juniperus oxycedrus*, *Calendula officinalis* L. [2,30-33]. Unlike other countries, only few plant species were determined as a traditional medicine against vitiligo in Turkey [32, 34]. Mabona and Vuuren [20] stated that medicinal plants used for the treatment of skin ailments in South Africa are most commonly prepared by decoction or infusion. As in many other indigenous communities worldwide, the most frequently used part of the plant was determined as leaf. According to our data, while the most widely used part is leaf, the most preferred method of preparation is decoction. Even though plants used in diseases vary according to geography, similarities are observed in their usage patterns.

Knowledge on traditional medicine requires *in vitro*, *in vivo*, and clinical studies to assess and validate the effectiveness and safety of medicinal plants [30]. Recently, many pharmacological studies that confirm the folkloric claim of plants have been carried out. We reported that nine plant species are frequently used in Turkish folk medicine for the treatment of eczema, psoriasis and vitiligo. As these skin diseases are related to inflammation and the most commonly used prescription drugs are corticosteroids, the plants were mainly evaluated for their anti-inflammatory activity. Furthermore, these diseases are immune mediated disorders and dermatologists recommend systemic immunomodulators (methotrexate, tacrolimus, etc.), immunomodulatory activity also can be helpful in treatment [32,35]. Pharmacological and phytochemical studies for this purpose were reviewed and the findings were given below.

Juglans regia L.

Review of ethnobotanical studies revealed that various parts of the *Juglans regia* are traditionally used for the treatment of skin diseases in Turkey. Decoction of branches and fruits are used both externally and internally in psoriasis. Infusion of the leaves is used internally and fruits are eaten to treat vitiligo. Leaf is the most mentioned part which is prepared for eczema. Mainly infusion and decoction of the leaves are applied externally. Also, infusion of fruits is used internally. Moreover, fruits are eaten and its poultice is applied externally to cure eczema. Mashed or boiled fruit pericarp is considered as a herbal medicine. Seeds, leaves and fruits which are prepared with different methods such as maceration, decoction, bathed are used externally or internally for eczema and psoriasis. However, used plant parts, preparation and administration methods were not given in several studies. In some countries, leaves are recommended for the treatment of superficial inflammation of the skin and they are used for relieve the itchiness [2]. It is said to have anti-inflammatory activity owing to the flavonoids such as quercetin, luteolin, hesperidin the plant contains [36,37]. Ethanol extract of leaves showed potent anti-inflammatory activity (as potent as indomethacin) in the carrageenan-induced hind paw edema model in mice without causing any gastric damage [38]. According to Hosseinzadeh et al. [36], the aqueous and ethanol extracts of leaves demonstrated anti-inflammatory activity against acute and especially chronic inflammation. In xylene induced ear edema test in mice, the extracts showed anti-inflammatory effects but the efficacy was decreased in higher doses, especially for the aqueous extract. The extracts also showed anti-inflammatory activity against chronic inflammation in cotton pellet granuloma method in mice [36]. Previous studies reported that *J. regia* can cause irritation and skin hyperpigmentation in topical applications to large areas due to content of Juglone. Nevertheless, contact allergy in humans is very rare [37,39].

Urtica dioica L.

Herbal drugs from *Urtica dioica*, which are formed with diverse preparation methods from various parts of the plant, are traditionally used to treat eczema in Turkey. Decoction of leaves are administered externally and internally. Decoction and infusion of roots are used internally; decoction of sprouts is used externally. While decoction of aerial parts is consumed internally, mashed aerial parts are applied externally to the affected areas. Furthermore, herbal medicines prepared by mashed stem, leaves and seeds are used in both internal and external ways for the treatment of eczema and psoriasis. People also benefit from decoction of whole plant and infusion of leafy branches, seeds and sprouts to treat eczema. Leaves are used externally and decoction of whole plant is used internally to treat psoriasis. Unspecified parts, preparation and administration methods were observed in the ethnobotanical literature review. *U. dioica* is also used to treat skin disorders such as eczema, psoriasis, scabies and pruritus in some countries. Quercetin, which is the most active flavonoid in *U. dioica*, has potent antioxidant and anti-inflammatory activities [40]. It has recently been shown that bioactives such as

adenine, nicotinamide, synephrine and osthole which exhibit anti-inflammatory and anti-allergenic effects are readily absorbed into the body and these compounds cannot to cross the blood-brain barrier [41]. Dar et al. [42] reported that hexane extract of leaves showed a significant inhibition in the rat paw edema assay, comparable to that of indomethacin, though no significant inhibition of inflammation was observed in the groups treated with chloroform, ethyl acetate, methanol and aqueous extracts. Moreover, the major compounds (quercetin, kaempherol and isorhamnetin) isolated from the methanolic extract of the aerial parts have been shown to possess immunomodulatory activities [43]. Recent study reported that *U. dioica* 5% ointment cured all psoriatic lesions with a success rate of 71.693% (38 of 53 patients). The best results were obtained when the lesion is localized [44].

Juniperus oxycedrus L.

Different parts (tar, stem, fruit, branch, gum) of *Juniperus oxycedrus* are traditionally used in the treatment of eczema and psoriasis in Turkey. Tar is applied to the affected skin areas for the treatment of eczema and psoriasis. Tar is mixed with flour to form pills when people prefer the internal usage to treat eczema. Fruits are prepared by infusion or decoction and consumed internally for the treatment of eczema and psoriasis. People also eat raw fruits to cure both diseases. In addition, pitch is administered externally as a plaster to treat psoriasis. Gum is used externally as a salve for eczema and psoriasis. Roots, stem and branches are also used externally to treat eczema and psoriasis but information on preparation method were not given in conducted study. *J. oxycedrus* is also widely used (especially oil of cade, known as juniper tar) as traditional folk remedy for treatment of chronic eczema, psoriasis and other several skin diseases worldwide [33]. Oil of cade has an antiseptic and anti-inflammatory effects owing to high percentage of cadinene (sesquiterpene). Thus, it is usually used to treat psoriasis and other skin dermatitis [45]. Moreno et al. [46] reported that methanol and dichloromethanol extracts of leaves and stems displayed prominent anti-inflammatory activity and inhibition of the rat paw edema induced by carrageenin, flavonoids are believed to be responsible for the pharmacological activity. In another *in vivo* study, the n-butanol subextract prepared from fruit ethanol extract provided a remarkable anti-inflammatory effect [47]. The anti-inflammatory activity was appraised by carrageenan-induced and PGE2-induced hind paw edema models. The methanolic extracts of fruit and leaves showed a significant inhibitory activity in both model at a dose of 100 mg/kg [48].

Chelidonium majus L.

In Turkey, the most frequently used part of the *Chelidonium majus* for the treatment of eczema is latex and it is applied externally. Infusion of aerial parts is consumed internally. Flowering branches of the plant are also traditionally used to treat eczema however, knowledge of preparation and application methods were not addressed in the ethnobotanical study. In some countries, *C. majus* has traditionally been used in the treatment of skin diseases such as eczema and ringworm [49]. In many studies, anti-

inflammatory activity of *C. majus* extracts has been shown using various experimental models of inflammation *in vitro* and *in vivo*. It was highlighted that chemical compounds of alkaloids contained in extracts may be responsible for these anti-inflammatory properties [50-52]. The fraction of quaternary benzophenanthridine alkaloids from roots was evaluated in terms of its anti-inflammatory activity against carrageenan-induced rat paw edema, sanguinarine exhibited a higher anti-inflammatory activity than chelerythrine [53]. Moreover, Yang et al. [52] revealed that the administration of aerial parts inhibited the development of atopic dermatit like symptoms in mice.

Dracunculus vulgaris Schott

While fruits and tubers of *Dracunculus vulgaris* are traditionally used in eczema, only tubers are prepared to treat psoriasis in Turkey. Fruits are eaten and its decoction is applied externally to cure eczema. Tubers are prepared by decoction or they are mashed and cooked for the external usage. Moreover, mashed tubers are swallowed up to treat eczema. In psoriasis treatment, tubers are sliced then consumed. As far as can be determined from a survey of the literature, there are few studies supporting the traditional usage of the plant in skin diseases. In one of these studies, anti-inflammatory activity of petroleum ether, ethyl acetate and methanol extracts of roots were evaluated and petroleum ether extract exhibited the highest activity [54]. In the light of the data obtained from various researches, it is known that the underground parts and aerial parts possess antioxidant activity [55-56].

Ecballium elaterium A. Rich.

Fruits and roots of *Ecballium elaterium* are used as traditional folk medicine for the treatment of eczema. People can benefit from fruits and roots in both internal and external ways for the treatment of eczema. It is known that cutted fruits and roots are used internally. Furthermore, decoction of fruits and roots is mixed with sugar and consumed by local people to treat eczema. Cucurbitacins which is one of the main compounds in *E. elaterium* possess anti-inflammatory activity, among them Cucurbitacin B has the highest effect [57,58]. In study by Yeşilada et al. [58], the anti-inflammatory activities of the fruit juice and its triterpenoid constituent, Cucurbitacin B, were examined in mice against serotonin and bradykinin induced edemas and both exhibited a significant dose-dependent inhibition of edema. According to Bourebaba et al. [59], fruits, flowers and leaves extracts possesses anti-inflammatory effect.

Ficus carica L.

Leaves and latex of *Ficus carica* are traditionally used in the treatment of eczema. While decoction of leaves is used externally, infusion of leaves and latex is consumed in internal usage to treat eczema. The compound responsible for the broad-ranging anti-inflammatory activity of the plant is Luteolin which is the main free flavonoid in *F. carica* [60,61]. Quercetin, another flavonoid exist in

plant, is widely used therapeutically in allergic conditions, including eczema [62]. *In vivo*, petroleum ether, chloroform and ethanol extracts of leaves were investigated for anti-inflammatory activity by carrageenan induced rat paw edema and cotton pellet ranuloma methods. The extracts showed notable anti-inflammatory effect in both acute and chronic inflammation, as compared with the standard drug indomethacin [63]. Furthermore, another study on anti-inflammatory activity of *F. carica* revealed that hydro-alcoholic extract of leaves showed anti-inflammatory effects in the carrageenan induced paw edema in rats [64]. In clinical trial, it has been demostrated that the application of aqueous extract of fruits may provide better treatment results than 1.0% hydrocortisone in mild to moderate atopic dermatitis in pediatric patients [65].

Malva sylvestris L.

Macerations of leaves, flowers, aerial parts and roots of *Malva sylvestris* are used internally for the treatment of eczema in Turkey. Aerial parts and roots are prepared by brewing or mashing to use internal way. Decoction of aerial parts is used internally. Infusion and decoction of leaves are also used to treat eczema. Various parts such as leaves, flowers, aerial parts, buds, shoots are considered as efficient in the treatment of eczema by local people. However, detailed information on preparation and administration of plant parts were not detected in literature review. The consumption of several parts of *M. sylvestris* in the treatment of skin diseases is widespread in many countries as well as Turkey, due to their anti-inflammatory properties [66,67]. In a study which appraised the topical anti-inflammatory effect of the plant, 5, 10 and 20% of *Malva* extract creams were applied on the carragenin-induced edema in rats. A significative inhibition of edema was obtained with the 5% *Malva* cream compared with the placebo. It was demonstrated that this effect was higher than that obtained with a 2% indometacin cream [68]. The topical anti-inflammatory activity was also studied with hydro-alcoholic extract of leaves, it reduced edema by 21% (administered at the dose of 300 g/cm2) on croton oil-induced inflammation in the ears of mice [69]. In a randomized clinical trial, the efficacy of *M. sylvestris* on patients with hand eczema was researched. In group on which *M. sylvestris* 4% ointment was applied twice a day, significant healing was observed without side effects in the treatment of hand eczema in comparison with placebo [70].

Rosa canina L.

In Turkey, several parts (especially aerial parts) of *Rosa canina* are used only internally in the treatment of eczema. Decoctions of fruits, leaves, seeds, roots and galls are traditionally used by local healers, whereas fruit is preferred as infusion. Raw fruits are also eaten to treat eczema. Also, people use decoction of fruits internally. In a previous pharmacological study, the anti-inflammatory activity of the hydro-alcoholic crude extract of fruits was tested on the carrageenin induced rat paw edema assay. It was observed that extract inhibited the development of carrageenin-induced edema, similar to the anti-

inflammatory activity of indomethacin [71]. In another study, the aqueous and ethanol extracts of fruits displayed potent anti-inflammatory activity in several *in vivo* inflammatory models (ethanol extract showed a greater effect than the aqueous extract) [72]. The topical use of *R. canina* seed oil was effective in skin disorders like eczema, as seen in a study including 75 patients using seed oil together with an oral fat-soluble vitamin [73]. It was stated that hydro-alcoholic extract of fruits might have immunomodulator effect *in vivo* [74].

In concluding, even though debate continues as to whether plants are sufficiently effective in the treatment of skin diseases, herbal therapies are still in demand. Their popularity has increased even more in recent years due to belief that medicinal plants are cheaper and safer than allopathic medicines. There is an immense amount of information on herbal therapies which can help researchers, pharmacists and doctors. However, the most important problems encountered in herbal treatment are the lack of standardization of the active substance in the herbal preparations in terms of concentration and purity and the inability to control their side effects. Therefore, the dermatologist who wants to use herbal treatment in practice should know the effects and side effects of the plant.

We have compiled the medicinal plants traditionally used in the treatment of eczema, psoriasis and vitiligo and determined nine of them which are most frequently used. Most considered effects for these plants are anti-inflammatory and immunomodulatory activities. Despite the fact that there have been several pharmacological and phytochemical studies proving the efficacy of the plants in the treatment, more studies are needed for some species. In conclusion, findings reinforce the importance of the ethnobotanical literature as a potential source of pharmaceutical raw materials. It is hoped that this study will lead the way for future studies and guide healthcare professionals.

Table 1. Medicinal plants traditionally used to treat eczema, psoriasis and vitiligo in Turkey.

Botanical name, Family name	Local names	Used parts	Preparation/ Adminstration	Ailments treated (Ref)
Adoxaceae				
Sambucus ebulus L.	Şahmelik, Biza, Sultan otu	R	Dec/Int	E [23]
		F	-/Int	E [75]
Sambucus nigra L.	Melikşah, Piran, Piren, Sultanotu, Sultan, Şahmelek	F	Ma, Ea/Int, Ext	E [76]
		F	-/Int	E [77]
		F	Mix, Ma/Int, Ext	E [78]
Altingiaceae				
Liquidambar orientalis Mill.	Günlük ağacı	Bls	-/-	P [79]
Amaranthaceae				
Beta vulgaris L.	Pancar	L	Dec/-	E [80]
Amaryllidaceae				
Allium sativum L.	Sarımsak	Bl	Spl/Ext	E [81]
Anacardiaceae				
Cotinus coggygria Scop.	Tetre, Tetra otu, Tetere	L	Dec/Ext	E [75, 82, 83, 84]
		L	Inf, Dec/Ext	E [85]
		Leb	Dec/Int	E [75]
Pistacia terebinthus L.	Menengiç ağacı, Kokorağaç	F, Gu	-/-	E [86]
		L	Dec/Int	P [84]

Rhus coriaria L.	Sumak, Sumakotu	-	Spi, Dec, Ma/Int, Ext	E [87]
Apiaceae				
Caucalis platycarpos L.	Pıtırak, Bıtırak	R	-/-	E [88]
Crithmum maritimum L.	Kaya koruğu, Ökseotu	Aer	Pasp/Int, Ext	E [76]
Eryngium campestre var. *virens* (Link) Weins	Gazyağlı diken, Kenger dikeni	Lt Aer	-/Ext Dec/Int, Ext	P [89] E, P [90]
Ferula orientalis L.	Kırkor, Kınkor, Kafkorık	St, R	Dec/Int	P [91]
Malabaila lasiocarpa Boiss.	Bijberhik	Aer, F, L	Dec, Ma/Int, Ext	E [92]
Petroselinum crispum (Mill.) Fuss	Maydanoz	L - Aer	Dec/Int -/- Inf/Int	E [93] E [94] E [81]
Apocynaceae				
Nerium oleander L.	Ay ağacı, Zakkum	Lt Fb	App/Ext Dec/Ext	E [95] E [96]
Araceae				
Arum italicum Mill.	Yılan yastığı, Yılancık, Gabarcık, Yılan kılıcı Domuzyandıran	Tb F Tb - Tb	Co, Dec/- Dec/Int Pla/Int -/- Cut/Int	E [97] E [77] E [98] E [94] E [75]
Arum orientale M. Bieb.	Yılanyastığı	F	-	E [99]
Dracunculus vulgaris Schott	Yılan bıçağı, Yılan yastığı, Kabarcık, Yılankamçısı	F - F Tb Tb Tb Tb F	Dec/Ext -/- -/Int Dec/Ext Ma+Co/Ext Sli/Int Ma/Int Ea/Int	E [100] E [101] E [102] E [102] E [96] P [96] E [103] E [104]
Asparagaceae				
Asparagus officinalis L.	Kuşkonmaz	F, R	Dec/Ext	P [105]
Ruscus aculeatus L.	Tavşan cücüğü, Tavşan göbeği, Tavşan elması	R	Dec/Int	E [106]
Aspleniaceae				
Asplenium trichomanes L. (Syn: *Asplenium trichomanes* subsp. *quadrivalens* D.E.Mey.)	Sıçan otu	Wh	Dec/Ext	E [80]
Asplenium adiantum-nigrum L.	Yar otu	Wh	Dec/Ext	E [80]
Asteraceae				
Achillea crithmifolia Waldst. & Kit.	Mayasıl otu, Güzelnamusotu	Cap	Dec/Int	E [75]
Achillea nobilis subsp. *neilreichii* (A.Kern.) Velen	Mayasıl otu	- Cap	-/- Inf/Int	E [101] E [102]
Achillea setacea Waldst. & Kit.	Ayvadana	Aer	Dec/Int	E [107]
Anthemis tinctoria L. var. *pallida* DC.	Papatya	Fl	Dec/Ext	E [108]
Arctium tomentosum Mill.	Dulavrat otu	L	Ma/Ext	E, P [109]
Artemisia absinthium L.	Tahliş	Aer	Inf/Int, Ext	E [92]
Bellis perennis L.	Koyungözü	-	-/-	E [94]
Calendula officinalis L.	Portakal nergisi, Aynısafa	Fl Aer Aer	Moi/Ext Sal/Ext Sal, Dec/Int, Ext	E, P [88] E, P [109] P [84]
Cichorium intybus L.	Hindiba, Mavihindiba, Ham sütlüvan	Aer Aer Aer	Dec/Int Dec/Int -/-	E, P [77] E [110, 111] E [112, 113]
Cirsium hypoleucum DC.	Vişne kangalı	-	-/-	E [94]
Echinops orientalis Trautv.	Topuz dikeni	Aer	-/-	E [114]
Filago arvensis L.	Paryavşan otu, Çayır güzeli	Aer	Mc, Inf, Ea/Int, Ext	E [115]
Gundelia tournefortii L.	Kenger	S S, Lt, R, St F	Coffee/- Dec, App/Int, Ext Roa/Int	V [116] V [117] E [118]

Matricaria chamomilla L.	Adi papatya, Alman papatyası, Mayıs papatyası	Fl	-/Ext	E [119]
Phagnalon rupestre subsp. *graecum* Batt.	Arı boku	Aer	Dec/Ext	E [120]
Senecio vulgaris L.	Sarı papatya	R R	-/Ext Dec/Ext	E [81] E [110]
Taraxacum campylodes G.E. Haglund (Syn: *Taraxacum officinale* (L.) Weber ex F.H.Wigg.)	Karahindiba, Köpek marulu	L, Sh	Tin/-	E [79]
Taraxacum sp.	Hindiba, Aslan dişi	R, Fl	Tin, Inf/-	E [121]
Tragopogon dubius Scop.	Marşıng, Sıpıng	Wh	Ma/Ext	E [122]
Xanthium strumarium L.	Domuz pıtrağı, Pıtrak, Sıraca otu	R, F	Dec/Int, Ext	E [115]
Berberidaceae				
Leontice leontopetalum L.	Patlangaç, Yer somunu	Tb	Dec/Ext	E [106]
Betulaceae				
Alnus glutinosa (L.) Gaertn.	Kızıl ağaç	Mfl	Dec/Ext	E [98]
Carpinus orientalis Mill.	İstiriç	-	-/-	E [94]
Corylus maxima Mill.	Fındık	L	Dec/Int	E [106]
Boraginaceae				
Alkanna megacarpa A.DC.	Havacıva	R	Inf/Ext	E [123]
Anchusa azurea Mill.	Ballık otu, Sığır dili	Fl, L	Dec/-	E [88]
Heliotropium europaeum L.	Bostanotu, Sirken, Pampul, Siğilotu, Deli sirken	Aer, L	Inf, Lot, Mc, He, Dec/Int, Ext	E [115]
Symphytum officinale L.	Karakafesotu	L	-/Ext	P [23]
Brassicaceae				
Lepidium draba subsp. *chalepense* (L.) P. Fourn. (Syn: *Cardaria draba* subsp. *chalepensis* (L.) O.E.Schulz)	Tahliş	Wh	Ma/Ext	E [92]
Nasturtium officinale R.Br.	Su gedimesi	Aer	Ra/Int	E [124]
Campanulaceae				
Campanula involucrata Aucher ex A.DC.	Sarım çanı	L	-/-	E [125]
Capparaceae				
Capparis spinosa L.	Gebre, Gebere, Kapari, Kedi tırnağı, Kındıra	Bud, F, Fr, R	Ra, Che, Dec, Ma/Int	E [115]
Caryophyllaceae				
Gypsophila sp.	Çöven	R	-/Ext	P [23]
Silene latifolia Poir. [Syn: *Silene alba* subsp. *divaricata* (Rchb.) Walters]	Garagile	Aer	Dec/Ext	E [117]
Stellaria media (L.) Vill.	Kuşotu	Aer	-/-	E, P [126]
Cucurbitaceae				
Cucurbita pepo subsp. *ovifera* (L.) D.S.Decker (Syn: *Cucurbita pepo* L. var. *ovifera* (L.) Bailey)	Sakız kabağı	-	-/-	E [94]
Ecballium elaterium (L.) A. Rich.	Acı kavun, Acıdülek, Şeytan kavunu	F, R	Dec (+sugar) /Int	E [75]
		R	Dec/Ext	E [127]
		R	-/Int	E [99]
		R, F	Drug, Dro/Int, Ext	E [128]
		F	Cut/Int	E [129]
		R	Cut/Int	E [130]
Momordica charantia L.	Kudretnarı	F	Rind, Pas/Ext	E, P [120]
		F, L	Cut/Int	P [108]
		F	Ma/Int	E [131]
Cupressaceae				
Juniperus oxycedrus L.	Katran ardıcı	Br (Ta)	-/Ext	E [132]
		Ta	+ Flour to form pills/Int	E [111]
		F	Inf, Dec, Ra/Int	E, P [133]
		Pit	Plas/Ext	P [134]

		Ta	-/-	E [88]
		Ta	-/Ext	E, P [135]
		Gu	Sal/Ext	E, P [100]
		Wd	Pix/Ext	E [84]
		R, St, Br, Ta	-/Ext	E, P [110]
Juniperus sabina L.	Kara ardıç	Ta	Mix/Int	E [111]
Juniperus sp.	Ardıç bebesi	F	Dec/Ext	E [136]
Juniperus foetidissima Willd.	Katran ardıcı	Br, F, S	-/-	E, P [112]
Dennstaedtiaceae				
Pteridium aquilinum (L.) Kuhn	Akıllı eğrelti, Eğrelti	-	-/-	E [101]
		L	Inf/Ext	E [102]
Dioscoreaceae				
Dioscorea communis (L.) Caddick & Wilkin (Syn: *Tamus communis* L.)	Sarmaşik	R	Sli/Ext	E [104]
Elaeagnaceae				
Elaeagnus angustifolia L.	İğde	Fl	Dec (+ honey) /-	E [137]
Equisetaceae				
Equisetum arvense L.	Atkuyruğu, Çam otu, Dede sakalı	Wh	Dr/Int	E [80]
		L	-/-	E [127]
		-	-/-	E [79]
		Aer, L, Wh	-/-	E [113]
Equisetum ramosissimum Desf.	At kuyruğu, Tilki kuyruğu, Ulama, Yayılgan otu	Wh	Dec/Ext	E [138]
		L, Sh	Inf	E [79]
Equisetum telmateia Ehrh.	Atkuyruğu, Çam otu, Dede sakalı, Zemberek otu, Tilkikuyruğu	Aer	Dec/Ext	E [81]
		-	-/-	E [94]
Ericaceae				
Arbutus andrachne L.	Sandal ağacı	Wd	He/Ext	E [120]
Calluna vulgaris (L.) Hull	Funda, Süpürge otu	Fl, L	Ol/Ext	E [86]
Erica manipuliflora Salisb.	Funda, Süpürge otu	Fr, Br, Fl	Ol/-	E [112]
Rhododendron ponticum L.	Beyaz kumar	Aer	-/-	P [139]
Vaccinium myrtillus L.	Çoban üzümü	L	-/Ext	E [23]
Euphorbiaceae				
Euphorbia esula subsp. *tommasiniana* (Bertol.) Kuzmanov (Syn: *Euphorbia virgata* Waldst. & Kit.)	Sütlücan, Sütcan	Fl	App/Ext	E [117]
		Fl	-/Ext	E [140]
Euphorbia falcata L.	Sütleğen, Yılan otu	Lt	-/Ext	E [117, 141]
Euphorbia falcata subsp. *falcata* var. *galilaea* (Boiss.) Boiss.	Eğri sütleğen	Lt	-/-	E [126]
Euphorbia helioscopia L.	Feribanotu	-	-/-	E [94]
Euphorbia macroclada Boiss.	Sütleğen, Yılan otu	Lt	-/Ext	E [141, 89]
		Aer	App/Ext	E [117]
Euphorbia marschalliana subsp. *armena* (Prokh.) Oudejans (Syn: *Euphorbia armena* Prokh.)	Dualek, Dıle	Lt	-/Ext	E [91]
Euphorbia orientalis L.	Gezer sütleğen	St, Lt	-/Ext	E [142]
Euphorbia oblongifolia (K. Koch) K. Koch	Haladiza	-	-/-	E [94]
Euphorbia rigida M. Bieb.	Sütlü, Sütlüot, Sütleğen	Lt	-/Ext	E [120]
		Aer	Lot/Ext	E [124]
		Aer, Lt, R	Bat, Lot/Ext	E [115]
Fabaceae				
Lathyrus cicera L.	Deli bakla, Deli bezelye, Keklikbaklası	F	-/Int	P [115]
Ononis spinosa subsp. *leiosperma* (Boiss.) Sirj.	Kayışkıran kökü	Aer	Ma/Ext	E [132]
		Aer	Inf	E, P [143]
Fagaceae				
Quercus cerris L.	Kızılmeşe	F	Dec/Int	E [118]
Gentianaceae				
Centaurium erythraea Rafn	Afyonotu, Kırmızı kantaron	Flb	Inf/Int	E [106]
		Aer	Pow/Int	E [77]
		Wh	Dec/Int	E [93]

Geraniaceae				
Erodium moschatum (L.) L'Hér.	Egzama otu, İğnelik, Leylekayağı, Leylekgagası	Aer	Mix/Ext	E [104]
Hypericaceae				
Hypericum perforatum L.	Sinirotu, Sarı kantaron, Yara otu, Kantaron, Mide otu, Binbirdelik otu	Aer	Dec/Int	E [84]
Hypericum scabrum L.	Kantaron otu, Sarı kantaron, Serkil otu	F	Inf/Ext	E [144]
		Fl, L	Dec, Inf, Pom/Int, Ext	E [145]
Hypericum helianthemoides (Spach) Boiss.	Hoşap kızılotu	Fl	-/-	E [125]
Hypericum montbretii Spach	Mayasıl otu, Çay kanraronu	Aer	Dec/Int	E [77]
		Aer	Dec/-	E [110]
Juglandaceae				
Juglans regia L.	Ceviz	-	-/-	E [146, 101, 94]
		L, F	Inf, Ea/Int	E, V [110]
		L	Inf/Ext	E [109]
		L	-/Ext	E [126, 141]
		L	Inf/-	E [147]
		L	Dec/Ext	E [117]
		L, Frp	Ma/Ext	E [120]
		Frp, L	Dec/-	E [143]
		-	Dec, Dro, Mc/Int	E [87]
		L, F, Frp	-/-	E [113]
		F, L	-/Int, Ext	P [145]
		F	Po/Ext	E [111]
		Imfr	Ma/Ext	E [102]
		S, L, F	Mc, Dec, Bat/Int, Ext	E, P [76]
		Br	Dec/Int, Ext	P [91]
		Br, F	Dec/Int, Ext	P [148]
Lamiaceae				
Ajuga orientalis L.	Mayasıl otu	Fl, St	Dec/-	E [149]
Lavandula stoechas L.	Karabaş otu	Fl, L	Inf/Int	E [150]
Origanum onites L.	Kekik	Aer	Dec, Sal/Ext	E [100]
Teucrium chamaedrys subsp. *lydium* O. Schwarz	Egzama otu, Mahmut otu, Mayasıl otu	L, Fl	-/-	E [151]
		-	-/-	E [101]
		Aer	Inf/Int	E [102]
Teucrium flavum subsp. *hellenicum* Rech.f.	Mayasıl otu	Aer	Dec/Ext	E [106]
Teucrium polium L.	Kısamahmut otu, Mayasılotu	-	-/-	E [101]
		Aer	Inf/-	E [128]
		Aer	Dec/Ext	E [129]
		Aer	Inf/Int	E [102]
Thymbra spicata L.	Zahter, Nuzla kekiği	L	Dec/-	E [147]
		L	Dec/Ext	E [109]
		Aer, Fl	Inf, Lot, Pow, Spi, Che/Int	E [78]
Thymus longicaulis subsp. *chaubardii* (Rchb.f.) Jalas (Syn: *Thymus longicauli* var. *subisophyllus* (Borbás) Jalas)	Kekik otu	Wh	Inf/Int	E [93]
Thymus nummularius M. Bieb. (Syn: *Thymus pseudopulegioides* Klokov & Des.-Shost.)	Limonkekiği	-	-/-	E [94]
Thymus transcaucasicus Ronniger	Kek otu, Catıra	Wh	Inf/-	E [149]
Vitex agnus-castus L.	Ayıt	-	-/-	E [101]
		F	Dec/Int	E [102]
		Sh	Inf/Int	E [102]
Lauraceae				

Laurus nobilis L.	Defne	Of	-/Ext	E [120]
		L	Dec/Ext	E [152]
		L	Dec/Int	E [153]
		L	Inf/Ext	E, P [154]
Linaceae				
Linum usitatissimum L.	Keten	S	Inf/Int	E [150]
Malvaceae				
Alcea apterocarpa Boiss.	Düğmeli çiçek, Dolik	Fl, Aer	-/-	E [114]
Malva neglecta Wallr.	Doğnuk, Ebe gümeci, Hiru	L	Dec, Ma/-	E [136]
		Aer	Dec, Inf, Mc/Int, Ext	P [145]
Malva sylvestris L.	Ebegümeci	L, Fl, Aer, Bud, Sh	-/-	E [113]
		L, Fl	Mc/Int	E [154]
		L	Inf, Dec/-	E [79]
		Aer, R	Inf, Ma, Mc/Int	E [124]
		Aer	Dec/Int	E [103]
		Aer, L	Dec, Inf, Mix, Mc, He/Int	E [115]
Moraceae				
Ficus carica L.	Deli yemiş, İncir, Yemiş	L	Dec/Ext	E [106, 155]
		L	Inf/Int	E [104]
		-	-/-	E [94, 101]
		Lt	Inf/Int	E [102]
Ficus carica subsp. *rupestris* (Hausskn.) Browicz	Yabani incir	Lt	-/Ext	E [141]
Morus alba L.	Dut	L	Inf/Ext	E [103]
Morus nigra L.	Kara dut	F	Dec, Pas/Int	E [148]
		F	Pas/Int	E [91]
Myrtaceae				
Myrtus communis L.	Mersin, Mersin otu	F	-/-	P [113]
Nitrariaceae				
Peganum harmala L.	Üzerlik, Nazar otu	S	-/-	E [86]
		S	Pow/Ext	E [150]
Oleaceae				
Phillyrea latifolia L.	Pırnal	F	-/Int	E [129]
Oxalidaceae				
Oxalis corniculata L.	Ekşi yonca	Aer	-/-	E [121]
Papaveraceae				
Chelidonium majus L.	Sarılık otu, Sultan otu, Mayasılotu, Yaraotu, Temraotu	Lt	-/Ext	E [156]
		Flb	-/-	E [139]
		Lt	-/-	E [157]
		Lt	-/Ext	E [77, 110]
		Lt	Fresh/Ext	E [84]
		Aer	Inf/Int	E [81]
		-	-/-	E [94]
Fumaria asepala Boiss.	Şahtere otu	-	-/-	E [158]
Fumaria capreolata L.	Şahtere	Lt	-/Ext	E [120]
Fumaria officinalis L.	Şahtere	Aer	Inf/Ext	E [159]
		Fl	Inf/Int	E [160]
		Flb	Inf/Ext	E, P [154]
		Aer	Dec/Ext	P [109]
		Wh	Dec/Int	E [96]
Papaver dubium L.	Gelincik	Aer	Inf/Ext	E [135]
Papaver rhoeas L.	Übük	Lt	-/Ext	E [160]
Pedaliaceae				
Sesamum indicum L.	Susam	Oil	Sal/Ext	E [100]
Pinaceae				
Cedrus libani A. Rich.	Katran ağacı	Res	-/Ext	P [105]
Picea orientalis (L.) Peterm.	Ladin	-	-/-	E [94]
Pinus brutia Ten.	Kızılçam	Br, Ba, C, L, Res	Inf, Oil removed/Int, Ext	P [160]
Pinus nigra J.F. Arnold	Çam	Br, L, Res	Inf/Int, Ext	P [161]

Pinus nigra subsp. *pallasiana* (Lamb.) Holmboe	Karaçam	Ta C, Sh	-/Ext Dec/Int	E [162] E [163]
Plantaginaceae *Digitalis ferruginea* L.	Yabani zambak	Wh	Dec/Ext	E [106]
Linaria genistifolia subsp. *confertiflora* (Boiss.) P.H. Davis	Geyşenik	L, Fl	Dec/Ext	E [118]
Plantago sp.	Damarotu, Sinirli ot, Balyaprağı, Siğil otu, Yedidamar otu	L	He/-	E [136]
Plantago lanceolata L.	Yedidamar otu	L -	Ma/Ext -/-	E [93] E [94]
Plantago major L.	Yara otu, Şimşek otu, Kırksinir otu	Aer L Wh L, S L	Mc, Inf, Dec/Int Dec/Int -/- Ma/Ext	E [124] E [164] P [80] E [139] E [93]
Plantago major subsp. *intermedia* (Gilib.) Lange	Sinirotu, Sinirliot, Kırksinirotu, Kırkdamarotu, Çıbanotu	Aer, L	Mc, Inf, Ra, Cat, Pow/Int	E [115]
Plumbaginaceae *Plumbago europaea* L.	Soyulgan otu, Kuduz otu, Sıtma otu, Döven otu	- L R, L Aer	-/- Ma/Ext Dec/Int Ma/Ext	E [101] E [165, 102] E [166] E [120]
Poaceae *Zea mays* L.	Mısır püskülü	Sty	Dec/Ext	P [82]
Polygonaceae *Persicaria decipiens* (R.Br.) K. L Wilson (Syn: *Polygonum salicifolium* Brouss. ex Willd.)	Bibercik	Wh	Dec/Int	E [93]
Persicaria lapathifolia (L.) Delarbre (Syn: *Polygonum lapathifolium* L.)	Dereotu, Dere biberi, Deve sürdeği	Aer	Dec/Ext	E [84]
Polygonum cognatum Meisn.	Madımak, Kuş ekmeği	Fr, L	-/-	E [112]
Rumex crispus L.	Evelik, Kuzu kulağı	L R	Dec, Ea/Int -/-	P [133] E [167]
Rumex cristatus DC.	Yunan labadası	R	-/-	E [167]
Rumex obtusifolius subsp. *subalpinus* (Schur) Celak.	Yabani labada	R	-/-	E [167]
Rumex patientia L.	Akıllı labada	R L	-/- Ma/Ext	E [167] E [109]
Rumex caucasicus Rech.f.	Trisog, Evelik	R	-/-	E [167]
Rumex conglomeratus Murray	Labada, Kuzukulağı	R Aer	-/- Ma/-	E [167] E [137]
Rumex pulcher L.	Ibıdağ	R	Ma, Dec/Ext	E [96]
Portulacaceae *Portulaca oleracea* L.	Semiz otu	Wh	-/-	P [113]
Ranunculaceae *Ficaria verna subsp. ficariiformis* (Rouy & Foucaud) B.Walln. (Syn: *Ranunculus ficaria* subsp. *ficariiformis* (F.W.Schultz) Rouy & Foucaud)	Basur otu	R	-/-	E [168]
Ranunculus kotschyi Boiss.	Giritlalesi	-	-/-	E [94]
Resedaceae *Reseda lutea* L.	Eşek turpu	Fl	Cat/Ext	P [137]
Rhamnaceae *Paliurus spina-christi* Mill.	Karaçalı	S, L	Dec, Inf/Int	E [110]
Rosaceae *Mespilus germanica* L.	Döngel	L	Po/Ext	E [111]
Prunus spinosa L. (Syn: *Prunus spinosa* subsp. *dasyphylla* (Schur) Domin)	Göğem eriği	F	Dec/Int	E [108]
Prunus persica (L.) Batsch	Şeftali	L	Dec/Int	E [93]
Rosa boissieri Crép. (Syn: *Rosa montana* subsp. *woronowii* (Lonacz.) Ö. Nilsson)	Has gül	-	-/-	E [94]

Rosa canina L.	Kuşburnu, Öküz gözü, Gülbubusu, Yabanigül	F, R	Dec/Int	E [107]
		F	Inf/Int	E [98]
		L	Dec/Int	E [84]
		F, L, S, Gl	Dec, Ra/Int	E [115]
		F	Dec/Int	E, P [90, 93]
Rubus caesius L.	Fuska dikeni, Pamuk dikeni, Handuka, Fiskofi	R	Dec/Int	E, P [80]
Rubus idaeus L.	Diken çileği, Böğürtlen	Wh	-/-	E [139]
		R	Dec/Int	E [82]
Rubus sanctus Schreb.	Böğürtlen, Karantı	L	Dec/Int	E [111]
		R	Dec/Int	E [103]
Sanguisorba minor subsp. *balearica* (Bourg. ex Nyman) Muñoz Garm. & C. Navarro (Syn: *Sanguisorba minor* subsp. *muricata* (Spach ex Bonnier & Layens) Briq.)	Kesmeotu	Aer	Dec/Ext	E [104]
Rubiaceae				
Galium verum subsp. *glabrescens* Ehrend.	Beyazsedef otu	Aer	Inf/Int	P [132]
Plocama calabrica (L.f.) M. Backlund & Thulin (Syn: *Putoria calabrica* (L.f.) DC.)	Yumurta boyası	Aer	Ma/Ext	E [120]
Rubia tinctorum L.	Yapışkan otu	Aer, Sh	-/-	E [113]
Rutaceae				
Ruta graveolens L.	Sedef otu, Biro otu	L	-/-	E, P [86]
		L	Ma/Ext	E [84]
Salicaceae				
Salix alba L.	Söğüt ağacı, Söğüt, Salkımsöğüt	St	Dec/Ext	E [84]
		Ba	-/Ext	P [23]
Sapindaceae				
Acer campestre L.	Akçaağaç	Gl	-/Ext	E [111]
Scrophulariaceae				
Verbascum sp.	Öküz kuyruğu, Sığırkuyruğu	L, Fl	Inf/Ext	E [118]
Verbascum thapsus L.	Burunca	Fl	-/-	E [126]
Smilacaceae				
Smilax aspera L.	Sperne	F, L	Dec/-	E [137]
		Sp	-/Ext	E [120]
Smilax excelsa L.	Öz diken, Diken sarmaşık	F, Sh, Br	Inf, Fr, Co/-	E [97]
		Sp	-/Ext	E [120]
Solanaceae				
Datura stramonium L.	Datura, Tatala	S	-/Int	E [77, 81]
Lycium anatolicum A. Baytop & R.R. Mill	Yapışkan çalı	Sp	-/Ext	E [144]
Mandragora officinarum L.	Adamotu	R	Pow/Int	E [86]
Nicotiana rustica L.	Deli tütün	L	Ma/Ext	E [150]
Solanum tuberosum L.	Patates	Tb	Co, Ma/Ext	E [169]
Urticaceae				
Parietaria judaica L.	Yapışkan otu	Aer	Po/Ext	E [170]
Urtica sp.	Isırgan	L	Inf/-	E [136]
Urtica dioica L.	Isırgan otu	-	-/-	E [94, 146]
		Aer	Ma/Ext	E [120]
		St, L, S	Ma/Int, Ext	E, P [133]
		Aer, L	Dec/Int	E [152]
		Leb, S, Spr	Inf/-	E [171]
		St, L, Fl	-/Int	E [172]
		L, St	Dec/Ext	E [159]
		St, L	-/Int	E [131]
		L, Br	-/-	E [121]
		Aer, S, R	Inf, Dec, Mix, Dec, He/Int	E [115]
		L	Dec/-	E [89]
		Spr	Dec/Int	E [170]
		Wh	Dec/Int	E, P [93]
		Aer	Dec/Int	E [93]

		R	Dec/Int	E [90]
		Aer	-/-	E [168]
		L	Mix/Int	E [111]
		L	-/Ext	P [23]
Urtica urens L.	Isırgan, Dalağan, Dalağazotu	Aer	Dec/Int	E [85]
		R	Dec/Int	E [90]
Violaceae				
Viola tricolor L.	Hercai menekşe	Aer	Inf/-	E [147]
		Aer	Inf/Ext	E [109]
		Wh	Inf/Int, Ext	P [23]
		Aer	Dec/Int	E [172]
Xanthorrhoeaceae				
Asphodeline baytopiae Tuzlaci	İnce çiriş, İnce çiriş otu	R	Ma, Pow/Ext	E [76, 78]
Asphodeline brevicaulis (Bertol.) J. Gay ex Baker	Çiriş, Çiriş otu	R	Ma, Pow/Ext	E [78]
Asphodeline taurica (Pall.) Endl.	Çiriş, Çiriş otu	R	Ma, Pow/Ext	E [78]
Asphodelus aestivus Brot.	Çiriş, Hıdrellez kamçısı	-	-/-	E [101]
		R	-/-	E [168]
		R	-/Int	E [102]
		Tb	Dec/Int	E [103]
Asphodelus ayardii Jahand. & Maire	Çiriş, Çiriş otu	R	Ma, Pow/Ext	E [76, 78]
Asphodelus fistulosus L.	Çiriş, Çiriş otu	R	Ma, Pow/Ext	E [78]
Eremurus spectabilis M. Bieb.	Çiriş, Gulık	L	Fr, Po/Int, Ext	E [117]
		L	Ma/Ext	E [141]
Zygophyllaceae				
Tribulus terrestris L.	Çobançökerten, Demirdikeni, Demir otu, Kızılbacak, Demirpıtrağı	Aer	Dec/Int	E [104, 123]
		Aer	Dec, Inf, Lot/Int	E [124]
		Aer, Fl, Spi	Dec/Int	E [115]

Abbreviations: External use Ext; Internal use Int; Eczema E, Psoriasis P; Vitiligo V; Aerial parts Aer; Balsam Bls; Bark Ba; Branch Br; Bulb Bl; Capitulum Cap; Cone C; Flower Fl; Flowering branch Flb; Flowering bud Fb; Fruit F; Fruit oil Of; Fruit pericarp Frp; Gall Gl; Gum Gu; Immature fruit Imfr; Latex Lt; Leaf L; Leafy branch Leb; Male flower Mfl; Pitch Pit; Raw Fruit Fr; Resin Res; Root R; Sap Sp; Seed S; Shoot Sh; Spicule Spi; Sprout Spr; Stem St; Style Sty; Tar Ta; Tuber Tb; Whole plant Wh; Wood Wd; Cataplasm Cat; Chewing Che; Cooking Co; Direct application App; Dried Dr; Dropped Dro; Eaten Ea; Heated He; Lotion Lot; Maceration Mc; Mash Ma; Mixed Mix; Moisturizer Moi; Ointment with olive oil Ol; Paste Pas; Pickle paste Pasp; Planed Pla; Plaster Plas; Pomade pom; Pounded Po; Powdered Pow; Raw Ra; Roasted Roa; Salve Sal; Skin bath Bat; Sliced Sli; Spice Spi; Split Spl; Tincture Tin.

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