



Medicinal Plants and Treatment of Itching: the Most Important Native Medicinal Plants of Iran Used In Itching Based on Ethnobotanical Documents

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Abstract

Due to different cultures and areas for the use of medicinal plants, there are various customs and traditional valuable methods that botany offers for finding new medicinal plants and herbal medicines. Lack of useful and effective drugs for itching and skin inflammation leads to the expansion of research on effective and natural remedies for patients. For this systematic review, databases such as Web of Science, PubMed, PubMed Central, Scopus, SID, Magiran, and Google Scholar were used to have an access to articles on skin pruritus as well as the role of herbs in treating pruritus without release time limit. Words that were used separately in the title to retrieve articles as keywords included herbs, traditional medicine, herbal medicine, and itching. This article lists 19 plant species that are used in different parts of Iran as anti-pruritic herbal remedies. According to traditional Iranian ethnobotanical sources, Carthamus oxyacantha, Castor, Fumaria officinalis, Ziziphus, Milkvetch, Gallium verum, Trifolium repens, Fumaria asepalae Boiss, Rumex chalepensis Mill, Salix elbursensis Boiss, Solanum nigrum, Chris, Verbascum citrulluscolocynthis, Matricaria recutita, Falcaria vulgaris Bernh and Anagallis arvensis are the most important medicinal plants used in Iranian ethnobotanical sources to treat pruritus. The researchers of the present study believe that the identification of antipruritic herbs is of great importance.

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Introduction

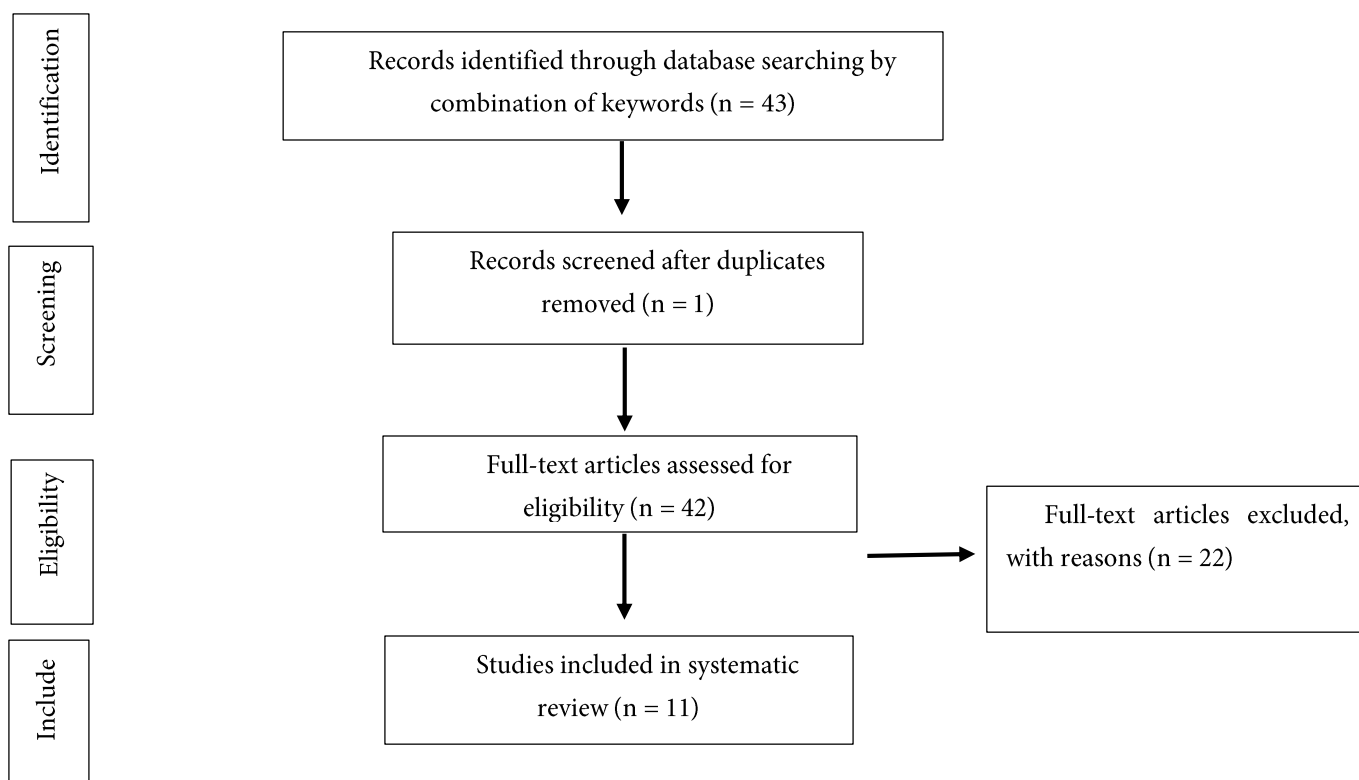
Itching is a mental and inner feeling that causes irritation sensation and the stimulation of scratching receptors in the skin [1]. Itching is a symptom of many skin diseases, systemic diseases, infections and malignancies [2-5]. Sometimes itching is caused by internal diseases such as bile, mental illness and itching in old age and after menopause, kidney disease, endocrine and metabolic diseases, blood and Lymphoproliferative disorders (LPD), occult cancers, and infectious diseases [6]. Reports indicate that the prevalence of pruritic diseases is 10% [7]. Various treatments are available to relieve pruritus, including intravenous lidocaine or heparin, oral administration of cholestyramine, activated charcoal, low-protein diet, magnesium-free dialysis, electrical stimulation with a needle, parathyroidectomy, and ultraviolet radiation therapy [8]. Among these, one of the treatments used to treat pruritus is the use of complementary medicine [9]. Indigenous knowledge

can be considered as a part of the unique culture of each land, which is knowledge in order to adapt to the specific environmental conditions of the ecosystem, has been obtained through experience and has gradually become part of the social and productive culture of that society. Ethnobotany involves the knowledge of local people about plants, their application, and their ecology. These sciences are receiving increasing attention today. In this systematic review study, we tried to use Iranian ethnobotanical documents and reported medicinal plants that are traditionally used in the treatment of pruritus.

Method

Traditional remedial information of this study was obtained by searching common key words such as Itching and medicinal plants in scientific databases including ISI Web of Science, PubMed, Scopus, Islamic World Science Citation Database (ISC), Magiran and Scientific Information Database (SID) of Iran.

Flowchart 1. The criteria and the number of entry and exit articles



Results

Citrullus colocynthis, *Matricaria recutita*, *Falcaria vulgaris* Bernh and *Anagallis arvensis* are the most important medicinal plants used in Iranian ethnobotanical sources to treat pruritus. The list of plants, families, organs used and the province is given in Table 1.

According to traditional Iranian ethnobotanical sources, *Carthamus oxyacantha*, *Castor*, *Fumaria officinalis*, *Ziziphus*, *Milkvetch*, *Gallium verum*, *Trifolium repens*, *Fumaria asepsala* Boiss, *Rumex chalepensis* Mill, *Salix elbursensis* Boiss, *Solanum nigrum*, *Chris*, *Verbascar*

Table 1. The most important itching herb in Iranian ethnobotanical documents

Scientific name	Herbal family	Persian name	Used organ	Therapeutic	Region
<i>Carthamus oxyacantha</i>	Asteraceae	Golrang zard	Seed	Itching	Bushehr [10]
<i>Ricinus communis</i> L.	Euphorbiaceae	Karchak	Seed oil	Itching	Bushehr [10]
<i>Fumaria officinalis</i>	Papavaraceae	Shahtareh	Aerial organs	Itching	Behbahan [11]
<i>Ziziphus nummularia</i>	Rhamnaceae	Ramlik	Fruit and Leaf	Itching	Behbahan [11]
<i>Astragalus gossypinus</i>	Fabaceae	Gavan	Aerial organs	Itching	Chaharbaghe golestan [12]
<i>Gallium verum</i>	Rubiaceae	Shir panirom	Flowering branch	Itching	Chaharbaghe golestan [12]
<i>Trifolium repens</i> L.	Fabaceae	Shandare sefid	Flowering branch	Itching	Dastena [13]
<i>Fumaria asepalae</i> Boiss.	Papaveraceae	Shahtersi	Aerial organs	Itching	Zanjan [14]
<i>Rumex chalepensis</i> Mill.	Polygonaceae	Avlik	Aerial organs	Itching	Zanjan [14]
<i>Salix elbursensis</i> Boiss.	Salicaceae	Gzilsoud	Aerial organs	Itching	Zanjan [14]
<i>Solanum nigrum</i> L.	Solanaceae)	Ghoshazoumi	Fruit	Itching	Zanjan [14]
<i>Verbascum thapsoides</i> M.	Scrophulariaceae	Gole mahour	Flower	Itching	Sajroud [15]
<i>Brassica rapa</i> L.	Brassicaceae	Shalgham	Root	Itching	Sistan [16]
<i>Chrysanthemum coronarium</i> L.	Asteraceae	Davoudi	Leaf and Flower	Itching	East Khuzestan [17]
<i>Citrullus colocynthis</i>	Cucurbitaceae	Hendevaneh abojahl	Fruit	Itching	East Khuzestan [17]

<i>Ziziphus nummularia</i>	Rhamnaceae	Ramlik	Fruit	Itching	East Khuzestan [17]
<i>Matricaria recutita</i> L.	Asteraceae	Babouneh	Flower	Itching	North Khuzestan [18]
<i>Falcaria vulgaris</i> Bernh	Apiaceae	Ghazyaghi	Leaf and Seed	Itching	Mariwan [19]
<i>Teucrium orientale</i> L. subsp. Taylori (Boiss.) Rech.f.	Lamiaceae	Maryam nokhodi	Leaves and inflorescences	Itching	East Persian Gulf [20]
<i>Anagallis arvensis</i>	Primulaceae	Anaqalis	Aerial organs	Itching	East Persian Gulf [20]

Discussion

In the four corners of the world, traditional medicine is being revived by different ethnic groups and nations, and the authenticity and advantage of herbal and traditional medicines over chemical medicines are being proved more and more. The high tendency of people to natural and harmless and at the same time cost-effective treatments, as well as its cultural compatibility, has led to the widespread use of medicinal plants in traditional Iranian medicine [21]. Nowadays, medicines processed from medicinal plants as bio-innovations in the field of medicine are a suitable alternative to chemical drugs [22]. Itchy skin is one of the most common complaints forcing patients to see a dermatologist to reduce or treat it. Skin, kidney, liver, dermatophysical, celiac, thyroid, allergies, menopause, insect bites, eczema, psoriasis, infections, metabolic and neurological diseases, and other disorders and diseases can occur in the form of itchy skin [23-25]. Finally, due to the wide range of factors and diseases that cause pruritus, reports indicate that some chemical mediators and signaling pathways such as 5-hydroxytryptamine, proteases, opioid peptides and peptides have important effects on the mechanism of itch [26-28]. There are a number of strategies for treating pruritus, including finding the causative agents, preventing irritants, preventing dry skin, keeping the skin moist, ultraviolet light, and corticosteroids [29-31]. Other treatments for pruritus include traditional medicine and herbal medicine, especially ethnobotanical science. Medicinal plants due to their active ingredients and medicinal and antioxidant compounds have beneficial effects on human health and have a therapeutic effect on various organs of the body and various diseases [32-38]. Iran has a wide range and many ancient customs in this geographical area. On the other hand, the existence of various ethnic groups with different customs and also the high diversity of plants in this country has caused that for a long time now, very favorable conditions have been provided for the use of different types of plants in different fields. Medicinal plants have been widely used in Iranian ethnobotany and have been used in relieving itching. Due to the abundance and widespread use of medicinal plants, phytochemical and herbal pharmacological studies in relation to these plants can provide a basis for identifying the antipruritic therapeutic effects of Iranian medicinal plants.

Conflict of interest

None of the authors have any conflict of interest to declare.

Consent for publications

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Availability of data and material

Data are available on request from the authors.

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References

1. Priscilla L, Karen B, Bauldoff G. Medical surgical nursing; 5th ed. New York; Amazon, 12-8.
2. Yosipovitch G, Goon A, Wee J, et al. The prevalence and clinical characteristics of pruritus among patients with extensive psoriasis. *Br J Dermatol* 2000; 143: 969-73.
3. Etter L, Myers SA. Pruritus in systemic disease: mechanisms and management. *Dermatol Clin* 2002; 20: 459-72.
4. Shapiro RS, Samorodin C, Hood AF. Pruritus as a presenting sign of acquired immune deficiency syndrome. *J Am Acad Dermatol* 1987; 16: 1115-7.
5. Braverman IM. Skin manifestations of internal malignancy. *Clin Geriatr Med* 2002; 18: 1-19.
6. Yosipovitch G, Dawn AG, Greaves M. Pruritus. In: Bologna JL, Jorizzo JL, Rapini RP (editors). "Dermatology". 2nd ed. Spain, Elsevier, 2008: 81-114.
7. Wolkenstein P, Grob JJ, Bastuji-Garin S, et al. French people and skin diseases: results of a survey using a representative sample. *Arch Dermatol*, 2003; 139: 1614-9.
8. Ro Y-J, Ha H-C, Kim C-G, Yeom H-A. The effects of aromatherapy on pruritus in patients undergoing hemodialysis. *Dermatology Nursing*. 2002; 14(4):231-41.
9. McCann Schilling Judith A. Nurses hand book of Alternative and Complementary Therapies. 2nd ed. Philadelphia: Lippincott Williams & Wilkins; 2003.
10. Dolatkhahi M, Nabipour I. Systematic study of medicinal plants in Bushehr. *J Herbal Drugs* 2013; 3(4): 209-222.

11. Razmjoue D, Zarei Z, Armand R. Ethnobotanical Study (Identification, Medical Properties and How to Use) of some Medicinal Plants of Behbahan city of Khuzestan Province, Iran. *J medicinal Plants* 2017; 16(4): 33-50.
12. Farouzeh MR, Mirdalimi SZ. Study of native herbal medicine and business prioritization related to medicinal plants in Chaharbagh rangelands of Golestan province. *Journal of Range* 2018; 12(4): 493-506.
13. Mohammadi H, Sajjadi SE, Noroozi M, Mirhosseini M. Collection and assessment of traditional medicinal plants used by the indigenous people of Dastena in Iran. *J HerbMed Pharmacol*. 2016; 5(2): 54-60.
14. Moghanloo L, Ghahremaninejad F, Vafadar M. Ethnobotanical study of medicinal plants in the central district of the Zanjan county, Zanjan province, Iran. *Journal of Herbal Drugs* 2019; 9(3):121-131.
15. Saadatpour M, Barani H, Abedi Sarvestani A, Farouzeh MR. Ethnobotanical study of medicinal plants of Sojasrood (Zanjan province). *J Herbal drugs* 2018; 8(3): 185-193.
16. Iranmanesh M, Najafi SH, Yousefi M. Ethnobotanical study of medicinal plants in Sistan region. *Journal of Herbal Drugs* 2010; 2: 61-68.
17. Khodayari H, Amani SH, Amiri H. Ethnobotany of medicinal plants in the northeast of Khuzestan province. *Journal of Ecophytochemistry of Medicinal Plants* 2014; 8(2): 12-16.
18. Khodayari H, Amani SH, Amiri H. Ethnobotany of medicinal plants in the northeast of Khuzestan province. *Journal of Ecophytochemistry of Medicinal Plants* 2014; 8(2): 12-16.
19. Tabad MA, Jalilian N. Ethnobotanical study of medicinal plants in Zarivar region of Marivan city. *J Medicinal Plants* 2015; 14(2): 55-75.
20. Rajaei P and Mohamadi N. Ethnobotanical Study of Medicinal Plants of Hezar Mountain Allocated in South East of Iran. *Iranian Journal of Pharmaceutical Research* 2012; 11 (4): 1153-1167.
21. Abdi N, Abdi M, Hasan zadeh S. Introduction of medicinal plants in Arak County. *New Finding in Agriculture*. 2010; 5 (1): 37-54.
22. Delnavaz Hashemlouian B and Ataii Azimi A. Medicinal and Edible Attributes in Plants, (In Persian) Islamic Azad University Press. Saveh. 2008, 180 pp.
23. Olek-Hrab K., Hrab M., Szyfter-Harris J., Adamski Z. Pruritus in selected dermatoses. *European Review for Medical and Pharmacological Sciences*. 2016; 20(17):3628–3641.
24. Twycross R., Greaves M. W., Handwerker H., et al. Itch: scratching more than the surface. *QJM: An International Journal of Medicine*. 2003; 96(1):7–26. doi: 10.1093/qjmed/hcg002.
25. Lyell A. The itching patient. A review of the causes of pruritus. *Scottish Medical Journal*. 1972; 17(10):334–337. doi: 10.1177/003693307201701005.
26. Yonova D. Pruritus in certain internal diseases. *Hippokratia*. 2007; 11(2):67–71.
27. Hiranmanek N. Itch: a symptom of occult disease. *Australian Family Physician*. 2004; 33(7):495–499.
28. Cunha P. R., Filho O. D. Pruritus: Still a challenge. *Anais Brasileiros de Dermatologia*. 2012; 87(5):735–741. doi: 10.1590/S0365-05962012000500011.
29. Greaves M. W. Itch in systemic disease: therapeutic options. *Dermatologic Therapy*. 2005; 18(4):323–327. doi: 10.1111/j.1529-8019.2005.00036.x.
30. Eschler D. C., Klein P. A. An evidence-based review of the efficacy of topical antihistamines in the relief of pruritus. *Journal of Drugs in Dermatology (JDD)* 2010; 9(8):992–997.
31. Leslie T. A., Greaves M. W., Yosipovitch G. Current topical and systemic therapies for itch. *Handbook of Experimental Pharmacology*. 2015; 226: 337–356. doi: 10.1007/978-3-662-44605-8-18.
32. Valadi A, Nasri S, Abbasi N, Amin GR. Antinociceptive and anti-inflammatory effects of hydroalcoholic extract of *Anethum graveolens* L. seed. *Journal of Medicinal Plants* 2010; 9(34):124-130.
33. Moayeri A, Azimi M, Karimi E, Aidy A, Abbasi N. Attenuation of Morphine Withdrawal Syndrome by *Prosopis Farcta* Extract and Its Bioactive Component Luteolin in Comparison with Clonidine in Rats. *Med Sci Monitor Basic Res* 2018; 24(9): 151-158.
34. Bahmani M, Taherikalani M, Khaksarian M, Rafieian-Kopaei M, Ashrafi B, Nazer M, Soroush S. Abbasi N, Rashidipour M. The synergistic effect of hydroalcoholic extracts of *Origanum vulgare*, *Hypericum perforatum* and their active components

- carvacrol and hypericin against *Staphylococcus aureus*. *Future Science OA* 2019; 5(3): Article number FSO371.
35. Abbasi N, Khosravi A, Aidy A, Shafiei M. Biphasic response to luteolin in MG-63 osteoblast-like cells under high glucose-induced oxidative stress. *Iranian Journal of Medical Sciences* 2016; 41(2): 118-125.
 36. Bahmani M, Taherikalani M, Khaksarian M, Rafieian-Kopaei M, Ashrafi B, Nazer M, Soroush S, Abbasi N, Rashidipour M. The synergistic effect of hydroalcoholic extracts of *Origanum vulgare*, *Hypericum perforatum* and their active components carvacrol and hypericin against *Staphylococcus aureus*. *Future Science OA* 2019; 5(3): Article number FSO371.
 37. Zangeneh MM, Ghaneialvar H, Akbaribazm M, Ghanimatdan M, Abbasi N, Goorani S, Pirabbasi E, Zangeneh A. Novel synthesis of *Falcaria vulgaris* leaf extract conjugated copper nanoparticles with potent cytotoxicity, antioxidant, antifungal, antibacterial, and cutaneous wound healing activities under in vitro and in vivo condition. *Journal of Photochemistry and Photobiology B: Biology* 2019; 197, art. no. 111556, .
 38. Mahdavi B, Saneei S, Qorbani M, Zhaleh M, Zangeneh A, Zangeneh MM, Pirabbasi E, Abbasi N, Ghaneialvar H. *Ziziphora clinopodioides* Lam leaves aqueous extract mediated synthesis of zinc nanoparticles and their antibacterial, antifungal, cytotoxicity, antioxidant, and cutaneous wound healing properties under in vitro and in vivo conditions. *Applied Organometallic Chemistry* 2019; 33 (11): 5164.