

Medicinal plants used in urticaria: As allergic skin disorder

Rohan D Kshirsagar¹, Prashant S Palghadmal², Krushna S Kardile¹, Sahil A Salve¹

¹ Department of Pharmacy, Ashvin College of Pharmacy, DBATU University, Manchi Hill, Maharashtra, India

² Associate professor Department of Pharmacognosy Ashvin College of Pharmacy, DBATU University, Manchi Hill, Maharashtra, India

Abstract

Skin disorders represent a significant health challenge across all age groups and are linked to considerable morbidity. Urticaria is recognized as a major concern regarding its causes, diagnosis, and treatment. Although certain skin conditions are highly prevalent in developing countries, they have not been prioritized in public health strategies. The rate of treatment failures in managing skin disorders within primary care is alarmingly high. Urticaria, the fourth most common allergic condition, arises from the release of histamine, bradykinin, kallikrein, and other vasoactive substances from mast cells and basophils in the upper dermis. It is not a single ailment but rather a pattern of skin reaction that involves localized swelling and the formation of wheals. Acute urticaria is more frequently seen in younger individuals, while the chronic form primarily affects middle-aged women. Antihistamines, corticosteroids, and leukotriene antagonists can offer temporary relief from symptoms. This review presents extensive information about medicinal plants beneficial for treating urticaria.

Keywords: Medicinal plants, urticaria, skin disorder

Introduction

Skin disorders are among the most prevalent health issues, accounting for roughly 34% of all occupational diseases. They can lead to significant emotional and psychological stress for both patients and their families. Common skin conditions include dermatitis, eczema, acne, urticaria, psoriasis, and various allergies, often necessitating long-term treatment. Despite their prevalence, skin diseases tend to be overlooked in healthcare, likely because most do not result in mortality. However, the associated morbidity is often underestimated, and healthcare administrators may prioritize other public health concerns. This study focuses on the use of traditional medicines for treating allergic skin conditions like urticaria and highlights the need for further research into these remedies and plants as potential effective treatments.

Urticaria is characterized by temporary redness and swelling of the skin, accompanied by itching and the formation of wheals in the dermis or larger swellings beneath the skin. This condition presents as lumpy, itchy rashes resembling the reaction to a nettle sting and can persist for over six weeks. It is the fourth most common allergic condition, affecting about 20% of the population at some point in their lives. Acute urticaria primarily occurs in younger individuals, while chronic urticaria is more prevalent among middle-aged women, posing a more complex clinical challenge. Patients with urticaria do not necessarily have a personal or family history of atopy. Although urticaria is not life-threatening, it can significantly impact quality of life,

comparable to conditions like cardiovascular disease. The condition has various causes and underlying mechanisms, existing in both acute and chronic forms. Acute urticaria is often triggered by hypersensitivity to foods or medications, and can also arise from viral, bacterial (such as *Helicobacter pylori*), or parasitic infections. Additionally, psychological factors like anxiety and stress can contribute to its development. Urticaria is not a single disease but rather a skin reaction pattern characterized by localized edema from dilated and more permeable capillaries, leading to a pruritic, raised rash.

Recent research indicates that approximately one-third of patients with chronic urticaria have circulating functional autoantibodies that release histamine. These antibodies can bind to the high-affinity IgE receptor (Fc RI) or, less frequently, to IgE itself. Due to the complex mechanisms involved in this condition, a combination of medications is often used for treatment. Common options include antihistamines, corticosteroids, and leukotriene antagonists, with treatment durations varying from 30 to 190 days. While modern medicine can offer temporary relief from symptoms, it does not provide a permanent cure, necessitating long-term medication use, which may lead to unwanted side effects. This highlights the urgent need for exploring alternative therapies with better safety profiles. Ayurveda may offer a potential permanent solution, and acupuncture has also been shown to be beneficial in managing both acute and chronic urticaria.

Table: Medicinal Plant use in Urticaria

Sr. No.	Plant name	Common Name	Family	Plant part used	Uses	References
1.	<i>Achyranthes aspera</i> L.	Apamarga	Amaranthaceae	Leaves	A paste made from leaves is used externally for skin allergies.	26
2.	<i>Adansonia digitata</i> Linn	Gorakshi	Bombacaceae	Fruit	Used in urticaria	27
3.	<i>ALLium cepa</i> L.	Onion	Amaryllidaceae	Bulb	The bulbs are crushed into a paste that is applied externally for skin allergies.	26

4.	<i>Aloe Barbadensis</i> MILLER	Kumari, Aloe	Liliaceae	Leaves	A leaf paste is applied externally to treat skin allergies.	28
5.	<i>Amaranthus spinosus</i> L.	Spiny Pigweed	Amarathaceae	Leaves	The juice of the whole plant is applied to the affected allergic area once daily before bathing.	29
6.	<i>Barleria prionitis</i> L.	Kuranta	Acanthaceae	Leaves	The leaf paste is applied externally to treat skin allergies and chilblains.	26
7.	<i>Brassica juncea</i> (L.) Czern.	Rai, Brown Mustard	Brassicaceae	Seed	The seed paste is used externally to treat boils and skin allergies.	26
8.	<i>Casearia elliptica</i> WILLD.	Chilla	Flacourtiaceae	Leaves	A paste made from leaves is applied to wounds to help stop bleeding, while a paste of the stem bark is used for skin allergies.	26
9.	<i>Curcuma Longa</i> L.	Turmeric	Zingiberaceae	Rhizome	Aids in the treatment of itching, boils, rheumatism, urticaria, and ringworm.	32
10.	<i>Cynoglossum</i> <i>Lanceolatum</i> Forssk	Laksmna	Boraginaceae	Leaves	The juice from the leaves is applied to skin allergies.	26
11.	<i>Coriandrum sativum</i> L	Dhaniya	Apiaceae	Aerial Part	Leaf paste is applied to the affected allergic area for one week.	29
12.	<i>Dendrophthoe falcatata</i> (L.f.)	Banda	Loranthaceae	Roots	The roots are crushed, and their juice is applied to skin allergies.	26
13.	<i>Emblica officinalis</i> Gaertn.	Amla	Euphorbiaceae	Leaves	A paste of leaves and bark is applied to the affected allergic area once daily until it heals.	29
14.	<i>Eucalyptus globulus</i>	Nilgiri	Myrtle	leaves	Help alleviate pain, promote relaxation, and relieve symptoms of colds.	26
15.	<i>Fumaria indica</i>	Pit Papra	Papaveraceae	Whole Plant	The plant is ground into a paste and applied externally to treat skin allergies.	26
16.	<i>Gloriosa superba</i> L.	Kalihari	Colchicaceae	Rhizome	Rhizome paste is applied to the affected areas to treat all types of skin allergies.	33
17.	<i>Hibiscus rosa sinensis</i> Linn.	Japa	Malvaceae	Leaves	Fresh leaf juice combined with the juice of fresh rhizome from <i>Curcuma domestica</i> Valetton is taken orally to treat urticaria.	31
18.	<i>Litsea glutinosa</i>	Rain, Indian Laurel	Lauraceae	Bark	The paste is applied to treat skin allergies.	26
19.	<i>Mentha piperata</i> Linn.	Pudinaa	Lamiaceae	Leaves	The external application of leaf paste is used for treating urticaria.	34
20.	<i>Musa sapientum</i> var. <i>paradisica</i>	Banana	Musaceae	Fruit	Used for treating urticaria.	35
21.	<i>Ocimum sanctum</i> L.	Tulasi	Lamiaceae	Leaves	Fresh leaf juice combined with the juice of <i>Curcuma domestica</i> Valetton rhizome is taken orally to treat urticaria.	31
22.	<i>Phyllanthus amarus</i> Schumach. & Thonn.	Bhumyamlaki	Phyllanthaceae	Leaves	The crushed leaves are turned into a paste and applied externally to treat skin allergies.	26
23.	<i>Plumbago zeylanica</i> L.	Chitraka	Plumbaginaceae	Roots	The root paste is applied externally to treat skin allergies and boils.	26
24.	<i>Pongamia pinnata</i> (L.) Pierre	Karanju	Fabaceae	Seed Oil	The oil extracted from the seeds is applied externally to relieve itching and skin allergies.	26
25.	<i>Premna integrifolia</i> Linn.	Agnimantha	Verbenaceae	Root	A decoction of the root is beneficial for treating urticaria.	36
26.	<i>Rubus fruticosus</i> L.	Blackberry Karwar	Rosaceae	Fruit	Used for treating urticaria.	37
27.	<i>Santalum album</i> L.	Chandan	Santalaceae	Leaves	A paste of bark and leaves is applied to the affected allergic area once daily for 4-5 days.	29
28.	<i>Sapindus laurifolius</i> Vahl	Phenil	Sapindaceae	Fruit	Use in Skin condition.	30
29.	<i>Terminalia cheburu</i> Retz.	Haritaki	Combretaceae	Bark	Fresh bark decoction is consumed orally to treat urticaria.	31
30.	<i>Zingiber officinale</i> Rosc.	Ginger	Zingiberaceae	Rhizome	Fresh rhizome is crushed and mixed with 2-3-year-old molasses, then taken orally for the treatment of urticaria.	31

Effect of medicinal plant

Medicinal plant or herbs gives pharmacological effects and health benefits on our body. It is used to treat the any diseases caused in human body. Plants hold immense potential as therapeutic agents. In India, medicinal plants are commonly utilized across various communities, serving as folk remedies within indigenous systems such as Siddha, Ayurveda, and Unani, as well as in contemporary pharmaceutical formulations. Herbs, which have traditionally been the primary form of medicine in developing nations, are experiencing a resurgence in

popularity worldwide, both in developing and developed regions. Numerous plants and their specific parts are employed for medicinal purposes.

It gives effects like

- Anti-inflammatory effect
- Anti-oxidative effect
- Anti-microbial effect
- Anti-viral effect. Ect

1. Onion



Fig 1: Onion

Synonyms: *ALLium cepa* L

B.S: It is Obtain from genus of *ALLium cepa* plant

Family: Amarylidaceae

C.C: Phenolic compounds, polysaccharites saponins

Uses: commonly eaten as food, onion bulb and extract are also used to make medicines, Gives antibacterial, antifungal properties

2. Aloe



Fig 2: *Aloe vera*

- Synonyms: Aloe Barbadensis, *Aloe vera*
- B.S: It is obtained from dried juice from the leaves of Aloe plant
- Family: Liliaceae
- C.C: Anthraquinones chromoned
- Acemannan
- minerals: calcium, Copper, mg, zinc.
- Sugar: glucose, Fructose.
- Uses: Use in skin conditions, Used in digestive.
- Helps in lower blood sugar level and Anti inflammatory

3. Rai, Brown Musturd



Fig 3: Rai, *brown mustard*

- Synonyms: Indian mustard, oilseed mustard.
- B.S: *Brown mustard* is Obtained from Brassica juncea plant
- Family: Brassicaceae
- C.C: Fatty acids, sterols, phytochemicals.
- Uses: Used in fungal disease.
- Used in Hair growth.
- gives digestive property.

4. Turmeris



Fig 4: Turmeris

- Synonyms: *curcuma Longa*, curcuma
- B.S: It is obtained from dried rhizomes of the *curcuma Longa* plant
- Family: Zingiberaceae.
- C.C: curcuminoids, Essential oils, minerals, carbohydeates, Fats
- Uses: Use in digestive problem and skin diseases.
- Used in respiratory problems.

5. Dhaniya



Fig 5: Dhaniya

- Synonyms: *Coriander*, *Coriandrum satioum*.
- B.S: derived from dried ripe fruits of *Coriandrum sativum* L.
- Family: Apiaceae.
- C.C: Essential oils, fatty oils, sterols, carotenoids.
- Uses
 - Used as flavoring agent and aromatherapy.
 - Used in Mental health and immune system.

6. Amala



Fig 6: Amala

- Synonyms: *Emblica officinalis*, Indian gooseberry.
- B.S: It is obtained from *Phyllanthus emblica* plant.
- Family: Euphorbiaceae.
- C.C: Vitamin-6, Tannis, Flavonoids, Alkaloids
- Uses: Used in Nutrition, hair growth and in digestion, immunity.

7. Nilgiri



Fig 7: Nilgiri

- Synonyms: Blue mountains.
- B.S: Eucalyptus oil is a volatile oil obtained from hydrodistillation of fresh leaves of *eucalyptus globulus*.
- Family: Myrtaceae.
- C.C: Cineole, citronellal, Terpenes, polyphenolic acid, flavanols.
- Uses: Flavouring agent, Expectorant, Anti septic, Anti microbial.

8. Tulsi



Fig 8: Tulsi

- Synonyms: *Ocimum sanctum* L.
- B.S: It consists of fresh and dried leaves of *ocimum sanctum* C.
- Family: Lamiaceae.
- C.C: phytochemicals, Volatile oils, secondary metabolites.
- Uses: Used as antiseptic and antibiotic, Used as gastric ailments

9. Ginger



Fig 9: Ginger

- Synonyms: Adraka, shunthi
- B.S: gingerbis rhizome or under ground stem, of plant *zingider officinale*.
- Family: Zingiberaceae.
- C.C: phenolic compounds, Terpenes, carbohydrates, lipids
- Uses:
 - It reduce pain.
 - helps in stomach up set Treat in flammation.

10. Chandan



Fig 10: Chandan

- Synonyms: sandalwood, *asntalum album C.*
- B.S: It is Obtain from *Santalum gehus* of tress.
- Family: Santalaceae.
- C.C: Sesquiterpene alcohols, hydrocarbons, phytosterols, Sant albic acid.
- Uses: Used for skin care, Fragrance, Flavour, anti-inflammatory

Conclusion

Herbal medicine offers numerous benefits, proving to be stable, effective, and low in toxicity, making it one of the most accessible options for disease treatment. Among various herbs, 'Ocimum sanctum' stands out as an exceptionally effective medicinal plant with significant pharmacological activity and minimal environmental

impact. Consequently, alternative therapies utilizing herbal medicine demonstrate a high effectiveness rate.

Medicinal plants play a crucial role in complementary medicine, with numerous studies highlighting their anti-inflammatory properties. We have gathered information on various medicinal plants and their evaluated anti-inflammatory effects from both clinical and experimental research. Unlike synthetic anti-inflammatory medications such as opioids and NSAIDs, which can have undesirable side effects, plant-derived natural products offer a rich variety of phytoconstituents that exhibit anti-inflammatory activity with fewer adverse effects. Thus, we can consider these plant-derived products as valuable sources for developing anti-inflammatory drugs. This paper also discusses various screening methods for assessing their anti-inflammatory activity, particularly focusing on *in-vivo* approaches.

References

1. Shelley WB, Shelley ED. Adrenergic urticaria: a new form of stress-induced hives. *Lancet*,1985;2(8643):1031-3.
2. Cooper KD. Urticaria and angioedema: diagnosis and evaluation. *J Am Acad Dermatol*,1991;25:166-74.
3. Greaves MW. Chronic urticaria. *N Engl J Med*,1995;332:1767-72.
4. Ferrer M. Epidemiology, healthcare, resources, use and clinical features of different types of urticaria. *Alergologica* 2005. *J Investig Allergol Clin Immunol*,2009;19(2):21–26.
5. Zuberbier T, Asero R, Bindslev-Jensen C, Walter Canonica G, Church MK *et al*. GA2LEN/ EAACI/ EDF/ WAO guideline: definition, classification and diagnosis of urticaria. *Allergy*,2009;64:1417-26.
6. Yadav S, Upadhyay A, Bajaj AK. Chronic Urticaria: An Overview. *Indian J Dermatol*,2006;51(3):171-7.
7. Humphreys F, Hunter JA. The characteristics of urticaria in 390 patients. *Br J Dermatol*,1998;138(4):635– 638.
8. Herguner S, Kilic G, Karakoc S, Tamay Z, Tuzun U, Guler N. Levels of depression, anxiety and behavioural problems and frequency of psychiatric disorders in children with chronic idiopathic urticaria. *Br J Dermatol*,2011;164(6):1342-7.
9. DeLong LK, Culler SD, Saini SS, Beck LA, Chen SC. Annual direct and indirect health care costs of chronic idiopathic urticaria: a cost analysis of 50 non-immunologically suppressed patients. *Arch Dermatol*,2008;144:35–39.
10. Zuberbier T. Urticaria. *Allergy*,2003;58:1224-34.
11. Dauden E, Jimenez-Alonso I, Garcia-Diez A. *Helicobacter pylori* and idiopathic chronic urticaria. *Int J Dermatol*,2000;39:446-52.
12. Wedi B, Raap U, Kapp A. Chronic urticaria and infections. *Curr Opin Allergy Clin Immunol*,2004;4:387-96.
13. Giacometti A, Cirioni O, Antonicelli L, D'Amato G, Silvestri C, Del Prete MS *et al*. Prevalence of intestinal parasites among individuals with allergic skin diseases. *J Parasitol*,2003;89:490-2.
14. Ronellenfitsch U, Bircher A, Hatz C, Blum J. Parasites as a cause of urticaria, Helminths and protozoa as triggers of hives? *Hautarzt*,2007;58:133-41.
15. Behl PN. Urticaria. In: *Practice of Dermatology*. Delhi: CBSE Publishers and Distributors,1987, 121-122

16. Bossi F, Frossi B, Radillo O, Cugno M, Tedeschi A, Riboldi P et. al. Mast cells are critically involved in serum-mediated vascular leakage in chronic urticaria beyond high affinity IgE receptor stimulation. *Allergy*,2011;66:1538–45.
17. Takahagi S, Tanaka T, Ishii K, Suzuki H, Kameyoshi Y, Shindo H et. al. Sweat antigen induces histamine release from basophils of patients with cholinergic urticaria associated with atopic diathesis. *Br J Dermatol*,2008;160:426-8.
18. Ferrer M, Luquin E, Kaplan AP. IL3 effect on basophils histamine release upon stimulation with chronic urticaria sera. *Allergy*,2003;58:802-7.
19. Wedi B, Novacovic V, Koerner M, Kapp A. Chronic urticaria serum induces histamine release, leukotriene production, and basophil CD63 surface expression--inhibitory effects of anti inflammatory drugs. *J Allergy Clin Immunol*,2000;105:552-60.
20. Sabroe RA, Greaves MW. The pathogenesis of chronic idiopathic urticaria. *Arch Dermatol*,1997;133:1003-8.
21. Popov TA. Challenges in the Management of Chronic Urticaria. *World Allergy Organ J*,2011;4(3):S28-31.
22. Zazzali JL, Broder MS, Chang E, Chiu MW, Hogan DJ. Cost, utilization, and patterns of medication use associated with chronic idiopathic urticaria. *Ann Allergy Asthma Immunol*,2012;108:98-102.
23. Jáuregui I, Ferrer M, Montoro J, Dávila I, Bartra J, del Cuvillo A, et al. Antihistamines in the treatment of chronic urticaria. *J Investig Allergol Clin Immunol*,2007;17(2):41-52.
24. Chen Chung-Jen, Yu Hsin-Su. Acupuncture Treatment of Urticaria. *Arch Dermatol*,1998;134:1397-99.
25. Tong YL, Song DK. Acupuncture point injection with vitamin B1 to treat chronic urticaria: clinical observation of 40 cases [in Chinese]. *J Clin Dermatol*,986;15:102-103.
26. Sharma J, Gaur RD, Gairola S, Painuli RM, Siddiqi TO. Traditional Herbal Medicines Used for the Treatment of Skin Disorders by The Gujjar Tribe of Sub-Himalayan Tract, Uttarakhand. *Indian Journal of Traditional Knowledge*,2013;12(4):736-46.
27. Khare CP. *Indian medicinal plants: An illustrated dictionary*. Berlin: Springer Verlag,2007;52(325):18.
28. Lingaiah M, Rao PN. An Ethnobotanical Survey of Medicinal Plants Used by Traditional Healers of Adilabad District, Andhra Pradesh, India. *Biolife*,2013;1(1):17-23.
29. Manikrao VG, Policepatel SS. Ethnomedicinal Plants Used in The Treatment of Skin Diseases in Hyderabad Karnataka Region, Karnataka, India. *Asian Pac J Trop Biomed*,2013; 3(11):882-6.
30. Raval ND, Dhaduk HL. Ethno-Botanical Survey of Some Medicinal Plants in Jatasankar Region of Girnar Forest, Gujarat, India. *Global J Res Med Plants & Indigen Med*,2013;2(12):830–41.
31. Acharyya BK, Sharma HK. Folklore Medicinal Plants of Mahmora Area, Sivasagar District, Assam. *Indian Journal of Traditional Knowledge*,2004;3(4):365-372.
32. Velayudhan KC, Dikshit N, Nizar AM. Ethnobotany of turmeric (*Curcuma Longa* L). *Indian Journal of Traditional Knowledge*,2012;11(4):607-614.
33. Padal SB, Sandhya SB Chandrasekhar P, Vijayakumar Y. Folklore Treatment of Skin Diseases by The Tribes of G. Madugulamandalam, Visakhapatnam District, Andhra Pradesh, India. *J Environ Sci Toxicology Food Tech*,2013;4(1):26-29.
34. Chakraborty PS, Singh JP, Rai MK, Singh P, Vichitra AK, Singh AK, et al. *Mentha piperita*– A Multicentric Clinical Verification Study conducted by CCRH. *Indian J Res Homoeopathy*,2008;2(4):26-33.
35. Kumar S, Mishra CK, Ahuja A, Rani A, Nema RK. Phytoconstituents and Pharmacological activities of *Musa paradisiaca* Linn,2012;2(4):199-206.
36. Karmakar UK, Pramanik S, Sadhu SK, Shill MC, Biswas SK. Assessment of Analgesic and Antibacterial Activity of *Premna Integrifolia* Linn,2011;2(6):1430-35.
37. Jabeen A, Khan MA, Ahmad M, Zafar M, Ahmad F. Indigenous uses of economically important flora of Margallah Hills National Park, Islamabad, Pakistan. *Afr J Biotechnol*,2009;8(5):763-84.