

# A review on herbal medicinal plants used in the management of atopic dermatitis

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## Abstract

Usage of traditional herbal treatments is quite popular in Pakistani society. People typically rely on herbal therapies for their diseases because they are more common in villages and the Cholistan desert, where there are less medical facilities. The majorities of herbal medicines are highly efficient and have little adverse effects. According to the existing research, medicinal herbs used to treat skin infections have a fantastic ability to heal eczematous skin and lesions related to atopic dermatitis. The article's goal was to evaluate medicinal plants used in traditional folk medicine for the treatment of eczema, along with its pharmacological function and mode of action.

## Introduction

Skin conditions are exceedingly prevalent around the world, and many of them have an impact on patients' physical and emotional health. Most people are concerned with how they look, which helps to improve mental health by boosting one's self-confidence. Patients primarily need therapy for skin conditions because of their visibility [1,2]. The interaction of hereditary variables, impaired epidermal barrier function, dysregulated immune system, dysfunctional environment, and microbial dysbiosis leads to the syndrome [3-5]. Even while there is still no cure for the disorder, it can be effectively controlled by staying away from the triggers [6].

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Emollients, topical and systemic corticosteroids, antibiotics, and immunomodulating drugs were some of the treatment approaches available for eczema. The most popular option, corticosteroids, have strong effects such stopping the production of cytokines and adhesion molecules [7]. As there is currently no effective treatment for the illness, patients are increasingly turning to herbal therapies such homeopathic medicines, special diets, and herbal treatments because they have less side effects and are more effective at improving patients' health and quality of life [8].

Traditional medicine utilizes a variety of medicinal plant species from throughout the world to treat various conditions. Plants provide the active components in the majority of conventional medical treatments [9].

### Rosmarinus officinalis L

The woody herb *Rosmarinus officinalis* is indigenous to the Mediterranean region and has aromatic, evergreen, needle-shaped leaves. Atopic dermatitis has traditionally been treated with rosemary essential oil [10,11].

### Lawsonia inermis

*Lawsonia inermis* is a tall blooming shrub whose fruits are tiny in size and have opposite leaves with dorsally flattened veins. Because it is a hot-climate plant, henna plants cannot survive in temperatures below 50°C. Indigo has been used for centuries to dye clothes, nails, skin, and hair. It has emollient and antimicrobial properties [12-14].

### Borago officinalis L

Giorgio Landi discovered that subjects who received the treatment saw a significant improvement in their condition, with a noticeable decrease in itching [15-17].

### Chamomilla recutita

The family compositeae plant *Chamomilla recutita* (L.) Terpenoids, flavonoids, and volatile oils are among the metabolites that give chamomile its therapeutic and medicinal characteristics. Volatile oils were said to make up between 0.24% and 1.9% of the herb. Chamomile has been shown to contain about 120 secondary metabolites. Manzana Roman Chamomile was utilized for this purpose since it was high in active components and did not cause allergic responses [18]. The effectiveness of Kamillosan cream, which contains manzana-type chamomile extract, in treating eczema has been demonstrated by Patzelt-wenzler R [19].

### Azadirachta indica

Traditional ayurveda treatments have utilised a variety of plant parts, including fruits, seeds, oil, leaves, bark, and roots. Throughout the beginning of time, neem has been used therapeutically to treat a range of illnesses; it is employed in ayurvedic, unani, and homeopathic remedies as a universal treatment. According to reports, nimbidin can be used to reduce the production of neutrophils and macrophages, which could worsen the inflammation. According to ancient myths, taking a bath in neem water can treat a variety of related illnesses. Neem skin cream could aid in reducing eczema-related irritation and inflammation [20].

### Aloe vera

Extracts from *A. vera* have both antifungal and antibacterial properties. The eczematous skin is treated by topically applying its gel. Its hydrating effects make the skin smoother and hasten the healing of wounds. Several patients reported reduced skin dryness, reduced scaling, and improved skin quality as eczema symptoms. Furthermore, its antimicrobial properties guard against subsequent illness. Syed et al. conducted a randomized, double-blind clinical research [21,22]. It is frequently utilized in traditional herbal medicine from many different nations [23]. *A. vera* has been mentioned in documents from more than 2000 years ago that discuss eczema skin treatments. Studies has shown that it possesses anti-inflammatory and wound-healing

properties, which is why it is thought to be effective against eczema [24].

*A. vera* has shown excellent effectiveness in treating skin conditions, and it is commonly consumed as a health beverage [25]. Also, it has been proven successful in treating pigmentations, stretch marks, and wrinkles. By enhancing blood flow to the area around the wound and halting cell death, it also seems to hasten wound healing [26].

### Avena sativa L

It is a conventional herbal remedy used to soothe minor skin irritations like sunburn and to speed the recovery from minor wounds. Patients with contact dermatitis and individuals with atopic dermatitis may experience skin responses [27-31].

### Curcuma longa L

In Asian nations, it is a staple element in food. It also serves as a dye due to its yellow color. It has been thoroughly examined and shown to have a variety of applications. Cancer, diabetes, asthma, anemia, and intestinal problems all have significant applications. It has remarkable wound healing properties in dermatology. Moreover, it enhances skin coloration. It contains anti-inflammatory, antiviral, antibacterial, antiseptic, and antioxidant effects. People typically use it as eczema therapy [32]. Curcumin, the turmeric plant's main element, is thought to have anti-inflammatory and antibacterial characteristics [33-35].

### Glycyrrhiza glabra

The herbaceous perennial legume *Glycyrrhiza glabra* has long blooms and pinnately divided leaves. Cough is historically treated with its root. According to reports, it has laxative, antiviral, anti-ulcer, and hepatoprotective properties [36]. It aids in the recovery of stomach and duodenal ulcers by preventing the growth of *Helicobacter pylori* [37]. Saeedi et al. [30] evaluated the efficacy and safety of *G. glabra* in a double-blind, placebo-controlled research with 30 eczema patients. Several licorice extract gel formulation doses were applied for two weeks. After one and two weeks, it was found that licorice extract 1% and 2% gel produced greater results than a placebo in terms of reducing erythema, irritation, and edema. Gel made from licorice extract, however, had no effect on the scaling. At the end of two weeks, 2% of the two formulations had improved outcomes. Patients reported no negative effects [38].

### Calendula

As it turns toward the sun, the annual herbaceous plant *Calendula officinalis*, which resembles a daisy, is also known as a marigold [39]. It has historically been used as an anti-inflammatory and for the treatment of eczema, acne, and cramps. It is used to treat stomach cramps and constipation since its hydroalcoholic extract in rabbit jejunum shown spasmolytic and spasmogenic actions [40]. Its anticancer efficacy was demonstrated in a second mouse trial. Its extract also demonstrated antiviral and anti-inflammatory properties [33]. It is efficient when applied topically as a cream or ointment for treating radiation damage, dermatitis, acne, inflammation, and bleeding [41-43].

### Jujube

In the arid region of Cholistan, jujube extract is consumed before breakfast. Despite the lack of any scientific evidence, the

indigenous people utilize it as a treatment for eczema. Use over time enhances complexion [44-47].

### Indian pennywort

The herb centella asiatica, sometimes referred to as brahmi booti or Indian pennywort, has a great deal of therapeutic benefit [48]. Salads often have leaves as an element. Indian pennywort is well known for its amazing therapeutic properties. It was once used to treat leprosy because of its excellent healing properties. Triterpenes in it have antioxidant properties and can promote collagen synthesis in cartilage, bones, and tissue regeneration [49]. For open lesions, a poultice made of leaves is utilized. Additional benefits include relieving anxiety, sleeplessness, boosting the immune system, treating diarrhea, and treating gynecological issues [50]. The amazing powers of Indian pennywort in treating wounds, eczema, psoriasis, and other skin conditions have made it highly well known in both Chinese and Indian medicinal systems. There are no clinical studies to support the traditional use of Indian pennywort for eczema [51].

### Olive oil

It is proven effective in atopic dermatitis [52,53].

### Shea butter

In a pilot trial, Zoe Diana Draelos et al. evaluated the effectiveness of a botanical moisturizer cream that contained shea butter, dimethicone, and other humectants. They found that the condition of the patients significantly improved by reducing irritation and inflammation. After using it for two weeks, irritation, roughness, dryness, and erythema subsided, and skin moisture was also restored [54,55].

### Conclusion

The review that has been provided serves as a sort of showcase for medicinal plants that have particular therapeutic benefits for treating dermatitis. There is great potential for herbs to develop into powerful therapeutic aids in the treatment of painful and debilitating chronic skin conditions in the future.

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