



## **Psoriasis Management through Herbal Interventions: Current Perspectives**

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### **ABSTRACT**

*Psoriasis is a chronic autoimmune skin disorder affecting millions of individuals worldwide. Characterized by red, scaly patches that can cause considerable physical discomfort and emotional distress, psoriasis poses a significant burden on patients' quality of life. While conventional treatments such as topical corticosteroids, phototherapy, and systemic immunosuppressants have demonstrated efficacy, they may come with potential side effects and limited long-term remission rates. Traditional medical systems have utilised herbal treatments for a very long time, and their popularity has grown in recent years as an alternative or complementary option to conventional therapies. The review begins by exploring the pathogenesis of psoriasis, shedding light on the immune system's involvement and the role of inflammatory pathways. Subsequently, the investigation delves into various herbal compounds called for their anti-inflammatory, immunomodulatory, and antioxidant properties. The mechanism of action of these herbal remedies is explored in depth, focusing on their potential to target interleukins, tumor necrosis factor-alpha (TNF- $\alpha$ ), nuclear factor-kappa B (NF- $\kappa$ B), and other molecules implicated in psoriasis pathogenesis. Additionally, the review addresses the importance of standardized herbal preparations, dosage considerations, and potential herb-drug interactions to ensure patients' safety and optimize treatment outcomes.*

**Keywords:** Psoriasis, Herbal remedies for Psoriasis, Phototherapy, Psoriatic arthritis

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### **INTRODUCTION**

Psoriasis is a persistent regenerative and inflammatory skin condition, as characterized by erythematous lesions with silvery scales, which are most prominent on the lateral surfaces, scalp, and lumbosacral area. Psoriasis is an organ-specific autoimmune condition with a hereditary and environmental basis, characterised by the activation of keratinocytes and immune cells, which results in keratinocyte hyperproliferation [1,2]. Psoriasis is derived from the Greek words "psora" (itch) and "sis" (activity), which imply "roughly itching condition." Psoriasis is classified into various types as guttate psoriasis, inverse (flexural) psoriasis, plaque psoriasis, pustular psoriasis, and erythrodermic psoriasis. It is also seen in the case of nail and psoriasis arthritis. The most noticeable symptoms are redness, inflammation, and blistering patches on the skin [3]. It falls under the category of papulo-squamous illnesses, in which the epidermis, the skin's outermost layer, creeps towards the surface and subsequently constantly sheds skin. Psoriasis is an immune-related condition where an excessive amount of epidermal cells are produced when an ordinary skin cell misidentifies an allergen and conveys an incorrect message. Additionally represents a genetic disorder, but exactly how it transmits is unpredictable. There is no permanent treatment for this chronic condition. although several therapies can be used to minimise the intensity of symptoms caused by it. Patients with psoriasis have poor mental and psychological health as a result of societal stigma and marginalisation. These persons are more likely to experience anxiety, despair, and suicidal thoughts [4]. Dryness and reddened, chapped skin coated with white scales are the most visible signs of psoriasis. Other signs and symptoms include tiny scale areas, cracked skin, itching, discomfort, inflamed or eroded nails, irritating and vaginal sores, joint stiffness, and severe scalp flakes.

## Pathophysiology of Psoriasis

Psoriasis is assumed to be caused by an association of genetic, environmental, and immune system variables, while its specific aetiology is yet unknown. It has been associated to a number of multiple conditions, such as psoriatic arthritis, cardiovascular disease, metabolic syndrome, and obesity. Psoriasis has a strong genetic component, with certain genetic variations predisposing individuals to the development of the condition [5]. Variations in genes involved in immune system regulation, such as HLA-C and IL23R, have been identified as risk factors for psoriasis. In individuals with psoriasis, the immune system mistakenly identifies normal skin cells as foreign invaders, triggering an immune response [6]. This activates immunological cells, particularly T cells. Activated T cells, specifically T helper 1 (Th1) and T helper 17 (Th17) cells, have a big impact on the aetiology of psoriasis. These cells release inflammatory cytokines, including tumor necrosis factor-alpha (TNF-alpha), interleukin-17 (IL-17), and interleukin-23 (IL-23). The release of cytokines by activated T cells triggers a cascade of inflammatory events in the skin [7-8]. As a result, extra pro-inflammatory chemicals are released along with the activation and recruitment of additional immune cells including dendritic cells and neutrophils. In psoriasis, there is an abnormal increase in the proliferation of keratinocytes, the cells that make up the outermost layer of the skin. This hyperproliferation is driven by the inflammatory cytokines and other signaling molecules released by immune cells. In addition to increased proliferation, psoriatic keratinocytes also exhibit abnormal differentiation and maturation. They mature at an accelerated rate, leading to an accumulation of immature cells in the epidermis. These complex interactions between immune cells, cytokines, and keratinocytes contribute to the characteristic features of psoriasis, including redness, scaling, and inflammation [9].

## Types of Psoriasis

Psoriasis is a persistent autoimmune skin condition that can manifest in a variety of ways or kinds. The following are the most prevalent kinds of psoriasis:

**Plaque Psoriasis (*Psoriasis vulgaris*):** It is the most prevalent kind of psoriasis, accounting for around 80-90% of all cases. It is identified by raised, reddened skin patches coated with a shiny white flakes. The most prevalent locations for these plaque-like patches are the hairline, elbows, ankles, and lumbar, although they can form anywhere on the body [9].

**Guttate Psoriasis:** Small, dot-like lesions that resemble drops on the skin are an indicator of the condition, which frequently begins in infancy or early adulthood. The lesions are typically smaller and finer than those seen in plaque psoriasis. Guttate psoriasis is often triggered by bacterial or viral infections, such as streptococcal throat infection.

**Inverse Psoriasis:** It is also known by intertriginous psoriasis or flexural psoriasis. Skin folds affected by inverse psoriasis include the armpits, groin, beneath the breasts, and around the genitals. It appears as smooth, red patches without the typical scaling seen in other forms of psoriasis. It is prone to irritation and can be worsened by friction and sweating.

**Pustular Psoriasis:** It can be identified by elevated, blisters bursting with pus surrounded by red, irritated skin. Palmoplantar pustulosis is a condition where the blisters are restricted to the hands and feet. Generalised pustular psoriasis is a condition where the blisters are spread throughout the body. Fever, chills, and other systemic signs can be present in pustular psoriasis

**Erythrodermic Psoriasis:** It is an extremely severe and rare type of psoriasis that affects the whole body. It is distinguished by extensive redness, inflammation, and scale shedding, which is frequently accompanied by itching, discomfort, and a high pulse rate. Erythrodermic psoriasis is potentially fatal and needs rapid medical intervention.

**Nail Psoriasis:** Psoriasis can also affect the nails, causing changes such as pitting (small depressions), thickening, discoloration, and separation from the nail bed. Nail psoriasis can cause discomfort and affect the appearance and function of the nails.

**Psoriatic arthritis:** It belongs to a group of diseases known as spondyloarthropathies, which are inflammatory joint disorders. Symptoms can vary from person to person including joint pain, swelling, and stiffness which can affect the joints of the fingers, toes, knees, ankles, and lower back. Peoples of psoriatic arthritis are affected with the condition of morning stiffness along with enthesitis, which is inflammation where tendons or ligaments attach to bones. Nail changes are common in psoriatic arthritis, and they can include pitting, discoloration, thickening, and separation from the nail bed [10,11].

**Ocular psoriasis:** It is also known as psoriatic eye disease, is a rare complication of psoriasis, a chronic autoimmune skin condition that causes skin cells to grow too quickly, leading to the formation of thick, red, and scaly patches on the skin. Ocular psoriasis involves inflammation in and around the eyes and can affect various parts of the eye, including the eyelids, conjunctiva (the thin, transparent layer covering the white part of the eye and the inner surface of the eyelids), and the cornea (the clear front part of the eye) with some symptoms include redness, irritation, dryness, itching, burning sensation and a feeling of grittiness

or foreign body sensation in the eyes. Blepharitis, which can cause trichiasis, madarosis, and cicatricial ectropion, is among the most prevalent condition affecting the eyes.

#### **Available treatment for psoriasis [12-14]**

Psoriasis presently has no recognised treatment but there are various treatment options available to manage the symptoms and provide relief. Some commonly used treatments for psoriasis are as follows:

**Topical treatments:** These are applied directly to the skin and are usually the first line of treatment for mild to moderate psoriasis. Examples include corticosteroids, vitamin D analogs, topical retinoids, coal tar preparations, and moisturizers.

**Phototherapy:** This involves exposing the skin to ultraviolet (UV) light, either natural sunlight or artificial light. Phototherapy can help slow down skin cell development and inflammation reduction. There are various types of phototherapy include narrowband UVB therapy, broadband UVB therapy, and psoralen plus ultraviolet A (PUVA) therapy and excimer laser therapy.

**Systemic medications:** These are prescribed for moderate to severe psoriasis that hasn't responded to topical treatments or phototherapy. Systemic medications are taken orally or by injection and work throughout the body. Examples include methotrexate, cyclosporine, acitretin, and newer biologic medications such as TNF-alpha inhibitors, interleukin inhibitors, and phosphodiesterase-4 inhibitors.

**Oral retinoids:** These are derived from vitamin A such as acitretin and are indicated for chronic psoriasis patients that are not responding to conventional therapies. Oral retinoids are taken by mouth and work by reducing inflammation and slowing down the growth of skin cells. However, they can have significant side effects and require close monitoring.

**Injectable biologics:** These are a newer class of medications that target specific immune responses involved in psoriasis. They are often regulated for people who have moderate to severe psoriasis. and are administered by injection. Biologics include drugs such as adalimumab, etanercept, ustekinumab, secukinumab, and ixekizumab.

#### **Alternative natural treatment for psoriasis**

In comparison to synthetic medications, herbal treatments do not have more adverse effects. Herbal treatment is freely accessible and simple to employ in therapy. Today, herbal remedies are used extensively in the treatment of inflammatory and dermatological disorders. Some individuals believe that certain dietary modifications may help to alleviate psoriasis symptoms. This can include following an anti-inflammatory diet, which involves reducing or avoiding foods that may trigger inflammation, such as processed foods, sugar, dairy, and gluten. It may also be advantageous to consume more fruits, vegetables, omega-3-rich fatty fish, and products containing antioxidants. Fish liver oil includes the fatty acid omega-3, which have anti-inflammatory properties and may help alleviate the inflammation associated with psoriasis. Taking fish oil supplements or consuming fatty fish, such as salmon, mackerel, or sardines, can increase omega-3 fatty acid intake [15,16]. Keeping the skin well-moisturized is important for individuals with psoriasis. Moisturisers and natural oils, such as oil from coconuts, olives, or jojoba oil, can help hydrate and soothe dry skin. These treatments can be used in conjunction with prescribed topical medications. A few herbal therapies for natural psoriasis therapy and the possible explanation for their anti-psoriatic effect have been briefly detailed below based on the outcomes of specific studies.

##### ***Silybum marianum***

*Silybum marianum*, also known as milk thistle. It belongs to the family *Asteraceae*. It contains a mixture of bioactive compounds, with the main active component being Silymarin. Silymarin is a flavolignan mixture of silybinin, silychristin, silydianin, and isosilybinin. Silymarin is known for its antioxidant, hepatotoxicity, anti-fibrotic and anti-inflammatory properties [17]. Leukotrienes and cAMP levels have been shown to be unusually elevated during the development of psoriasis. The ability of silymarin to increase endotoxin clearance by the liver, decrease cAMP phosphodiesterase, and limit leukotriene production might be responsible for its efficacy in the treatment of psoriasis. Silybin is found in a variety of cosmetics and dermatological products also it does not exhibit phototoxicity. [18,19].

##### ***Coleus forskohlii***

*Coleus forskohlii* also known as *Plectranthus barbatus*. It belongs to the family *Lamiaceae*. It is a tropical plant having fasciculate roots and is one of the source of diterpenoid forskolin. It is an imperative medicinal plant in the ayurvedic system. It is used to management of cardiovascular disorders, asthma, eczema, hypertension and psoriasis. *Forskohlii* is known for its anti-inflammatory, immunomodulatory, and increased cAMP levels. This plant promotes cell division. It increases isoform selectivity by acting on adenylyl cyclase to improve the intracellular level of cAMP. *Coleus* oil is effective against *Propioni bacterium* acnes. It is effective against skin infection, yeast culture and eruptions [20].

### ***Thespesia populnea***

*Thespesia populnea* also known as portia tree or milo and it belongs to the family *Malvaceae*. It is a plant commonly found in tropical and subtropical regions. Traditionally used to treat scabies, psoriasis, ringworm, eczema and herpetic diseases [21]. The powdered bark is cooked in coconut oil and used topically to treat scabies and psoriasis. Different parts of the plant possess antibacterial, anti-inflammatory, antioxidant, antifertility, and purgative activity. The bark contains carbohydrates, tannins, glycosides, triterpenoids, flavonoids, fixed oil and phytosterols. On the tail of a Perry's Scientific Mouse model, Shrivastava et al. (2009) showed that a bark extract from *Thespesia populnea* has an anti-psoriatic action also found 25% rise in orthokeratosis.

### ***Curcuma longa***

*Curcuma longa*, commonly known as turmeric. It belongs to family *Zingiberaceae* and it is originating from south-eastern Asia. It is a bright yellow spice that contains three main curcuminoids such as curcumin, demethoxycurcumin and bisdemethoxycurcumin. Curcumin has been extensively studied for its potential health benefits, including its effects on various inflammatory conditions, including psoriasis. *Curcuma longa* contain volatile oil like tumerone, atlantone and zingiberone [22]. It is a potential plant for treating anti-inflammatory, anti-allergic, antioxidant, antihyperglycemic, and anticancer properties and it acts on the AP-1, NF- $\kappa$ B, and MAPK pathways to reduce proinflammatory factors, T cell activation, and proliferation [23]. Curcuminoids and volatile oils are considered to contain anti-inflammatory compounds that act by selectively inhibiting phosphorylase kinase (PhK). PhK is an enzyme that is present in the epidermis. Products containing *Curcuma longa* frequently used to treat ringworm, obstinate itching, eczema, and other parasitic skin diseases [24]. The antipsoriatic activity of *Curcuma longa* is due to the existence of antioxidants components in the plant. Curcuminoids of *Curcuma* (curcumin) has poor water solubility and permeability that limits transdermal absorption. Saponin acts as a surfactant that promotes transdermal absorption. Curcumin and curcumin-saponin incorporated gel show potent antipsoriatic activity. Caffeine synergizes the action of curcumin. Methylxanthine moiety of caffeine is proficient to inhibit the phosphodiesterase enzyme. The phosphodiesterase enzyme aids in the breakdown of cyclic nucleotides, which increases the level of intracellular cAMP. In psoriasis intracellular, cAMP levels reduced from cutaneous leukocytes whereas phosphodiesterase inhibitor caffeine increases intracellular cAMP levels [24,25].

### ***Wrightia tinctoria***

Plant *Wrightia tinctoria* belongs to family *Apocynaceae*. This herb contains various secondary metabolites like alkaloids, triterpenoids, steroids, flavonoids, lipids and carbohydrates. Hydroalcoholic extract of leaves of *Wrightia tinctoria* shows antipsoriatic activity which is evaluated by means of mouse tail test. The extract shows the important quantity of orthokeratosis [26]. *Wrightia tinctoria* plant oil was extracted and used in formulations for beads, which exhibit excellent action. The beads were made with extracted oil, acacia powder, pectin, and sodium alginate polymer [27]. The most important active constituents in seeds include quercetin, lupeol, amyryn, wrightial, and sitosterol.

### ***Capsicum annuum***

*Capsicum annuum*, referred to as a cayenne pepper or a chilli pepper, is a plant species that belongs to the family *Solanaceae*. While it is primarily known for its culinary uses and the spicy flavour it adds to dishes. *Capsicum annuum* contains an active compound called capsaicin, which is responsible for its spiciness. Capsaicin has been the focus of research for its potential anti-inflammatory and analgesic properties. Capsaicin has been examined in the context of psoriasis for its effects on lowering skin inflammation and irritation by activating substance- P (SP) inflammatory cells, which eventually promotes vasodilation, angiogenesis, and keratinocyte hyperproliferation. Accordingly, psoriatic lesions have been shown to have greater SP content and denser innervation than unaffected or control psoriatic skin. Capsaicin promotes the release of SP in slow-conducting, unmyelinated type C neurons via binding to the vanilloid receptor, resulting in its depletion. [28,29].

### ***Aloe Vera***

*Aloe barbadensis* Miller also known as *Aloe vera* Linnaeus, belonging to the family *Liliaceae*. *Aloe vera* is a well-known plant that is utilised in skincare products and first aid items for burned skin. *Aloe* includes salicylic acid, anthroquinones, steroids, saponins, and mucopolysaccharides [30]. Acemannan and Aloe-emodin, anthraquinone are antibacterial compounds exhibiting antibacterial action against *Staphylococcus* and *Streptococcus* species, which might explain their therapeutic benefit in psoriasis [31]. Additionally, due to its keratolytic activity, salicylic acid also eliminates psoriatic plaques. Psoriasis is treated with aloe vera gel, which reduces redness and scaling and it also used in the preparation of topical creams and lotion. Additionally, aloe vera has anti-tumor, anti-inflammatory, antioxidant, immunomodulatory, and anti-

inflammatory properties along with it also increases collagen activity, which enhances skin hydration and wound healing.

### ***Angelica sinensis***

*Angelica sinensis*, also known as Dong Quai or female ginseng. It belongs to the family *Apiaceae* is a traditional biennial or perennial Chinese medicinal herb that has been used for centuries in various health conditions, including psoriasis. *Angelica sinensis* contains several active compounds, including ferulic acid, ligustilide, furocoumarin and various polysaccharides, which have demonstrated anti-inflammatory and immunomodulatory properties. The extract from *Angelica sinensis* contains psoralen, a potent furocoumarin and due to its photosensitizing behaviour when exposed to UV-A, psoralens are utilised in the treatment of psoriasis. After consuming psoralen, epidermal DNA becomes cross-linked as a result of UVA radiation, which reduces the rate at which epidermal DNA is synthesised. [32]. Through the consumption of dong quai and subsequent exposure to ultraviolet light treatment or natural sunshine, patients self-administer a kind of psoralen-UVA (PUVA) therapy. Koo and Arain evaluated psoriasis patients and found that two-thirds of them experienced full remission after taking this plant extract orally.

### ***Matricaria recutita***

*Matricaria recutita*, also known by chamomile, belonging to the family *Asteraceae*. In the past, gastrointestinal disorders have been successfully treated using chamomile flowers. Chamomile contains several bioactive compounds, including chamazulene, bisabolol, flavonoids, and quercetin which are believed to contribute to its potential health benefits. These compounds possess anti-inflammatory, antioxidant, and immunomodulatory properties, which could theoretically be beneficial in managing psoriasis [33]. Chamazulene suppresses the formation of leukotriene B4 (LTB4) via decreasing lipoxygenase. After then, increased production of LTB4, culminating in psoriatic plaque. As a result, Chamazulene's beneficial effect will be proved by its ability to inhibit LTB4. Active components of the flower include the flavonoids quercetin and apigenin. Quercetin is a flavonol that contains anti-inflammatory, anti-tumor, antiviral, and antibacterial effects. It also lowers the production of histamine and IgE while inhibiting Stimulation of STAT-1 and activation of NF along with inhibition of nitric oxide synthase (iNOS), TNF- $\alpha$ , and IL enzymes [34]. Apigenin is a flavonoid with anti-inflammatory and antioxidant properties, as well as the ability to reduce TNF- $\alpha$ , decrease COX-2, IL-6, and IL-8 production, and prevent transactivation of the luciferase reporter gene in response to TNF. It also provides protection against fungal infections.

### ***Melaleuca alternifolia***

*Melaleuca alternifolia*, also known as tea tree oil, belongs to the family *Myrtaceae*. It is a leaf-based essential oil obtained from the tea tree plant. Its antibacterial, anti-inflammatory, and wound-healing characteristics have been employed traditionally. Tea tree oil has terpinen-4-ol, alpha-terpineol, sabinene, limonene, and  $\alpha$ -pinene as its antibacterial components. These compounds are efficient against *Propionibacterium acnes* and *Staphylococcus epidermidis*. Tea tree oil has significant in vivo antibacterial and antifungal properties. Terpinen-4-ol, 1,8-cineol, and methyl eugenol all play significant roles in the antibacterial activity. Terpinen-4-ol has been demonstrated to decrease the production of TNF- $\alpha$ , IL-1, IL-8, and PGE2, as well as to have an impact on vasodilation and plasma extravasation. In people who are sensitive to the sesquiterpenoid fractions, tea tree oil can cause allergic dermatitis. Complications of oral intake include unconsciousness, systemic contact dermatitis, and cognitive confusion [35].

### ***Gaultheria procumbens***

*Gaultheria procumbens*, commonly known as wintergreen. It belongs to family *Ericaceae*. Wintergreen contains methyl salicylate, which is chemically related to salicylic acid, a commonly used ingredient in topical treatments for psoriasis [35]. Tinnitus, vomiting, tachypnea, and acid-base imbalances are all possible systemic adverse effects of wintergreen employed even if it is used topically for psoriasis. Patients who take aspirin or another prescribed salicylic acid drug together with a salicylate herbal supplement like wintergreen, aloe vera, or red clover are more likely to experience systemic toxicity. Salicylic acid is renowned for its keratolytic effects, which aid to eliminate scales and encourage shedding of the skin's outer layer. Salicylate and a *Gaultheria procumbens* stem extract that is high in procyanidins inhibit lipoxygenase, pro-inflammatory proteins such hyaluronidase, and COX-2. Additionally, people on warfarin may experience issues with oil of wintergreen since it might cause an increase in prothrombin time and the international normalised ratio (INR) of clotting. Its usefulness in treating psoriasis has not been studied, although it may have an anti-inflammatory impact, thus additional research is necessary before it can be used [36].

### ***Mahonia aquifolium***

*Mahonia aquifolium*, often known as holly-leaved barberry or oregon grape or, is a member of family *Berberidaceae*. It is an evergreen shrub widespread to North America. The root and stem bark of *Mahonia aquifolium* contain several active compounds, including berberine, berbamine, oxyacanthine. Through a number of mechanisms, an anti-inflammatory action of berberine has been demonstrated. These include decreased lipid peroxidation and lipoxygenase, decreased T cell infiltration in raised scales, and decreased cyclooxygenase activity, which lowers IL-8 and prostaglandin E2 suppression. By intercalating into DNA, berberine inhibits cell proliferation and slows the growth of new cells. To evaluate the effectiveness of an ointment containing 10% bark extract of *Mahonia aquifolium*, a single trial was conducted. It was supposed to help treat moderately severe psoriasis vulgaris [37].

### ***Syzygium aromaticum***

*Syzygium aromaticum* (Clove) is a spice that has been traditionally used for its medicinal properties. It belongs to the family *Myrtaceae*. Clove is well known for anti-inflammatory, antioxidant, antimicrobial and pain-relieving activity. Cloves contain the active chemicals eugenol and isoeugenol. Various investigation shows that these substances may reduce the activation of NF- $\kappa$ B by reducing IB breakdown, and that they can also suppress the production of inflammatory cytokines at both the gene and protein content [38].

### ***Zingiber officinale***

*Zingiber officinale* (Ginger) is a common plant with spicy root or rhizome. It belongs to the family *Zingiberaceae*. As a result of its antioxidant and anti-inflammatory properties it shows effect in several chronic conditions such as diabetes, cancer, ulcers, Alzheimer's disease, cardiovascular disease etc [39]. Ginger contains compounds such as gingerol, shogaol, and paradol that possess anti-inflammatory properties. Its anti-inflammatory properties may help lessen the psoriatic lesions like erythema, edoema, and itching. These substances are thought to suppress specific inflammatory pathways, such as the formation of cytokines that are pro-inflammatory and enzymes that trigger inflammation. Additionally, ginger contains anti-inflammatory compounds such vit C, vit E, lutein,  $\beta$ -carotene, lycopene, quercetin, genistein, and tannin. Ginger also contains essential vitamins and minerals including Mg, Se, Cu, and Zn [40]. The active ingredient, gingerol, has already been shown to possess chemopreventive qualities. Gingerol shows the efficacy for reduction in platelet aggregation inhibitors as similar to aspirin, therefore it can be useful in cardiovascular disease [41].

## **CONCLUSION**

The effectiveness of herbal approaches for the treatment of psoriasis shows promising potential based on available scientific evidence. Herbal remedies have been explored for their anti-inflammatory, immunomodulatory, and antioxidant properties, which align with the underlying pathogenesis of psoriasis involving the immune system and inflammatory pathways. These herbs have been shown to target key molecules involved in psoriasis pathogenesis, such as interleukins, tumor necrosis factor-alpha (TNF- $\alpha$ ), and nuclear factor-kappa B (NF- $\kappa$ B), leading to reduced inflammation and improved skin condition. In conclusion, herbal approaches for psoriasis treatment are a promising area of research and present viable options for managing symptoms and improving patients' quality of life. To establish their long-term efficacy and safety, further research and well-designed clinical trials are necessary.

## **AUTHOR'S CONTRIBUTION:**

Mamta Kumari: Drafting of manuscript

Piyushkumar Sadhu: Drafting of manuscript

Niyati Shah: Drafting of manuscript

Chitrali Talele: Critical analysis

Chintan Aundhia: Formatting of manuscript

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