



Review Article

ALTERNATIVE TREATMENT FOR PSORIASIS - A REVIEW

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ABSTRACT

Approximately one third of all traditional medicines are for treatment of skin diseases, compared to only 1-3% of modern drugs. Skin diseases are the major problem in worldwide. Skin diseases are classified in acute and chronic conditions. Generally chronic skin diseases typically aren't curable, but they can be managed using drugs. But so many medicinal plants are also used for treating skin diseases. The prescribed synthetic drugs for the treatment of psoriasis are associated with severe side effects, thus, researchers around the globe are searching for new, effective, and safer drugs from natural resources. Virtually all cultures worldwide have relied historically, or continue to rely on medicinal plants for Skin diseases. The objective of this paper is to list out the beneficial effects of certain medicinal plants for treating skin diseases. The present review has been prepared with an objective to compile exhaustive literature on pharmacological reports on antipsoriatic plants, plant products, and formulations. Plants selected for the present review are having medicinally significant value and many of them possess active phytochemical constituents.

Keywords: Psoriasis, Topical treatment, Corticosteroids, Vitamin D Analogs, Tazarotene and Coal tar.

INTRODUCTION

Psoriasis is a hyper proliferative, autoimmune skin disorder affecting 1–3% of the world's population. Psoriasis is a common skin condition which can be itchy and painful; between 1.5% and 3% of people in the world have psoriasis. Your skin is made up of millions of tiny skin cells. Normally, skin cells die and are replaced by new ones every three to four weeks. In psoriasis, your body begins to make new skin cells more quickly than normal and these build up on the skin in raised patches. This is related to your immune response, which is the way in which your body fights diseases and heals wounds. In psoriasis, your immune system triggers a reaction even though there is no infection or wound to heal. The reasons why it does this are not completely understood but it is mostly caused by variations in your genes. The prescribed synthetic drugs for the treatment of psoriasis are associated with severe side effects, thus, researchers around

the globe are searching for new, effective, and safer drugs from natural resources.

Psoriasis is a long-term condition, psoriasis is not infectious, but psoriasis can affect all areas of the skin. This includes the scalp, nails and genital area. It can also affect areas where the skin is folded, for example under your arms, the insides of elbows and knees or under your breasts. These areas are called flexural areas. Psoriasis can range from being a very mild to a very serious condition. At the moment there is no cure for psoriasis, but it can be well controlled by using a variety of treatments. [1]

There are different types of Psoriasis [2]

1. Plaque psoriasis
2. Guttate psoriasis
3. Pustular psoriasis
4. Inverse psoriasis
5. Erythrodermic psoriasis

6. Psoriatic arthritis

Mild to Moderate Psoriasis

Most patients with psoriasis have mild to moderate disease, affecting less than 5 percent of the body surface area and sparing the genitals, hands, feet, and face. These patients can often be treated successfully with topical therapies, including corticosteroids, vitamin D analogs, tazarotene and calcineurin inhibitors. [4-12] Less commonly used topical therapies include nonmedicated moisturizers, salicylic acid, coal tar, and anthralin. [7] Topical corticosteroids are often used to treat psoriasis. [7, 9]

The vitamin D analogs are used as monotherapy or in combination with phototherapy to treat psoriasis in patients who have 5 to 20 percent body surface involvement. These agents have a slower onset of action but a longer disease-free interval than topical corticosteroids. [7-12]

Tazarotene is a teratogenic topical retinoid. Tazarotene is as effective as topical corticosteroids in alleviating symptoms of psoriasis, but it is associated with a longer disease-free interval. [7] In general, they improve symptoms with less skin atrophy than topical corticosteroids, and are considered first-line treatments for facial and flexural psoriasis.

Severe Psoriasis

Patients with more severe psoriasis involving more than 5 percent of the body surface area or involving the hands, feet, face, or genitals are generally treated with phototherapy in combination with systemic therapies [9] Systemic therapies include metho-trexate, cyclosporine, acitretin and biologic therapies.

Different Topical Treatments available for Psoriasis and their side effects [13]

- Topical steroids used in treatment of psoriasis side effects are skin atrophy, hypo pigmentation.
- Calcipotriene used in combination with topical steroids side effects are skin irritation, photosensitivity
- Tazarotene used in treatment of psoriasis, best when used with topical corticosteroids produces skin irritation, photosensitivity.
- Salicylic used in treatment of psoriasis to reduce scaling and soften plaques side effects are systemic absorption can occur if applied to > 20% BSA decreases efficacy of UVB phototherapy

- Coal tar used in treatment of psoriasis side effects are skin irritation, odor, staining of clothes
- Calcineurin inhibitors used for facial psoriasis side effects are skin burning and itching.

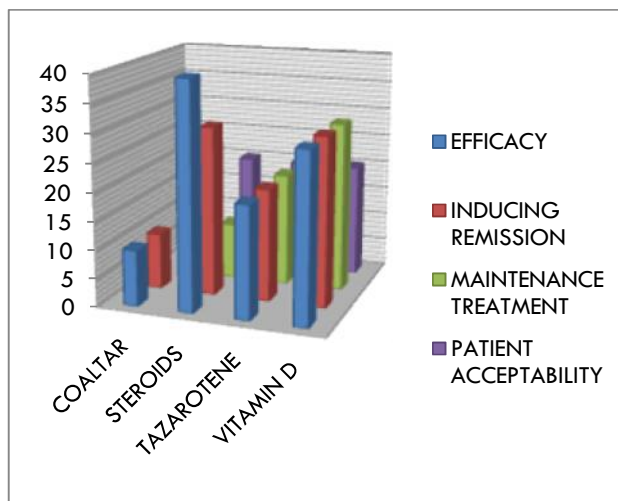


Figure 1: Comparison of Topical Therapies for Psoriasis

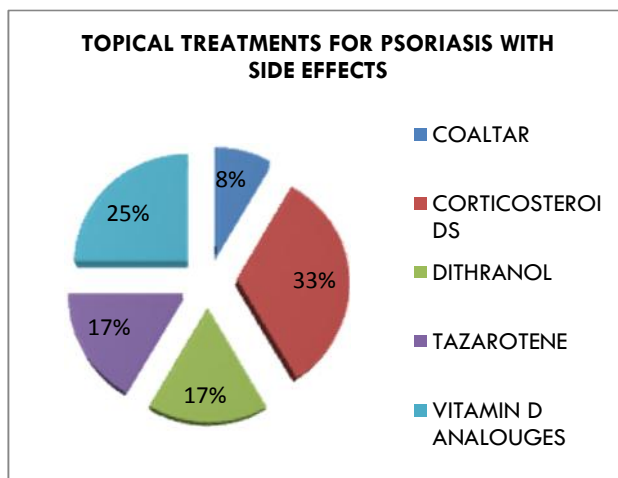


Figure 2: Topical Treatments for Psoriasis with Side Effects

The survey of literature revealed that extracts, fractions, isolates from plants, chemical constituents of plant origin and plant-based formulations from various systems of medicine have been reported to possess antipsoriatic activity, and antipsoriatic formulations containing plants. The review has been compiled using references from major databases like Indian Medicinal Plants, Chemical Abstracts, Medicinal and Aromatic Plants Abstracts, Scirus, Google scholar, Open J Gate, Scopus, and Online Journals.

Table 1: Showing Plant Name, Family, Local Name and Plant Parts Used

S. No.	Botanical name	Family name	Common name & Local name	Plant parts used
1	<i>Aloe vera</i>	Liliaceae	Aloes, Kathalai	Leaf
2	<i>Alpinia galanga</i>	Zingiberaceae	Thai Ginger , akkulati	Rhizome
3	<i>Angelica sinensis</i>	Apiaceae	Chinese angelica	Root
4	<i>Andrographis nallamalayanna</i>	Acanthaceae	Echinacea , Siriyaa Nangai/Nila Vembu	Whole plant
5	<i>Annona squamosa</i>	Annonaceae	Sugar Apple, Custardapple Sitapalam	Rhizome and leaf
6	<i>Argemone mexicana</i> L.	Papavaraceae	Mexican Prickly Poppy Kudiyotti	Root
7	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Neem , Veppam	Leaves, bark and stem
8	<i>Caesalpinia bonducella</i>	Caesalpinaceae	Fever nut , Kalichchikkai	Leaves
9	<i>Calendula officinalis</i>	Compositae	Marigold , Thulukka Saamanthi	Flowers
10	<i>Capsicum annum</i>	Solaneceae	Cayenne, Milagai	Leaves
12	<i>Cassia fistula</i> L.	Caesalpinaceae	Amaltas, Konrai	Fruit pulp
13	<i>Cassia tora</i> L.	Caesalpinaceae	sickle senna , Thaarai	Leaves
14	<i>Centella asiatica</i> L.	Apiaceae	Indian Pennywort Vallarai	Whole plant
15	<i>Crotalaria juncea</i>	leguminosae	Sunn hemp ,Vakkunnar	Seeds
16	<i>Curcuma longa</i> L.	Zingiberaceae	Turmeric , Manjal	Rhizome
17	<i>Givotia rottleriformis</i>	Euphorbiaceae	White Catamaran Tree puttali	bark
18	<i>Leucas aspera</i>	Lamiaceae	Common leucas, Thumbai	Aerial parts
19	<i>Matricaria recutita</i>	Asteraceae	Chamomile, Mookuthi Poo	Flowers
20	<i>Melaleuca alternifolia</i>	Myrtaceae	Tea tee oil	
21	<i>Momordica charantia</i> L.	Cucurbitaceae	Bitter Gourd , iraca-valli Pavai	Seeds
22	<i>Nigella sativa</i>	Ranunculaceae	Black cumin , Karunjiragam	Seeds
23	<i>Pongamia pinnata</i> (L.) Pierre	Fabaceae	Pongam Tree , Pungai	Seeds
24	<i>Phyllanthus simplex</i>	Phyllanthaceae	Seed Under Leaf	Whole plant
25	<i>Psoralea corylifolia</i>	Fabaceae	Psoralea , karpokarishi	Seeds
26	<i>Rubia cordifolia</i> L.	Rubiaceae	Indian Madder , Manjitti	
27	<i>Silibum marianum</i>	<u>Asteraceae</u>	Milk thistle , vishnu kranti	
28	<i>Smilax china</i>	Smilacaceae	China Root Parangichekkai	Rhizome
29	<i>Thespesia populnea</i>	Malvaceae	Indian tulip tree Puvarasu	Bark
30	<i>Tribulus terrestris</i>	Zygophyllaceae	Puncture Vine , palleru-mullu	
31	<i>Ulmus rubra</i>	Ulmaceae	slippery elm	Barks
32	<i>Urgenia indica</i>	Liliaceae	Indian squil, I Narivengayam	Bulbs
33	<i>Vitex glabarata</i>	Lamiaceae	Chastetree	Leaves
34	<i>Wrightia tinctoria</i> L.	Apocynaceae	Sweet Indrajao, Paalai	Leaves

1. Aloe vera

The leaves are thick and fleshy, green to grey-green, with some varieties showing white flecks on their upper and lower stem surfaces. The margin of the leaf is serrated and has small white teeth. The active agents have shown considerable analgesic, antipruritic, wound healing and anti-inflammatory properties, thus justifying consideration of Aloe vera as an effective remedy for the treatment of psoriasis [14-19]

2. Alpinia galanga

Thai Ginger grows to a height of about 5 feet, the leaves being long, rather narrow blades, The rhizome pieces of rhizome are from 3.5-7.5 cm in length, and seldom more than 2 cm thick. Chanachai et al (2009) reported the plant Alpinia galanga, Curcuma longa and Annona squamosa for their anti-psoriatic effect [20]

3. Angelica sinensis

Angelicas are biennials or short-lived perennials belonging to the Apiaceae family. Angelica forms a basal clump of large three-sectioned leaves, borne on clasping leafstalks, which may be 2 to 3 feet tall. Koo & Arain, 1998 studied patients with psoriasis, two-thirds patients got complete relief from their disease after oral treatment with this plant extract. [21, 22, 23]

4. Andrographis nallamalayanna

The plant is being used in folklore system of medicine to treat mouth ulcers, leucorrhoea and sterility [24]

5. Annona squamosa

The leaves are thin, oblong while the flowers are greenish - yellow. Unripe fruits made in to paste applied externally. Chanachai et al (2009) reported the plant Alpinia galanga, Curcuma longa and Annona squamosa for their anti-psoriatic effect. [25]

6. Argemone Mexicana

Mexican Prickly Poppy is a prickly, hairless, branching herb with yellow juice and showy Leaves are thistle like, stem-clasping, oblong, multiply cut, spiny, with white veins. The paste of seeds is applied topically on itching. The seed oil is applied topically to treat ringworm. The yellow latex of the leaves is applied topically to cure chilblains. The latex is applied externally in cracks on feet. The latex along with cow milk is placed in copper pot for 3 days and applied externally in leucoderma.

7. Azadirachta indica

The alternate, pinnate leaves are 20-40 cm long, with 20-31 medium to dark green leaflets about 3-8 cm long. The stem bark is burnt and ash is applied topically on boils. Decoction of leaves is used to bath for the treatment of body infection. Its decoction is also taken orally for the treatment of the same. The seed oil is used externally to kill lice and to treat dandruff. [26]

8. Caesalpinia bonducella

Caesalpinia bonduc (L.) Roxb. (Caesalpinaceae) commonly known as Yellow Nicker is a prickly shrub found in warm regions of India, Myanmar and Sri Lanka Young leaves are traditionally used to treat certain tumours and inflammation in few remote villages in Kolli Hills, Nammakal District of Tamilnadu, India. Its seeds are used in skin diseases, leprosy and inflammation a number of cassane furanoditerpenes were reported to be isolated from different parts of the plant [27-33]

9. Calendula officinalis

Calendula officinalis is a short-lived aromatic herbaceous perennial, the leaves are oblong-lanceolate, 5-17 cm (2-7 in) long, and hairy on both sides and with margins entire or occasionally waved or weakly toothed. Calendula officinalis (Family: Compositae) are some of the very common Indian herb having various medicinal properties for the treatment of different kind of disease, viz. antifungal, wound healing and antidiabetic agents respectively. [34,35,36,37] These herb has been reported for their usefulness in the form of decoctions, infusions and tinctures in traditional system of medicines for treating skin diseases like psoriasis, leprosy etc [38-42]

10. Capsicum annum

A large perennial shrub, the single flowers are an off-white color while the stem is densely branched. The fruit are berries that may be green, yellow or red when ripe. The herb contains a substance known as capsaicin, which relieves pain and itching associated with psoriasis. Paste of dry leaves applied externally effective in plaque Psoriasis [43, 44, 45]

11. Cassia fistula

This native of India, commonly known as Amaltaas, It has showy racemes, up to 2" long, with bright, yellow, fragrant flowers. Cassia fistula Linn. (C. fistula) which is indigenous to south Asia, has been used in folkloric medicine in Vietnam for the treatment of skin related autoimmune disease such as

leprosy. To date, the clinical efficacy of *C. fistula* has just been investigated for antiinflammatory, antioxidant, antibacterial, and immunomodulatory activities [46, 47, 48]

12. *Cassia tora*

It has pinnate leaves, which are about 10 cm long. Each leaf has three pairs of leaflets that are opposite, ovate, oblong and oblique at the base. *Cassia tora* L. (Fabaceae), also known as Charota, Chakunda and Sickle senna locally, has been traditionally used for the treatment of psoriasis and other skin diseases [4, 5]. *Cassia tora* leaves enrich in glycosides and also contain aloemodin, which may be beneficial for the skin diseases [49, 50, 51, 52]

13. *Centella asiatica*

Is effective in improving treatment of small wounds, hypertrophic wounds as well as burns, psoriasis and scleroderma [53, 54, 55]

14. *Crotalaria juncea*

Sunn hemp is a rapid growing crop that is used for fiber production in Indo-Pakistan. Branched erect annual 2-3 m high with elliptical lanceolate leaves and yellow terminal flowers. *Crotalaria juncea* Linn. (leguminoceae) is popularly known as sunn hemp and is used for its food, fibre and medicinal values by the ethnic communities. It is widely distributed in the tropical and subtropical region of India, Nepal, Sri Lanka, and Southern Africa. *C. juncea* is used as blood purifier, abortifacient, astringent, demulcent, emetic, purgative and in the treatment of anaemia, impetigo, menorrhagia and psoriasis [56, 57, 58, 59]

15. *Curcuma longa*

Turmeric is a rhizomatous herb, The plant grows to a height of 3-5 ft. It has oblong, pointed leaves and bears funnel-shaped yellow flowers, peeping out of large bracts. The rhizome is the portion of the plant used medicinally. It is also reported decreased PhK activity in the curcumin and calcipotriol treated groups corresponded to severity of parakeratosis, decreases in keratinocyte transferrin receptor expression and density of epidermal CD8 + T cells. [60]

16. *Givotia rottleriformis*

White Catamaran Tree is a moderate-sized tree. Leaves are alternate, rounded and heart-shaped. *Givotia rottleriformis* is a moderately sized tree of the family Euphorbiaceae. The bark and seeds of the tree are used in indigenous medicine in the treatment of rheumatism, dandruff and psoriasis. The

bark and seeds of the tree are used in indigenous medicine in the treatment of inflammatory diseases such as rheumatism, psoriasis and dandruff.[61, 62]

17. *Leucas aspera*

Common Leucas is an erect and diffusely branched annual herb. Leaves are linear or oblong, 2.5 to 7.5 cm long with blunt tips and scalloped margins. Whorls are large, terminal and axillary, about 2.5 cm in diameter and crowded with white bell shaped flowers. Calyx is variable, with an upper lip and short, triangular teeth. [59]

18. *Matricaria recutita*

M. chamomilla has a branched, erect and smooth stem, The long and narrow leaves are bipinnate or tripinnate.. There is evidence supporting the role of increased LTB4 formation in psoriatic plaques [63, 64]

19. *Melaleuca alternifolia*

A tall shrub or small tree up to 7 m high with a bushy crown and papery bark. The leaves have prominent oil glands and are rich in aromatic oil. Used In the treatment of acne, dandruff and cold sores, tea tree oil can produce allergic dermatitis in individuals sensitized to the sesquiterpenoid fractions [65, 66, 67, 68]

20. *Momordica charantia*

Bitter Gourd is a herbaceous, tendril-bearing vine, growing up to 5 m. It bears simple, alternate leaves 4-12 cm across, with 3-7 deeply separated lobes. Used in the form of decoctions and infusions to treat bacterial infections and also claimed to be an effective against variety of skin conditions like psoriasis, acne, wounds [69]

Momordica charantia (Family: Cucurbitaceae) are some of the very common Indian herb having various medicinal properties for the treatment of different kind of disease, viz. antifungal, wound healing and antidiabetic agents respectively.[34, 35, 36, 37]. These herb has been reported for their usefulness in the form of decoctions, infusions and tinctures in traditional system of medicines for treating skin diseases like psoriasis, leprosy etc [38-42]

21. *Nigella sativa*

Nigella sativa Linn. is an annual herb of the Ranunculaceae family. It is popularly known as black cumin. The *Nigella sativa* seeds contain ingredients, including nutritional components such as carbohydrates, fats, vitamins, mineral elements, and proteins, including eight of the nine essential

amino acids. [70,71,72,73] Pharmacological investigations of the seed extract reveal a wide spectrum of activities including anti-inflammatory, antibacterial, antifungal and antihelmenthic. [74] The seeds are externally applied for eruptions of skin. The seeds are used traditionally for psoriasis tropicus with general pain and eruption of patches. [75]

22. *Pongamia pinnata*

Pongamia pinnata (Family: Leguminosae) is a medium sized glabrous semi-evergreen tree growing up to 18 m or higher, with a short bole, spreading crown with greyish green or brown bark. Leaves are imparipinnate, alternate, leaflets 5 to 7, ovate and opposite. This tree is popularly known as Karanja in Hindi, Indian Beech and Derris indica in English, and Hongae in Kannada. *P. pinnata* occurs all over India in the bank of rivers and streams and planted as avenue tree in gardens [76] Useful for the treatment of skin diseases. Powered seeds are used for treatment of leucoderma *Pongamia* Seed oil is also used as insecticidal, bactericidal and nemacidal [77] In the traditional systems of medicines, such as Ayurveda and Unani, *P. pinnata* is used for anti-inflammatory, antiplasmodial, anti-noniceptive, anti-hyperglycaemics, antilipoxidative, anti-diarrhoeal, anti-ulcer, antihyperammonic and antioxidant. Its oil is a source of biodiesel. It has also alternative source of energy, which is renewable, safe and non-pollutant [78] [83].

23. *Phyllanthus simplex*

Seed under Leaf is a slender, branched, hairless herb, woody in the lower part, growing to to 60 cm tall. Alternately arranged leaves, about 1-1.5 cm long and 2 mm wide, are elliptic-oblong or nearly linear, stalkless, blunt at both ends. Flowers are tiny, hanging from slender stalks. [59]

24. *Psoralea corylifolia*

Psoralea corylifolia Linn (Fabaceae) is an erect annual herb with broadly elliptic leaves, yellowish or bluish purple flowers and compressed, mucronate, dark chocolate to almost black coloured seeds. [79] Traditionally in India and China, *Psoralea corylifolia* has been used for the treatment of stomachic, deobstruent, anthelmintic, diuretic, vitiligo and also certain skin diseases, such as leucoderma, psoriasis and leprosy. [80]

Psoralea corylifolia contains psoralens which are capable of absorbing radiant energy. In ultraviolet range Photo-

activation by Psoralens with (200–320nm) is known to ameliorate various skin disorders such as psoriasis, vitiligo and mycosis fungicides in humans [81] *Psoralea corylifolia* has been traditionally used as an antipsoriatic agent.

Used for treatment of skin diseases like leucoderma etc. A compound ointment of the powered seeds of *Psoralea corylifolia* and *Cassia tora* with lime juice was tried in cases of ringworm with marked beneficial results. [82, 83, 84,] [85]

25. *Rubia cordifolia*

Indian Madder is a perennial climbing herb that can grow to 1.5 m in height. Leaves are ovate- heart shaped, entire, pointed, heart-shaped at base, rarely rounded, 3-9 palmately veined, upper surface mostly hairless and rough. The extracts of plant are used for treating different skin infections, it may be a useful plant in the treatment and management of psoriasis [86, 87]

26. *Silbum marianum*

The leaves are oblong to lanceolate. They are either lobate or pinnate, with spiny edges. They are hairless, shiny green, with milk-white veins. Triggers an outbreak of psoriasis, as in certain cases of guttate psoriasis. Milk thistle has been shown to inhibit human T-cell activation, which occurs in psoriasis [88]

27. *Smilax china*

Smilax china Linn. Used in various diseases such as rheumatism, gout, epilepsy, skin diseases, chronic nervous diseases, syphilis, flatulence, dyspepsia, colic, neuralgia, constipation, helminthiasis, psoriasis and seminal weakness. [89, 90]

Used in various diseases such as skin diseases and psoriasis [91, 92]

28. *Thespesia populnea*

The plant Indian tulip tree *Thespesia populnea* (Malvaceae) traditionally claimed to be useful in the treatment of cutaneous affections such as scabies, psoriasis, ringworm, guineaworm, eczema and herpetic diseases. Oil prepared by boiling the ground bark in coconut oil is applied externally in psoriasis and scabies. [93]

29. *Tribulus terrestris*

T. terrestris Puncture Vine has a long history of uses throughout the world. It has been used in China for more than 400 years to treat conditions such as psoriasis, eczema, premature ejaculation and liver disease [94, 95] Other ancient

Eastern cultures used *T. terrestris* for its diuretic properties and to treat infections.

30. *Ulmus rubra*

Native Americans used this extract as a poultice for boils and wounds and plaque-type psoriasis [96]

31. *Urgenia indica*

Has been used for treating psoriasis [97]

32. *Vitex glabarata* [59]

33. *Wrightia tinctoria*

Reported the hydroalcoholic extract of *Wrightia tinctoria* leaves showed significant antipsoriatic effect on mouse test model, as compared to isotretinoic acid as standard. They found the extract to produce significant orthokeratosis, prominent antioxidant activity in DPPH, Nitric oxide and hydrogen peroxide scavenging assay. [98, 99]

CONCLUSION

An attempt must be made to incorporate chemical constituents isolated from different plants responsible for anti-psoriatic activity and their possible mechanism of actions. Most of the modern medicines are directly or indirectly derived from plant sources. Thousands of texts and monograph on herbal remedies exists. But most of the informations are outside current databases and remains unavailable. The scientific validation is good and the history of clinical use is even better. A great deal of literature exists on the use of phytomedicines within native medical systems in our country. Much written knowledge is in the hands of healers in our country. Basic research into characterizing these plant products and compounds in terms of standardized content and potential toxicity is needed to allow safe and replicable research to document clinical efficacy. Before comprehensive research is developed several key issues must be addressed, including the following the loss of knowledge about traditional healing in many societies. The loss of large number of plant species of potential medicinal value. Preliminary antipsoriatic activity studies should be carried out on crude extracts of traditionally used and medicinally promising plants.

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