

Treatment of Psoriasis Using Herbal Plants

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Abstract: Psoriasis is an inflammatory disease related to immune response. It is a proliferative autoimmune skin disease which is affecting 2% of world wise population. It is one of the chronic skins disease condition which has got no permanent cure. It is characterized by itching, skin rashes and red scalps with white scales on the skin. Though, different types are reported, common existing form of psoriasis is plaque psoriasis. In spite of many treatment strategies, no strategy gives a fulfilled cure. The epidemiology of disease seems to be remained unknown, but the incidence varies, surrounded by the different countries. Drugs prescribed for psoriasis shows varied side effects and thus world turns to natural way of medications. The objective of the present review is to explore the use of medicinal plants for the treatment of psoriasis and also the plants which has got beneficial effects on psoriasis.

Keywords: psoriasis, herbal medicine, nanoparticles

1. Introduction

Psoriasis is an immune inflammatory disorder which leads to increased proliferation of skin cell. The skin becomes itchy and painful occurs in 1.5% to 3% of world population. It is one among the popular squamous skin disease symptomized by papules or plaques with silvery scales.

The word psoriasis is derived from Greek word psoriasis meaning itch and skin action. The general therapies for this disease condition are topical applications like moisturizers, emollients, corticosteroids, vitamin A&D and systemic therapy is given with corticosteroids, immunomodulators etc. It is a chronic skin disease, touching about 2% of worldwide population. It is non-epidemic infection and horrible skin disorder which can include a whole system of person the majority areas are the scalp fingers and toes, palms soles, umbilicus, gluteus, underneath the breasts and genitals, elbows, knees, shins, and sacrum. It can also cause inflammation in joints, which can be acknowledged as psoriatic arthritis.

2. Types

A. Types of psoriasis namely, they are seven types,

- Plaque psoriasis
- Guttate psoriasis
- Inverse/flexural psoriasis
- Pustular psoriasis
- Erythrodermic psoriasis
- Nail psoriasis
- Psoriatic arthritis



Fig. 1. Plaque Psoriasis

Plaque psoriasis: It is also known as psoriasis vulgaris, which generally occurs [almost 80- 85%] it is usually seen on elbows, knees, scalp and lower back. This type is widely spread, affecting 80-90% of those with psoriasis. Plaque can be huge or little and may itchy, while itching is not an important aspect of Plaque psoriasis.

Symptoms

- Spherical lesions which ranges about 0.99cm to several CMS in width, and may further grow into patches.
- Red colored lesions which are encrusted with silvery, loose and shining skin Lesions that are generally seen on the elbows, knees, and trunk

Causes

This type occurs are generally infections, skin abrasion, medication, sunlight, strain, smoking, and drinking

Guttate psoriasis: It is also known as rain drop psoriasis and is the second general form [around 10%] seen in population with psoriasis. Guttate psoriasis, the word derived from the Greek word gutta meaning a droplet, defines the sensitive inception of a countless of tiny, 2-10mm diameter. lesions of psoriasis these are generally distributed in a centripetal approach while guttate lesions can also involves head and limbs.



Fig. 2. Guttate Psoriasis

Symptoms

- Several minute raindrops sized lesions
- Lesions grow instantly, generally on the turns, arms,

legs, and scalp

- Eruption of lesions which may occur along with any upper respiratory infection

Causes: Streptococcal infection, viral or bacterial contagious, skin wounds and burns, insect bites act, sunlight, medicine.

Flexural psoriasis

- The lesions in flexural psoriasis are visibly demarcated, pink lesions that lack scale. Less commonly the skin folds, and the umbilicus may be affected in the case.
- Flexural psoriasis is exasperated by sweat and roughness and there is a risk of minor infection

Pustular psoriasis: This can arise in localized or generalized form it causes extensive inflammation with malaise, pyrexia and circulatory interruption. It can be toxic, as the skin loses its capacity to maintain well-organized thermoregulation and liquid balance. It can occur as patches which are small or wide spread on areas of feet, hands or fingertips. Seen in 5% or less population having psoriasis.



Fig. 3. Pustular Psoriasis

Symptoms:

- Fluid-filled lesions which are seen on soles and palms very scaly skin
- Alterations in nails: Eruptions which are seen after discontinuation of certain medications and creams

Causes: Overexposure to UV light, systemic steroids, contagions, mental and emotional strain, mental and emotional strain.

Erythroderma: It is a very common type that may be damaging or lethal. In population with this type, along with skin.



Fig. 4. Erythroderma

Symptoms:

- Symptoms are seen in whole body.
- Inflation and soreness which occurs on entire body

skin. The skin may slough off and is generally itchy and tender.

- Incapable to monitor temperature of the body and chills.

Causes: Use for steroid, extreme sun burn, strain, drinking alcohol, contagions, sensitivity, etc.

Nail psoriasis: Along with building up of skin cells under epidermis, in half of the psoriasis population they even develop under nails, which becomes impenetrable. They mostly split and in extreme cases, they fall down or collapse. Yellow or brownish red spots are seen below the nail.



Fig. 5. Nail Psoriasis

Causes: This type is not known exactly, but generally it is considered having a genetic factor.

1. *Psoriatic arthritis include:* It is a condition in which shows impact on the joints. Generally, appears in 6% to 40% of population having Inflamed, sore, thick, and painful joints.
2. Above signs may be seen earlier, along with, or following the development of symptoms of the skin.
3. In the hands and feet symptoms are seen this skin disorder.



Fig. 6. Psoriatic arthritis

Symptoms of psoriatic arthritis:

Causes: Causes are shock or wounds on skin, medications, agents that cause irritation of skin, smoking and drinking etc.

B. Herbs used in treatment of psoriasis:

As it is always believed that herbs are safe and mostly devoid of side effects, in psoriasis also herbs play a vital role in the treatment because drugs provoke much of side effects. Herbs are used as extracts, fractions, isolates, formulation and were proven to possess anti psoriatic activity.

Oregon grape: Oregon grape is also called barberry. Oregon

grape has anti-inflammatory properties. It's been found to reduce redness psoriatic flares when used topically. In effective clinical studies, skin cream contained 10 percent Oregon grape extract.

Indigo naturalis:

1. Indigo naturalis are a plant used in traditional Chinese medicine.
2. It's also been used to make indigo – colored dye for many centuries.
3. Indigo naturalis can be distilled into an oil extract.
4. In one study, using the oil on nail psoriasis every day for 24 weeks resulted in Significant improvement.

Aloevera:

- Aloe Vera is plant known for its soothing and cooling property.
- Aloe Vera may also help regenerating skin cells and heal irritated skin.
- Psoriasis can be treated with aloe Vera using a cream containing at least 0.5% aloe.
- Applying the cream topically up to 3 times per day for 5 days in a row could decrease inflammation and help clear up a mild psoriasis flare

Turmeric:

- Turmeric is part of the same family as the ginger plant. its active ingredient is called curcumin.
- Turmeric has unique anti-inflammatory and antibacterial properties, which have led scientists to study it as treatment for psoriasis.
- This treatment was mixed with topical steroids and a low -diary diet.

Capsaicin:

Capsaicin is the active ingredient in chili peppers. It's the reason you feel a burning sensation when you eat food seasoned with chilies.

The ability to create a "burning" of cells might actually help heal psoriasis flares.

Dead sea salts: The scales of the skin and itchiness gets reduced by use of the salt but it might induce high dryness so a moisturizer should be applied after using this as bath solution and the exposure should not be more than 15 minute.

Fishoil: Oral administration of fish oil has proven to bring about cure to some extent and it is also co administered with vitamin D supplement.

Cayenne:

- Peppers of cayenne have been claimed to be used from long years ago.
- This is reported to have major use in pain balms, gels and creams.

Garlic:

- Garlic oil can be applied on the skin to treat a multitude of skin ailments.
- For its high anti- inflammatory properties, it can also relieve itchy psoriasis out breaks on your skin

Jasmine flower paste:

- Jasmine flowers are used in the treatment of psoriasis.
- The paste made by crushing the flowers are applied on the affected parts of the skin directly which is found to decrease the pain and the itchiness of psoriasis inflammations.

C. Angelica sinensis [dong guay]:

It is used as a medicine widely in china. It contains psoralen which is a potent furocoumarin.

Matricaria recutita: [chamomile]

Traditionally used in many therapies on skin rejuvenation stress relief etc. Also used in GI disorders.

Ulmus rubra: [slippery elm]

It is traditionally proven to be used by Americans as a poultice in the treatment of boils and wounds

Alpinia galangal and annona squamos:

Alpinia galangal, curcuma longa and Annona squamosa has been reported to possess anti psoriatic activity by the regulation of NF-KB signals.

Thespesia populnea:

Perry's mouse tail model was used to prove the anti-psoriatic activity of this plant

Smilax china:

The presence of quercetin in the rhizome was found to possess anti psoriatic activity

Nigella sativa: [black cumin]

Tazarotene gel was used as a standard in a study to screen the anti-psoriatic activity of Nigella Sativa Linn seeds which produced massive difference in the epidermis.

Wrightia tinctoria: This plant possesses excellent antioxidant properties which was screened by DPPH, nitric oxide and hydrogen peroxide scavenging assay which was further correlated to the anti-psoriatic effects of this plants.

3. Genetic factors

Human genome scans show almost nine various loci which are susceptible to psoriasis is the main genetic factors of this disorder which results up to 50 % of genetic sensitivity to psoriasis. The risk of psoriasis may be increased due to certain variations and changes, which are related with four auto immune disease. Type1 diabetes, celiac disease, graves' disease and rheumatoid arthritis.

A. Trigger factors

Climate, strain, wounds, medicines, are indirect causes and infections like HIV, one of the uncommon forms of human papilloma viruses like EV-HPV, streptococcal infections in upper respiratory tract lie sinusitis

B. Diagnosis

Based on clinical studies such as skin rash, alterations in nail, joint involvement etc. psoriasis is diagnosed. A diagnosis of psoriasis is based on the nature of the skin and its

characteristics. Diagnosis is generally done by clinical examination. Thorough inspection of the body sites must be done to reveal unrecognized, clinically useful characteristics, and occasionally a skin biopsy may be required.

Fusion of the various types may develop occasionally along with are later in the same patients. Diagnosing the joints by pain and using x-ray and bone scanning methods psoriasis diagnosis includes the study of dermatological condition such as discoid eczema, seborrheic eczema, pityriasis roses nail fungus or cutaneous T-cells lymphoma also dermatologic manifestations of systemic illness with psoriasis scraping or skin biopsy and blood analysis may be necessary sometimes, to approve the diagnosis.

4. Pathophysiology and complications of psoriasis:

- Psoriasis is a kind of skin disorders described by excessive growth of skin epithelial cells and it is a T-lymphocyte mediated auto immune disease
- The pathophysiology of psoriasis considered the cellular pathological changes that occur in both epidermis and dermis.
- They are two main process occurs in development of psoriasis the first process In psoriasis is characterized by excessive growth and reproduction of skin cells
- The second process of the disease is characterized by immune mediated disorders in which the excessive reproduction of skin cells occurs.
- It is also diminished CD4-T-cell roots an over-activation of CD8-T-cells, which are in accountable for the development of psoriasis in HIV patients. The complications of psoriasis include psoriatic arthritis, eye conditions, folate deficiency cancers, heart problems, obesity, and diabetes, bad body temperature regulation, zumbusch psoriasis metabolic syndrome. drinking alcohol is considered as a complication of psoriasis.
- Other complications include secondary bacterial infections, disturbed protein and electrolyte balance, renal and liver impairment, malabsorption of nutrients and therapeutic drugs.

A. Symptoms and impact of psoriasis on patient life

The common symptoms of psoriasis were dry skin, itching, and burning sensation signs of pustular psoriasis, depression painful swollen joints and genital lesions. psoriasis excessive corporal, intellectual, and communal burden.it may produce infections such as strep throat of skin infections. Psoriasis is also formed by insect bi, severe sunburns, stress cold weather smoking, heavy alcohol consumption vaccination dry skin, and diet.

5. Epidemiology

World health organization says that psoriasis, is the outmost dominant auto immune disease in the united states. According

to present studies as many as 7.5 million American approximately 2.2% of the population have psoriasis. 125 million people worldwide.

A. Prevalence or psoriasis in India

The prevalence data of psoriasis occurrence in India was obtained from hospital-based studies and only few studies and derived from large population areas. In India most of the studies are done by hospital-based studies. this studies on medical colleges in north India such as Dibrugarh, Calcutta, patina, Darbhanga, luck now, New Delhi, and Amritsar.

India because that it may be associated with different environmental conditions like temperature, food habits, life style and genetic differences.

B. Immuno pathogenic mechanism in psoriasis:

Psoriasis is characterized by an abnormal, disproportionate and rapid progress of epidermal layer of the skin. The skin cells are damaged during wound repair and an excess of skin cells result from the pathological events in psoriasis. These changes occurs in the evolution progress of keratinocytes induced by inflammatory messengers affect three subtypes of white blood cells. these veiled inflammatory messengers stimulate keratinocytes which causes mutations of genes involved in the skin functions for development of psoriasis.

6. Severity of disease

- The extremity of this disease occurs from one are two small flaky swollen patches to extensive pustular psoriasis which in a typical case can be lethal
 - Mild: affected body area is less than 3% affected
 - Moderate: 3-10% skin is impacted.
 - Severe: Greater than 10% of the body is influenced
- Few types of psoriasis are unaffected to treatment

which include

- Hand and foot and psoriasis
- Psoriasis that is seen in the fold of the skin
- Scalp psoriasis
- Psoriatic arthritis

7. Therapies of treat psoriasis:

These are various therapies for treating psoriasis any therapy should be considered on long term basis. General therapies present for treating psoriasis of systemic agents, topical agents and photo therapy

Topical therapies;

- These are the medications that are directly applied on the skin and are the first line of therapy options.
- Treatment associated with application of semisolid preparations on the skin is called topical treatment
- Topical creams, sprays, lotions, are very effective for mild psoriasis and is also safe to use.

Emollients:

- Emollients provide soothing feeling to the scales

hence it become less itchy.

- Patient should avoid the usage of soaps while bathing and washing

Keratolytics:

- Topical preparation that contain salicylic acid decreased excessive scaling but may occasionally irritated the adjacent skin

Steroids:

- The steroids are the choice to treat the flakes on milder areas like on face and under arms
- Different newer formulations are available to enhance the delivery of topical cortico steroids.

Tar preparations:

- Tar preparation are helpful to remove loose scales of the patches of psoriasis.
- Tar preparations are available in the form of creams are ointments are shampoos this air most patients, but many find them untidy and they can stain clothing

Dithranol: Dithranol is good for chronic scaly psoriasis in selected areas and can be prescribed for use at home it is an effective drug for plaque psoriasis.

Photo therapy: Skin would be exposed to u v radiation in case of failure of topical treatment in achieving desired goal this type of treatment is called photo therapy.

A. *Topical vitamins:*

- This analogue are effective for the treatment of psoriasis including following agents like calcipotriene and calcitriol.
- Calcipotriene synthetic vitamin D3 analogues effective for the treatment o psoriasis.

B. *Tazarotene:*

- Tazarotene is a third -generation topical retinoid available as a cream, gel and foam. Tazarotene properties are similar to that of vit-A.
- In the treatment of psoriasis, it may be used in a combination with a corticosteroid cream or ointment, calcipotriol or phototherapy
- It is an immunosuppressive drug that are useful in the controlling of atopic dermatitis, can also use for psoriasis.
- It may be topical steroid application may have trouble some side effects.

8. Systemic therapies

- A number of systemic medications are used for the treatment of psoriasis.
- Many guidelines are published about the treatment of psoriasis with systemic therapies such as the American Academy of dermatology and European Guidelines on the systemic treatment of psoriasis.

A. *Folic acid antagonists:*

- Methotrexate is the folic acid antagonist has been used successfully in the treatment of psoriasis
- Along with anti-cancer activity, the MTX is also having anti-psoriasis activity.

B. *Systemic retinoids:*

- Retinoids are derivatives of vitamins A are used for the treatment of severe psoriasis including pustular and erythrodermic psoriasis.
- The choice of retinoids in psoriasis in acitretin.
- This combination therapy, people having a higher response to better tolerance and less UV exposure.

C. *Systemic calcineurin inhibitor:*

- Cyclosporine is the T-cell suppressor which is effective in patients with severe psoriasis
- The dose range between 3 to 5 mg/kg per day orally. Development is generally observed within four weeks
- The usual dose is 3-5mg/kg given orally in two divided doses. Major adverse effects are nephrotoxicity and hypertension.
- It may be enhancing the risk of cancer.

9. Biological agents in psoriasis treatment:

- Biological therapy is a significant therapy to treat psoriasis.
- These agents which are available for the treatment of psoriasis in the USA, which include Alefacept, etanercept, infliximab, adalimumab, ustekinumab, secukinumab.

Etanercept:

- The etanercept is the TNF-alpha inhibitor is used for the treatment of psoriasis
- It is approved by the US food and drug administration for adults with psoriatic arthritis and severe plaque psoriasis.

Infliximab:

- TNF-alpha inhibitor infliximab is useful for patients with moderate to severe plaque psoriasis and appears to generally be well tolerated
- It is also used for the treatment of adult rheumatoid arthritis, ulcerative colitis, and crowns disease

Adalimumab:

- Adalimumab is a new anti-TNF agents. It is medication used to treat rheumatoid arthritis, psoriatic arthritis, chronic psoriasis

Side effects:

- Lymphoma solid tissue cancer, liver injuring and cardiac failure

Ustekinumab:

- Stelara is a human monoclonal anti body that targets interleukin

- IL)-12and (IL) -23.
- It is used to treat moderate to severe psoriasis
- Dose calculated based on the weight of the patients.

10. Natural remedies for the treatment of psoriasis:

Traditional medicines hold a great promise as a source of is available effective therapy for skin diseases to the people, particularly in tropical developing countries, including India.

Aloe barbadensis:(family -liaceae):

- Aloe vera is a stemless, drought resisting, succulent plants belong to the family-LILLIACEAE and has been used since ancient times for medicinal purposes.
- It is used for the psoriasis the treatment

Origanum vulgare: (family-lamiaceae):

- Another herbal remedy for psoriasis is oregano.
- It is having anti- bacterial and anti- fungal properties which can be helpful with infections that are induced by psoriasis.
- Is is commonly used spice for baking cooking

Curcuma longa: (family-zingiberaceae):

- Turmeric is most important constituent of curry powders used in catering.
- The spice has an extended narration of being used in habitual Indian and Chinese medicine.

Allium cepa (family lilliceae):

- Allium cepa is preferred by patients with seborrheic keratoses to estimate the ability of onion extract gel to improve the appearance of scars following excision has shown that this extract gel improved dis figure smoothness, redness, feel and global manifestation at the excision site
- At study weeks 4,6 and 10 as assessed by the blinded investigator.

Berberis vulgaris: (family-berberidaceae)

- Barberry is available in capsules, teas or tinctures
- It is used an anti-oxidant, anti- inflammatory and apparently, prevents toxin formations in the bowel.

11. Conclusion

Although there are many plants claimed to possess anti-psoriatic activity the research works undergoes on these plants

are very few compared to other activity thus research work has to be carried out to prove the anti-psoriatic potential of the herbs and formulation has to be develop to reach the patients such that they get right medicine in a safe, cheap and effective manner.

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