

**A SYSTEMATIC REVIEW ON: HERBS USED IN THE TREATMENT OF SKIN  
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Article Received on 03/09/2022

Article Revised on 24/09/2022

Article Accepted on 14/10/2022

**ABSTRACT**

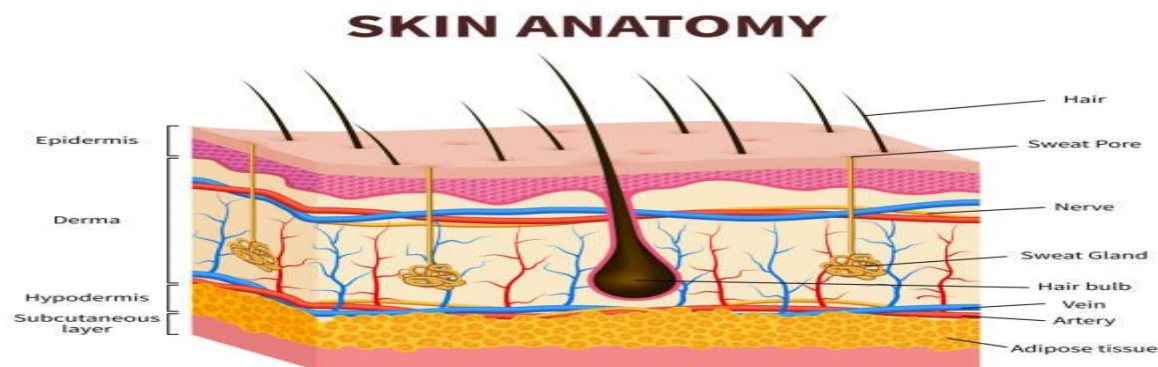
Numerous skin conditions are common health issues that affect people of all ages, from newborns to the elderly, and can be harmful in a variety of ways. A healthy body depends on having good skin. Cancer, herpes, and cellulitis are among the skin disorders that many people might contract. These disorders are routinely treated using certain wild plants and their parts. The utilisation of plants predates the existence of mankind. Natural medicine is reportedly safe and inexpensive. It is a good basic material for creating new synthetic substances as well. The most recent technological developments in this field over the last 17 years are summarised in a study of a few plants used to treat skin conditions.

**KEYWORDS:** Herbs, Medicinal Plants, Skin, Skin Disorder.**1. SKIN**

The largest organ in the human body is the skin, which covers the body's outside. It serves as the initial line of defence as well. Numerous specialised cells and structures can be found in skin. The epidermis, dermis, and hypodermis are the three primary layers. Each layer contributes in a unique way to how the skin works as a whole. The epidermis, the top layer of skin, has varying thicknesses throughout the body. It is thickest on the palms and soles and thinnest (0.05 mm) on the eyelids (1.5 mm). Depending on where the skin is located, the dermis' thickness also varies. The distance is 3.0 mm on the body's back and 0.3 mm on the eyelid. The hypodermis, or subcutaneous connective tissue, lies beneath the dermis. A layer of fat and connective tissue

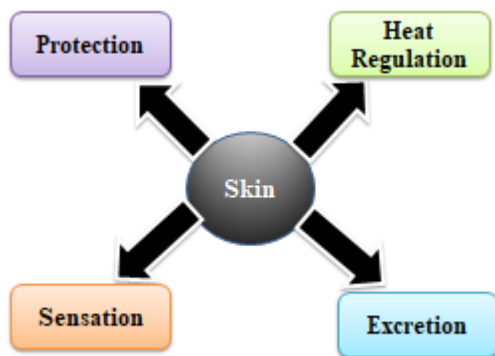
called the subcutaneous tissue contains larger blood arteries and nerves. This layer is crucial for controlling body temperature as well as the skin's own temperature. This layer's thickness varies across the body and from person to person. The primary skin accessories are hair follicles, sweat glands, and sebaceous glands.

The skin protects the internal organs, muscles, bones, and ligaments beneath it. The two main forms of skin are glabrous and hairy skin.<sup>[1]</sup> However, the skin might also be sagging, dry, sensitive, pale, or worn out. People who lack vital nutrients including beta-carotene, the B complex vitamins, and vitamins C and E frequently experience dry skin.

**Figure: Structure of Skin.**

## 2. Function of Skin

Skin interacts with the environment and is crucial in defending (the body's) defences against infections and excess water loss.<sup>[2,3]</sup> Additional roles include water resistance, sensation, temperature regulation, insulation, synthesis of vitamin D by ultraviolet (UV) light, protection of vitamin B folates, oxygen and medicine absorption, and temperature management.<sup>[4,5]</sup> Skin that is severely damaged will attempt to recover by producing scar tissue. This is frequently depigmented and discoloured.



**Figure: Function of Skin.**

## 3. Skin Problems

Skin disorders are a prevalent condition that can hurt people of all ages, including newborns and the elderly.<sup>[1]</sup> Although there are more than a thousand illnesses that can damage the skin, there are nine main categories of skin diseases.<sup>[6]</sup>

**3.1 Rashes** A rash is a patch of red, irritated skin or a collection of distinct patches. These can be brought on by inflammation, allergies, infections, underlying diseases, or structural flaws like clogged pores or dysfunctional oil glands. Acne, dermatitis, eczema, hives, pityriasis rosea, and psoriasis are a few examples of rashes.

**3.2 Viral Infections** These happen when a virus enters the skin's inner layers through the stratum corneum. Warts, shingles (herpes zoster), and herpes simplex are a few examples of viral skin infections. Measles and chicken pox are two examples of systemic viral infections that can have an impact on the skin. Antibiotics cannot treat viral illnesses.

**3.3 Bacterial Infections** Staphylococci and streptococci are the two most prevalent forms of bacteria that cause such infections. The follicles, the deeper layers of skin, or the epidermis can all get infected with bacteria. These infections may spread throughout the body if improper care is not taken to treat them. Examples include Lyme disease, cellulitis, and impetigo folliculitis. Antibiotics work better for treating bacterial infections.

**3.4 Fungal Infections** On the surface of the skin, harmless fungi are always present. These organisms penetrate the body and cause infection. Athlete's foot, ringworm, and lock itch are examples of these superficial infections that can affect the skin, hair, and nails. However, in those with weakened immune systems or those using antibiotics for an extended period of time, the fungi may spread deep into the body, leading to more serious illness.

**3.5 Parasitic Infections** Following exposure to parasites like lice and scabies, these problems occur.

**3.6 Trauma** Trauma is the term used to describe a skin injury brought on by a blow, a cut, or a burn. The body is more prone to illness and infection if the skin's outer layer is damaged.

**3.7 Pigmentation Disorder** The body's production of melanin controls how much pigment is present in the skin. Hypopigmentation, or the loss of pigment, can result from the absence of melanocytes, damaged cells, exposure to chemicals or the cold, or certain infections. Skin inflammation, hormonal fluctuations, ageing, a metabolic disease, or any other underlying issue may result in hyperpigmentation, an increase in pigment. Melasma, freckles, and age spots are a few manifestations of hyperpigmentation. One instance of low pigmentation is vitiligo.

**3.8 Tumors and Cancers** These growths develop when skin cells start to divide more quickly than usual. Not all skin growths are malignant. Some tumours are benign and won't grow. The majority of malignancies, including skin cancer, harm 800,000 Americans yearly. In 90% of cases, exposure to the sun is the reason. The three different types of skin cancer are malignant melanoma, squamous cell cancer, and basal cell cancer, with basal cell cancer being the most treatable (the most deadly form). Preventive measures include shielding the skin from harmful UV radiation. The likelihood of a cure is increased by early discovery. As a result, routine self-checks are advised.

**3.9 Other Conditions** Among the problems that cannot be clearly characterised are wrinkles, rosacea, spider veins, and varicose veins. The breakdown of collagen and elastin in the dermis, which results in drooping skin, is what gives rise to wrinkles. Rosacea is a chronic condition that causes the skin of the face to grow red, develop lesions, pimples, and, less frequently, expand the nose. Its origin is a mystery. When blood vessels grow and become visible through the skin's surface, spider veins and varicose veins are evident.

## 4. Conventional Treatment of Skin Disease

The typical drugs used topically include.<sup>[7]</sup>

1. **Antibacterials** Drugs like cleocin and bactroban are frequently used to treat or prevent infections.

2. Although uncommonly used, anthralin (drithocrema, micanol, and others) helps to reduce inflammation and can be used to treat psoriasis.

3. Antifungal medications: Lamisil, nizoral, and lotrimin are a few examples of frequently used topical antifungal medications used to treat skin disorders like ringworm and athlete's foot.

4. Benzoyl peroxide: Acne is treated with creams and other items that include this ingredient.

5. Coal tar: This topical remedy comes in strengths ranging from 0.5% to 5% and can be purchased with or without a prescription. Psoriasis and seborrheic dermatitis are two disorders that coal tar is used to treat (often in shampoos). Because of its delayed action and potential for serious discoloration of personal apparel and bedding, coal tar is currently rarely utilised.

6. Salicylic acid is a drug that comes in patches, creams, gels, soaps, shampoos, and other forms. It should be used sparingly because harmful effects can result from applying too much to the body at once. Many skin care treatments that are used to treat warts and acne contain the active component salicylic acid.

Skin problems that can be treated orally include.

1. Antifungal medications: To treat more serious fungal infections, common oral antifungal medications such as ketoconazole and diflucan can be utilised.

2. Antiviral medications: Valtrex, acyclovir, and famciclovir are examples of common antiviral medications. Herpes-related skin problems are among those that can be treated with antiviral medications.

3. Antibiotics: Many skin disorders are treated with oral antibiotics such as erythromycin, tetracycline, and dicloxacillin.

4. Immunosuppressants: Immunosuppressants can be used to treat disorders like severe psoriasis and eczema. Examples include methotrexate and azathioprine.

5. Biologics: These modern treatments are the most recent approaches used to treat psoriasis and other ailments. Enbrel, Humira, Remicade, Stelara, and Amevive are a few biologics.

### 5. Herbal Remedies for skin Disorder

Due to a number of benefits, including frequently less side effects, improved patient tolerance, being relatively less expensive, and being acceptable due to a long history of use, natural medications derived from plants are becoming more and more popular. Additionally, herbal remedies offer logical ways to treat a variety of illnesses that are difficult to treat and incurable using conventional medical practices. For these reasons, a number of plants have been researched as potential treatments for conditions affecting the skin, from itchiness to skin cancer.

#### 5.1 *Achyranthes aspera* (Common name: Prickly chaff flower, Devil's horsewhip; Family: Amaranthaceae)

The herb has historically been used to treat boils, scabies, skin eruptions, and other skin conditions. Activation of the Epstein-Barr virus early antigen (EBV-EA) caused by the tumour promoter 12-O-tetradecanoylphorbol-13-acetate (TPA) in Raji cells was significantly inhibited (concentration 100 g) by the MeOH extract, alkaloid, non-alkaloid, and saponin fractions extracted from the leaves of *A. aspera*. The non-alkaloid component of this in vitro experiment, which primarily contained non-polar chemicals, displayed the most notable inhibitory activity (96.9%; 60% viability). The complete methanolic extract had a strong antitumor impact (76%), according to an in vivo two-stage mouse skin carcinogenesis test. The findings showed that non-alkaloid fraction and leaf extract are important antitumor promoters in carcinogenesis.<sup>[8]</sup>



Figure: Prickly chaff flower.

#### 5.2 *Aloe vera* (Common name: Barbados aloe; Family: Xanthorrhoeaceae)

*Aloe vera* is frequently consumed as a health drink and has demonstrated excellent effectiveness in treating skin disorders. Additionally, stretch marks, pigmentations, and wrinkles have all been successfully treated with it. Additionally, it appears to be able to hasten wound

healing by enhancing local blood flow and halting cell death. One study using mice to examine the effects of *Scutellariae radix* and *Aloe vera* gel (AV) on skin lesions that resembled spontaneous atopic dermatitis (AD) found that the group receiving only AV at a dose of 0.8 mg/kg p.o. provided relief from AD due to a decrease in interleukin (IL)-5 and IL-10 levels.<sup>[9]</sup>





**Figure: Aloe Vera.**

**5.3 *Allium cepa* (Common name: Onion; Family: Liliaceae)**

In a study done on seborrheic eczema patients, the ability of onion extract gel to improve the appearance of scars after excision was evaluated. The results showed that this extract gel improved scar softness, redness, texture, and overall appearance at the excision site at study weeks 4, 6, and 10.<sup>[10]</sup> In another study, the antifungal activity of aqueous extracts made from *Allium sativum* (garlic; AGE) and *A. cepa* (onion; AOE) was assessed against 35 strains of different dermatophyte species as well as *Malassezia furfur* (25 strains), *Candida albicans* (18 strains), and other *Candida* spp. (12 strains). The findings suggested that the use of onion and garlic in treating diseases caused by significant pathogenic genera including *Candida*, *Malassezia*, and dermatophytes that are connected with fungi may be promising.<sup>[11]</sup>



**Figure: Onion.**

**5.4 *Azadirachta indica* (Common name: Neem; Family: Meliaceae)**

Blisters and boils are treated externally using leaf extract.<sup>[12]</sup> In one experiment, TPA (1.7 nmol/100 l of acetone, twice weekly) was used as a promoter after DMBA (500 nmol/100 l for 2 weeks) was applied topically to animals. For 20 weeks, the test group consumed aqueous *Azadirachta indica* leaf extract (AAILE) three times per week at a dose of 300 mg/kg body weight. The outcomes of this investigation demonstrated *A. indica*'s chemopreventive ability against mouse skin carcinogenesis.<sup>[13]</sup>



**Figure: Neem.**

**5.5 *Beta vulgaris* (Common name: Beetroot; Family: Brassicaceae)**

When Raji cells were used to induce EBV-EA, beet root extract inhibited the process in vitro more effectively than capsanthin, cranberries, red onion peel, short and long red bell peppers, and cranberries. The mouse skin and lung bioassays used to evaluate the in vivo anti-tumor promoting activity also showed a strong tumour inhibiting impact. The results taken together imply that eating beet roots may be an effective way to avoid cancer.<sup>[14]</sup>



**Figure: Beetroot.**

**5.6 *Brassica oleracea* (Common name: Red Cabbage; Family: Brassicaceae)**

Mice with skin cancer that was induced by a single topical application of 200 nmol of the initiator DMBA to their backs, followed one week later by promotion with 10 nmol of TPA applied twice weekly for 30 weeks, and finally 0.1 g/L of an aqueous extract of *B. oleracea* applied one week after initiator administration, were found to have significantly fewer tumours.<sup>[15]</sup>



**Figure: Red Cabbage.**

**5.7 *Thyme vulgaris* (Common name: Thyme; Family: Lamiaceae)**

It might ease the signs and symptoms of cellulitis, a bacterial skin infection that causes discomfort, soreness, edoema, fever, chills, and skin reddening. Additionally, it might have antibacterial and antifungal properties. Thyme has not been demonstrated to directly help cellulitis, the University of Maryland Medical Center warns. Additionally, this herb may make bleeding more likely.<sup>[16]</sup>



**Figure: Thyme.**

**5.8 *Sarco asoca* (Common name: Ashoka; Family: Caesalpinaceae)**

The root paste is effective for treating skin conditions such as ulcers, rashes, and freckles. By applying the crushed flower to the skin, it relieves itching caused by eczema, psoriasis, dermatitis, and herpes-kushta/visarpa. It is a preferred herb for treating tinea pedis, scabies, and pruritis. To cure eczema and scabies, 50 g of dried *S. asoca* flowers and *L. inermis* leaves are cooked in coconut oil. The extract is then applied externally twice daily. According to a study, pretreatment with the *S. asoca* flavonoid fraction significantly decreased the percentage of tumor-bearing mice as well as the number of tumours per animal. Additionally, pretreatment with *S. asoca* prolonged the latency period before the first tumour appeared. Additionally, the plant-treated group showed a significant decrease in the expression of ornithine decarboxylase, a crucial enzyme in the promotion stage of 2-stage skin cancer, indicating the chemopreventive efficacy of flavonoids from *S. asoca* on 2-stage skin carcinogenesis.<sup>[17]</sup>



**Figure: Ashoka.**

**5.9 *Lycopersicon esculentum* (Common name: Tomato; Family: Solanaceae)**

It is possible to achieve protection against UV light-induced erythema by ingesting a commonly consumed dietary source of lycopene, according to a study done on healthy human volunteers using tomato paste (40 g), which provides about 16 mg/d of lycopene, when combined with 10 g of olive oil over a period of 10 weeks.<sup>[18]</sup>



**Figure: Tomato.**

**5.10 *Lawsonia inermis* (Common name: Henna; Family: Lythraceae)**

Plants from the Middle East are traditionally used to decorate hands and feet with henna. To treat impetigo, the afflicted areas are covered with leaf paste twice day in the traditional medical system.<sup>[19]</sup> Henna has anti-inflammatory, antipyretic, and analgesic properties, according to a study that found clinical improvement in patients with hand and foot illness after using capecitabine, a cancer treatment, along with it.<sup>[20]</sup>



**Figure: Henna(Mehandi).**

**5.11 *Curcuma longa* (Common name: Turmeric; Family: Zingiberaceae)**

A study using male Swiss albino mice found a substantial decrease in the number of tumours per animal in the group receiving 1% curcumin made from the rhizomes of *C. longa*, which was used to develop skin cancer in the mice.<sup>[21]</sup>





**Figure: Turmeric.**

## 6. CONCLUSION

Herbs offer a tremendous deal of potential to treat many skin conditions. In India, more than 80% of the population uses traditional medicine and various plant-based treatments to treat ailments of the skin. They are relatively inexpensive in comparison to traditional allopathic medicines and can be very helpful to the Indian population in general, and the impoverished in particular. Herbs are a great source of active compounds and can treat a variety of skin conditions, from rashes to deadly skin cancer, in a more efficient and safe manner. Since it appears that more than half of the plant species that can heal skin conditions are only found in forests, deforestation, habitat degradation, urbanisation, etc., may pose a severe threat to these species. The urgent need is to preserve these plants with the support of local involvement and conduct comprehensive study in this area to increase the potential for herbal medicines to treat skin conditions.

**7. Source of Support:** Nil.

**8. Conflict of Interest:** Nil.

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