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Review Article

Recent Study on Herbal Medicine for Skin Diseases

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ABSTRACT

Recent studies on herbal preparations for skin diseases have highlighted their potential as effective, natural alternatives to conventional treatments. This review synthesizes findings from various clinical and laboratory investigations focusing on the efficacy and safety of herbal remedies. Key herbs, such as Aloe vera, Turmeric (*Curcuma longa*), and Tea tree oil (*Melaleuca alternifolia*), have demonstrated anti-inflammatory, antimicrobial, and wound-healing properties, making them beneficial for conditions like eczema, psoriasis, and acne. Advanced extraction techniques and phytochemical analyses have enhanced the understanding of bioactive compounds in these herbs, leading to improved formulations. Moreover, studies on the synergistic effects of combining multiple herbs have shown promising results in enhancing therapeutic outcomes. The increasing interest in integrative approaches suggests a shift towards utilizing herbal preparations in dermatology, though more rigorous clinical trials are needed to establish standardized dosages and protocols. This evolving landscape highlights the importance of integrating traditional knowledge with modern scientific research to optimize herbal treatments for skin diseases.

INTRODUCTION

Nowadays, a lot of cosmetics use herbs, and the market for herbal cosmetics is sizable. Cosmetics are items that can be applied to the body to clean it, improve its appearance, enhance one's beauty, and alter one's appearance without altering one's physical characteristics. way it functions or is organized. The word "cosmetic" comes from the

Greek word "kosm tikos," which means to be able to arrange and embellish.[1]

Complex chemical mixes made

from plants, herbal medicines are used extensively in both industrialized and developing nations' healthcare systems. However, their usefulness is restricted because they are poorly absorbed when taken orally.[2]

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There is broad acceptance of herbal formulations as adoptogens, cough treatments, liver illnesses, diabetes, and memory enhancers. The oldest known kind of human medicine is herbal therapy, which uses the whole plant or a portion of it to cure a variety of crippling illnesses.[3] Both the number of novel medications made from plants and the progress of medical understanding continued to grow quickly. India is known as the "Medicinal Garden of the World" because of the vast abundance of therapeutic plants that nature has given us. The use of plants that are mentioned in the Indian Vedas in medicine to cure a variety of illnesses. Nowadays, people all across the world accept and use the traditional medical system. With a number of legally recognized traditional medicinal systems, including Ayurveda, Siddha, Unani, homeopathy, yoga, and naturopathy, India currently occupies a unique position in the globe.[4]

HERBAL COSMETICS' BENEFITS OVER SYNTHATIC:

1) Naturally accessible

Plants that are easily found in nature are used to make herbal cosmetics, which are devoid of any harmful artificial components. The effectiveness of herbal cosmetics derived from naturally occurring plant extracts and components may be comparable to that of manufactured goods such as coconut oil and aloe vera gel. They also include organic ingredients that nourish and beautify the skin, like vitamin C and vitamin E. For instance, aloe vera is a naturally occurring, easily accessible species of herbal plant that belongs to the Liliaceae family.[5]

2) Economical use

The cost of natural cosmetics is not too high. In actuality, a number of these products are less costly than their synthetic counterparts. During sales, they are offered at a discount and sold for a cheap price. To find good deals, all you need to do is survey sufficiently. Due to the adverse side

effects and rising costs of modern medicine, 80% of people globally, according to a WHO estimate, rely on natural products for their medical requirements. The World Health Organization now supports and encourages the use of traditional herbal treatments in natural health care programs because of its accessibility, cost, and relative safety.[6] Medicinal herbs are widely used in developing countries and non-industrialized populations in Africa, Asia, and South America because they are thought to be highly effective, less costly than modern drugs, and readily available. In 2012, it was estimated that the annual worth of the hundreds of plants with suspected medical qualities and traits exported worldwide was 2.2 billion USD. The potential worldwide market for plant medicines and extracts was estimated to be worth several hundred billion dollars in 2017 (Ahn, 2017). The WHO organizes a network to promote the safe and sensible use of medicinal plants, which are threatened by habitat destruction and climate change in general as well as the particular concern of over-collection to satisfy market demand. Many nations have few or no laws governing the use of traditional medicine.[7]

DISADVANTAGES OF HERBAL MEDICINES-

1) Not able to treat sudden illness and accidents

2) Risk with self dosing

3) Difficulty in standardization

HERBAL MEDICINE IN SKIN DISEASES-

The largest organ in the body is thought to be the skin. The body is shielded from pathogens and other environmental pollutants by the many layers of skin. Among the many functions of skin are insulation and temperature regulation. Among the many functions of the skin are insulation and temperature regulation. Numerous issues can arise with the skin. Sores, spots, fissures, oiliness, dryness, scaling, itching, chapping, pimples, and rash are all signs of unhealthy skin. Stress, caffeine



overuse, allergies, elevated copper levels, poor digestion, constipation, poor circulation, inactivity, sun damage, irritant cosmetics, liver dysfunction, air pollution, dehydration, and drug or alcohol addiction are just a few of the many possible causes.[8]

The function of herbal remedies for skin infections-

Since natural remedies are effective against a wide range of infectious disorders, such as tuberculosis, fungal infections, skin infections, cancers, respiratory tract infections, and cardiovascular diseases, they are used and produced in the herbal industries to screen for newer medications that promote human health.[9]

COMMON SKIN PROBLEM-

1) Viral Infection-

These happen when a virus infects the inner layers of the skin after penetrating the stratum corneum. Warts, shingles (herpes zoster), and herpes simplex are examples of viral skin illnesses. The skin may also be impacted by certain systemic viral illnesses, like measles and chicken pox. Antibiotics cannot treat viral illnesses.[11]

2) Fungal Infection:

The skin's surface is constantly covered in innocuous fungus. Infection occurs when these microorganisms enter the body. These conditions include ringworm, athlete's foot, and lock itch, and they usually affect the skin, hair, and nails. However, in people with compromised immune systems or those who have been taking antibiotics for an extended period of time, the fungi may penetrate deeply into the body and result in more severe illness.[12]



**Fig- Fungal Infection In Skin
MEDICINAL PLANTS USED AS
ANTIFUNGAL AND ANTIVIRAL**



1) Coffea arabica-

Synonym- Arabica coffee, Coffee Plant

Family: Rubiaceae

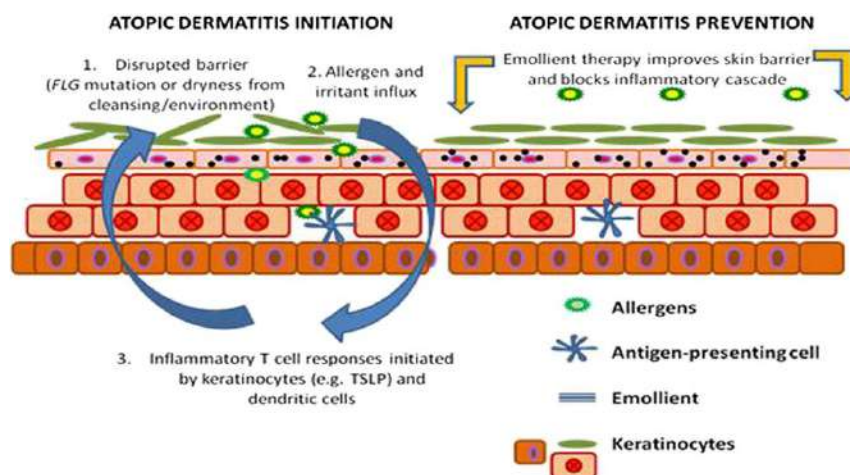
Active Compounds: The primary active compound is caffeine, along with chlorogenic acids, lipids, and proteins.

Caffeine Content: Typically 1-1.5% by weight in roasted beans, lower than Coffea canephora (Robusta).

As a herbal remedy for *C. albicans*, a number of locally available natural compounds proved to be a beneficial substitute. Arabica coffee beans (*Coffea arabica*) and robusta coffee beans (*Coffea canephora*) are the two types of coffee beans. Arabica beans are the most commonly used coffee beans in the world. Arabica coffee is more affordable than robusta coffee due to the abundance and accessibility of Arabica beans.[13,14,15]

MAJOR DISEASES IN SKIN

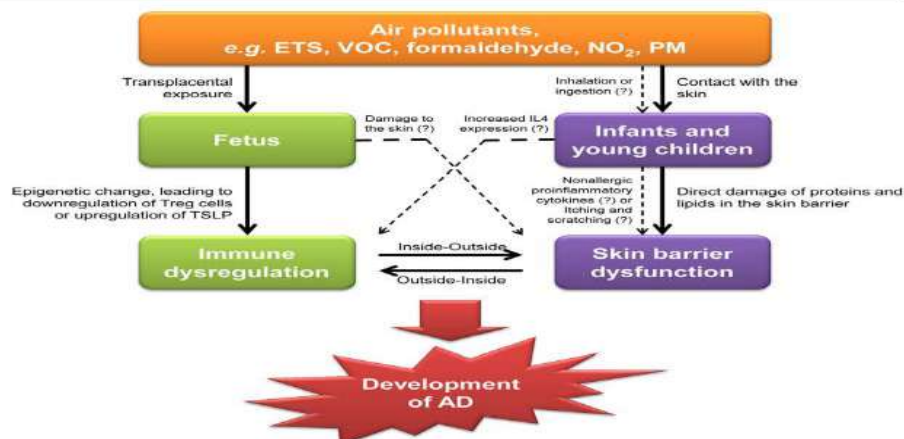
1) Atopic Dermatitis



Ahn (2014) has hypothesized the possible mechanisms by which air pollution may contribute to the development of AD. The author claims that exposure to pollutants during pregnancy through the transplacenta may cause immunological dysregulation because of an increase in the protein thymic stromal lymphopoietin (TSLP) and epigenetic changes, such as a decrease in regulatory T cells. If babies and early children were exposed to various toxins by skin contact or

inhalation, it would damage the proteins and lipids in the skin barrier. Exposure to these pollutants may also have a role in the development of AD by triggering the production of nonallergic proinflammatory cytokines, raising the expression of interleukin-4 (IL-4), and causing skin itching and scratching activity.[16]

DEVELOPMENT AND PREVENTATION OF ATOMIC DERMATITIS



HERBAL MEDICINES IN ATOPIC DERMATITIS

1) Aloe Vera

Family-Asphodelaceae

Acemannan, polysaccharides, minerals, and vitamins A, C, and E are the ingredients that make up gel.

Components of Latex: Aloin is one example of an anthraquinone with laxative qualities.

Aloe vera Aloe vera is well known for its ability to moisturize the skin and maintain the epidermis' water content. It can be applied topically as a cream, gel, or lotion. According to Vazquez et al. (1996), aloe vera has anti-inflammatory qualities and can alter immunological responses in AD by reducing IL-5 or IL-10 levels in NC/Nga mice.

2) Calendula Officinalis (Diaper Dermatitis in Children)-

Common Name: Pot Marigold

Family: Asteraceae

Active Constituents: Flavonoids (e.g., quercetin)
Carotenoids (e.g. lutein), Saponins, Essential oils, Triterpenoids

Newborns and children who wear diapers are susceptible to diaper dermatitis (DD), also referred to as diaper rash. It is used to characterize any abrupt, inflammatory skin eruption that appears in a diapered area. It can be caused by increased skin pH, zinc insufficiency, prolonged exposure to wetness, and allergens, in addition to the direct impacts of using diapers.[17-19]

Traditional medicine has made considerable use of products produced from plants. In order to treat a variety of inflammatory conditions, including dermatitis, researchers have recently investigated the anti-inflammatory properties of herbal medications. Al Waili [24] investigated the therapeutic benefits of a cream composed of honey, olive oil, and beeswax on 12 children with DD, ranging in age from 3 to 18 months. For seven days, children received cream treatments four times a day. Most patients experienced a considerable decrease in DD intensity after day 7. In a different study, 173 kids with DD were used to assess the therapeutic benefits of olive oil.[20]



Fig- Calendula Officinalis

USES:

Calendula, also known as pot marigold or *Calendula officinalis* in Latin, is a plant that has long been used to treat a wide range of skin conditions, infections, and fungi, such as eczema, wounds, diaper rash, and yeast infections. Additionally, the herb has been used to relieve pain and reduce inflammation.

2) Wound healing:

Due to unsanitary settings, wound infections are among the most prevalent illnesses in impoverished nations[21]. Physical injuries known as wounds occur when the skin breaks or opens, or when the epithelial integrity of the skin is compromised. The structure and function of the underlying normal tissue may also be disrupted by these injuries, which can happen as a result of abrasion, hematoma, laceration, or contusion.[22]

HERBS USED IN WOUND HEALING-

1) *Ammannia baccifera* and *Blepharis maderaspatensis*

Common Name: None widely recognized; often referred to as "Red *Ammannia*."

Family: Lythraceae

Active Constituents: Flavonoids, Tannins, Alkaloids, Saponins The erect, glabrous, reddish herb *Ammannia baccifera* L., Lythraceae, also known as "Neermalneruppu" in Tamil, can reach a height of 60 cm. Whole plant extract is used to treat wounds (Vanila et al., 2008). In traditional practice, the leaves were pasted to reduce edema[23]. This study describes the unique properties of the leaf extract from the medicinal plants *A. baccifera* and *B. maderaspatensis* with regard to their capacity to heal wounds.



Fig- Ammannia baccifera



Fig- Blepharis maderaspatensis

3)Skin Cancer

Cancer is a multifaceted disease that manifests a range of genotoxic and oncogenic aberrations that cause it to spread, invade, and metastasize uncontrolled.[24]

Dalton's lymphoma has proven to be a useful model for researching different aspects of cancer growth, signaling pathways, and eventually for drug screening for effective treatment.[25]



Fig-Skin cancer type

There are over 36 main forms of cancer, and 9.6 million people die from them each year. It is predicted to be the world's leading cause of mortality in the twenty-first century and poses a serious threat to global health.[26]

HERBS USED IN SKIN CANCER

1)Mussaenda macrophylla

Synonym- Large-leaved Mussaenda

Family- Rubiaceae

Active Compound-

Flavonoids: Known for their antioxidant and anti-inflammatory properties.

May display a range of biological activity.This plant's constituents have long been used to cure a wide range of ailments, such as cancer, fever,

cough, diarrhea, indigestion, painful mouth, sore throat, and chronic ulcers.[27]

A range of pharmacological characteristics, including hepatoprotective, anti-inflammatory, and anticoagulant effects, have also been reported for *M. macrophylla*.[28]



Fig-Mussaenda macrophylla

1)Sanguinaria canadensis

Synonym- Blood Root

Family- Papaveraceae

Chemical Constituents:

Several physiologically active alkaloids found in the plant's rhizome—known as bloodroot due to its red latex—have been studied as possible therapeutic options.[29]

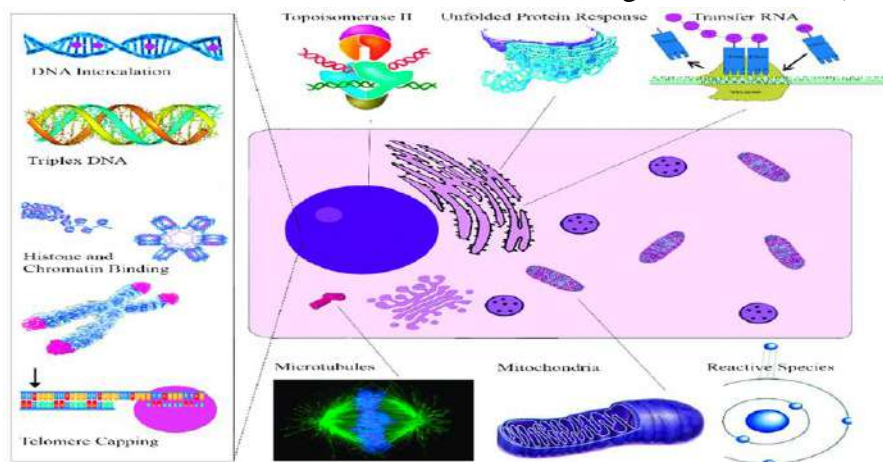
But according to current preclinical research, bloodroot's key ingredient, sanguinarine, appears to be a successful treatment for skin malignancies at micromolar dosages.[30]



Fig- Sanguinaria canadensis

Anticancer Activity

Neovascularization, which encourages the formation of tumors, is another area that sanguinarine targets [146,147]. At nanomolar doses, it inhibits endothelial cell migration, sprouting, and survival brought on by vascular endothelial growth factor A (VEGF-A).[31]



[The cellular targets of sanguinarine. This figure highlights the variety of cellular organelles and molecular processes disrupted by sanguinarine. The only sanguinarine molecules (purple dots) in the diagram are represented in the DNA Intercalation image]

FURTHER APPLICATIONS FOR SANGUINARIA CANADENSIS

- Managing hypertension
- Specific cancer kinds
- Gum and tooth disorders
- The typical cold or flu
- As an expectorant (removing mucus from the respiratory tract)
- As a remedy for lung or sinus infections

- As a treatment for skin conditions like acne, eczema, psoriasis, and warts
- As a means of repairing damaged oral tissue
- As a remedy for headaches, joint pain, nerve pain, nasal problems, and respiratory issues
- As a remedy for a variety of ailments in homeopathic medicine.

4) Scabies

The astigmatid mite that causes scabies, *Sarcoptes scabiei*, sometimes called *Sarcoptes scabiei* or *Sarcoptes scabiei*, burrows into the epidermis and forcefully penetrates the stratum corneum (scabtic mange in human patients) [32]. The disease may also appear in animals as a mild infection. Erythema, scaling, alopecia, and itchy papules are

some of its symptoms. Hyperkeratosis and/or exudative crust development are other chronic manifestations.[33]

HERBS USED IN SCABIES-

1) *Lavandula angustifolia* -

Synonym- Lavender

Family- Lamiaceae

Active Ingrident-

Essential oil is the active ingredient. The primary constituents are camphor, linalyl acetate, and linalool. Phenolic substance: contains additional antioxidants and falvonoids.

Uses:

Adding flavor to food and drink, fragrance component found in cosmetics and soaps, dietary supplement to treat stomach issues, anxiety, depression, and other ailments, topical application (skin contact), Aromatherapy Using herbal remedies to treat symptoms like anxiety and trouble sleeping, Culinary herb, A potpourri Lavender (*Lavandula angustifolia*) essential oil showed an LD50 on *S. scabiei* in 20 minutes at 10%. Linalool and linalyl-acetate are the main ingredients. Linalool had no effect on embryonic development.[34]



Fig- *Lavandula angustifolia*

CONCLUSION-

The recent advancements in herbal medicine for treating skin diseases underscore its potential as a complementary approach to conventional therapies. Research has demonstrated that various herbs possess valuable anti-inflammatory, antimicrobial, and healing properties, effectively addressing conditions such as eczema, psoriasis,

and acne. The application of modern extraction techniques and phytochemical analysis has enhanced the efficacy and bioavailability of these herbal preparations, leading to improved therapeutic outcomes.

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