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## **A Review on the Formulation, Evaluation, and Therapeutic Efficacy of Herbal Face Wash for Skin Care**

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### **Abstract**

This study investigates the creation and assessment of a herbal face wash with the goal of offering a secure, efficient, and environmentally responsible substitute for traditional cleansers based on chemicals. This formulation was created with a combination of natural components, including neem extract, tea tree oil, aloe vera gel, turmeric extract, basil extract, lemon oil, coco glucoside, and distilled water, to provide antibacterial, anti-inflammatory, and skin-nourishing qualities. Because of its proven ability to treat common skin issues like dryness, acne, and excess oil, each component was carefully chosen. The formulation procedure included quality evaluation, pH optimization, and exact

ingredient blending. The product's compatibility for all skin types was ensured by evaluating its physicochemical qualities, which included stability, pH, and viscosity. Antimicrobial testing showed high action against germs that cause acne, including *Escherichia coli* and *Staphylococcus aureus*. The formulation's capacity to cleanse the skin efficiently without over-drying it was further confirmed by analyses of foamability and cleansing effectiveness. User studies revealed the product's efficacy in enhancing skin texture, minimizing acne, and guaranteeing user happiness without discomfort, while stability tests under various settings showed the product's resilience.

**Keywords:** Face Wash, Herbal, Herbal Face Wash, Wash, Skin Care

### **1. Introduction**

A vital component of wellness and personal hygiene is skincare, and the need for safe and efficient products is rising quickly worldwide. Face washes are among the most popular skincare products because of their practicality, simplicity, and ability to effectively cleanse the skin. However, synthetic chemicals, preservatives, and artificial fragrances found in the majority of commercially available face washes can irritate, dry out, and harm skin over time, especially for those with sensitive skin. Consumer preferences for natural and herbal skincare products have changed as a result of growing understanding of these negative consequences. Because they provide a comprehensive approach to skin health, herbal face washes made with plant-based ingredients are becoming more and more popular<sup>[1]</sup>. The antibacterial, anti-inflammatory, antioxidant, and moisturizing qualities of natural substances are utilized in these compositions. They are suitable for frequent use because they are not only gentle on the skin but also helpful in treating typical skin issues including dryness, acne, and excess oil. Additionally, herbal formulations are eco-friendly and biodegradable, supporting the global movement for sustainable and ecologically conscious products<sup>[2]</sup>.

Using a combination of natural ingredients, such as neem extract, tea tree oil, aloe vera gel, turmeric extract, basil extract, lemon oil, coco glucoside, and distilled water, this study aims to create and assess a herbal face wash. Traditional medical systems like Ayurveda have long recognized the medicinal benefits of each of these components. For example, neem is well known for having antibacterial and antifungal qualities, which makes it a powerful weapon against bacteria that cause acne<sup>[2]</sup>. The formulation's capacity to prevent and lessen acne is further enhanced by tea tree oil, a strong antibacterial agent. Because of its calming and hydrating qualities, aloe vera gel is used to keep skin hydrated and avoid inflammation. Rich in curcumin, turmeric extract has anti-inflammatory and antioxidant properties that help skin repair and look radiant. Lemon oil is a natural astringent and brightening agent that reduces excess oil and promotes an even skin tone, while basil extract provides further

antibacterial and antioxidant properties. A mild surfactant made from coconut, coco glucoside, gently cleanses the skin without depleting it of its natural oils. As the foundation, distilled water guarantees a uniform and silky composition [3].

The goal of this study is to develop a herbal face wash that is safe, efficient, and easy to use while addressing common skin concerns without the negative effects of synthetic treatments. The product's formulation, physicochemical characteristics, antibacterial efficacy, and user acceptance are all assessed in this study [4]. The purpose of this project is to show how herbal face washes can be a good substitute for products made of chemicals, providing customers with a natural, sustainable, and all-encompassing skincare option. By combining conventional wisdom with contemporary scientific To make sure the product satisfies quality and safety requirements, parameters like pH, viscosity, stability, foamability, and washing effectiveness are examined. To evaluate the product's performance on different skin types and its overall efficacy in enhancing skin health, user studies are also carried out [4, 5].

## 2. History

Herbal skincare has been used for hundreds of years and is ingrained in many countries' traditional medical systems, including Ayurveda, Traditional Chinese Medicine (TCM), and ancient Egyptian customs. Because of their therapeutic properties in preserving skin health, Ayurveda in ancient India placed a strong emphasis on the usage of herbs like neem, turmeric, and aloe vera. In order to address common skin conditions including acne, dryness, and pigmentation, these components were frequently included to handmade pastes, oils, and cleansers. Similar to this, ancient Egyptians included honey, myrrh, and olive oil in their beauty regimens to both improve their appearance and shield their skin from the abrasive desert environment [5].

Herbal skincare advanced during the Middle Ages and Renaissance when European herbalists and alchemists recorded the qualities of many plants. Because of its calming and fragrant qualities, lavender, chamomile, and rose water were frequently used ingredients in tonics and cleansers. Monks and healers frequently made herbal treatments by fusing their expertise in medicine and botany to produce skincare products. Additionally, methods for extracting essential oils from plants were developed at this time [6], which increased the potential applications of herbal skincare. The production of personal care products began to be dominated by industrialization in the late 19th and early 20th centuries, which resulted in the emergence of synthetic components in skincare products. But in rural areas, where traditional medicines persisted, herbal formulas were still widely used. Growing awareness of the possible negative effects of synthetic chemicals and a greater emphasis on sustainability have contributed to a recent boom in demand for herbal skincare products. In order to create more stable and effective formulas, modern herbal skincare has developed to combine scientific discoveries with traditional wisdom [6, 7]. Herbal compounds like neem, tea tree oil, and turmeric, which are now well known for their antibacterial, anti-inflammatory, and antioxidant qualities, have been adopted by the cosmetics industry. Additionally, customer tastes have changed in favor of cruelty-free and environmentally friendly goods, which is propelling innovation in the herbal skincare industry. Herbal face

cleansers and related products are now praised for their capacity to address a variety of skin types and issues while adhering to ecologically conscious standards [7].

## 3. Disease

With an emphasis on their symptoms and how herbal ingredients might assist control them, here are the top 5 skin conditions that are pertinent to herbal face wash formulations:

**3.1 Acne Vulgaris:** One of the most common skin conditions, acne vulgaris affects people of all ages, but it is especially common in teenagers and young adults. It is mostly brought on by hormonal imbalances, bacterial proliferation, particularly *Propionibacterium acnes*, and excessive sebum production. It is characterized by clogged pores, blackheads, whiteheads, and inflammatory pustules [8]. Tea tree oil and neem, which have strong antibacterial and anti-inflammatory qualities, are used in herbal face cleansers to fight acne by targeting the bacteria that causes it. Turmeric lessens redness and encourages healing, while aloe vera calms inflamed skin. Herbal formulations are a safer option than harsh chemical-based solutions because of these natural ingredients, which effectively wash the skin without removing its natural oils [9].



**Fig 1:** Acne Vulgaris

**3.2 Eczema (Atopic Dermatitis) -** Red, dry, and itchy skin areas that are prone to bleeding and cracking are the hallmarks of eczema, a chronic inflammatory disease. Eczema flare-ups are frequently brought on by environmental allergies, irritants, and genetic predispositions. By adding components like turmeric, which has anti-inflammatory properties that lessen redness and irritation, and aloe vera, which hydrates and soothes dry skin, herbal face cleansers can help manage the symptoms of eczema [8].



**Fig 2:** Eczema

**3.3 Psoriasis:** Rapid skin cell turnover is a hallmark of psoriasis, a chronic inflammatory disease that causes inflammation and thick, scaly plaques. Although it can happen anywhere on the body, this illness frequently affects the scalp, knees, and elbows. For the treatment of psoriasis, neem and turmeric in herbal face cleansers are especially helpful. While turmeric's curcumin content lessens inflammation and scaling, neem's antibacterial and antifungal<sup>[9]</sup>.

**3.4 Rosacea:** Rosacea is a long-term skin disorder that results in tiny, pus-filled pimples, visible blood vessels, and redness on the face. Stress, heat, spicy foods, and alcohol are major triggers. Aloe vera and basil extract, two herbal elements found in face cleansers, have a relaxing effect and can help to lessen inflammation and redness<sup>[9]</sup>. Turmeric helps heal skin and lessen sensitivity by having anti-inflammatory and antioxidant properties. Unlike chemical-laden alternatives, these components work together to cleanse and nourish the skin<sup>[9, 10]</sup>.



**Fig 3:** Rosacea

**3.5 Hyperpigmentation:** Excess melanin production leads to hyperpigmentation, which results in uneven skin tone and dark areas. Common causes include post-inflammatory reactions, hormonal changes, and sun exposure. Lemon oil, a natural astringent and brightening agent, is one element used in herbal face washes to address hyperpigmentation, which helps to lighten dark spots and even out skin tone<sup>[11]</sup>. Turmeric's anti-inflammatory and whitening qualities further increase the formulation's ability to even out the complexion. Antioxidant-rich basil extract shields the skin from the elements, resulting in a more balanced and glowing.

#### **4. Types of Herbal Face Washes:**

The formulation, components, and specific skin issues of herbal face cleansers can be used to categorize them. The main kinds are listed below:

**4.1 Herbal Face Wash for Oily Skin:** A face cleanser that properly manages excess sebum without drying out the skin is necessary for oily skin. Tea tree oil, lemon oil, and neem extract are among the substances used in herbal face cleansers for oily skin. Lemon oil functions as a natural astringent to tighten pores and reduce shine, while neem and tea tree oil have potent antibacterial qualities<sup>[12]</sup>, that target germs that cause acne. These face washes offer a thorough cleansing, eliminating oil and debris accumulation and lowering the risk of blackheads and acne. They are perfect for people who have oily skin and a lot of breakouts<sup>[13]</sup>.

**4.2 Herbal Face Wash for Dry Skin:** A mild, moisturizing

face wash that may restore moisture and reduce flakiness is necessary for dry skin. Aloe vera gel and basil extract are common ingredients in herbal face cleansers for dry skin since they moisturize and nourish the skin. Known for its calming and deeply hydrating qualities, aloe vera soothes irritation and keeps dryness at bay. By adding antioxidant defense, basil extract protects the skin from harm caused by the environment. These formulas are made to leave the skin feeling smooth and soft after a gentle cleansing that preserves the skin's natural oils<sup>[14]</sup>.

**4.3 Herbal Face Wash for Sensitive Skin:** Face washes that are gentle and devoid of harsh ingredients are better for sensitive skin. Aloe vera gel, chamomile extract, and turmeric extract are among the calming elements used in herbal face cleansers for sensitive skin<sup>[14, 15]</sup>. While chamomile lessens redness and irritation, aloe vera moisturizes and soothes the skin. Turmeric promotes a healthy complexion by having anti-inflammatory properties. Coco glucoside and other mild surfactants are used in the formulation of these face washes to guarantee that they cleanse without irritating the skin. They offer a safe, calming skincare solution that is perfect for anyone who are prone to redness, irritation, or allergies to traditional solutions<sup>[16]</sup>.

**4.4 Herbal Face Wash for Acne-Prone Skin:** Skin that is prone to acne needs special attention to fight bacteria and lessen inflammation. Turmeric, tea tree oil, basil extract, and neem extract are added to herbal face cleansers for acne. As natural antibacterials, neem and tea tree oil get rid of bacteria that cause acne and stop breakouts. Together, turmeric and basil reduce inflammation and redness, hastening the healing process of pimples. These face cleansers provide a thorough cleansing, unclogging pores and regulating oil production while preserving the natural equilibrium of the skin<sup>[17]</sup>.

**4.5 Herbal Face Wash for Skin Brightening:** Herbal face washes that brighten the complexion are designed to balance out skin tone, provide radiance, and lessen pigmentation. Papaya enzymes, turmeric extract, and lemon oil are important components. Turmeric's anti-inflammatory qualities aid in reducing pigmentation<sup>[14, 17]</sup> while lemon oil lightens dark spots and gives a natural glow. Dead skin cells are gently exfoliated by papaya enzymes, resulting in a smoother and more radiant complexion. These face cleansers are a great option for daily skincare routines meant to revitalize tired skin because they are perfect for people who want to lessen dullness and attain a natural shine<sup>[18]</sup>.

#### **5. Dosage Forms in Herbal Face Wash:**

##### **5.1 Gel-Based Face Wash:**

**Description:** Gel-based formulations are clear and lightweight, often infused with ingredients like aloe vera, neem extract, and tea tree oil.

**Purpose:** Suitable for oily and acne-prone skin, gel face washes control excess sebum, cleanse pores, and soothe inflammation without over-drying<sup>[1]</sup>.

**Example:** Neem and aloe vera gel-based face wash for acne control.

##### **5.2 Cream-Based Face Wash:**

**Description:** Cream-based formulations are rich and creamy, incorporating hydrating ingredients like aloe vera, turmeric,



and basil <sup>[19]</sup>.

**Purpose:** Ideal for dry and sensitive skin, these face washes provide intense moisturization while cleansing gently, leaving the skin soft and hydrated.

**Example:** Turmeric and basil cream face wash for dry skin.

### 5.3 Foam-Based Face Wash:

**Description:** Foam-based herbal face washes are light and frothy, often containing ingredients like lemon oil, neem, and tea tree oil.

**Purpose:** Best for combination and oily skin types, foam face washes remove dirt and oil effectively, leaving the skin refreshed and clean <sup>[19, 20]</sup>.

**Example:** Lemon and tea tree foam face wash for oil control.

### 5.4 Liquid-Based Face Wash:

**Description:** Liquid herbal face washes are water-like in consistency, enriched with distilled water and essential oils like lemon or basil.

**Purpose:** Suitable for all skin types, especially for daily use, liquid face washes provide a mild yet effective cleanse without stripping the skin of its natural moisture.

**Example:** Basil and lemon liquid face wash for daily cleansing <sup>[21]</sup>.

### 5.5 Powder-Based Face Wash:

**Description:** Powder-based face washes are made from dried herbal extracts such as neem, turmeric, and basil, which are reconstituted with water before use.

**Purpose:** Effective for exfoliation and deep cleansing, powder face washes are particularly good for sensitive and dull skin.

**Example:** Neem and turmeric powder face wash for brightening and exfoliation.

### 5.6 Soap-Free Face Wash:

**Description:** These are soap-free formulations that use natural surfactants like coco glucoside to cleanse without disrupting the skin's pH balance.

**Purpose:** Suitable for sensitive and dry skin, these face washes gently cleanse without irritation.

**Example:** Aloe vera and coco glucoside soap-free face wash for hydration.

## 6. Future Prospects:

Due to rising consumer awareness of natural goods, technological improvements, and a growing emphasis on sustainable living, the future of herbal face cleansers is incredibly bright. Herbal face washes are expected to play a significant role in the global skincare industry as more consumers choose safe and environmentally friendly substitutes for synthetic skincare products. The growing demand for natural and organic skincare products is one of the main factors propelling this expansion <sup>[21]</sup>. Concerns over the negative effects of chemicals like parabens, sulfates, and artificial perfumes included in traditional cosmetics are growing among consumers. Plant-based face cleansers containing neem, aloe vera, turmeric, and tea tree oil are said to be mild and safe substitutes. Their appeal is further increased by the fact that they may treat a variety of skin issues, such as dryness and acne. It is anticipated that the market for herbal face washes <sup>[21, 22]</sup>.

The future of herbal face cleansers is expected to be significantly impacted by developments in formulation

techniques. Products for a range of skin types and disorders are becoming increasingly successful as a result of research into the synergistic effects of combining herbal extracts. Furthermore, technologies like nano-herbal delivery systems are being investigated to improve the effectiveness and penetration of active substances. The global appeal of herbal face washes is also increasing. While traditional systems of medicine, such as Ayurveda and Unani, have long emphasized the benefits of herbs in countries like India and China, the Western world is now embracing these age-old remedies <sup>[23, 24]</sup>. The market for herbal skincare products is growing rapidly in North America, Europe, and other regions, fueled by increased accessibility and education about the benefits of herbal ingredients. This global reach opens new opportunities for manufacturers to diversify and cater to culturally specific skincare routines <sup>[25]</sup>.

## 7. Conclusion:

The use of herbal face cleansers is growing in popularity as customers look for natural substitutes for skincare products that contain chemicals. Due to their gentle yet efficient cleansing qualities, herbal face cleansers manufactured with plant-based ingredients like neem, aloe vera, turmeric, and tea tree oil are becoming more and more popular as people become more conscious of the negative effects of synthetic compounds. These products support an increasing trend toward sustainability in addition to addressing certain skin issues including pigmentation, dryness, and acne. Because of its natural ingredients and ability to effectively address a variety of skin issues, herbal face cleansers are becoming increasingly popular. Herbal face washes provide treatments for dryness, irritation, and acne while fostering healthy skin, which is in line with consumers' increasing desire for environmentally friendly, chemical-free products. Their popularity is further increased by the industry's emphasis on sustainability, ethical sourcing, and cutting-edge formulation techniques including customized skincare and creative delivery methods. Herbal face washes, which combine tradition and contemporary technology to create safe, effective, and ecologically responsible skincare products, are positioned for further expansion as consumer demand for natural skincare continues to climb.

As the global market for herbal skincare grows, brands are investing in eco-friendly packaging and ethical sourcing practices to meet the demands of environmentally conscious consumers. Herbal face washes are now seen as an essential part of holistic skincare routines, offering both effective and eco-friendly solutions to maintain healthy skin. Because they can combine traditional wisdom with modern science, herbal face washes are likely to remain a staple in the skincare industry for years to come. A bright future for herbal face washes is being driven by ongoing innovation in formulation technologies, including personalized skincare options and improved delivery systems.

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