

A Review on Formulation and Evaluation of Herbal Anti- Acne Facewash

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Abstract: Herbal cosmetics are the preparation used to enhance the human appearance. Herbal formulations have significant demand in the global market. It is more acceptable to believe that natural remedies are safer with synthetic subjects than with fewer side effects. The current research works focuses extraction of neem leaves (*Azadirachta indica*), turmeric (*Curcuma longa*), aloe vera, glycerin, lemon juice, rose water and xanthan gum they have anti-acne, antiinflammatory, anti-oxidant properties, with the help of this herbal ingredient developed and evaluates as a herbal antiacne face wash. The face wash showed a multipurpose effect and all these herbal ingredients showed significant different activities. The ingredient uses in herbal face wash having properties softening of skin, remove acne as well as promote healing. The prepared formulation was evaluated based on number of criteria including consistency, pH test, spread ability, stability test, cleansing test, foam ability and grittiness.

Keywords: Herbal drug; Herbal Drug Extract; Anatomy of Skin; Herbal face wash; Anti-Acne

I. INTRODUCTION

Inflammation in hair follicles causes acne, which manifests as a variety of skin imperfections, including blackheads, whiteheads, and pimples. Hormonal fluctuations, germs, dead skin cell accumulation, and excessive oil production are some of the common causes. Acne is typically linked to puberty; however, it can affect people of any age. Treatment options include oral or topical drugs, lifestyle changes, and the adoption of excellent skincare habits.[1] A dermatologist can provide customized guidance for the best results. Increased oil production, bacterial development, hormonal changes, and inflammation are the main reasons of acne, which usually affects the face, chest, shoulders, and back. It can range in intensity from moderate, with a few blemishes, to severe, with painful and widespread eruptions. Changing one's lifestyle, following recommended skincare practices, and occasionally turning to medicine are all necessary for managing and treating acne. Herbal face wash, made with plant-based components instead of harsh chemicals and artificial additions, provide a gentler cleansing choice. Aloe vera, tea tree oil, chamomile, and neem are a few examples of the calming, anti-inflammatory, and antibacterial ingredients they frequently include. Herbal face washes are popular among people looking for natural and possibly less harsh cleaning solutions.[3] The choice of wash should be made depending on the skin type and its sensitivity. Moreover, herbal face wash includes antioxidant and anti-inflammatory qualities that help with skin conditions like acne, redness, and inflammation. Their goal is to nourish and renew the skin through the use of herbal components, resulting in a complexion that is healthier and more beautiful. Many people choose to cleanse their faces with herbal face washes, which preserve the skin's natural oils and promote the health of their skin at its best. For optimal effects, choose a herbal face wash based on your unique skin type and preferences.[2][4][5]

Skin

Despite the fact that you might not consider the skin to be an organ, it is composed of tissues that function as a unified structure to carry out specific and vital tasks. The integumentary system, which includes the skin and its supporting tissues, gives the body general protection. Connective tissue holds the many layers of cells and tissues that make up the skin to the underlying structures. There are many blood vessels in the deeper layer of skin, which is well vascularized.



It also contains a large number of sensory fibers as well as sympathetic and autonomic nerve fibers that facilitate brain-to-brain communication. The three layers of skin are as follows: [6]

- Epidermis
- Dermis
- Subcutaneous (hypodermis)

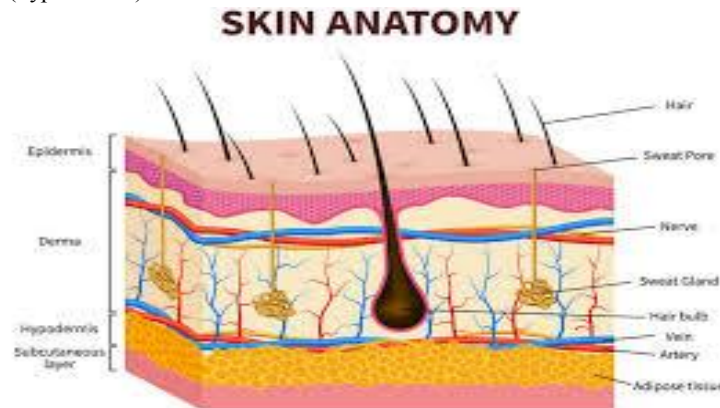


Figure 1 Anatomy of Skin

ACNE

Under the skin's surface, clogged hair follicles cause the widespread skin ailment known as acne. Sebum oil, which keeps the skin from drying out, and dead skin cells clog the pores, causing lesions often known as zits or pimples. Although the face is the most commonly affected location, the back, chest, and shoulders can also have outbreaks. The sebaceous (oil) glands, which are attached to hair follicles that contain fine hairs, become irritated and cause acne. Sebum, which is secreted onto the skin's surface through microscopic pores in the follicles, is produced by these glands in healthy skin. Keratinocytes are a kind of skin cell that lines the follicles. As the body sheds skin cells, keratinocytes normally migrate to the surface of the skin. But in the case of acne, sebum, hair, and keratinocytes build up inside the pore, obstructing sebum from penetrating the skin's surface and inhibiting keratinocyte shedding. Bacteria that often live on the skin are attracted to this buildup, which causes swelling, redness, heat, and pain. Lesions or pimples form when the wall of the clogged follicle bursts, releasing bacteria, skin cells, and oil into the surrounding skin.[10-14]

1.1. Types of acne

Acne is a common condition that causes several types of skin blemishes, each with a distinct appearance and symptoms. Types of acne include whiteheads, blackheads, papules, pustules, cystic acne, and more.

Whiteheads

These are small or flesh-colored spots or bumps. On lighter skin, they usually have a white, circular center surrounded by a red halo. On darker skin, the surrounding area may appear dark or purple-hued.[12]

Blackheads

Blackheads are small, dark-colored spots that may appear as slightly raised bumps. The skin around a blackhead usually appears normal, while the center of the blackhead is darker than the surrounding area

Papules

Coloration is not a result of trapped dirt. Blackheads are simply whiteheads that have opened and widened. When the contents of a whitehead are exposed to air, they darken .Papules are bumps under the skin's surface that are less than 1 centimeter (cm) Trusted Source in diameter. Papules themselves will appear solid, tender, and raised.[18-20]

Pustules (pimples)

Pustules are larger, tender bumps with a defined circular center filled with whitish or yellowish pus. The area around a pustule appears red or pink on light skin and a deep brown or black on darker skin. The pus in the pustule is typically a



combination of immune cells and bacterial cells collected in the blocked pore .Pustules typically look like much larger and more inflamed whiteheads.

Nodules

Nodules are hard, inflamed lumps located deep within the skin. Like papules, nodules have no visible head. Nodules are a severe form of acne blemish and can cause skin complications such as dark spots or scarring. This type of acne lesion develops when clogged pores become infected, and swell beneath the skin surface. Cysts are very large, painful, red or white lumps situated deep in the skin. Unlike nodules, these cysts fill with pus and are typically soft to the touch. Cysts are the most severe type of acne blemish.[25-28]



Face wash

A face wash is a type of facial cleanser that is specifically designed to remove makeup, dirt, oil, dead skin cells, and other impurities from the skin of the face. This helps to unclog pores and prevent skin conditions such as acne, leaving the skin feeling clean and refreshed. A face wash is typically used as part of a daily skincare routine, along with a toner and moisturizer.

Objectives

- To formulate and evaluate herbal anti-acne face wash
- To treat acne, pimples and to help make skin clear and healthy.
- To remove excess oil without removing nutrients from the skin.
- To make skin soft and remove dead skin.

Advantages of face wash

- Helps keep skin clear and healthy.
- It makes the skin radiant.
- The combination of dead skin cells and excess oil can clog pores, causing Acne, white heads, black heads and a tired appearance.
- Regular pore exfoliation prevents all of the above skin problems.
- Exfoliation accelerates the blood circulation.
- It helps to remove dead skin cells and helps new skin cells replace old ones.
- Promotes skin regeneration and rejuvenation.

Properties of face wash

- Oily skin requires cleansers with herbs and botanical which will clean the Pores and reduce oil
- A good face wash should be stable and have a pleasant appearance.
- The face wash should soften on application to the skin, making it easy to spread.
- The face wash should spread easily on the skin without dragging or feeling oily or greasy.
- After the water has evaporated, the residue of the face wash should not become viscous.



- The physical action of the face wash should be that of flushing the skin and opening pores, rather than absorbing into the skin.

II. MATERIALS

List of ingredients

| Sr. No. | Ingredients | Uses |
|---------|-------------------------------------|---|
| 1 | Neem leaves (Azadirachta indica) | Antibacterial, anti-fungal, anti-inflammatory, antiseptic and highly beneficial for oily and acne prone skin. |
| 2 | Turmeric (Curcuma longa) | Antibacterial, antifungal and It protects the skin from many skin infections and also adds glow to the face |
| 3 | Nutmeg seed (Myristica fragrance) | Nutmeg seed (Myristica fragrance) |
| 4 | Liquorice root (Glycyrrhiza glabra) | Delivers valuable soothing properties to the skin. Highly rejuvenating and nutritive qualities are attributed to it. |
| 5 | Honey | Light humectant and nutrient used as a thickening agent to give body to facial masks, creams and lotions |
| 6 | Shahi jeera | As perfume. |
| 7 | Walnut | Scrubbing action of walnut granules helps break up The mild oil deposits and clear away dead skin cells and debris |
| 8 | Rose water | Used as solvent; it also has antibacterial and antiseptic properties which eventually cure acne |
| 9 | Orange peel extract | Anti-oxidant, anti-inflammatory, anti-microbial Orange-peel properties can maintain the natural balance of skin oils and tighten the skin by absorbing excess oils and removing dead skin cells |
| 10 | Lemon juice | To lighten skin and reduce blemish marks on the skin. It also quite effective for treating acne and pimples. as a natural pH adjuster in cosmetics |
| 11 | Xanthan Gum | A gum produced by the pure culture fermentation of a carbohydrate also called Corn Sugar Gum. It is used as a non-toxic thickener and stabilizer |

III. METHOD

Soxhlet extraction method:

To start, add the recommended amount of xanthan gum to some warm rose water, then let it soak for the entire night. After that, add enough honey, a few squeezes of lemon juice, glycerin, and fresh aloe vera to the blend. Next, add as much herbal extract as you would like, then enough soap, and blend until well combined.

IV. EVALUATION PARAMETER

Physical Evaluation

The physical assessment includes the following examinations:

- Color
- Odor
- Consistency

Washability

The herbal face wash is applied to the face and then promptly rinsed off with water, followed by personal examination.



pH test

Use a pH meter to find the herbal face wash's pH by doing the following steps:

- Turn the pH meter's digital on.
- Use standard water to calibrate the meter.
- Measure the pH of a 1% aqueous solution of the formulation using the calibrated digital pH meter, making sure the temperature stays constant.

Irritancy Test

To make sure skincare products don't create negative responses, irritability testing are essential. The left hand's dorsal surface receives a square centimeter of the face wash in this test, which is then left for one to two hours to be monitored.

Grittiness Test

The grittiness test determines if there are any gritty particles present in the formulation. Application of the herbal face wash to the skin is conducted to check for the presence of gritty particles, with results indicating the absence of any.

Foaming Test

A tiny amount of the prepared herbal face wash is applied to the face in the foaming test to gauge how well it foams. After then, the application is left to interact with water to watch foam development.

Spreadability

By sandwiching about 500 mg of the cream between two slides, spreadability is evaluated. The upper slide is fastened with a non-flexible rope, excess formulation is adjusted, and the top slide is weighted with a 100g load. Concurrently, the lower slide is fastened to the apparatus's board and filled with 20g of weight. Next, the duration of time required for the upper slide to slide off is recorded.

V. CONCLUSION

Herbal face wash formulations were developed and assessed for this study, with an emphasis on physicochemical properties including color, scent, taste, pH level, spreadability, grittiness, consistency, and washability. Herbal components like tulsi, rosemary, aloe vera, lemon juice, rose water, and neem, which is well-known for its antibacterial and analgesic qualities were included in the formulations. According to evaluation results, all parameters colour, fragrance, texture, pH balance, spreadability, risibility, and grittiness were performed satisfactorily. The results indicate that the herbal face wash formulation is more effective than commercially available alternatives. Because every ingredient in this composition is herbal, it is considered safe and reliable for skincare.

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