



FORMULATION AND EVALUATION OF HERBAL ANTI-ACNE FACE WASH

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ABSTRACT:

Natural remedies are more widely accepted due to the belief that they are safer and have less side effects than manufactured ones. The global market has a considerable need for herbal formulations. The current study focuses on aqueous extracts of lemon, aloe vera, turmeric (*Curcuma longa*), and neem leaves (*Azadirachta indica*). Juice, xanthan gum, peppermint oil, and rose water were created and tested as a natural face cleanser to treat acne. While there are a number of topical herbal remedies available for acne, we advise creating a pure herbal mixture devoid of any artificial substances. Published findings indicate that the plants possess good anti-microbial, antioxidant, and anti-inflammatory capabilities. To get ready for the various According to the assessment studies, the created formulations passed tests with acceptable results for spreadability, washability, pH, consistency, color, fragrance, and grittiness. The effort at a herbal face wash using neem leaves, turmeric, and aloe vera in an aqueous extract proved to be fairly successful.

Key Words: , Aloe vera, Acne, Herbal ingredients

INTRODUCTION

The most prevalent skin condition (piloosebaceous unit) that affects almost everyone at some point in their lives is acne vulgaris. Acne is most common in teenagers, but it also affects a significant portion of men and women in their 20s and 30s. One could categorize acne as comedonal, widespread, nodular, pustular, and cystic. Comedone acne is classified into two types: blackheads and whiteheads, and it is non-inflammatory. While blackheads (open comedo) appear as open pores holding dark-colored skin roughage made up of melanin, sebum, and follicular cells, white heads (closed comedo) appear as fresh or white-colored, raised lumps. Papules are red, solid, elevated lesions that are usually smaller than 5 millimeters in diameter. On the other hand, papules are skin elevations that are surrounded by purulent material.

Regulate the secretion of sebum.

- b) Antibiotics that suppress the primary acne-causing bacteria, *Propionibacterium acne* & *Staphylococcus epidermidis*.
- c) Keratolytic, which eliminates the keratin layer and stops sebum from being trapped beneath the skin.
- d) Anti-inflammatory: Prevents the problem from getting worse because it reduces redness, irritation, etc.

For the treatment of acne, a wide range of formulations with active pharmaceutical components are available on the market. The following topical preparations are obtainable on the market: Gel, Cream, Lotion, Cleanser or Face Wash, Mask or face pack. Due to the anti-microbial, anti-inflammatory, and anti-oxidant properties of its various chemical ingredients, nutmeg (*Myristica scent*, *Myristicaceae*), turmeric (*Curcuma longa*), and neem (*Azadirachta indica*, *Meliaceae*) are said to have a highly positive effect on acne.

TYPES OF ACNE

Whiteheads

Whiteheads, sometimes referred to as "closed comedones," are among the most common types of acne. They usually have a yellowish or skin-tone hue and manifest as small to medium-sized pimples on the skin.

When a pore fills with a mixture of sebum and dead skin cells, whiteheads appear. A layer of skin forms over this plugged pore, and pus forms inside. The whitehead's white look is caused by this pus.

Blackheads

Blackheads, also known as "open comedones," acquire their name from the dark blotches they leave on your skin. Blackheads are brought on by clogged pores, just as whiteheads. Those plugs of oil and skin cells are exposed to the air, unlike whiteheads. When the clogs come into touch with oxygen, they change color and take on a dark appearance.

Papules

The large, red pimples that most of us associate with "normal" outbreaks are known as acne papules. Pustules form when your pores are clogged with dead skin cells and excess oil, just like other acne lesions. As pressure builds up inside the clogged pore, it may burst, releasing unpleasant substances into the skin around it.

Pustules

In essence, pustules are papules that get inflamed when your immune system attacks. The red pimples turn into a bloated white or yellow crown, which gives pustules the appearance of a traditional pimple.

Uncertain if that is a whitehead or a pustule? Inflammation causes pustules to expand and get red around them. Whiteheads should be less painful and red since they are not inflammatory lesions.

Nodules

Acne nodules are more severe and might be challenging to treat. Though they resemble papules in appearance, they originate deeper in your skin's layers, making them difficult to cure and almost impossible to burst.

Nodules resemble skin-colored or red lumps and do not have a head like pustules or whiteheads do. They are painful to the touch and have a hard feel.

Cysts

Another severe type of acne that develops well below the skin's surface is cystic acne. Cysts resemble deep red lumps similar to nodules. On the other hand, cysts feel soft to the touch and are filled with pus or other liquids, unlike nodules. They can be extremely painful and sensitive in any case.

On the face, jawline, or even as bacne, cystic acne is frequently seen. Cysts are an especially tenacious type of breakout that can last for weeks or even months. They are typically brought on by the regular trinity of dead skin, excess oil, and bacteria.

Milia

To be honest, milia, also referred to as "milia seeds," aren't strictly speaking considered to be acne. However, since they can be mistaken for pimples, you should be aware of them if you're attempting to figure out what the mysterious blemish is.

Milia are small, light bumps that typically appear around your nose, cheeks, and eyes. They are technically microscopic cysts. Keratin deposits or trapped skin flakes are the source of them. The protein called keratin is what keeps your skin, hair, and nails healthy. However, it causes hard pimples to grow when it gets lodged beneath your skin.

NEEDS & OBJECTIVE

Need for Herbal Acne Face Wash

1. Many people have acne, a common skin ailment that is especially prevalent in young adults and teenagers. It is typified by skin irritation, blackheads, whiteheads, and pimples, which can be uncomfortable and have an impact on one's self-esteem. The following factors make an efficacious acne treatment necessary:
2. Prevalence: Millions of people search for ways to reduce the symptoms of acne and enhance the appearance of their skin because it is a common ailment.
3. Synthetic Product Side Effects: A number of traditional acne treatments can cause side effects like peeling, redness, dryness, and increased sun sensitivity. As a result, there is an increasing need for natural alternatives that reduce negative effects.

4. Holistic Approach: Using plant-based substances that have been traditionally utilized for their medicinal characteristics, herbal acne face cleansers offer a holistic approach to acne treatment. These solutions are designed to gently care for the skin while addressing the root causes of acne.

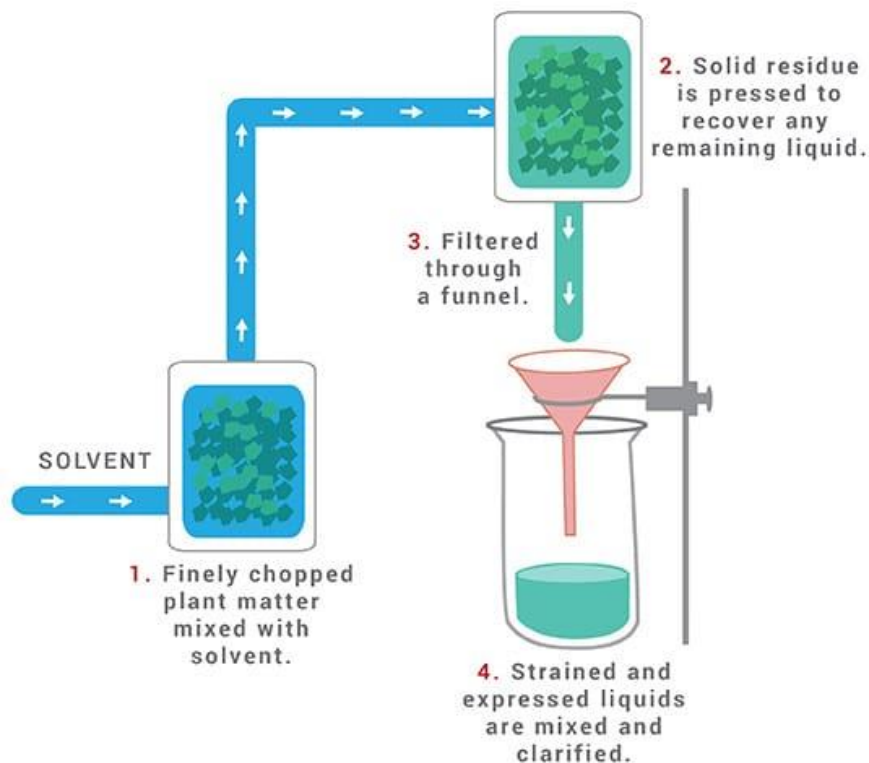
Objectives of Herbal Acne Face Wash

The formulation of a herbal acne face wash aims to achieve the following objectives:

1. **Cleansing and Exfoliation:** Herbal face washes should effectively cleanse the skin by removing dirt, excess oil, and impurities that contribute to acne formation. The inclusion of exfoliating ingredients helps to gently slough off dead skin cells, unclog pores, and prevent the buildup of sebum.
2. **Inflammation Reduction:** Anti-inflammatory herbal components help reduce acne-related redness and soothe irritated skin. This goal is essential for reducing discomfort and accelerating the healing process.
3. **Antimicrobial Action:** The growth of bacteria on the skin is frequently the cause of acne. Ingredients with antimicrobial qualities should be included in herbal acne face washes in order to inhibit the growth of germs that cause acne and lessen the frequency and intensity of breakouts.
4. **Oil Control:** The development of acne is a result of excessive sebum production. The goal of herbal face washes should be to control oil production without dehydrating the skin in order to preserve a balanced pH and lower the risk of clogged pores.
5. **Skin Nourishment and Hydration:** Known for their hydrating and nourishing qualities, herbal substances support the healing of acne lesions, strengthen the resilience of the skin, and preserve skin health.
6. **Safety and Gentleness:** Herbal face washes for acne should be kind to the skin, staying away from strong chemicals and anything that might aggravate acne symptoms. The goal is to offer a calming and non-irritating formula that is appropriate for people with sensitive skin or skin prone to acne.

Herbal acne face washes help people achieve these goals by treating acne naturally and comprehensively, resulting in skin that is clearer, healthier, and more balanced.

METHODS



MACERATION PROCESS

Herbal ingredients are usually soaked in water or a carrier oil during the maceration process of a herbal anti-acne face wash in order to extract their therapeutic qualities. This is a broad summary:

1. Select the ingredients for your herbal blend: Choose herbs like neem, tea tree, lavender, and witch hazel that are known to have anti-acne qualities.
2. Get the herbs ready. To aid in extraction, slice or crush the herbs to maximize their surface area.
3. Choose a carrier: If you want a water-based product, you can use water or a carrier oil like olive or jojoba.

PROCEDURE

1. COLLECTION:- We gathered aloe vera from the backyard. We gathered rosewater, rose oil, orange peel, licorice root, and nutmeg fruits from the neighborhood market.

2. PREPARATION OF EXTRACT

Licorice roots, turmeric rhizomes, and orange peel were dried at 45 degrees Celsius in a hot air oven before being ground into tiny pieces with a coffee grinder. Nutmeg seeds were ground and made into a powder. The desired amounts of herbal medications were weighed, and in a conical flask, each plant was macerated with rose water. For three days in a row, the dried herbs were mixed with rose water by gently shaking the conical flask. Following three days, the contents were removed using a straightforward filtration technique, and the filtrates were gathered in different vessels.

3. FILTRATION

Two rounds of basic filter paper and funnel filtering were used to filter the extract.

4. EVAPORATION

An electronic water bath was used for the evaporation process. In an evaporating pan set at 60 degrees Celsius, filtrates were left to evaporate until the extract reached the required concentration.

5. DEVELOPMENT OF FORMULATION

Different batches of formulations were made in accordance with Table 1. Accurately weighing the required concentration of the gelling ingredient, xanthium gum, was then mixed with moderate stirring in hot rose water (not to exceed 60°C; 50% of the batch size). allowing to soak overnight and avoiding air entrapment. After carefully whisking in the necessary amount of honey, the desired amount of lemon juice was dissolved. The desired amount of concentrated herbal extracts was added to the leftover rose water, and the mixture with the honey above was gently stirred.

EVALUATION

Physical evaluation :

Physical parameters such as colour, appearance & consistency were checked visually.

1. **Washability :** After applying formulations to the skin, the degree and ease of water washing were physically assessed.
2. **Ph :-** A calibrated digital pH meter was used to test the pH of a 1% aqueous solution of the formulation at a constant temperature.
3. **Spreadability :** The term "spreadability" refers to how easily the gel spreads across the skin or afflicted area after being applied. The spreading value of a gel formulation affects its bioavailability efficiency as well. The spreadability is measured in terms of the number of seconds it takes for two slides separated by gel under a specific load to separate from one another. Better spreadability results from a shorter gap period between two slides. Standard-sized glass slides were taken in two sets. Over one of the slides was the formulation for the herbal gel. The other slide was positioned over the gel so that a space of six centimeters was occupied by the gel sandwiched between the two slides.

Spreadability was calculated by using the following formula.

$S = \frac{MX}{T}$

S-Spreadability

M-Weight tied to the upper slide (20gm).

L-Length of the glass (6.5cm).

T-Time in sec.

Sr. No.	Ingredients	Quantity taken for 10 gm gel				
		F1	F2	F3	F4	F5
1.	Aloe Vera	0.5 ml	0.5 ml	0.5 ml	0.5 ml	0.5 ml
2.	Turmeric Extract	0.2. ml	0.25 ml	0.5 ml	0.2 ml	0.2 ml
3.	Nutmeg Extract	0.5 ml	0.25 ml		0.25 ml	0.25 ml
4.	Orange Peel Extract	0.1 ml	0.1 ml	0.1 ml	0.1 ml	0.1 ml
5.	Liquorice Extract	0.25 ml	0.25 ml	0.25 ml	0.25 ml	0.25 ml
6.	Rose Oil	0.1 ml	0.1 ml	0.1 ml	0.1 ml	0.1 ml
7.	Lemon Juice Etract	0.1 ml	0.1 ml	0.1 ml	0.1 ml	0.1 ml
8.	Honey	0.5 ml	0.5 ml	o.5 ml	0.5 ml	0.5 ml
9.	Xanthan Gum	0.05 g	0.15 g	0.15 g	0.02 g	0.01 g
10.	Exfoliating Walnut Granules	q. s.	q. s.	q. s.	q. s.	q. s.
11.	Rose Water	q. s.	q. s.	q. s.	q. s.	q. s.

RESULT AND DISCUSSION

The formulation's evaluation results showed that it was green in color. The consistency of Formulations F1, F2, F3, and F4 was determined to be semisolid. It was discovered that every composition was uniform and easily washable. Every formulation had a pH that was somewhat alkaline, in line with the typical physiology of the skin.

Colur	Green
Consistancy	Semi-solid
Washability	Good
pH	5.3

Spreadability	5.416 gm.cm/sec
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Out of all the formulation batches, the spreadability of F1, F2, and FS was highly optimal. Comparatively speaking, F2 formulation batches had greater spreadability than F1, F3, F4, and FS formulation batches. Additionally, it was discovered that the parameters of the F2 batch produced findings that were comparable to those of the marketed formulation; as a result, the F2 batch was approved.

CONCLUSION

Because natural medicines are thought to be safer and have less adverse effects than synthetic ones, they are more widely accepted. The demand for herbal formulations is rising on the global market. The effort to create a herbal face wash with aqueous extracts of liquorice root, nutmeg seed, and turmeric rhizomes is excellent.

This investigation showed that batch F2's created herbal formulation performed comparably well to other formulations.

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