



“FORMULATION AND EVALUATION OF HERBAL ANTI -ACNE FACE WASH”

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ABSTRACT :

The perception that natural medicines are safer and have fewer negative effects than synthetic ones makes them more popular. Global demand for herbal formulations is rising. This work focuses on creating and assessing a herbal face wash that fights acne. It contains aqueous extracts of neem leaves (*Azadirachta Indica*), turmeric (*Curcuma Longa*), liquorice root, shahi jeera, orange peel extract, and nutmeg fruit (*Myristica Fragrance*). When oil cells become clogged, acne is the most prevalent chronic inflammatory illness. While there are many topical herbal formulations for acne on the market, our proposal is to create a pure polyherbal formulation. The plants' strong antibacterial, antioxidant, and anti-inflammatory properties have been documented in the literature. A number of factors, including spreadability, pH, color, look, and consistency, were assessed for each recipe. The commercial preparation and the optimized formulation batch were contrasted. Batch F2 was determined to be the most optimal for all parameters out of all the formulation studies. The attempt to create a herbal face wash with neem leaf, turmeric rhizome, and nutmeg fruit extract proved excellent.

KEYWORDS: Neem, Xanthan gum, Poly Herbal, herbal ingredients anti-acne face wash.

INTRODUCTION

The world's oldest medical system is most likely India's natural medication industry. Herbs have been used for medicinal purposes in ancient India for so long that the Vedas, an Indian sacred text, make reference to this ancient herbal therapy. Ayurvedic and Unani herbal medicine are age-old systems of healing that use natural products and herbs to treat ailments. The majority of recommended medications still contain plant extracts, despite the fact that herbal remedies seem novel to western healers and medical professionals. Currently, many nations value this traditional therapy, and the demand for Indian herbal medications has led to their rapid expansion and nearly thirty percent rise. The demand for herbal remedies, skin care products, and even cosmetics has increased significantly on a global scale in recent years.

As the most pathogen-exposed area of our body, our skin has to be protected from skin conditions, particularly those brought on by bacteria that cause acne. 85% of kids today report that acne is their most prevalent skin condition. The areas with the greatest oil glands, such as the face and neck, are primarily affected, and they may persist into adulthood. Propionibacterium acnes, Staphylococcus epidermidis, and Malassezia furfur are among the bacteria that live in the follicles of acne sufferers, as well as comedones, excessive sebum production, and seborrhea. Therefore, treating acne may involve targeting these germs.

ACNE

A condition of the oil glands (sebaceous glands) and hair follicles termed acne. Sebum, or oil, is secreted by the sebaceous glands to maintain the skin's moisture content. Cysts and pimples may result from clogged glands. Acne is a frequent condition. Acne affects people of all ages and ethnicities. Actually, it will have an impact on the majority of Americans between the ages of 11 and 30. Acne can affect persons in their 40s and 50s as well. But puberty is when acne usually starts. Both boys and girls have a rise in the male sex hormones, or androgens, during puberty. The sebaceous glands produce more oil as a result.

Various Types of Acne:

1] Acne Rosacea

A disorder that results in facial redness and frequently little red pimples packed with pus. Women in their mid-ages are most typically affected by rosacea. Rosacea tends to appear in stages and irritates the skin of the face, particularly the chin, nose, foreheads, and cheeks.

2] Acne Vulgaris

It is the most prevalent type of acne, typically affecting individuals between adolescence and early adulthood. Seborrhea, comedones, nodules, papules, pustules, and cysts are some of the common skin conditions associated with acne vulgaris. It happens on the skin's high-hair growth regions, which include the face, back, legs, and upper chest. Sebaceous glands get blocked and diseased. There are several types of acne: nodular, pustular, cystic, comedonal, and popular. Comedones 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 raised, firm, red lesions that are frequently smaller than 5 mm in diameter. Pustules are confined skin elevations filled with purulent substance.

Novel concepts, such as variations in target cell sensitivity, biological markers, neuro-endocrine, genetic, and environmental variables, have emerged to assist better understand its pathophysiology. Numerous synthetic and herbal substances have been shown to have remarkably positive effects on acne vulgaris. They might use distinct mechanisms, such as

- a) Prevent the secretion of sebum.
- b) Antibiotics that suppress the primary acne-causing bacteria.
- c) Keratolytic, which eliminates the keratin layer and stops sebum from being trapped beneath the skin.
- d) Anti-inflammatory: This keeps the problem from getting worse because it reduces redness, inflammation, etc.

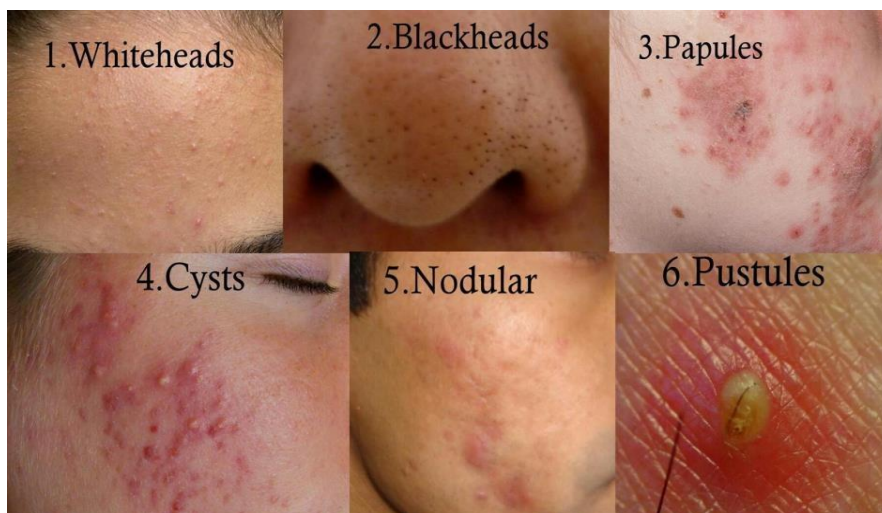
ACNE-SYMPTOMS

It typically appears on the shoulders, chest, back, neck, and face. The most common look of pimples in cases of acne is either black or white. The most common forms of acne are blackheads and whiteheads, though other lesions can also appear.

Symptoms of acne;

In general, there are six main forms of acne: -

1. **Whiteheads (non-inflammatory)**
2. **Blackheads (non-inflammatory)**
3. **Papules (Inflammatory)**
4. **Pustules (Inflammatory)**
5. **Nodules (Inflammatory)**
6. **Cystic Lesions (Inflammatory)**



ACNE-CAUSES

- As a result of pregnancy or puberty-related hormonal changes.
- Some prescription drugs, including corticosteroids and birth control tablets.
- A diet heavy in refined carbs or sugars, such as those found in bread and chips.
- A woman's hormone levels changing during her menstrual cycle.
- Acne can sometimes be aggravated by or result from genetics.

The following things contribute to acne:

- An excessive output of oil.
- Bacterial contamination.
- Sedentary lifestyles or unhealthy eating patterns.
- Hormonal fluctuations.

Anti-Acne Facewash

A combination of vital components, anti-acne face wash is mainly used to treat skin conditions like mild to moderate acne. It also helps to treat various facial issues like pimples, facial bumps, and aggressive acne as well as lowering the frequency of breakouts. Deeper facial washing and subsequent deep purification are achieved with the use of anti-acne face washes. Additionally, the face wash helps to smooth, soften, and gentleness of the skin. It works by lessening the quantity of bacteria that cause acne on the skin, leaving it clear, healthy, and radiant.

Action of Face Wash

1. Eliminating dead cells.
2. Skin cell rejuvenation reduces stress.
3. Eliminates contaminants, oil, and grime.
4. Decreases the skin's microbiological flora Keep skin feeling clean and breathable.

Advantages of Anti Acne face wash;

- 1.They completely lessen dryness and damage to the skin, and they have negligible or no negative effects.
- 2.Treating skin irritation with the semi-synthetic face cleanser is highly effective.
3. They don't include any artificial or dangerous ingredients.
4. Additionally, they supply nourishment to every type of skin.
5. Preserves facial freshness by reducing excessive oil production
6. Lightens scars and stops acne and blackheads.
7. Removes pollutants from the pores' interior.
8. Expect a more radiant complexion and luminosity with regular usage.
9. Hydrates and revitalizes sallow, worn-out skin
10. Free of toxic chemicals
11. Absence of mineral oil
12. Both men and women can use it.

Disadvantages of Anti Acne face wash

- 1.Apart from having colors and fragrances that can aggravate and worsen acne
- 2.Occasionally, using too much harshness can cause the skin to become overly dry, which in turn causes the oil glands to overcompensate, resulting in an accumulation of more oil on the skin's surface.

Characteristics of Face Wash

- It should be stable and have a nice appearance.
- Upon application to the skin, it is expected to have a softening effect.
- It ought to spread without dragging at all.
- It is important that the creamy residue not get thick when the water evaporates.
- There shouldn't be any oiliness when applying.

HERBAL COMPONENT PROFILE

- NEEM** (Azadirachta

Indica)

- Kingdom **Plantae**
- Division** Magnoliophyta
- Class** Magnoliophyta
- Order** Spindale
- Family** Meliaceae
- Genus** Azadirachta
- Species** A.Indica
- Chemical constituents** Nimbinn, Nimbidin, Quercetin.



Neem

- "Skin toner is utilized to lighten skin blemishes and remove blackheads."

TURMERIC (*Curcuma Longa*)

Kingdom Plantae

- **Division** Magnoliophyta
- **Class** Liliopsida
- **Order** Zingiberales
- **Family** Zingiberaceae
- **Genus** Curcuma

Species C. Longa

- **Chemical constituents** Curcumin, Curcuminoids
- **Uses** Reduce acne, Glowing skin, Lightens skin.



Turmeric

NUTMEG (*Myristica Fragranse*)

Kingdom Plantae

- **Division** Magnoliophyta
- **Class** Magnoliopsida
- **Order** Magnoliales
- **Family** Myristicaceae
- **Genus** Myristica Gronov
- **Species** Miristica Fragranse

- **Chemical constituents** Sabinene, 4-terpinol, Myristicin
- **Uses** This sentence could be rephrased as: "It tackles oily skin, enhances skin's youthful appearance, and serves as a natural toning cleanser."



Nutmeg

Nutmeg

LIQUORICE (Glycyrrhiza Glabra)**Kingdom** Plantae**Division** Magnoliopsida **Class** Magnoliopsida **Order** Fabales **Family** Fabaceae **Genus** Glycyrrhiza **Species** G. Glabra**Liquorice**

- Uses** Protects against sun damage, enhances skin brightness, diminishes scars, and addresses wrinkles.

ORANGE PEEL (Citrus Sinensis)**Kingdom** Plantae **Division** Magnoliophyte **Class** Magnoliopsida **Order** Spindale's **Family** Rosacea **Genus** Citrus **Species** Citrus Sinensis**Orange peel**

- The chemical composition** includes pectin, cellulose, and hemicellulose, with low protein content.
- It clears the skin**, exfoliates dead cells, brightens complexion, reverses aging effects, and heals acne.

MATERIALS:

| Sr No. | Materials |
|--------|--|
| 1. | Neem leaves (Azadirachta indica) |
| 2. | Turmeric (Curcuma longa) |
| 3. | Nutmeg seed (Myristica fragrance) |
| 4. | Liquorice root (Glycyrrhiza glabra) |
| 5. | Honey |
| 6. | Shahi jeera |
| 7. | Lemon juice |
| 8. | Carbopol |
| 9. | Orange peel extract |
| 10. | Rose water |

EQUIPMENT :

| Sr. No | Equipment's |
|--------|--------------------|
| 1 | Digital balance |
| 2 | pH Meter |
| 3 | Magnetic Stirrer |
| 4 | Digital water bath |

METHOD OF PREPARATION

1. Collection

Neem leaves were gathered from the nearby locality. Fruit of nutmeg, orange peel, liquorice root, turmeric root, rosewater, honey, Shahi Jeera, were collected from the local area.

2. Preparation of Extract

Neem leaves, turmeric rhizomes, liquorice roots, and orange peel were all placed in a hot air oven set at 45°C for the aim of grinding them into tiny bits using a coffee grinder. To manufacture a powder, nutmeg and Shahi Jeera (cumin) seeds were mashed.

- Weighing the desired amounts of herbal medications, each herb was macerated in a conical flask with rose water.

- Separately, for three days, dried herbs and rose water were mixed by gently shaking a conical flask.
- After three days, the contents were removed using a straightforward filtration technique, and the filtrates were gathered in different vessels.

3. Filtration

The extract was filtered twice using a simple filter paper and funnel.

4. Evaporation

The evaporation process was conducted utilizing a water bath for assistance. Filtrates were allowed to evaporate in evaporating pan at 60° temperatures until the desired concentration of the extract was obtained.

5. Development of Formulation

The appropriate concentration of Carbopol, the gelling ingredient, measured precisely, mixed with moderate stirring, and dissolved in hot rose water (not hotter than 60°C, 50% of the batch weight).

- With a gentle swirl, the necessary amount of lemon juice was dissolved in the desired amount of honey.

- After adding the desired amount of concentrated herbal extract to the leftover rose water and gently stirring, the mixture was combined with the honey mentioned earlier and combined with the previously prepared soaked gel formulation.

prepared formulations that have been labeled appropriately and placed into an appropriate container.

EVALUATION:

1) Physical Appearance

Visually checked the physical appearance of the formulation.

Colour: The colour of the formulation was checked out against a white background.

Odour: The odour of the face washes was checked manually.

2) Consistency

The skin was evaluated for consistency by applying it.

3) Ph

Using a calibrated digital pH meter at a constant temperature, the pH of the formulation's 1% aqueous solution was measured.

4) Greasiness

The greasiness was assessed by directly applying on to the skin.

5) Washability

After applying the product to the hand, it was observed while running water was applied.

6) Foamability

A small quantity of gel was placed into a beaker filled with water. The initial volume was recorded, and the beaker was shaken ten times before the final volume was measured.

Foamability was also assessed by applying the gel to the skin in contact with water.

7) Accelerated Stability Studies

Accelerated stability testing of prepared formulation was conducted for most stable formulation at room temperature studied for 7 days.

RESULT :

| Sr.No. | Parameters | Observation | | |
|--------|-----------------|--------------------|--------------------|--------------------|
| | | F1 | F2 | F3 |
| 1 | Color | Lemon Yellow | Lemon Yellow | Lemon Yellow |
| 2 | Odour | Characteristic | Characteristic | Characteristic |
| 3 | Nature | Semisolid | Semisolid | Semisolid |
| 4 | Consistency | Smooth | Smooth | Smooth |
| 5 | Homogeneity | No Aggregation | No Aggregation | No Aggregation |
| 6 | Washability | Washable | Easily Washable | Washable |
| 7 | pH | 6.67 | 6.82 | 6.78 |
| 9 | Extrudability | Extruded | Easily Extruded | Easily Extruded |
| 10 | Skin Irritation | No Irritant Action | No Irritant Action | No Irritant Action |

- This study revealed that the developed herbal formulation of batch F2 was comparatively better than F1 and F3 formulations. Amongst all the formulation studies, batch F2 was found optimum for all the parameters. Let's compare batch F2 with a product that's already on the market.

SUMMARY :

The interest in and use of herbal remedies has grown significantly in recent years, even in places where access to contemporary drugs is available. Medicinal plants are the richest source of bioactive molecules utilized in both traditional and modern medicine, which has led to a current surge in interest in plant-derived substances and herbal medicines due to their diverse applications. The current study focuses on the creation and assessment of a herbal face wash that targets acne. The product contains an aqueous extract of neem leaves (*Azadirachta indica*), liquorice root, turmeric (*Curcuma longa*), orange peel, and a hydro-alcoholic extract of nutmeg fruit (fragranced with *myristica*). Different formulations were assessed based on a range of criteria, including spreadability, pH, color, appearance, and consistency. A comparison was made between the commercial preparation and the optimized batch of formulation. Therefore, creating a herbal face wash with an aqueous extract of neem leaves, turmeric rhizomes, and nutmeg fruit would be a good start toward treating acne.

CONCLUSIONS:

This present article comes to conclusion that the people need perfect skin care treatment or remedy but without causing any kind of toxic effect on their beautiful faces. Because they are safer and have less negative effects than synthetic ones, natural therapies are more appropriate. Our goal is to create multi-herbal face wash formulations for acne as herbal formulations are in right now and are highly sought after. The composition has antimicrobial, anti-acne, anti-aging, antioxidant, and anti-inflammatory qualities that, with the exception of diseases, are used to enhance skin radiance and beauty. According to the study's findings, washing our faces has positive impacts on the skin. In comparison to synthetic formulations, a created multi-herbal compound is more effective, stable, and patentable when treating skin conditions.

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