

Formulation and Evaluation of Herbal Face Wash

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Abstract

This study presents the formulation and evaluation of a herbal face wash designed to meet the growing demand for natural and safe skincare products. The formulation process involved selecting a blend of herbal extracts known for their skin-friendly properties, along with appropriate surfactants, thickeners, and preservatives to ensure stability and efficacy. Physicochemical characteristics such as pH, viscosity, and foamability were evaluated to assess product quality. Additionally, sensory analysis was conducted to gauge user preferences regarding fragrance, texture, and overall experience. Microbiological tests were performed to confirm product safety. The results indicated that the formulated herbal face wash exhibited desirable properties, including balanced pH, suitable viscosity, and satisfactory foam formation. Sensory evaluations revealed positive consumer acceptance, with preferences for natural fragrance and smooth texture. Microbial studies confirmed the product's microbial safety for consumer use. Overall, the formulated herbal face wash offers a promising option for individuals seeking natural and effective skincare solutions.

Keywords: Acne, Dark circles, Pimple, Tan.

Introduction:

Formulation and Evolution of Herbal Face Wash The skin, especially the face, plays a crucial role in human personality. It serves as a sensitive and representative parameter of an individual's health. Cosmetics are developed to address various skin concerns, including reducing wrinkles, fighting acne, and controlling oil secretion

1. Face Wash Definition

A face wash is a facial care product designed to remove makeup, dead skin cells, oil, dirt, and other pollutants from the skin. By doing so, it helps unclog pores and prevents skin conditions such as acne. A face wash is typically used as part of a comprehensive skincare regimen, along with toners and moisturizers.

Advantages of Face Wash:

- Exfoliation: Regular use of face wash helps remove dead skin cells, allowing new skin cells to replace old ones.
- Freshness: It keeps the skin fresh and healthy.
- Radiance: Face wash contributes to a radiant complexion.

Properties of an Ideal Face Wash:

A well-formulated face wash should exhibit the following properties:

- **Stability:** It remains stable over time.
- **Skin Softening:** It softens upon application to the skin.
- **Easy Spreadability:** It spreads easily without dragging.
- **Non-Greasy Feel:** During application, it should not feel oily or greasy.
- **Residue After Evaporation:** After water evaporates, the cream residue should not become viscous.
- **Physical Action:** It should flush the skin and open pores rather than being absorbed.
- **Emollient Film:** A thin emollient film should remain on the skin after use.

Categories of Therapeutic Agents Used in Face Wash:

A. **Antibacterial Agents:** These interfere with the growth and reproduction of bacteria. While antibiotics and antibacterials both target bacteria, they have distinct roles.

Herbal Formulation and Evaluation:

In our project, we focus on creating a herbal face wash using natural ingredients. The formulation includes hydroalcoholic extracts of Turmeric, Neem, Sandalwood, Reetha, Honey, Rosewater, Rosemerry, Beet Root, Guar Gum. These plants are known for their antimicrobial, antioxidant, and anti-inflammatory properties.

We've prepared the formulation and evaluated it based on parameters such as color, appearance, consistency, pH, viscosity, and solubility. Our goal is to develop an effective and gentle face wash that harnesses the power of nature.

For more detailed research, you can refer to the following sources:

- Formulation and Evaluation for Herbal Face Wash1
- Formulation and Evaluation of Herbal Anti-Acne Face Wash2
- Formulation and Evaluation of Herbal Facewash3
- Formulation and Evaluation of Herbal Paraben-Free Face Wash4

Introduction to the Project:

Formulation and Evolution of Herbal Nature Face Wash

The project aims to explore the formulation and evaluation of a herbal nature face wash. The increasing demand for natural products has led to a surge in the development of herbal formulations. These formulations are perceived as safer and have fewer negative effects than synthetic ones, making them more acceptable.

Objective

- The primary objective of this project is to formulate A herbal face wash using natural ingredients and evaluate its properties.
- The face wash is intended to have antioxidant, antibacterial, and antiseptic properties, which are necessary to keep the skin smooth and attractive3.

Methodology

The formulation focuses on aqueous extracts of Neem leaves (*Azadirachta indica*), Turmeric (*Curcuma longa*), Sandalwood, Reetha, Honey, Rosewater, Rosemerry, Beet Root, and Guar Gum. These ingredients are known for their good anti-microbial, anti-oxidant, and anti-inflammatory properties.

Evaluation

The prepared formulations will be evaluated based on a number of criteria, including color, consistency, washability, pH, and spread ability. The aim is to create a pure herbal formulation without the use of any synthetic ingredients.

Expected Outcome

The expected outcome of this project is a herbal face wash that is more effective than commercial face washes. The constituents of this mixture are completely herbal, making them reliable and safe for skin use.

This project represents a step towards nature and a boon to skin health. It is a commendable effort towards establishing A herbal face wash with aqueous Neem leaf, Sandalwood, Turmeric, and Beet Root extracts. In the pursuit of natural skincare solutions, the formulation of a herbal nature face wash represents a harmonious blend of traditional botanical wisdom and modern scientific inquiry. This project aims to develop a face wash that not only cleanses the skin but also imbues it with the therapeutic properties of nature's bounty.

Background:

The global market has seen a surge in demand for herbal formulations, as consumers increasingly seek products with fewer synthetic ingredients and a lower risk of side effects. Herbal face washes, leveraging the antimicrobial, antioxidant, and anti-inflammatory properties of plants, offer a compelling alternative to their chemical-laden counterparts.

Significance:

By focusing on herbal ingredients, this project not only contributes to the field of natural cosmetics but also aligns with the growing trend of eco-conscious consumerism. The successful formulation of A herbal face wash can pave the way for further research and development in natural skincare products.

This introduction sets the stage for a detailed exploration of herbal face wash formulation, highlighting the significance of natural ingredients in skincare. The project will delve into the specifics of creating a product that is both effective and environmentally friendly, offering a natural alternative for skincare enthusiasts.

Methodology:

1. TURMERIC EXTRACT:

Synonyms: Haldi, Curcuma; Rhizome curcuma; Saffron Indian, haridra.

Biological source: The dried rhizome of *Curcuma longa* Linn.

Family: Zingiberaceae

Condition:

1. Reduces acne

2. Natural glow
3. Reduces dark circles
4. Moisturizes dry skin.

• **Physical properties:**

- Colour: yellow orange solid/ bright yellow colour
- Molecular weight: 368 g/mol
- Melting point: 180°C
- pH: 5.9
- Odour: aromatic order
- Taste: slightly bitter taste

Uses:

1. Turmeric helps brighten skin and the appearance of uneven tone, leaving you with clearer skin.
2. It is applied to treat rosacea and psoriasis.



FIG .1 TURMERIC

2. NEEM POWDER:

- **Synonyms:** margosa, neem, nimtree, Indian lilac.
- **Biological source:** Neem consists of the fresh or dried leaves and seed oil of *Azadirachta indica* J. Juss (*Melia Indica* or *M. azadirachta* Linn.).
- **Family:** meliaceae.

Chemical Constituents:

Azadirachtin and the others are nimbolinin

Condition:

- Anti-aging.
- Remove scarring.
- Anti- tanning.
- Reduces pigmentation.

Uses:

1. Fights Acne and Pimples: Acne and pimples are signs of unhealthy and under-nourished skin. Due pollutants, bad diet, and lack of daily care, our face suffers from acne breakouts.
2. Prevents Signs of Aging: After a certain age, our skin starts to lose its elasticity, and signs of aging such as wrinkles, fine lines, and sagging start to appear. A great all-natural anti-aging remedy is neem powder. Its abundance of minerals and antioxidants battle the symptoms and keep the skin toned and tight.



FIG .2 NEEM POWDER

3. SANDALWOOD EXTRACT OIL

Synonyms: Sandalwood, Chandana, Neroli.

Biological source: derived from distillation of the Santalum album's heartwood.

Family: Santalaceae .

Chemical constituents:

Volatile oil 2 to 5 %, Santenone, A-santalol, Aldehyde santalol

Condition :

- Anti-aging
- Remove scaring
- Anti-tanning
- Removal of dark spots

Physical properties:

- Colour: pale yellow
- Odour: warm, woody and earthy
- Taste: unpleasant

Uses:

1. Anti-ageing:

Sandalwood is rich in antioxidants that prevent skin sagging and the consequent formation of wrinkles' it's also capable of fighting the damage caused by the presence of free radicals in the skin.

2. Fights acne:

The antiseptic properties of sandalwood reduce bacterial growth on the skin, which makes it very effective in treating acne, boils, and sores and preventing them from worsening.



FIG .3 SANDALWOOD POWDER

4. HONEY

Synonym: Madhu, Mel.

Biological source: -ApiMellifica.

Family: - Apidae

Chemical constitute: - carbohydrate, 0.3% protein, amino acid phenol.

Physical properties:

- Odour: pleasant and characteristic
- Colour: pale yellow to reddish brown.
- Taste: sweet, slightly, acrid
- It has about the same relative sweetness as sucrose.
- A sticky, sugary liquid produced by various types of bees, the most well-known of which being honey bees. because fructose and glucose, two monosaccharides, are present in considerable amounts.
- Honey has a content of 80–85% carbohydrates, 15–17% water, 0.3% proteins, 0.2% ashes and minor quantities of amino-acids, phenols, pigments and vitamins.



FIG .4 HONEY

5. ROSE WATER

• **Synonyms:** rose, rosebud.

• **Biological source:**

Rose oil is an essential oil that is derived from rose petals.

Chemical constituents:

Flavonoids, Triterpene, Tannins, Phenolic acids, Polysaccharides, Fatty acids, Organic acids, vitamins

Condition:

- Minimizes the appearance of wrinkles
- Fine lines
- Age spots
- Ability to fight acne- causing bacteria.

Physical properties:

- Colour: yellow liquid or colorless
- Odour: specific of roses.
- pH: 5.5

Uses:

1. Soothes skin irritation.

2. Nourishes the skin and helps with aging woes.
3. Helps maintain the skin's natural pH balance.
4. Glow, hydration, and firmness.



FIG.5 ROSE WATER

6. GUAR GUM POWDER:

Synonyms: genus Cyamopsis, guar flour.

Family: Fabaceae, Leguminosae.

Biological source: Cyamopsis tetragonal.

Chemical Constituents:

Guaran (85%)-Water soluble part.

Guaran on hydrolysis yields galactose, mannose.

Uses:

A thickening agent that possesses five to eight times the potency of starch.

Protective colloid.

Binding and disintegrating agent.

Bulk laxative.

Emulsifying agent.

In peptic ulcer therapy.



FIG.6 GUAR GUM POWDER

7. Reetha powder:

- **Sapindus Mukorossi (Reetha)**

- **Synonyms:** soapberry, Soap nut, Wash nut.

- **Biological source:** It consist of dry fruit of apindus mukorossi.

- **Family:** Sapindaceae

Chemical Constituents:

- The major constituents present in Reetha are saponins, sugars and mucilage.

- Alkaloids, flavonoids, phenols, carbohydrates, terpenoids, and saponins.
- Additionally, the stems include components that are polysaccharide, phenolic, and flavonoid.



FIG.7 REETHA POWDER

8. ROSEMERRY:

Synonym: polar plant, compass plant, compass weed.

Family: Lamiaceae.

Biological source: Oil of Rosemary is distilled from the flowering tops of leafy twigs of *Rosmarinus officinalis*, belonging to family Lamiaceae.

Chemical constituents:

1,8 cineal (38.5%), camphor (17.1%), α -pinene (12.3%), limonene (6.23%), camphene (6.00%), & linalool (5.70%).

Uses:

1. Rosemary is widely used as a spice when cooking, especially in Mediterranean dishes.
2. Fragrances in soaps and cosmetics are also made with it.
3. Traditionally, Rosemary has been used medicinally to improve memory.



FIG.8 ROSEMERRY OIL

9. BEET ROOT EXTRACT:

Synonym: *Beta vulgaris rubra*, Beet, Chard, Borscht.

Family: Chenopodiaceae.

Biological source:

Beetroot comes from the **fresh root** of the plant species ***Beta vulgaris***

The plant belongs to the family **Chenopodiaceae**.

[It is found in various regions, including India, Europe, and Western Asia](#)

Chemical constituent:

Beetroot consists of multiple biological active phytochemicals including betalains, flavonoids, polyphenols, saponins and inorganic nitrate (NO_3)

Uses:

1. Treat dry skin.
2. Lighten skin.
3. Reduce dark circle.
4. Smooth skin.



FIG. 9 BEET ROOT

A. FORMULA

| Sr no: | Ingredients | category | Optimized | | |
|--------|--------------------|------------------|-----------------|----------------|-----------------|
| | | | Formulation (A) | Formulation(B) | Formulation (C) |
| 1 | TURMERIC EXTRACT | ANTI INFLAMATORY | 2gm | 4gm | 7gm |
| 2 | SANDALWOOD EXTRACT | ANTISCARES | 2gm | 4gm | 7gm |
| 3 | NEEM EXTRACT | TREAT ACNE | 2gm | 4gm | 7gm |
| 4 | HONEY | ANTISEPTIC | 5ml | 2ml | 5ml |
| 5 | REETHA EXTRACT | FOAMING AGENT | 0.5ml | 1ml | 4.5ml |
| 6 | ROSE WATER | PERFUME | 4ml | 10ml | 15ml |
| 7 | GUAR GUM | THICKENING AGENT | 0.4gm | 0.5gm | 2.5gm |
| 8 | ROSEMERRY OIL | ANTIOXIDANT | 2drops | 3drops | 5drops |
| 9. | BEET JUICE | COLOURANT | 2ml | 3ml | 4.5ml |

Method of preparation for herbal face wash:

Method: -

- **Prepare the Base:** In a clean container, mix **rose water** and **guar gum** to create a gel-like base. Guar gum will thicken the face wash.
- 1. **Add Active Ingredients:** To the base, add the following ingredients:
 - **Turmeric extract:** Turmeric is excellent for brightening the skin and reducing inflammation.
 - **Neem extract:** Neem fights acne-causing bacteria and promotes clear skin.

- **Sandalwood extract:** Sandalwood soothes irritated skin and imparts a pleasant fragrance.
 - A few drops of **rosemary oil:** Rosemary oil has antioxidants and can improve skin tone.
 - **Honey:** Honey moisturizes and provides antibacterial benefits.
 - **Reetha powder:** Reetha functions as a natural cleaning agent by creating foam.
2. **Mix Thoroughly:** Stir all the ingredients together until well-blended. To get the appropriate consistency, adjust the amounts.
 3. **Storage and Usage:**
 - Transfer the herbal face wash into a clean, airtight container.
 - Use it like any other face wash: apply to damp skin, massage gently, and rinse thoroughly with water.

Evaluation:

Physical Evaluation:

Colour: The hue of the face wash's formulation was examined visually.

Odour: Smelling the formulation allowed us to evaluate its smell.

Washability: The degree and ease of water washing were evaluated physically following the application of the formulation to the skin.

pH:

- Using a digital pH meter calibrated at constant Temperature, the pH of 1% of calculate hydro Transpiration is calculated.
- The pH is between the 5-6.

Spread ability: Spread ability was check manually. our gel was easily spreadable.

Foamability: Water was placed in a beaker with a tiny amount of gel added. The beaker was shaken to record the final volume after the starting volume was recorded.

Viscosity: A 10ml sample that had been prepared in a beaker and examined using a digital viscometer the results were then recorded.

RESULT AND DISCUSSION:

The formulations were dyed a reddish pink, and the liquid extract quantity affected how intensely the hue beetroot root was coloured. This may be because the mixed extracts have a reddish pink colour. comprises the formulas' viscosity and pH values. As the extract content increased, the data demonstrated that there were notable fluctuations in both pH and viscosity. The products ranged in pH from 5 to 6.

The natural face wash that was made passes every physical test and has a strong antitussive effect.

| Sr no. | Parameter | Observation / value |
|--------|-----------------------|---------------------|
| 1. | Colour | Reddish pink |
| 2. | Odour | Aromatic |
| 3. | PH | 5.8 |
| 4. | Spread ability | Easily spreadable |
| 5. | Consistency | Semi-Solid |
| 6. | Grittiness | No gritty particles |
| 7. | Washability | Good |

Conclusion:

When making face wash, natural components work better than synthetic ones to prevent negative reactions. In order to maintain smooth, appealing skin, the goal of this effort was to create a face wash with antiseptic, antibacterial, and antioxidant qualities.

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