



Formulation and Evaluation of Herbal Fairness Face Wash

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ABSTRACT

The increasing consumer preference for plant-based cosmetic products has encouraged the development of safer and more biocompatible skincare formulations. The present study focuses on the formulation and evaluation of a herbal fairness face wash prepared using selected medicinal plant extracts known for cleansing, moisturizing, antimicrobial, antioxidant, and skin-brightening properties. The formulation was designed to provide effective facial cleansing while maintaining the natural pH and moisture balance of the skin. Herbal ingredients including Aloe vera gel, neem extract, tulsi extract, turmeric extract, orange peel extract, honey, rose water, glycerin, and vitamin E were incorporated along with suitable excipients such as distilled water, sodium lauryl sulfate as surfactant, and methyl paraben as preservative. The prepared gel formulation was evaluated for physicochemical parameters including appearance, pH, viscosity, spreadability, foamability, washability, homogeneity, skin irritation, and stability under different storage conditions. The results demonstrated that the formulation possessed acceptable aesthetic qualities, skin-friendly pH, good cleansing efficiency, and stability without causing irritation. The study concludes that the developed herbal face wash is safe, effective, economical, and suitable for routine skincare, supporting the potential of herbal ingredients as alternatives to synthetic cosmetic agents.

Keywords: Herbal cosmetics, face wash, formulation, skin care, physicochemical evaluation, medicinal plants

1. INTRODUCTION

The skin is the largest organ of the human body and serves as a protective interface between internal physiological systems and the external environment. It performs multiple essential functions including protection, thermoregulation, sensation, secretion, excretion, and immune defense. Continuous exposure to environmental pollutants, ultraviolet radiation, microorganisms, and cosmetic chemicals makes facial skin particularly vulnerable to damage.

Facial cleansing is the most fundamental step in skincare. Effective cleansing removes dirt, excess sebum, sweat, dead cells, and cosmetic residues that accumulate on the skin surface. Inadequate cleansing can clog pores and lead to acne, dullness, pigmentation, and microbial infections. An ideal face wash should provide efficient cleansing without disrupting the skin barrier or causing dryness and irritation.

Conventional face cleansers often contain synthetic surfactants, artificial fragrances, preservatives, and colorants that may produce adverse dermatological effects with prolonged use. Growing awareness regarding the safety and environmental impact of synthetic cosmetics has shifted consumer interest toward herbal formulations.

Herbal cosmetics utilize plant-derived ingredients such as extracts, oils, powders, and gels that provide cosmetic benefits along with therapeutic effects. Medicinal plants used in traditional systems of medicine possess antioxidant, antimicrobial, anti-inflammatory, soothing, and rejuvenating properties beneficial for skin health.

In cosmetic science, fairness refers to improvement in skin brightness, clarity, and uniform tone rather than alteration of natural complexion. Herbal formulations can help reduce dullness, mild pigmentation, and uneven tone through gentle cleansing, antioxidant protection, and mild exfoliation.

The present research work was undertaken to formulate and evaluate a herbal fairness face wash using selected medicinal plants to develop a safe and effective natural cosmetic product.



2. Objectives

The study was carried out with the following objectives:

1. To formulate a herbal fairness face wash using selected plant-based ingredients.
2. To develop a stable and aesthetically acceptable gel formulation.
3. To utilize herbal ingredients possessing cleansing, moisturizing, antimicrobial, and skin-brightening properties.
4. To evaluate physicochemical characteristics of the formulation.
5. To assess skin compatibility through irritation studies.
6. To perform stability studies under different storage conditions.
7. To explore herbal ingredients as safer alternatives to synthetic cosmetic agents.

3. Materials and Methods

3.1 Materials

Herbal Ingredients

- Aloe vera gel
- Neem extract
- Tulsi extract
- Turmeric extract
- Orange peel extract
- Honey
- Rose water
- Glycerin
- Vitamin E

Excipients

- Distilled water
- Sodium lauryl sulfate (surfactant)
- Methyl paraben (preservative)

All materials used were of pharmaceutical or cosmetic grade.

3.2 Role of Ingredients

- **Aloe vera gel:** Moisturizing, soothing, wound healing



- **Neem extract:** Antibacterial, antifungal, anti-acne
- **Tulsi extract:** Antioxidant, antimicrobial, detoxifying
- **Turmeric extract:** Anti-inflammatory, skin brightening, antiseptic
- **Orange peel extract:** Vitamin C source, mild exfoliant, complexion enhancer
- **Honey:** Natural humectant, antimicrobial, skin softening
- **Rose water:** Toner, cooling agent, fragrance enhancer
- **Glycerin:** Moisture retention, emollient
- **Vitamin E:** Antioxidant, skin repair, anti-aging support
- **Sodium lauryl sulfate:** Surfactant and foaming agent
- **Methyl paraben:** Preservative preventing microbial contamination
- **Distilled water:** Solvent and formulation base

3.3 Formulation Composition (200 mL Batch)

| S. No. | Ingredient | Quantity |
|--------|-----------------------|----------|
| 1 | Distilled water | 110 mL |
| 2 | Aloe vera gel | 40 mL |
| 3 | Rose water | 25 mL |
| 4 | Honey | 10 mL |
| 5 | Neem extract | 5 mL |
| 6 | Tulsi extract | 5 mL |
| 7 | Orange peel extract | 3 mL |
| 8 | Turmeric extract | 1 mL |
| 9 | Glycerin | 0.5 mL |
| 10 | Vitamin E | 0.5 mL |
| 11 | Sodium lauryl sulfate | 2 mL |
| 12 | Methyl paraben | 0.4 g |

3.4 Method of Preparation

1. Distilled water was measured and transferred to a clean beaker.
2. Aloe vera gel was added with continuous stirring to obtain a uniform base.
3. Honey was incorporated slowly and mixed thoroughly.
4. Herbal extracts were added sequentially with constant stirring.
5. Glycerin and vitamin E were added and mixed uniformly.
6. Rose water was added for toning and fragrance.
7. Sodium lauryl sulfate was added carefully to avoid excessive foaming.
8. Methyl paraben was incorporated as preservative.



9. The mixture was stirred until a smooth gel consistency was obtained.

10. The formulation was transferred to airtight containers for evaluation.

4. Evaluation of Formulation

4.1 Physical Appearance

- Color
- Odor
- Texture
- Homogeneity
- Phase separation

4.2 pH Determination

Measured using digital pH meter to ensure compatibility with skin pH.

4.3 Viscosity

Determined using a Brookfield viscometer to assess flow behavior.

4.4 Spreadability

Measured by slide method to evaluate ease of application.

4.5 Foamability and Foam Stability

Evaluated by cylinder shake method.

4.6 Washability

Assessed by rinsing with water to observe residue formation.

4.7 Skin Irritation Test

Patch test conducted to observe redness, itching, or inflammation.

4.8 Stability Studies

Stored under different temperature conditions and monitored periodically.

5. Results and Discussion

- Formulation showed pleasant herbal odor and smooth gel consistency.
- pH was within skin-friendly acidic range.
- Adequate viscosity ensured easy dispensing and application.
- Good spreadability enabled uniform application.
- Satisfactory foamability indicated effective cleansing.



- Easily washable without sticky residue.
- No signs of skin irritation observed.
- Stable under different storage conditions without phase separation.

The synergistic combination of herbal ingredients provided cleansing along with moisturizing, antimicrobial, antioxidant, and skin-brightening effects.

6. Advantages

- Skin-friendly natural formulation
- Lower risk of chemical irritation
- Multifunctional therapeutic benefits
- Maintains natural skin barrier
- Eco-friendly and biodegradable
- Cost-effective formulation

7. Limitations

- Slower visible results compared to chemical products
- Possible natural allergies
- Limited shelf life without preservatives
- Variability in herbal extract potency

8. Conclusion

The present study successfully formulated and evaluated a herbal fairness face wash using medicinal plant extracts. The formulation demonstrated satisfactory physicochemical properties, stability, safety, and cleansing performance. Herbal ingredients provided additional therapeutic benefits while minimizing risks associated with synthetic chemicals. The developed formulation represents a safe, effective, and economical natural skincare alternative. Further clinical evaluation and large-scale studies are recommended to validate long-term efficacy and commercial feasibility.

9. Future Scope

- Dermatological testing on human volunteers
- Microbial challenge studies
- Long-term stability studies
- Comparative evaluation with marketed products
- Scale-up and industrial production feasibility

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