



FORMULATION & EVALUATION OF HERBAL FACE WASH CONTAINING COFFEE POWDER

Sarthak Madhukar Pachore^{1*}, Vishal Rasve²

¹ UG Scholar, SAJVPMS, College of Pharmaceutical Sciences & Research center, A/p Kada, Tq. - Ashti, Dist.-Beed (MS)-414202.

² Assistant Professor, SAJVPMS, College of Pharmaceutical Sciences & Research center, A/p Kada, Tq. - Ashti, Dist.-Beed (MS)-414202.

Address of Correspondence: Mr. Sarthak Pachore ¹UG Scholar, SAJVPMS, College of Pharmaceutical Sciences & Research center, A/p Kada, Tq. - Ashti, Dist.-Beed (MS)-414202.

ABSTRACT

This study aimed to formulate and evaluate herbal face wash containing coffee powder as a key ingredient. The formulation included ethanolic extracts of coffee powder, along with other herbal extracts and active ingredients known for their skin benefits. The face wash was prepared using a hot extraction method with a water condenser. Methyl paraben and sodium lauryl sulphate were added as preservatives and surfactants, respectively, to enhance stability and cleansing properties. Glycerin was included for its moisturizing effect, and rose oil was added for fragrance. The physical characteristics, pH, stability, microbiological safety, skin compatibility, and efficacy of the herbal face wash were evaluated through various tests. The results demonstrated that the face wash exhibited desirable physical characteristics, including color, odor, and texture. The pH was within the acceptable range for skincare products, ensuring compatibility with the skin's natural pH. Stability testing revealed no significant changes in appearance, odor, or texture over time under various storage conditions. Microbiological testing confirmed the safety of the product for consumer use. Skin compatibility tests showed no adverse reactions or sensitivities, indicating the face wash's suitability for different skin types. Efficacy testing demonstrated effective cleansing and moisturizing properties, with positive consumer feedback regarding fragrance and overall satisfaction. Overall, the formulated herbal face wash containing coffee powder offers a promising skincare solution with potential benefits for skin health and hygiene.

KEYWORDS: Herbal face wash, Coffee, Turmeric, Orange, Lemon, Aloe vera, Antioxidant etc.

INTRODUCTION

A herbal face wash is a skincare product formulated with natural ingredients derived from plants, herbs, and botanical extracts. It is designed to cleanse the skin gently while providing additional benefits such as moisturizing, soothing, and rejuvenating properties. Herbal face washes are typically free from harsh chemicals, sulfates, parabens, and artificial fragrances, making them suitable for all skin types, including sensitive skin. These products offer a natural alternative to conventional face washes, utilizing the power of herbal ingredients to promote healthy and radiant skin.

Face wash refers to products that clean the face without drying it out. "Cleanser" is another name for face wash. Face wash has been determined to be suitable for all skin types. Face wash is particularly effective in removing dirt, oil, and moisture from dry skin. Face washes and cleansers are both used to remove grime, oil, and pollution from your face.

A cleanser removes excess oil, makeup, and filth from the skin. These are contaminants that are oil soluble. They can also be

removed with a face wash, though this may not be completely successful. Ordinary soaps can dehydrate facial skin, which is quite fragile. Face wash is a gentle cleaner that gets the job done. Without causing irritation to the skin As a result, the skin seems youthful and active.

The objective of a face wash could be to provide cleansing, anti-wrinkle, anti-acne, moisturising, and skin fairness. Skin whitening products are thought to affect the synthesis and metabolism of melanin in the skin by suppressing melanin production in melanocytes and thereby reducing the amount of melanin present. Coffee powder, turmeric, aloe Vera, and glycerol are examples of agents that suppress melanin synthesis. The Indian herbal drug industry is considered to be one of the oldest systems of medical care in the world. Its roots can be traced back to ancient India, where the use of herbs for medicinal purposes was mentioned in the Vedas, an ancient religious text. Ayurveda and Unani, two ancient healing methods, utilized herbs and natural products to address various health conditions. Despite being perceived as a recent trend by Western medical practitioners, plant extracts are still commonly used in most prescribed medicines today. The



global community now recognizes the benefits of this traditional form of medicine, resulting in a significant rise in demand for Indian herbal drugs. This sector has experienced an annual growth rate of nearly thirty percent, with a surge in demand for herbal cures, skincare products, and cosmetics. This surge in demand for natural products has been observed in recent years. The skin is a vital and extensive organ of the body, and it plays a significant role in defining human personality, especially the skin on the face, which is sensitive and often considered are preservative parameter.

The condition of an individual's skin can also be an indicator of their overall health. The composition of the skin includes various materials such as carbohydrates, amino acids, and lipids. Cosmetics have been developed to address various skin concerns, such as reducing wrinkles, fighting acne, and controlling oil secretion. These products aim to improve the appearance and texture of the skin, leading to a more youthful and healthier-looking complexion. However, it is essential to choose cosmetics that are safe and effective, as some products may contain harmful chemicals that can damage the skin in the long run. Face wash refers to products that clean the face without drying it out. "Cleanser" is another name for face wash. Face wash has been determined to be suitable for all skin types. Face wash is particularly effective in removing dirt, oil, and moisture from dry skin. Face washes and cleansers are both used to remove grime, oil, and pollution from your face. A cleanser removes excess oil, makeup, and filth from the skin. These are contaminants that are oil soluble. They can also be removed with a face wash, though this may not be completely successful. Ordinary soaps can dehydrate facial skin, which is quite fragile. A face wash is a gentle cleaner that gets the job done without causing irritation to the skin. As a result, the skin seems youthful and active. The objective of a face wash could be to provide cleansing, anti-wrinkle, anti-acne, moisturising, and skin fairness.

Properties of Herbal Face wash

1. **Natural Ingredients:** Formulated with herbal extracts, plant oils, and botanicals known for their skincare benefits, such as aloe vera, green tea, chamomile, and neem. Avoid synthetic fragrances, parabens, sulfates, and other harsh chemicals.
2. **Gentle Cleansing:** Provides effective cleansing without stripping the skin of its natural oils or causing irritation. Gently removes dirt, oil, and impurities from the skin's surface without disrupting the skin barrier.
3. **Moisturizing and Hydrating:** Contains ingredients that hydrate and replenish the skin, such as glycerine, coconut oil, and hyaluronic acid. Helps to maintain the skin's moisture balance and prevent dryness or dehydration.
4. **Soothing and Calming:** Includes ingredients with anti-inflammatory properties to soothe and calm irritated or sensitive skin. Helps to reduce redness, inflammation, and discomfort.
5. **Antibacterial and Antimicrobial:** Incorporates natural ingredients with antibacterial and antimicrobial properties,

such as tea tree oil, neem, and turmeric. Helps to combat acne-causing bacteria and prevent breakouts.

6. **Exfoliation:** Contains gentle exfoliating agents, such as fruit enzymes or finely ground herbs, to remove dead skin cells and unclog pores. Promotes cell turnover and reveals smoother, brighter skin.

Advantages of Herbal Face wash containing coffee powder

1. **Exfoliation:** Coffee powder contains fine particles that act as a gentle exfoliant, helping to remove dead skin cells, dirt, and impurities from the skin's surface. Regular exfoliation can promote cell turnover, leaving the skin looking brighter, smoother, and more radiant.
2. **Antioxidant Protection:** Coffee powder is rich in antioxidants, such as chlorogenic acid and caffeine, which help neutralize free radicals and protect the skin from oxidative damage caused by environmental stressors like UV radiation and pollution. Antioxidants can help reduce the signs of aging, including wrinkles, fine lines, and hyperpigmentation.
3. **Anti-inflammatory Properties:** Coffee contains anti-inflammatory compounds that can help reduce redness, inflammation, and irritation in the skin. This makes it beneficial for calming sensitive or inflamed skin conditions like acne, eczema, and rosacea.
4. **Improved Circulation:** The caffeine in coffee powder has vasoconstrictive properties, which can help improve blood circulation when applied topically to the skin. Enhanced blood flow can promote a healthy complexion and contribute to a more youthful appearance.
5. **Reduction of Puffiness:** Caffeine has diuretic properties that can help reduce swelling and puffiness, particularly around the eyes. Using a herbal face wash containing coffee powder may help minimize under-eye bags and dark circles, leaving the skin looking more refreshed and rejuvenated.
6. **Oil Control:** Coffee powder can help absorb excess oil and sebum from the skin's surface, making it beneficial for individuals with oily or acne-prone skin. By regulating oil production, coffee powder can help prevent clogged pores and breakouts.

MATERIAL AND METHODS

Collection and Authentication of Plant

Seeds of the plant were collected in large quantities from Amolak Botanical garden Kada, Beed, Maharashtra. The botanical identification and authentication of the plant material were conducted by Dr. Sayyad I.G., Head of the Department of Botany at Gandhi College, Kada, Ashti, Beed, Maharashtra, India.

Materials

In the formulation of herbal face wash, various materials are carefully selected to formulate a product that effectively cleanses, nourishes, and revitalizes the skin. Here's an introduction to some key materials commonly found in herbal face wash formulations.



1. Coffee powder

- Kingdom : Plantae
- Clade : Tracheophytes
- Clade : Angiosperms
- Clade : Eudicots
- Clade : Asterids
- Order : Gentianales
- Family : Rubiaceae
- Genus : Coffea
- Species : C. arabica
- Binomial name : Coffea arabica



Uses:

- Coffee powder can be used to brew flavorful and energizing beverages.
- It provide gentle exfoliation and antioxidant benefits in skincare products..

2. Aloe Vera

- Kingdom: Plantae
- Clade: Tracheophytes
- Clade: Angiosperms
- Clade: Monocots
- Order: Asparagales
- Family: Asphodelaceae
- Subfamily: Asphodeloideae
- Genus: Aloe
- Species: A. vera
- Binomial name : Aloe vera(L.) Burm.f.
- Synonyms : Aloe barbadensis Mill



Uses:

- Aloe vera can be applied topically to soothe skin irritations such as sunburns, insect bites.
- It can also be used as a natural moisturizer to hydrate and nourish the skin.

3. Turmeric

- Kingdom:Plantae
- Clade:Tracheophytes
- Clade:Angiosperms Clade:Monocots
- Clade:Commelinids
- Order:Zingiberales
- Family:Zingiberaceae
- Genus:Curcuma
- Species:C. longa
- Binomial name.Curcuma longaL.



Uses:

- Turmeric powder is utilized for its anti-inflammatory and antioxidant properties.
- It is used in traditional medicine and skincare products.

4. Lemon

- Kingdom: Plantae
- Clade: Tracheophytes
- Clade: Angiosperms
- Clade: Eudicots
- Clade: Rosids
- Order: Sapindales
- Family: Rutaceae
- Genus: Citrus
- Species: C. × limon
- Binomial name: Citrus × limon(L.) Osbeck
- Synonyms : Citrus × aurantium subsp. bergamia (Risso & Poit.) Engl.
- Citrus aurantium subsp. bergamia (Risso) Wight & Arn.



Uses:

- It plays a crucial role in supporting the immune system.
- It reduces the risk of infections such as the common cold and flu.

5. Orange Powder

- Kingdom: Plantae
- Clade: Tracheophytes



- Clade: Angiosperms
- Clade: Eudicots
- Clade: Rosids
- Order: Sapindales
- Family: Rutaceae
- Genus: Citrus
- Species: C. Sinensis
- Binomial name: Citrus × sinensis(L.) Osbeck, Sweet oranges
- Synonyms : Citrus × sinensis (L.) Osbeck



- It can also be incorporated into skincare products for its antioxidant properties and refreshing citrus scent.

PROCEDURE

The ground and roast coffee are treated with hot water and high pressure for extraction of the water-soluble material. The soluble material is then cooled, sometimes centrifuged, concentrated through heating and then dried through spray vaporizing, or freeze drying. The turmeric and extract of aloe Vera was prepared by hot extraction method using water condenser. The herbal plants including the orange Extract was added and small quantity of lemon juice added to it required quantity of methyl paraben dissolve in distilled water by heating on water bath. Then the solution should be cooled and required amount of sodium lauryl sulphate should be added.

Glycerine was added to the beaker and small quantity of glycerol was too added as it acts as Humectants. Then add rose oil drop wise for fragrance and made the gel with required quantity of water by adding Gum tragacanth.

Uses:

- Orange powder can be used as a natural food colouring or flavouring agent in culinary recipes.

Table 01: Formulation Ingredients with quantity

Sr. No.	Name of Ingredients	Quantity	Uses
1	Aloe Vera	2 ml	Soothing agent & Anti-bacterial
2	Coffee powder	3 gm	Anti-acne
3	Turmeric	0.5 gm	Anti-inflammatory
4	Lemon juice	1 ml	Skin brightening
5	Orange powder	1.5 gm	Anti-oxidant
6	Methyl paraben	1.5 gm	Preservative
7	Glycerin	0.5 ml	Humectant
8	Rose oil	2-3 drop	Fragrance
9	Sodium lauryl sulphate	2 gm	Foaming agent, surfactant
10	Glycerol	0.6 ml	Moisturizer
11	Distilled water	Q.S	Vehicle
12	Gum tragacanth	1.5 gm	Gelling agent, Thickner

EVALUATION TEST OF HERBAL FACE WASH

1. Physical evaluation test

- **Colour:** The colour of the formulation was checked out against white background and was dark brown.
- **Odour:** the odour of face wash was checked manually & was rose fragrance due to rose oil.

2. Rheological Characteristic

We were studied for some physical properties colour, clogging, viscosity change and sensation test.

3. Determination of pH

The pH of formulations was determined using digital pH meter. One gram of face wash was dissolved in 100 ml of demineralised and stored for two hours. The measurements of pH of each formulation were done in triplicate. Instrument was calibrated before use with standard buffer solutions at pH 4.

4. Spread Ability

Spread ability determination of formulations was determined by an apparatus suggested by Mortimer et al. which was fabricated in laboratory & used for study. The apparatus consists of a wooden block with a fixed glass slide with one end tied to weight pan rolled on the pulley which was in horizontal level with fixed slide. An excess of whitening face wash sample 1.5 gm was placed between two glass slide and a 1000 gm weight was placed on slide for 5 minutes to between compress the sample to uniform thickness weight (60gm) was added to the pan. It was calculated using the formula; $S = \frac{m}{l \cdot t}$ Where, s= spread ability in gm.cm/sec m= weight tied to upper slide l= length of glass slide t= time in seconds Length of glass slide was 11.2 cm and weight tied to upper slide was (60gm) throughout the experiment.

5. Wash Ability

The product was applied on hand and was observed under running water.



6. Stability Study

The instant whitening face wash were also subjected to the following condition of temperature and relative humidity during stability ages fit sediment temperature.

7. Grittiness

The product was checked for the presence of any gritty particles by applying it on the skin.

RESULT

The prepared formulation was evaluated for the various evaluation parameters. The result of evaluation was displayed in following Table 02:

Table 02: Formulation Table

Sr. No	Ingredients	F1 (50 ml)	F2 (50 ml)
1.	Coffee powder	3 gm	3 gm
2.	Aloe vera	2 ml	2 ml
3.	Turmeric	0.6 gm	0.5 gm
4.	Lemon Juice	1 ml	2 ml
5.	Orange powder	1.5 gm	1 gm

PHYSICAL PARAMETERS

The prepared acne face wash was evaluated for its clogging, colour, odour, consistency.

Table 03: Formulation and Evaluation of Physical Parameters.

Formulation Code	Odour	Colour	Consistency	Clogging
Marketed Himalaya aloe Vera face wash	pleasant	brown	Semi solid	Absent
F1	pleasant	Dark brown	Semi solid	Absent
F2	pleasant	Dark brown	Semi solid	Absent

pH:

The pH of formulation was found to be satisfactory, and in the range of 5.5 to 5.8 which is near to the skin PH, in turn indicates

that the prepared formulation can be compactable with skin. Here comparing other formulations F3 formulation found to have better pH.

Table 04: Developed Formulation pH

Formulation Code	pH
Marketed	5.5
F1	5.3
F2	5.2

WASHABILITY & SPREADABILITY

Prepared formulations were easily washed with water.

Formulation Code	Washability	Spredability
Marketed	Good	Good
F1	Good	Good
F2	Good	Good

SKIN IRRITABILITY TEST

Small amount of the formulation was applied on the skin and kept for few minutes and found to show no redness, oedema,

inflammation and irritation during the studies. This formulation is safe to use for skin.

Formulation Code	Irritability Test	Irritability Test
	1hrs	3hrs
Marketed	No	No
F1	No	No
F2	No	No

CONCLUSION

In conclusion, the formulation of a herbal face wash containing coffee powder offers a promising skincare solution with multiple benefits for the skin. By harnessing the natural properties of

coffee powder along with other herbal extracts, essential oils, and moisturizing agents, this face wash can effectively cleanse, exfoliate, and rejuvenate the skin while providing a refreshing and invigorating experience.



The exfoliating properties of coffee powder help remove dead skin cells and impurities, promoting cell turnover and revealing a brighter, smoother complexion. Additionally, the antioxidant-rich nature of coffee powder helps protect the skin from environmental damage, reducing the signs of aging and promoting overall skin health.

Furthermore, the anti-inflammatory and oil-controlling properties of coffee powder make it suitable for individuals with sensitive, oily, or acne-prone skin, helping to soothe irritation, reduce redness, and minimize breakouts.

By formulating herbal face wash with coffee powder, manufacturers can offer consumers a natural and effective skincare product that is gentle, safe, and environmentally friendly. With proper use and regular application, this face wash has the potential to improve the appearance and health of the skin, leaving it feeling refreshed, revitalized, and rejuvenated.

The formulation of a herbal face wash containing coffee powder offers a natural and effective solution for skincare. Coffee powder acts as an exfoliant, gently removing dead skin cells and impurities to reveal a brighter, smoother complexion. Its antioxidant properties help protect the skin from environmental damage, reducing signs of aging and promoting overall skin health. Additionally, coffee powder's anti-inflammatory and oil-controlling properties make it suitable for sensitive, oily, or acne-prone skin, soothing irritation and minimizing breakouts. By combining coffee powder with other herbal extracts and moisturizing agents, this face wash provides a refreshing and invigorating experience, leaving the skin feeling refreshed, revitalized, and rejuvenated. Overall, a herbal face wash containing coffee powder offers a holistic approach to skincare, promoting a healthier and more radiant complexion naturally.

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Declaration of Conflicts Interest

The authors report no conflicts of interest.

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