

Natural Antioxidant Face Wash By Pomegranate Peels

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ABSTRACT:

Herbal Cosmetics are preparation used to enhance the human appearance. This study focuses on the aloe vera, glycerine, lemon juice, rose water, and xanthan gum using Pomegranate peel powder, a byproduct rich in bioactive chemicals is used in the formulation of face cleanser in this study. Pomegranate peels, which is frequently thrown away as garbage, has contain a bioactive compound like Polyphenols, flavonoids, tannins and organic acid that are beneficial to skin. These herbal components, which have anti-inflammatory, anti-oxidant, and anti-acne qualities, were used in the development and testing of a herbal face wash. Pomegranate peels have been applied topically to support healthy skin. They can be used to treat skin diseases like dermatitis, eczema, and acne because of their astringent and antibacterial qualities. The peels can be used as washes and poultices or added to natural skincare products. These substances' ability to function as antioxidants helps prevent oxidative damage. Each of these herbal ingredients displayed noteworthy unique effects, and the face wash showed a multifunctional impact. The ingredient in herbal face wash has the power to promote healing, remove acne, and soften skin.

This study aims to developed a natural and herbal face wash by using Pomegranate peels powder a byproduct rich in antioxidants to provide a natural, effective cleanser. The current research work deals with the preparation of developed formulation was evaluated of the herbal antioxidant face wash using a number of criteria, including consistency, pH test, spread ability, stability test, washing test, foam ability, and grittiness.

Keywords: Pomegranate peels powder, Antioxidant, Herbal face wash.

Introduction:

Skin is constantly exposed to environmental stress, free radicals and pollutants which leads to damage and aging. While commercial face washes exist, there is a growing demand for natural, rich in antioxidant and sustainable skincare solutions.^[1] An antioxidant face wash is a type of facial cleanser formulated with beneficial compounds that help protect the skin from damage caused by unstable molecules called free radicals. These free radicals are generated by environmental stressors like UV radiation, pollution, and even the body's own metabolic processes. It is designed to remove dirt, oil, makeup, and other impurities from the skin surface, helping to keep the skin clean and refreshed.^{[2], [3]} Pomegranate (*Punica granatum*), are a popular fruit with a wide range of bioactive components and a high nutritional value. Pomegranate (*Punica granatum*), a deciduous shrub, is the principal species

within the Punicaceae family. Pomegranate peels have been more popular in recent years because of their many advantages and possible uses. These substances contribute to the brilliant colour of the peels and offer a wide range of health advantages. Pomegranate peels have been found to have anti-inflammatory, antibacterial, antioxidant, anticancer and cardioprotective qualities.^[3]

The majority of the body is made up of skin, and the skin of the face is one of the most sensitive and representative aspects of human nature. Among its many essential tasks is defense against external, physical, chemical, and biological threats.^[4] Herbal Face wash from Pomegranate peel powder is a natural cleanser that uses the antibacterial and antioxidant qualities of pomegranate peels to balance the pH of the skin, prevent symptoms of aging, and cleanse the skin. All skin types benefit from this kind of face wash because it helps exfoliate dead skin cells and protects against environmental damage, especially those who are prone to acne and signs of aging.^[5] Pomegranate peels are a sustainable and useful component of natural skincare products because of their ability to cleanse, moisturize, and revitalize the skin. Beneficial substances from the powder are optimized into a stable face wash product by carefully combining the active ingredients, surfactants, preservative and base formula for both customer acceptability and efficacy.^{[3],[15]}



Figure 1 :Pomegranate fruit

Potential Benefits:

- **Deep cleansing:**Helps to remove dirt, oil and impurities.
- **Exfoliation:**Gently removes dead skin cells.
- **Anti-aging:** May help to reduce fine lines and wrinkles.
- **Brightening:**Helps with dullness and dark spot.
- **Antioxidant protection:** Protect the skin from environmental stressors.
- **Improve skin tone:**May help reduce dark spots and brighten the complexion.
- **Hydration & Moisture retention:**It helps strengthen the skin barrier function& locks in moisture, keeping the skin hydrated and soft.^{[6], [7],[8],[16]}

Chemical Constituents:

There are numerous chemical components in pomegranates that may help the skin by providing antioxidants, vitamins, and acids. The bioactive substances punicalagin and ellagic acid are both pomegranate rind, which improves skin health by blocking tyrosinase and starting anti-fungal and anti-inflammatory effects.^[3]

Objectives:

- To formulate and evaluate herbal, effective anti-Oxidant face wash
- To make skin soft and remove dead skin.
- To protect the skin from damage caused by free radicals and oxidative stress.
- To analyse the physicochemical properties of the face wash including viscosity, pH and texture.

Properties of Pomegranate face wash:

- A good face wash should be stable and have a pleasant appearance.
- When applied to the skin, it should soften.
- It should spread freely and not drag.
- It should not have an oily or greasy sensation when applied.
- After usage, a thin emollient layer should remain on the skin.
- Promotes skin regeneration and rejuvenation.^{[9],[10],[7],[17]}

Material and methods:

Collection of Materials: Pomegranate peels powder, Aloevera gel, Honey, Glycerine, VitaminE Capsules, Coconut oil, Lemon juice and Rose water is collected from SMBT Campus and the local area of Ghoti and Nashik. MethylParaben, Sodium lauryl sulphate and Xanthangum was collected from Pharmaceutics lab (SMBT IODP, Nashik).^[9]

Methodology:

1. Preparation of Pomegranate peels powder:

- Firstly, wash the Pomegranate peels, then cut into small small-small pieces.
- Drying in room temperature for 2 weeks.
- When drying can be done then grind Pomegranate Peels into a very fine powder by using Mixer grinder machine.
- The powder is then sieved No.120 to ensure a uniform particle size.



Figure2: Pomegranate Peels Powder

2. Formulation Pomegranate of face wash:

- First add required quantity of Xanthan gum put in rose water in the beaker.
- Stir it to create a viscous paste and leave for 3-5 minutes.
- In second beaker take sufficient quantity Aloe Vera gel, honey, glycerine, coconut oil and vitamin E capsule mix it with trituration.
- Transfer second beaker mixture (Aloe Vera gel+ honey+ glycerine + coconut oil+ Vitamin E capsule) into first beaker mixture (Xanthan gum + rose water).
- Mix well both mixtures uniformly with trituration.
- Then add the Pomegranate Peels Powder in above mixture, mix it properly, finally add Sodium lauryl sulphate and lemon juice in the above mixture.
- Mix it properly to make semiliquid viscous herbal face wash.^{[9],[3],[15]}

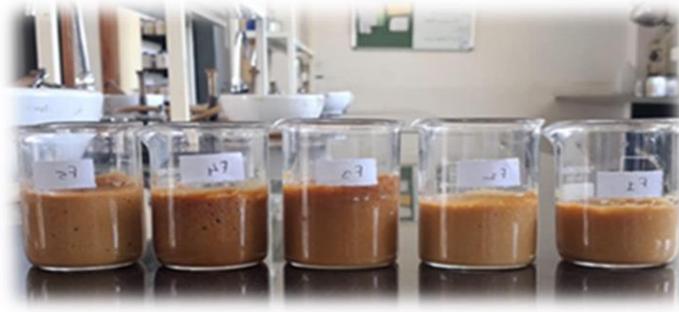


Figure 3: Formulation of Pomegranate Antioxidant face wash

Table 1 Formulation Table

| Sr. No. | Name of Drugs | F1 | F2 | F3 | F4 | F5 |
|---------|--------------------------|------------|------------|------------|------------|-----------|
| 1. | Pomegranate peels powder | 1.5gm | 2gm | 2gm | 2gm | 3gm |
| 2. | Aloe vera gel | 5gm | 6gm | 7gm | 6.5gm | 6.5gm |
| 3. | Honey | 3ml | 3.5ml | 4ml | 3.5ml | 4ml |
| 4. | Glycerine | 6 ml | 5 ml | 5.5 ml | 6 ml | 5.5 ml |
| 5. | Coconut oil | 2.5 ml | 2.5 ml | 3 ml | 3 ml | 2.5 ml |
| 6. | Vitamin E capsule | 2 Capsules | 2 Capsules | 3Capsules | 3 Capsules | 3Capsules |
| 7. | Xanthan gum | 0.25 gm | 0.25 gm | 0.3 gm | 0.4 gm | 0.4 gm |
| 8. | Sodium lauryl sulphate | 1.5gm | 1gm | 2.5gm | 2gm | 1gm |
| 9. | Lemon juice | 5drops | 5-6drops | 5-6drops | 6drops | 6drops |
| 10. | Methyl paraben | 0.02gm | 0.01gm | 0.03gm | 0.02gm | 0.01gm |
| 11. | Rose water | Up to30ml | Up to 30ml | Up to 30ml | Up to30ml | Up to30ml |

Evaluation Parameter:

- Physical evaluation:** Physical parameters, such as colour, appearance and consistency, are examined for people with visual Impairment
- Wash-ability:** The formulation will be painted by hand and was observed under running water.
- pH test:** Using a digital pH meter calibrated at constant temperature.
- Spread-ability:** The spread ability of the formulation was found manually by applying the gel to the skin.
- Foamability:** The formulation was applied on hand and was observed the foam with the help of water.
- Viscosity:**The viscosity of face wash was determined by using Brookfield Viscometer (LV Viscometer) Spindle no.64 at 20 RMP for 3 min. The Values Obtained for sample is noted.
- Irritancy Test:**The face wash was applied on left hand dorsal surface of 1 sq. cm and observed in time interval 1 to 2 hrs.
- Grittiness:** The product was checked for the presence of any gritty particles by applying it on the skin.^{[12],[3], [14]}



Figure 4: Washability



Figure 5: Foamability



Figure 6: pH Test



Figure 7: Viscosity Test



Figure 8: Irritancy test



Figure 9: Spread-ability Test

Table 2 Evaluation Table

| Test | F1 | F2 | F3 | F4 | F5 |
|----------------|--|--|--|--|--|
| Colour | Light Brown | Light Brown | Brown | Brown | Light Brown |
| Odor | Pleasant | Pleasant | Pleasant | Pleasant | Pleasant |
| Texture | Smooth | Smooth | Smooth | Smooth | Smooth |
| Spread-ability | Easily spreadable |
| Washability | Good | Good | Good | Good | Good |
| Foamability | Good | Good | Good | Good | Good |
| pH | 5.7 | 0.6 | 5.6 | 5.5 | 5.8 |
| Viscosity | 1440cP | 1224cP | 8550 cP | 8220 cP | 9700cP |
| Irritancy | Non-irritable & non allergic on the skin |
| Grittiness | Free from grittiness | Free from grittiness | Free from grittiness | Free from grittiness | Free from grittiness |

Result and Discussion:

The herbal face wash prepared with Pomegranate peels powder showed notable advantages. According to the study's findings and product testing, Pomegranate peels powder is beneficial for skin due to its high antioxidant content, which can help reduce wrinkles, fight acne and protect against sun damage by supporting collagen production and reducing free radical damage. These pH between 5 to 6, Viscosity, washability, grittiness and irritancy was determined.

So overall, the face wash show that the Pomegranate peels powder based herbal face wash is a safe, natural and skin friendly for the skin and it is in semi-liquid form so that it can be easily pour into the container.

Conclusion:

In current study, Natural or herbal face wash formulation containing Pomegranate peels powder was developed and evaluated by using organoleptic characteristics such as colour, odour and appearance as well as physiological parameters like pH, spread-ability, washability, foamability, grittiness and irritancy test. Five batches were formulated out of that all batches showed good result. When discussing the results of using a pomegranate face wash, it's important to consider the general properties of pomegranate peels and how they might affect the skin. Antioxidant Protection, Improved Skin Hydration, Enhanced Skin Elasticity, Brightening Effects. The studies it was concluded that the prepared formulation can be safely used on face.

Acknowledgment:

I would like to acknowledgment and give my warmest thanks to my guide Prof. Bhavana Tambe who made this work possible. Her guidance and advice carried me through all the stages of my project would also like to thank Dr. Y.V. Ushir Sir and SMBT Institute of Pharmacy for providing me facilities. Finally I would like to thank my family.

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