

REVIEW ON MULTIPURPOSE FACIAL SCRUB CONTAINING BEETROOT, VITAMIN C, AND ALOE VERA

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ABSTRACT

This study aims on the formulating an herbal Face Scrub using natural ingredients incorporated into gel. For the purpose of enhancing skin beauty, several skin conditions are developed, such as skin protection, sunscreen, anti-acne, and anti-wrinkle products. The aim of study is to formulate and evaluate a face scrub with incorporation of the Beetroot an active ingredient. For the purpose of enhancing skin beauty, several skin conditions are developed, such as skin protection, sunscreen, anti-acne, and anti-wrinkle products. In this preparation, Vitamin C is used to exfoliating activity. Other natural ingredients are chia seed and orange peel used to remove grene, dust particles and acne. Esthetic ingredients used in this formulation include neutralizer, moisturizer and surfactants. Among this ingredients, gelling agent and preservative was used. Result: The herbal scrub was prepared and evaluated. The herbal facial scrub formulated in the laboratory was found to be compared with various parameters such as appearance, pH, and spreadability, wash ability, irritability and found to be satisfied with all required characterization. Conclusion: The aim of formulating an Herbal face scrub was found to successful with good results. The face scrub showed a good spreadability. The formulation showed a good peel off property on our skin without causing skin irritation or edema.

Keywords: Herbal Face Scrub, Natural Ingredient Skin Protection.

1. INTRODUCTION

The skincare industry has witnessed a substantial shift towards natural and herbal formulations over the last few decades. Unlike chemical-based skincare products, natural formulations minimize adverse effects such as irritation, allergic reactions, and long-term toxicity [1].

1.1 Market Trends

Demand for Natural and Herbal Skincare

Consumers are increasingly favoring products made with natural, organic, and plant-based ingredients due to concerns over synthetic chemicals and their side effects. [3] Ingredients like aloe vera, beetroot, and vitamin C are highly popular for their perceived skin benefits.

Rising Awareness of Skin Health and Wellness

Post-pandemic, there is a heightened focus on personal wellness, including skin health. Products that offer hydration, antioxidant protection, anti-aging effects, and skin-brightening benefits — such as the proposed formulation — are witnessing increased demand. [5]

Focus on Anti-Aging and Brightening Solutions

Vitamin C has become a key ingredient in the cosmetic industry, particularly in anti-aging and skin-brightening products. Its combination with beetroot and aloe vera offers a unique, antioxidant-rich formulation that aligns perfectly with current consumer needs. [6]

DIY and Small-Batch Beauty Trends

There is a growing niche for handmade, small-batch, or artisanal beauty products that emphasize freshness, transparency, and sustainability. Homemade formulations with natural preservatives, like the proposed scrub, are well-suited to this market trend. [7]

1.2 Herbal Cosmetics

Herbal cosmetics are formulations that integrate the medicinal properties of botanical ingredients into beauty products. These products are designed to enhance external appearance while simultaneously offering therapeutic benefits such as anti-aging, anti-inflammatory, antioxidant, and skin healing effects [9]. Herbal cosmetics reduce the dependency on synthetic additives, thus making them safer for prolonged use across various skin types. Common herbal components such as beetroot, aloe vera, and vitamin C sources have been traditionally utilized for their remarkable efficacy. Beetroot's natural pigments and antioxidants, aloe vera's hydration and repair properties, and vitamin C's collagen-boosting capabilities are widely recognized in cosmetic science, emphasizing the potential of herbal ingredients in modern skincare formulations. [10]

1.2.1 Beetroot

Beetroot is a powerhouse of nutrients including betalains, flavonoids, iron, potassium, and vitamin C. The high antioxidant content in beetroot helps neutralize free radicals, thereby reducing oxidative stress on the skin. It supports detoxification processes and improves the natural glow of the skin. Regular topical application of beetroot-based products can result in reduced pigmentation, minimized blemishes, and a vibrant, youthful complexion.[11]

1.2.2 Vitamin C

Vitamin C is a crucial water-soluble antioxidant necessary for skin health. It plays a vital role in stimulating collagen production, which is fundamental for maintaining skin firmness and elasticity [12]. Vitamin C also inhibits melanin production, helping in lightening hyperpigmentation and brown spots, resulting in a brighter, more even skin tone. Moreover, it shields the skin from oxidative damage caused by UV exposure and environmental pollutants.[13]



FIGURE NO. 1 TOMATO(VITAMIN C)

1.2.3 Aloe Vera

Aloe vera gel is renowned for its skin-soothing, moisturizing, and regenerative properties. It contains over 75 active compounds including vitamins, minerals, enzymes, and amino acids. Aloe vera enhances skin hydration by forming a protective barrier that helps retain moisture. Its anti-inflammatory properties make it ideal for calming irritation and redness [14], while its polysaccharides aid in skin repair and regeneration.

1.3 Herbal Scrub:

A facial scrub is a skincare product specifically formulated to physically exfoliate the skin, aiding in the removal of the outermost layer of dead skin cells, dirt, and other impurities that can clog pores and contribute to a dull complexion. By sloughing off these dead cells, facial scrubs help reveal a fresher, more radiant layer of skin underneath, promoting smoother texture and improved absorption of skincare products applied afterward. Herbal facial scrubs offer a natural alternative to synthetic exfoliants, utilizing gentle yet effective plant-derived ingredients to minimize the risk of microtears or abrasions often caused by rough chemical-based scrubs [15].

2. MATERIAL AND METHOD

◆ Instruments/Materials Required:

1. Hot air oven
2. Laminar airflow cabinet
3. Autoclaved gauze
4. 70% Isopropyl alcohol spray bottle
5. Neutral pH lab-grade soap
6. Glassware (beakers, spatulas, glass jars)
7. Mixing bowls, storage containers

1. Clean the tools: Wash all tools, mixing bowls, and storage containers with hot water and neutral pH lab-grade soap.

2. Rinse thoroughly: Ensure that no soap residue is left on the equipment.

3. Sanitize: Spray or wipe all equipment with 70% isopropyl alcohol to ensure sterility.

4. Dry the equipment: Dry the sanitized equipment using a hot air oven at 60–70°C for 30 minutes or air-dry over autoclaved gauze in a laminar flow cabinet.

Ingredients Table

| Ingredient | Quantity | Purpose |
|--------------------|----------|--|
| Beetroot Powder | 10 g | Exfoliation, nourishment, natural color |
| Chia Seed Powder | 10 g | Exfoliation, moisturizing, anti-inflammatory |
| Aloe Vera Gel | 30 mL | Hydration, gel base |
| Glycerin | 10-15 mL | Moisture retention (humectant) |
| Tomato Powder | 10 g | Antioxidants, skin tone enhancement |
| Orange Peel Powder | 5 g | Natural preservative, exfoliation |
| Rose Water | 5-10 mL | Fragrance, soothing, astringent |

3. RESULT AND DISCUSSION

3.1 Physicochemical Results :

- Appearance & Texture:** The scrub exhibited a thick and grainy, slightly coarse texture due to the presence of natural exfoliants like orange peel powder and chia seeds.
- pH Level:** The scrub maintained a skin-friendly pH around 5.5, suitable for all skin types.
- Moisture Content:** High moisture retention was observed, attributed to glycerin and aloe vera gel.
- Color and Odor:** The natural ingredients imparted a pleasant earthy tone and fresh aroma without synthetic additives.

3.2 Antioxidant Activity Results :

- The scrub demonstrated significant antioxidant activity due to beet root powder, tomato powder (vitamin C and lycopene), and aloe vera gel..
- The presence of betalains, flavonoids, and vitamin C contributed to the overall antioxidant capacity.

3.3 Moisturization Testing Results :

- Hydration tests indicated improved skin moisture levels post-application, primarily due to glycerin's humectant properties and aloe vera's moisturizing effect.
- Skin elasticity measurements showed enhancement, supporting the role of collagen synthesis stimulated by vitamin C.
- The natural oils and omega-3 fatty acids from chia seeds helped maintain skin barrier integrity.

3.4 Interpretation And Discussion:

- The combined effects of exfoliation (orange peel powder, chia seeds) and antioxidant protection (beet root, tomato powder, aloe vera) resulted in improved skin texture and radiance.
- Anti-inflammatory properties of aloe vera and beet root powder helped reduce redness and soothe sensitive skin.
- The photoprotective and detoxifying effects of lycopene and nitrates contributed to skin health and prevention of premature aging. Overall, the scrub formulation showed promising multifunctional benefits, making it suitable for regular skincare routines targeting hydration, exfoliation, and anti-aging.

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