

Formulation and Evaluation of Herbal Face Scrub

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Abstract: *The present study focuses on the formulation and evaluation of a herbal face scrub using natural ingredients for safe and effective skin exfoliation. The herbal scrub was prepared using rice flour, walnut powder, coffee powder, carrot powder, aloe vera, honey, coconut oil, rose water, glycerin, sodium lauryl sulphate, and methyl paraben. These ingredients were selected due to their exfoliating, moisturizing, antioxidant, anti-inflammatory, and skin nourishing properties. The formulation was prepared by simple mixing and trituration methods to obtain a smooth and homogeneous semi-solid preparation.*

The prepared herbal face scrub was evaluated for various parameters such as color, odor, consistency, pH, spreadability, homogeneity, washability, grittiness, and irritability. The results showed that the formulation possessed good spreadability, smooth consistency, acceptable pH (5.9), easy washability, and was non-irritant to the skin. The natural exfoliating agents effectively removed dead skin cells and improved skin smoothness without causing harmful effects.

The study concluded that the formulated herbal face scrub is safe, stable, economical, and effective for routine skincare. The use of herbal ingredients offers advantages over synthetic cosmetic products by providing better skin compatibility with minimal side effects..

Keywords: Herbal face scrub, Exfoliation, Natural ingredients, Rice flour, Walnut powder, Aloe vera, Antioxidant, Skin care, Herbal cosmetics, Moisturizing agents, Skin exfoliant, Polyherbal formulation, Cosmetic evaluation, Natural skincare, Anti-inflammatory activity

I. INTRODUCTION

World Journal of Pharmaceutical Research The body's largest organ is the skin. It acts as a key organ of protection for other body parts. The skin serves as a barrier to protect the inside from external dangers. Cosmetics are widely used to improve attractiveness and available in a many of forms like Skin protection, sunscreen, anti-acne, and anti-wrinkle products for skin beautification. The term Herbal Cosmetic implies that herbal cosmetics are entirely natural and free of all dangerous synthetic ingredients that would otherwise be hazardous to the skin. Face scrubs exfoliate and stimulate blood circulation and promotes skin turnover by removing dead skin cells and adherent cells in the stratum corneum. Face scrub washes the skin eliminates the debris and oil from pores, accelerates the renewal of skin cells. There are three different varieties of skin, including dry skin, oily skin, and sensitive skin. Because dead skin cells are eliminated by using scrub on daily basis, new skin cells are exposed, resulting in skin that is glowing, soft, and healthier. After using scrub, it is recommended as to gently massage on the skin to promote blood flow and improve oxygenation of the skin's surface.

The wellbeing, habits, schedule work, climatic conditions and upkeep were capable for people skin and hair beauty. The skin due to excessive exposure to heat will dehydrate during summer and causes wrinkle, spots, blemishes, pigmentation and sunburns. The extreme winter cause harms to the skin and hairs within the form of cracks, cuts, maceration, contaminations and hair fall. The skin diseases are common among all age groups and can be due to exposure towards organisms, chemical agents, biological toxin present within the environment, additionally to a few amplify due to malnutrition. The only factor they had to rely on was the information and data of nature assemble within the ayurveda. The science of ayurveda had utilized numerous herbs and floras to form beauty care products for beautification and protection from outside affects. The beauty care products, according to the Drug and Cosmetics Act



is characterized as articles intended to be rubbed, poured, powdered or sprayed on, presents into or other various products.

The origin and evolution of cosmetics, from ancient times to the modern era. Ancient Origins of Cosmetics The term "cosmetics" traces its roots to the Greek word "kosmeticos," meaning adornment. Since ancient tribal days, humans have adorned themselves for beautification, with both men and women using various materials. Evolution of Cosmetics Over time, cosmetics expanded beyond adornment to include items like high-heeled shoes and artificial dentures. The acceptance and role of cosmetics in daily life increased significantly postWorld War II, as they were recognized for their psychological and skincare benefits.

Herbal Cosmetics and Cosmeceuticals Herbal cosmetics utilize natural ingredients with cosmetic benefits, gaining popularity for their gentle and non-toxic properties. Cosmeceuticals, introduced in the 1990s, combine cosmetic and pharmaceutical properties, often using plant-based active ingredients for therapeutic benefits. Medicinal Plants and Extraction Techniques Medicinal plants have been used historically for various ailments and are now recognized as important sources of drugs. Extraction methods, including distillation, maceration, and solvent extraction, are used to obtain active components from plants for medicinal purposes. Facial Scrubs and Exfoliation.

This study focuses on the formulation and evaluation of a herbal facial scrub using natural ingredients known for their skin-beneficial properties. The scrub is made from a blend of walnut shell powder, rice flour, aloe vera gel, honey, glycerin, carrot powder, coconut oil, rose water, sodium lauryl sulphate, methyl paraben, coffee powder and Vitamin E. These ingredients are selected for their exfoliating, moisturizing, and skin-rejuvenating effects. The formulation process includes carefully measuring and mixing the ingredients to achieve a smooth, consistent, and effective scrub. Various evaluation tests are conducted, including sensory analysis (Appearance, Texture, Odor), pH testing, viscosity measurement, spread ability, washability, and microbial load tests. The scrub's effectiveness in exfoliating dead skin cells and improving skin texture is assessed, along with its safety, ensuring it is non-irritating and suitable for sensitive skin types. The results indicate that the formulated herbal facial scrub meets the required standards for a safe, effective, and natural skincare product. The use of natural exfoliants and moisturizing agents ensures that the scrub provides both. Many of the marketed products when applied on the skin cause dryness of skin after its long-term use which results less life of skin problems of acne and redness. Solution for this problem is use of scrub which consist all herbal ingredients which increases cleansing, softening, moisturizing, fairness of skin. The use of natural ingredients to fight against acne, wrinkle and also to control secretion of oil is known as natural or herbal cosmetics. Herbal cosmeceuticals usually contain the plant parts which possess antimicrobial, antioxidant and anti-aging properties. Herbal cosmetics are the safest product to use routine with no side effects and cosmaceuticals are the product which influences the biological function of skin.

Anatomy of Skin

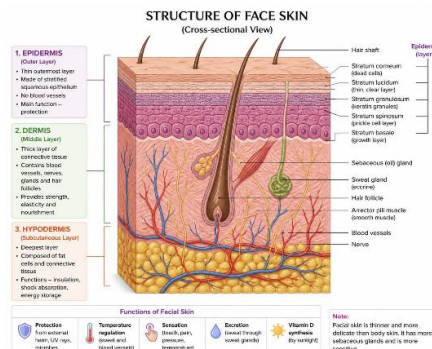


Fig 1. Anatomy of Skin



1. Epidermis (Outer Layer)

The most important layer for face scrubs Contains dead skin cells (stratum corneum) on the surface Also includes melanocytes (pigment cells)Protects from environment, dust, microbesControls water lossRelevance to scrub:Herbal scrubs remove dead cells from this layer → improves glow and smoothness

2. Dermis (Middle Layer)

Contains:Collagen and elastin (give strength & elasticity)Blood vesselsHair folliclesSebaceous (oil) glands

Provides nourishment and support Maintains skin fairness to scrub:

Scrubs do not reach this layer, but improving epidermis health indirectly supports dermis

3. Hypodermis / Subcutaneous Layer (Inner Layer)

Made of fat and connective tissue Insulation Shock absorbtion energy storage.

Benefits of scrubbing skin

- Helps in removing dead cells: Facial or body scrubs are the cosmetic which goes beyond surface level to remove dead skin and reveal the healthy glowing skin below Free the skin form flakes: Loss of upper layer of skin (epidermis) is called as flaky skin.
- gives rise to dry patches. Scrubbing your skin can help you to deal with flaky skin effectively.
- Deep cleaning of skin: Scrubbing your skin helps skin to get free from dirt, oil and sweat. Other cleansing like face wash facial cleansers cannot clean the skin.
- Thoroughly removing dust accumulated in the course of the skin, scrubbing does this work effectively.
- Clears blemishes: Accumulation of dead skin, can block the pores of skin and causes blemishes.Scrubbing frequently helps to remove dead skin and clears blemishes.

Advantages of face Scrubs:

Comfort & Durability: The fabric is lightweight and moisture-wicking, keeping workers cool compared to thicker alternatives.

Budget-Friendly: Provides high-quality, long-lasting options at a lower price point than competitors, offering great value.

Variety & Functionality: Offers multiple lines (including Butter-Soft Stretch and Easy Stretch) with abundant pockets, tailored for functionality and style.

Performance Fabrics: Easy Stretch options are known to repel lint, fur, and hair.

Wide Selection: A broad range of colors, prints, and styles are available, including special prints for holidays.

Application Method

Cleanse First: Start with a clean base by washing your face with a gentle cleanser to remove makeup and surface dirt.

Dampen Skin: Wet your face and neck with lukewarm water to soften the skin.

Apply Scrub: Scoop a small, coin-sized amount of scrub into your palm.

Gentle Massage: Using your fingertips, gently massage the scrub in circular motions, focusing on areas with congestion like the nose, chin, and forehead.

Avoid Sensitive Areas: Avoid the delicate skin directly around your eyes.

Rinse and Dry: Rinse thoroughly with lukewarm water to remove all granules, then gently pat your skin dry with a soft towel.

Post-Scrub Care: Apply a hydrating moisturizer to replenish moisture, and use SPF if performing the routine in the morning.








Fig 2. Before and After use

MATERIAL AND METHOD



Table 1. Formulation of Herbal Face Scrub

Sr.no	ingredients	quantity	Category
1.	 RICE FLOUR	5gm	Scrubbing agent
2	 CARROT POWDER	3gm	Anti-aging and skin whiteing



3.	 HONEY	0.4 ml	Anti-septic
4.	 ALOE VERA	1ml	Anti-oxidant, Soothing and cooling action
5.	 WALNUT	1gm	Moisturizer and soothes skin
6.	 COFFEE POWDER	5gm	Stimulating topical care



7	 COCONUT OIL	0.2ml	Moisturizer
8	 ROSE WATER	Quantity sufficient	Perfume
9	 SODIUM LAURYL SULFATE	0.4gm	Foaming agent



10	 <p>METHYL PARABEN</p>	0.3ml	Preservative
11	 <p>GLYCERINE</p>	1ml	Emolient

METHOD OF PREPARATION

Weighed carefully all the herbal powders, such as coffee powder, carrot powder, rice flour, and walnut, sieved through 120, and mixed them together with mortar and pestle to produce a homogenous mixture.

Weighed fuller's earth, honey, sodium lauryl sulphate, and methyl paraben precisely and triturated them to produce a homogenous mixture. In that combination, add previously made herbal medicine and triturate to get a consistent face scrub drug powder.

In a mortar and pestle, combine coconut oil, glycerin, and aloe vera gel (As a basis), then triturate all of the herbal powder to achieve a paste-like consistency. Rose water was used to provide aroma.



Fig 3. Preparation of Herbal face Scrub



EVALUATION PARAMETER

Colour - The herbal face scrub formulations were looked at to see what color they were.

Odour - The smell of the herbal face scrub formulations was checked by smelling the products.

State - The herbal face scrub formulations were looked at to see what state they were.

Consistency - Take a small amount of the herbal face scrub between the fingers and observe its smoothness, uniformity, and ease of spreading.

pH - The pH of the sample was determined by taking 1 ml of the sample, dissolving it in 10 ml of water, and then measuring it with a digital pH meter while maintaining a constant temperature.



Fig 4. pH Determination

Spreadability - It determines the spreadability of the gel on the skin. A small amount of material was placed on a glass slide, followed by another slide placed over them. Amount of weight placed on slide, spread on slide, and time taken for spread are all measured.

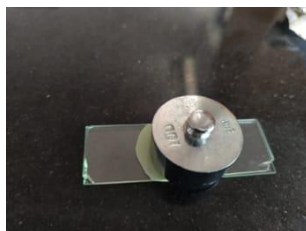


Fig 5. Spreadability

Homogeneity – Homogeneity refers to checking the herbal face scrub appearance by looking at its color, how clear it is, and whether it looks the same throughout. This helps make sure there are no obvious bits or lumps in the face scrub.

Irritability – Apply a small amount of the herbal face scrub on the skin patch and observe for redness, itching, or irritation after 24 hours.



Fig 6. Irritability

Grittiness – This test primarily checks for gritty particles in the formulation by applying the scrub to the skin.

Washability- The washability test for a herbal face scrub involves applying a small amount of the product to the face and then rinsing it with running tap water to see how well it washes off. The ease of removal is evaluated by manually



checking if the face scrub washes off completely and quickly, without leaving any oily, sticky, or visible residue on the face.

II. RESULT AND DISCUSSIONS



Fig 18. Final Product (Herbal Face Sscrub)

Table 2. Evaluation of Herbal Face Scrub

SR.NO	PARAMETER	RESULT
1.	Colour	Brown
2.	Odour	Sweet
3.	State	Semi Solid
4.	Consistency	Smooth
5.	pH	5.9
6.	Spreadability	Uniform
7.	Homogeneity	Smooth
8.	Irritability	Non Irritant
9.	Grittiness	Small Gritty Particles
10.	Washability	Easily Washable

III. DISCUSSION

The study successfully formulated and evaluated a stable, safe, and effective polyherbal facial scrub using natural ingredients with exfoliating, moisturizing, and antioxidant properties. Rice flour and walnut shell powder provided gentle exfoliation and oil control, while carrot and coffee powders offered antioxidant and skin-brightening benefits. Honey, Aloe vera, coconut oil, and glycerin helped maintain skin hydration, soothe irritation, and strengthen the skin barrier.

The scrub showed acceptable physicochemical properties, including a smooth semi-solid texture, pleasant odor, good homogeneity, easy spreadability, and effective washability. Its pH of 5.90 was compatible with the skin's natural acid



mantle, ensuring safety for different skin types. Patch test results confirmed that the formulation was non-irritant and suitable for regular use.

IV CONCLUSION

In the current study, a herbal face scrub was developed and tested for several evaluation parameter. The results shown that the formulation complies the tests. The formulation was discovered to be suitable for application on the skin in order to make it healthy and brighten it without causing any negative effects. Natural and herbal cosmetics are simpler, safer, and more effective to use than other cosmeceutics on the market. The fact that herbal treatments can be used on all skin type is one of their primary selling points. Effectiveness and healthuier skin type are provided bypolyherbal face scrub. The antioxidant, antiseptic, antiaging effect of rice flour, amla, turmeric, walnut, green tea, carrot powder and aloe vera enhance the importance of use of polyherbal face scrub.

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