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Preparation and Evaluation of Poly Herbal Gel Based Exfoliator

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Abstract

Objectives

The primary goal of the research study was to formulate an exfoliant out of natural ingredients mixed into the gel. Cosmetics play an important role in beautifying and altering the appearance of skin in today's society for both men and women. Individuals' confidence can be increased by using skincare products. An individual's health is primarily represented by the skin, which is the largest part of the body. Environmental factors such as ultraviolet rays, pollution, dust, and climatic changes can all have an impact on skin and exacerbate skin problems. Environmental causes of skin damage can be avoided by using topical applications of synthetic or herbal cosmetics. To maintain its health and appearance, the skin's surface requires frequent cleansing to remove oil, sebum, and other secretions, dead cells, crusts, and make-up. Since herbal cosmetics have few or no side effects, their popularity is growing.

Methods

To exfoliate the skin, beetroot powder, coffee powder, sandalwood powder, kalonji powder, and turmeric powder are used in this recipe. Other natural ingredients such as multanimitti are also used to remove grene, dust particles and acne. This Formulation contains aesthetic ingredients such as a neutralizer, moisturizer, and surfactants. Among these ingredients were a gelling agent and a preservative.

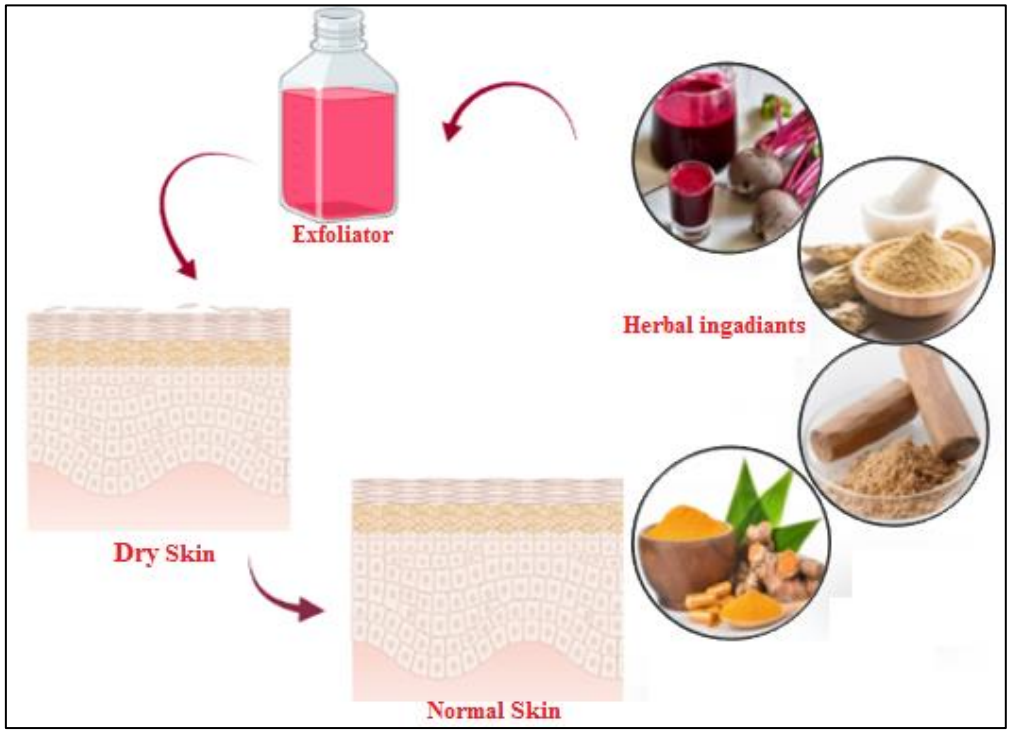
Results

This exfoliant is prepared in the laboratory was found to be comparable to the scrub with several parameters. The prepared gel was evaluated for various parameters such as colour, odour, consistency, pH, viscosity, spreadability, washability, grittiness, foamability, irritability, and extrudability. The results were found to be satisfactory.

Conclusion

This Formulation was tested using a variety of parameters and was found to be effective in improving the appearance of skin while causing no side effects. The application of the scrub gel, which improves blood circulation and increases oxygen supply to the skin's surface. Skin becomes softer, cleaner, and more refreshed after using a scrub.

Keywords**:** *Exfoliant, Natural ingredients, Poly Herbal Gel, Ayurveda herbs*



Graphical Abstract

INTRODUCTION

Traditional knowledge denotes a community's distinct cultures. Indigenous knowledge, i.e., traditional knowledge in the forms of various cultures, languages, clothing, and foods, natural cosmetics, has played a significant role in India. India is one of the countries that believe in Ayurveda. It is a historic Indian medicinal system that is one of the greatest choices for natural treatments because it has no contraindications and is relatively inexpensive for everyone (Banerjee 2020). *Ayurveda* is an ancient medical science that deals with all the essentials of human life ("AYURVEDIC COSMETOLOGY-AN" 2019). India's Ayurvedic natural cosmetics industry is developing at a rate of 20–25 per cent per year, far faster than the country's general cosmetics industry, which is growing at 8–10 per cent per year (Pandey and Srivastava 2019). Ayurveda, which originated in ancient India and evolved over more than 5000 years, is one of the world's oldest medical systems, pioneering the ways of treatment. The aim of Ayurveda is to integrate and balance the body, mind, and spirit (Binorkar 2018). The assessment of shatkriyakala (therapeutic windows) is also unique to Ayurveda, and it aids in the early detection of pathogenesis (Edavalath and Bharathan 2021). The concept of using Aushadha Dravaya or herbs for beauty is widely defined in Ayurveda (Vaughn, Branum, and Sivamani 2016). Over 200 herbs, minerals, and lipids are described in Ayurvedic literature to preserve and enhance skin health and beauty. The use of cosmetics was aimed not just at improving one's exterior look but also at gaining longevity and good health. In ancient India, there was evidence of highly refined self-beautification and a wide range of cosmetics used by both men and women ("Role of Ayurveda in Dentistry" 2019). According to Ayurveda, the skin is one of the essential sense organs. Under the umbrella of Kuha, Ayurveda has its own specific concepts for diagnosing and treating various skin problems (Choudhury 2021). A miracle medication will not make you beautiful. Everyone is lovely in their own way; all it takes is a natural and caring touch to bring out that beauty. Because all five senses are placed on the face, it is one of the most important locations to look after. The individual receiving ayurvedic skincare is pampered with exotic herbs, pure food, and natural and divine beauty care. The primary role of Ayurveda herbs is to cleanse the skin and eliminate vitiated doa (vitiated humour) from the body, as these are the primary causes of skin disorders and other ailments. In Ayurveda, several herbs are

described that can be employed to achieve healthy and bright skin (Vij, Srivastava, and Marde 2019). The fact that the entire cosmetics sector sells on the 'herbal' or 'Ayurveda' brand is a proud moment for all ayurvedic specialists. People are turning to ayurvedic remedies for all kinds of skin problems as their awareness of chemical compounds in skincare products grows. Because the face is the focal point of the situation, there is a high demand for novel and effective ayurvedic face care products (Aditi and Mahajan 2019). Excessive heat exposure dehydrates the skin and increases melanin levels in the summer. Freckles, wrinkles, blemishes, sunburns, and pigmentation are all caused by it. Cuts, cracks, maceration, and infection are common side effects of extreme cold in the winter. To avoid these unwanted consequences, special skincare should be taken into account. To a large part, beauty care aids men and women in seeming more impressive, gorgeous, and intelligent. Cosmetics are products that are applied externally to improve a person's look and self-confidence. In Ayurveda, the concept of employing herbs for beauty is extensively defined. Since the Vedic time, cosmetic preparations such as kajal, tilaka, guru, Chandana, and haridra have been used in India for worship and sexual pleasure. However, a wide range of chemicals is currently employed as ingredients, active agents, colourants, and preservatives in cosmetics. Skincare creams and lotions, cleansers and body washes, nail polishes, deodorants, and other cosmetics are among them. Most cosmetics contain harmful compounds such as talcum, parabens, coal tar dye, phthalates, fragrance, and heavy metals such as lead, arsenic, and cadmium. The majority of individuals are unaware of the harmful effects of these compounds. Over time, it builds up in the body and can cause cancer, reproductive and developmental issues, contact dermatitis, hair loss, lung damage, ageing, skin illness, allergies, and nail damage (Scenario and Cosmetic 2018). In this research work, we only targeted to formulate less side effective exfoliator gel for treating various facial skin problems, in which we are using some natural ingredients such as; Beetroot powder, Sandalwood powder, Coffee seeds, Kalonji Powder, Turmeric Powder, MultaniMitti, Tomato Juice etc. All of the components work well on the skin and have no negative side effects. All of the materials were extracted, and an exfoliant was formulated developing by using some anaesthetic agents, which was then evaluated using some precise parameters and obtained a good result.

METHODS AND PREPARATION

(Aglawe et al. 2019)(Ghadage, Mahamuni, and Kachare 2021)(Prathyusha et al. 2019) Materials required for preparing exfoliants were purchased from the local market and local distributors.

Materials

All the ingredients were powdered and sieved through sieve no. 120. Then they were packed in moisture-resistant, well-closed containers. The different ingredients with their key uses are enlisted in Table 1.

Step 1: Preparation of extract

Cold maceration was used to create the extract. beet root powder, coffee powder, sandal wood powder, kalonji powder, Multanimitti, and turmeric powder for 72 hours in water. This was dried and placed in a desiccator for future use.

Step 2: Preparation of gel

Citric acid was weighed and dissolved in a beaker containing water. Carbopol was added and stirred continuously for a few minutes until it formed a gel. Sodium Luther sulfate was weighed, dissolved separately with water and was added to the above gel. Followed by this, glycerin was added. Dropwise triethanolamine is added to the gel to neutralize the pH. The active ingredient mixture was then added into the prepared gel and stirred.

Step 3: Preparation of Scrub

The prepared gel was mixed with the active ingredient mixture and stirred with a magnetic stirrer. The prepared Formulation was then evaluated using the various parameters. And, following successful evaluation tests, it was packed in a desired and well-labelled container.

Step-1 Herbal extract

Step-2 Aesthetic agents

Step 3: Exfoliator

How to work exfoliator?

Exfoliator with beetroot powder, sandalwood powder, turmeric powder, coffee seeds, multanimitti, and other natural substances with antioxidant properties, smoothing, cooling effect, and promoting fairness. Furthermore, because all of the substances are natural, they have no negative effects on the skin's surface. Figure 1 depicts the before and after effects of employing an exfoliant on the skin. Table 1 shows the formulation data for exfoliators as well as the activity of the components.

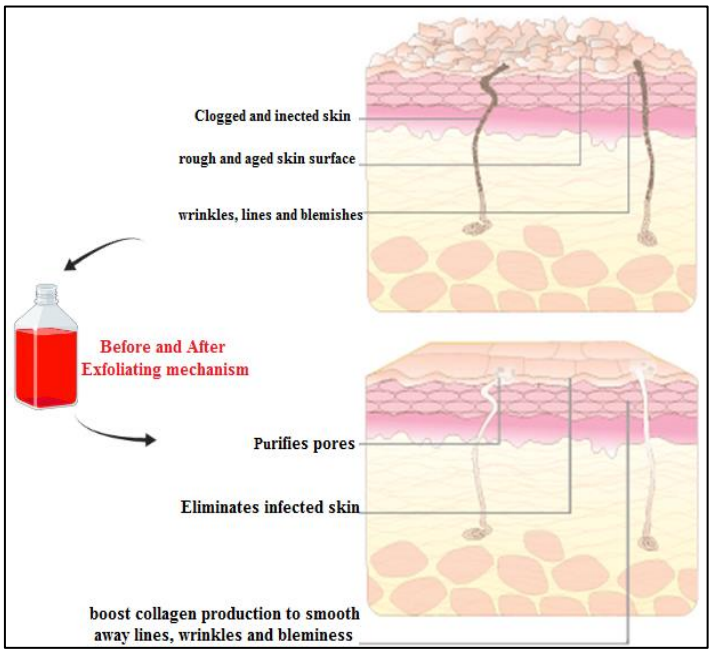


Fig 1: Mechanism of exfoliator

Table 1: Formulation of Polyherbal Scrub

Sr. No.	Components	Activity	Quantity	References
1.	Carbapol	Act as a thinking agent	0.5 gm	(Park and Shlepr, Julie Tamareselvy 2006)
2.	Triethanolamine	Act as an emulsifier agent and surfactant	2 drops	(Sidat Parin S., Ashara S. Jeesha, Varachia Aysha I., n.d.)

		agent		
3.	Glycerin	Act as humectants	0.5 ml	(Sidat Parin S., Ashara S. Jeesha, Varachia Aysha I., n.d.)
4.	Vitamine E	Antioxidant activity	1 ml	(Sidat Parin S., Ashara S. Jeesha, Varachia Aysha I., n.d.)
5.	Sodium Luther sulfate	Foaming agent	0.5 gm	(Prathyusha et al. 2019)
6.	Citric acid	Act as preservative	0.5 gm	(RIYA ARORA et al. 2019)
7.	Beetroot Powder	Antioxidant	0.5 gm	(Prathyusha et al. 2019)
8.	Sandalwood powder	Smoothing, cooling effect and improves fairness	0.5 gm	(Kumar, Anjum, and Tripathi 2015)(Activity and Education 2021)
9.	Turmeric Powder	Reduce acne and any resulting scars, anti-inflammatory, antioxidant, provides glow and lustre	0.5 gm	(Karwa et al. 2021)
10.	Coffee Seeds	Anti-inflammatory, antioxidant	2 gm	(Hilda, Arini, and Nancy 2021)
11.	Kalonji	Anti-bacterial, prevent acne, antioxidant, fights hair fall, fights skin infections, clears skin complexion	0.5 gm	(Mahajan et al. 2020)
12.	Tomato juice (lycopene)	Antioxidant	5 ml	(Packianathan and Kandasamy 2011)(Sopyan, Gozali, and Tiassetiana 2017)
13.	MultaniMitti	Oil and impurities absorber, provide fairness and glow, fights acne and pimples, improves skin elasticity	0.5 gm	(Mahajan et al. 2020)
14.	Water	As a Solvent	Q.S.	-

Evaluation parameter (Sakamoto, Lopes, and Anderson 2010)(Ghadage, Mahamuni, and Kachare 2021)(Prathyusha et al. 2019)

- **Color:** The color of the face wash gel was checked visually.
- **Odour:** The Formulation was evaluated for its odour by smelling it.
- **Appearance:** The prepared scrub gel was evaluated for its odour and colour. The colour was found to be brown in colour, and the odour was found to be characteristic.
- **PH:** 1% solution of our sample was measured by using a digital pH meter at a constant temperature.
- **Consistency:** It was tested manually.
- **Viscosity:** Brookfield viscometer was used to measure the viscosity of our sample. The viscosity of the sample and water were taken in poise.
- **Washability:** When applied to the skin, Formulations can be easily removed by washing. With water were tested manually.
- **Grittiness:** The product was checked for the presence of any gritty particles by applying it to the skin.
- **Foamability:** Small amount of gel was taken in a beaker containing water. The initial volume was noted; the beaker was shaken 10 times and noted the final volume.
- **Grittiness:** The Formulation was checked for the presence of any gritty particles by applying it to the skin.
- **Stability studies:** The stability of the Formulation was tested by filling the scrub in plastic containers and placing
- it in a humidity chamber at 45°C and 75% relative humidity. The stability of the Formulation was inspected for 2 months at the interval of one month.
- **Extrudability:** Extrudability was determined by the time required by the sample to completely extrude from the container, i.e. Sample amount/ time required
- **Irritability:** Little quantity of the scrub was applied to the surface of the skin and kept for a few minutes

RESULT AND DISCUSSION

Table 2: Evaluation of polyherbal facial exfoliator

Sr. No.	Evaluation Parameters	Observation
1.	Color	Reddish
2.	Odor	Characteristics

3.	Appearance	Good
4.	pH	6.2
5.	Consistency	Semi-Solid
6.	Viscosity	Less Viscous
7.	Washability	Easily Washable
8.	Grittiness	Presence of small particle
9.	Foam ability	Good
10.	Stability Study	Stable
11.	Extruability	Easily extruded
12.	Irritability	None

In this study, we formulate a herbal exfoliator with a pleasing appearance, consistency, washability, foamability, and stability. In which we used various natural exfoliates instead of chemicals once, as well as a few aesthetic agents.

All ingredients have various properties such as antioxidant, anti-inflammatory, anti-bacterial, and so on, and the role of the aesthetic agent was formed by stability, foamability, preservation etc.

All exfoliate and anaesthetic agents are easily mixed together by stirring at the appropriate temperature to develop a gel-based herbal exfoliator with good spreadability and soothing properties and showing glowing skin after using the exfoliator.

Future prospects

Besides that, the use of nanoformulations for skincare cosmetics can improve the efficacy of herbal skin cosmetics. Nano liposomes, niosomes, and other nanoparticles have been found to have a higher affinity for skin and improved penetration and stability of herbal ingredients. Nanotechnology-based cosmetic preparations have a wide range of applications in herbal cosmetics in the near future.

CONCLUSION

Herbal face scrub was formulated in this study employing a variety of herbal substances with features such as antioxidant, anti-bacterial, anti-inflammatory, and cooling effects. Various parameters were used to evaluate this herbal exfoliator. The Formulation passed the testing, according to the results. The

created poly-herbal composition nourishes, moisturizes, cleanses, and protects the skin from a variety of skin issues, including premature ageing, acne, and pimples.

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