

Formulation And Evaluation of Herbal Face Scrub Using Exfoliating Agents

Mounika¹, Priya Kumari Sinha², Dr Kavitha P.N³

^{1,2,3}KR College of Pharmacy, Bengaluru, Karnataka, India

ABSTRACT

Herbal face scrubs have become increasingly popular in recent years due to their ability to improve skin health and are available at a low cost. These scrubs contain natural ingredients such as rice powder and orange peel powder, which work to exfoliate, whiten, and prevent free radical damage. Vitamin C, rose water, and almonds are used to hydrate and exfoliate the skin. Neutralizers and herbal preservatives like neem, and rosemary are used in the formulation. The preparation was evaluated for various parameters, such as colour, odour consistency, pH, spreadability, viscosity, and foamability. The results from the evaluation indicated that the scrub was satisfactory after application and was non-irritating to the skin.

Keywords: Scrub, Exfoliation, Consistency, Spreadability.

INTRODUCTION

Cosmetics are widely used to improve one's appearance and are available in a variety of forms. Skincare products are formulated to address various skin issues, such as skin protection, sun protection, anti-aging, and anti-wrinkle treatments. Since ancient times, people have used herbs or herbal cosmetics to cleanse, beautify, and combat oil, acne, discoloration, and pimples, as well as dark circles. A face scrub is an effective way to cleanse the skin, remove dirt, grime, and oil from the pores, maintain elasticity, and promote the regeneration of skin cells. It exfoliates the skin and stimulates blood circulation, while also eliminates dead skin cells. The ideal properties of face scrubs are mild abrasive and non-aggressive. ^[1] Herbal exfoliating scrub helps to reduce the effects of age-related changes on the skin and neutralizes the damage caused by the environment. It can be used to technically clean the surface of the skin or to remove dead skin cells by using herbal products with anti-aging, vitamin, antioxidant, and antiseptic properties. This helps to deep cleanse the skin, making it glow and attractive, and removes the dead skin cells. ^[2,3] The process of facial scrub is straightforward: select a regular scrub suitable for the skin type, rub it for one minute on the moisturized skin, and then wash it off. The scrub is suitable for all skin types. Three different skin types are sensitive, oily, and dry skin. After using the scrub gel, gentle massage is recommended to stimulate blood circulation and oxygenate all skin areas. ^[4]

Benefits of scrubbing skin:

- ✓ Provides individuals with a clean complexion free of dirt, oil, sweat, and other impurities. ^[5]
- ✓ Exfoliation is an effective way to remove all the dust that accumulates in the skin's pores.
- ✓ Scrubbing can help to free skin from dry spots caused by irritated skin and can assist in managing irritated skin more effectively. ^[6]

✓ Exfoliation can also help to restore a healthy glow to the skin. Additionally, exfoliation can help to remove dark patches on the skin, particularly on the knees, elbows, and knuckles. ^[7]

PLANT PROFILE:

Poppy Seeds:

Kingdom - Plantae	
Clade - Tracheophytes	
Class - Alkaloids	
Order- Ranunculales	
Family – Papaveraceae	
Genus - Papaver	

Poppy seeds are known for its gentle exfoliation and anti-inflammatory effects, as well as its ability to smooth and moisturize the skin, thereby restoring its youthful appearance. Additionally, it contains a variety of chemical constituents, including morphine alkaloids (morphine), noscapine (thebaine), papaverine (papaverine), and fiber (fiber), magnesium (magnesium), manganese (manganese), phosphorus (phosphorus), zinc (zinc), and iron (iron). The composition of poppy seeds is 6% hydroxy carbohydrate, 28% carbohydrate, 42% fat, and 21% Protein. ^[8]

Neem powder:

Kingdom - Plantae	
Division - Magnoliophyta	
Class - Dicotyledons	
Order - Sapindales	
Family – Meliaceae	
Genus - Azadirachta	


Neem powder is derived from the dried leaves of the Meliaceae family. It is used as a toner, blemish remover, and blackhead remover. It also balances the skin's oil production and helps to protect the skin from sun damage. It contains vitamin E, fatty acids that tighten the skin and can help to reduce signs of aging. Neem also has anti-inflammatory and antibacterial properties, which can help to calm irritated skin. It also has the benefit of cooling the skin and can be used to treat skin sensitivity. The chemical constituents of neem are Nimbin, Salannin, Nimbandiol, Nimbolide, Ascorbic Acid, Hexacosanol, and Azadirachta. ^[9]

Turmeric powder:

Kingdom - Plantae	
Division - Magnolophyta	
Class - Liliopsida	
Order - Zingiberidae	
Family – Zingiberaceae	
Genus – Curcuma	

Turmeric powder originates from the Curcuma rhizome, which is a family of plants that are part of the Zingiberaceae family. The most powerful ingredient in turmeric is turmeric, which is used to lighten the skin and make it appear more radiant. It is also a powerful antioxidant, which helps to reduce the appearance of dark spots and blemishes on the skin. It is also an anti-inflammatory and anti-microbial, as well as an antioxidant, that helps to manage many skin problems, such as signs of aging and pigmentation, as well as acne. The primary active ingredient in turmeric powder is curcuminoid, which is a non-viral oil. The other four non-viral derivatives of turmeric are curcuminone, demethoxycurcumin, and bisdemethoxycurcumin, which are non-toxic and have a broad range of biological activity. ^[10]

Aloe vera gel:

Kingdom -Plantae	
Division - Magnolophyta	
Class - Liliopsida	
Order - Asparagales	
Family – Asphodelaceae	
Genius - Aloes	

The aloe vera plant belongs to the Liliaceae family and is one of the most common household plants. Aloe vera gel is commonly used on the face and hair to protect the skin from radiation damage, act as an antioxidant, treat bacterial infections, support collagen production and release, and provide anti-inflammatory properties to the skin. Aloe vera gel contains 98% water, which helps in moisturizing, soothing, and hydrating the skin. It is rich in vitamins A, C, E, and B12, as well as aloin chromone and cinnamic acid. It also contains anthraquinone and aloesin, as well as anthracene. ^[11,12]

MATERIAL AND METHOD

Collection and preparation:

The Herbal Face Scrub was composed of poppy seeds, Aloe vera, Turmeric, and Neem powder, which were sourced from the herbal garden and some ingredients from local market in accordance with the species chosen.

Poppy seeds:

- Collected poppy seeds from local markets.
- It was necessary to wash them with distilled water in order to eliminate any dust or impurities.
- The seeds were then wiped and cleaned with a clean cloth and allowed to air dry for a period of several hours before being completely dried.

**Aloe vera:**

- The aloe vera leaves were collected from herbal garden.
- The leaves were washed and cleaned to remove dust and other impurities.
- The aloe vera gel was extracted from the leaves.

**Neem powder:**

- The leaves of the neem plant are taken from the plant and washed to remove any dust or impurities.
- Then, the leaves were dried.
- After drying, the leaves are blended to a fine powder with a grinding machine and passed through the sieve.

**Turmeric:**

- Natural turmeric sticks were collected from the local market.
- Then, those sticks were cleaned and dried under the shade.

- After drying, the sticks were ground into fine powder using a grinder machine and then passed through the sieve.



PROCEDURE:

In order to formulate the face scrub:

- All the ingredients were first cleaned to remove any dirt or impurities.
- Then all ingredients were shade-dried in accordance with our requirements.
- The ingredients were ground into a fine powder with a grinder and then sieved.
- The ingredients were weighed according to the formula specified in the formulation.
- The weighed powder and other ingredients were mixed together to form three formulations
- The formulated face scrub was evaluated and then packed into a container & labelled.



Formulation:

Ingredients	Formulation 1	Formulation 2	Formulation 3
Poppy seeds	5g	4g	6g
Neem powder	3g	2g	3g
Aloe vera gel	2g	2.5g	3g
Turmeric powder	2g	1g	1g
Sandalwood powder	2g	3g	2g
Tea tree oil	2ml	1.5ml	1ml
Glycerine	4ml	3.5ml	4ml
Rose water	Q. s	Q. s	Q. s

EVALUATION TEST:

The prepared face scrub was evaluated for various parameters such as organoleptic properties, pH, irritability, washability, grittiness, extrudability, foamability, spreadability and was found to be satisfactory. The formulated product performs satisfactorily as a cleansing scrub that promotes healthy and luminous skin. [13,14]

Organoleptic properties include:

- ✓ Colour
- ✓ Smell
- ✓ Texture
- ✓ Consistency

Spreadability:

We had put small amount of the scrub on a glass slide, then another glass slide was place on top of the gel. We added a 20g wooden weight to the slide and measured how long it took for it to spread. The amount of scrub and the area it spread on the slide show how effectively it spreads. [15,16]

pH:

A digital pH meter was used to determine the pH of a 1% aqueous formulation solution

Foamability:

The first step was to apply a small amount of scrub to the skin and then add a minimal amount of water to determine whether foam was present. [17]

Grittiness:

This test is performed to check the presence of small gritty particles in the formulated scrub. [18]

Washability:

The scrub was applied on the skin and rinsed with normal water.

RESULTS AND DISCUSSIONS

Parameters	F1	F2	F3
Colour	Yellow	Green	Yellowish green
Odour	Pleasant	Pleasant	Pleasant
Texture	Good	Good	Good
Consistency	Good	Good	Good
Spreadability	Easily Spreadable	Easily Spreadable	Easily Spreadable

Foamability	No	No	No
pH	6.8	7.2	6.7
Grittiness	Yes	Yes	Yes
Washability	Easily washable	Easily washable	Easily washable

Formulation F1, F2, F3 was tested for evaluation parameters such as colour, odour, texture, consistency, spreadability, foamability, washability, pH and grittiness. All the ingredients are herbal in nature therefore there is no side-effect. The formulation F3 was found to be very effective as compared to the F1 and F2. The colour of the product was observed to be yellowish green with no indication of an unpleasant smell. No foam was produced. The consistency of the product was satisfactory for skin application. The texture of the product was good and satisfactory with small gritty particles. The scrub was also washable with regular water, and the pH of the product was determined to be 6.7 indicating its suitability for the skin. The formulation can be applied for all skin types.

Conclusion

In this study, we aimed to create a natural face scrub that is effective and stable, using herbal medicinal compounds for active ingredients. We found that the herbal face scrub contains exfoliants that exfoliate the skin, remove dirt, and give the skin an immediate glow. The active ingredients of the herbal face scrub include poppy seeds, neem powder, turmeric and sandalwood powder which act as anti-bacterial and anti-microbial agents. We did not recommend the use of a scrub containing sulphates or parabens for all types of skin but found that when compared to synthetic scrubs, the use of herbal scrubs is more beneficial. We also found that the herbal scrubs have the fewest side effects when made with natural ingredients. It is accessible to all ages, is less irritating on the skin, and provides the skin with an immediate glow. Based on the results of this research work, we believe that it is a promising formulation of herbal face scrub that exfoliates the skin effectively.

References:

1. <https://www.webmd.com/beauty/what-to-tanning>.
2. <http://www.dermaessentia.com/bluges/detan-natural-home-remedies>.
3. Rieger MM, Harry's cosmeticology. In: Chapter, Face, Body and Hair marks and Scrubs 8th ed. Vol, New York; Chemical Publishing Co., Inc, 2009. p.471-483.
4. Zinnia, Ayurvedic face pack for glowing skin, style craze, Feb 2017(cited 2017 Apr24).
5. <https://www.goodhousekeeping.com/beauty-products/g26311613/best-face-scrubs>
6. Indian standard, Face scrub specifications, IS 15153:2002, August 2002 (cited Aug05).
7. Ghadage P. K. Mahamuni and S.S Kachare, Formulation and Evaluation of herbal Scrub using Tamarind Peel, International Journal of Research, 2020, volume IX (VII): 1-10.
8. <https://www.myglamm.com/glammstudio/homemade-face-scrub>
9. Esha Vatsa, Mehak Aggarwal, Shipra Gantum, Formulation, and evaluation of p Dr Shweta P. Ghade, et al., Formulation and Evaluation of facial Scrub 10. containing Sunflower Seeds & other Natural Ingredients, 2019, Vol 8(9):1772-1781 polyherbal Facial Scrub, Just Agriculture, 2021, Vol 1(9): 1-6.
10. Prathyusha, al, Formulation and Evaluation of Polyherbal Face Scrubber for Oily Skin in Gel Form, International Journal of Pharmaceutical and Sciences and Drug Research, 2019, Vol 11(4): 126- 128.
11. <https://www.rmherbals.in/products/skin-care/herbal-facial-scrub>

12. Abdullahi R. Abubakar, et al, Preparation of Medicinal Plants Basic Extraction and Fractionation Procedures for Experimental Purposes, Journal of Pharmacy and Bioallied Sciences, 2020, Vol 12 (1): 1-10.
13. SK. Kaleem Basha, et al, Poppy Seed - An Overview, RA Journal of Applied Research, 2016, Vol 2 (10):670672.
14. Ashawat, M. S., Banchhor, M., Saraf S. and Saraf, S. (2009). Herbal Cosmetics: Trends in Skin Care Formulation. Pharmacognosy Review. 3 (5):82-89.
15. <https://www.wikihow.com/Use-a-Facial-Scrub>
16. Daud, F. S., Pande, G., Joshi, M., Pathak, R. and Wankhede, S. (2013). A Study of Antibacterial Effect of Some Selected Essential Oils and Medicinal Herbs against Acne Causing Bacteria. International Journal of Pharmaceutical Science Invention. 2 (1):27-34.
17. Mendhekar, S. Y., Sonawane, P. S., Kale, R. B., Jadhav, S. L., and Gaikwad D. D. (2017). Formulation and Evaluation of Polyherbal Facepack. World Journal of Pharmacy and Pharmaceutical Science. 6 (12):13781387.
18. Nguyen, T. (2014). Dermatology Procedures: Microdermabrasion and chemical peels. FP Essentials. 426:16.