



Formulation and Evaluation of Herbal Face Scrub

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ABSTRACT

Herbal face scrub was prepared using natural ingredients. In today's human life face scrubs are quite popular and achieved more amount of success in low cost. They play an important role in altering the appearance of skin in both men and women. The natural ingredients do not cause any side effects; they are used to remain healthy and good appearance, that's why most of cosmetic products prepared by herbs. In this preparation, rice powder is used as ex-foliant, sandal wood powder as anti-tanning and anti-aging property, orange peel powder used to prevent skin from free radical damage and it also has different nutritional sources such as vitamin C. Rose water is used for skin hydration and it also has anti-bacterial properties and exfoliating activity. Aesthetic ingredients used in this formulation include neutralizer and surfactant, and among these, a gelling agent and preservative were used. The prepared herbal facial scrub was evaluated for various parameters like color, odor, consistency, pH, spreadability, extrudability, viscosity, irritability, and foamability. The prepared scrub was evaluated using various parameters and was found to be satisfactory after application. The scrub was non-irritant to skin and the skin became even softer.

Key words: Rice powder, Sandal wood powder, orange peel powder, Rose water, Herbal face scrub.

Introduction

Cosmetics are constituted mixtures of chemical compounds derived from either natural sources, or synthetically created ones^[1]. Cosmetics have various purposes. Those designed for personal care and skin care can be used to cleanse or protect the body or skin. Cosmetics designed to enhance or alter one's appearance (make up) can be used to conceal blemishes, enhance one's natural features (such as eye brows and eyelashes) add color to a person's face or change the appearance of the face or change the appearance of the face entirely to resemble a different person, creature or object.

Cosmetics can also be designed to add fragrance to the body. The word cosmetics derives from the Greek meaning technique of dress and ornament skilled in ordering or arranging^[2]. Cosmetics are constituted from a mixture of chemical compounds derived from either natural sources or synthetically created ones. Cosmetics designed for skin care can be used to cleanse, exfoliate and protect the skin, as well as replenishing it, through the use of cleansers, toners, serums, moisturizers, and balms. Cosmetics designed for more general personal care, such^[3]

Cosmetics designed to enhance one's appearance (makeup) can be used to conceal blemishes, enhance one's natural features (such as the eyebrows and eyelashes), add color to a person's face and—in the case of more extreme forms of makeup used for performances, fashion shows and people in costume—can be used to change the appearance of the face entirely to resemble a different person, creature or object. Techniques for changing appearance include contouring which aims to give shape to an area of the face.

Though there are a large number of differing cosmetics used for a variety of different purposes, all cosmetics are typically intended to be applied externally. These products can be applied to the face (on the skin, lips, eyebrows and eyes), to the body (on the skin, in particular the hands and nails), and to the hair^[4].

Some manufacturers will distinguish only between 'decorative' –cosmetics intended to alter the appearance 'care' cosmetics designed for skincare and personal care.

Cosmetics have been in use for thousands of years, with ancient Egyptians and Sumerians using them. In Europe, use of cosmetics continued into the middle age—where the face was whitened and the cheeks rouged^[5]—though attitudes towards cosmetics varied throughout time, with the use of cosmetics being openly frowned upon at many points in Western history^[5]. Regardless of the changes in social attitudes towards cosmetics, ideals of appearance were occasionally achieved through the use of cosmetics by many.

According to one source^[6], early major cosmetic development includes

- Castor Kohl used by ancient Egyptians
- oil also used in ancient Egypt as a protective balm
- Skin creams made of beeswax, olive oil, and rosewater, described by the Romans
- Vaseline and lanolin in the nineteenth century.

Throughout the later 19th century and early 20th century, changes in the prevailing attitudes towards cosmetics led to the wider expansion of

the cosmetics industry. In 1882, English actress and socialite Lillie Langtry became the poster-girl for Pears of London, making her the first celebrity to endorse a commercial product^[7]. She allowed her name to be used on face powders and skin products^[8]. During the 1910s, the market in the US was developed by figures such as Elizabeth Arden, Helena Rubinstein, and Max Factor. These firms were joined by Revlon just before World War II and Estee Lauder just after. By the middle of the 20th century, cosmetics were in widespread use by women in nearly all industrial societies around the world, with the cosmetics industry becoming a multibillion-dollar enterprise by the beginning of the 21st century. The wider acceptance of the use of cosmetics led some to see makeup as a tool utilized in the oppression and subjection of women to unfair societal standards. In 1968 at the feminist Miss America protest, protestors symbolically threw a number of feminine products into "Freedom Trash Can", with cosmetics among the items the protestors called "instruments of female torture"^[9] and accoutrements of what they perceived to be enforced femininity. As of 2016, the world's largest cosmetics company is L'ORÉAL founded by EUGENE SCHUELLER 1909 as the French Harmless Hair coloring Company (now owned by LILIANE BETTENCOURT 26% and Nestle 28% the remaining 46% is traded publicly. Although modern makeup has been traditionally used mainly by women, an increasing number of men are using makeup to enhance their own facial features or cover blemishes and dark circles. Cosmetics brands have increasingly targeted men in the sale of cosmetics, with some products targeted.

In the United States: "Under the law, cosmetic products and ingredients do not need FDA pre market in approval^[10]. The EU and other regulatory agencies around the world have more stringent regulations^[11]. The FDA does not have to approve or review cosmetics, or what goes in them, before they are sold to the consumers. The FDA only regulates against some colors that can be used in the cosmetics and hair dyes. The cosmetic companies do not have to report any injuries from the products;

they also only have voluntary recalls of products^[12].

The container should be selected carefully for cosmetic packaging to ensure that there is no interaction between cosmetic ingredient and packaging material^[13]. It must be ascertained that neither odor development due to glues nor any incompatibility between material of container and product being employed.

The packaging materials, which are commonly used, are plastic (PVC and PE) bottles and tubes for toiletries. Shampoos rinsed and liquid cosmetics are packed in containers having good barrier properties for water vapor, essential oils and air through container pores. Powders are mostly pack in tin plated or chemically treated steel or internally coated with suitable lacquer^[14]

Materials and Methods

Materials

Orange peel powder, Rose water, Sandalwood powder and Rice flour were obtained from Balu herbals, Hyderabad. Carbopol 940, Citric acid, Triethanolamine, Propylene glycol and Sodium lauryl sulphate were obtained from S.D. fine chemicals, Hyderabad.

Method

Citric acid is weighed and dissolved in a beaker containing water. Carbopol 940 was added and stirred constantly for few minutes^[15] It forms a gel. Sodium lauryl sulphate was weighed dissolved separately with water and was added into the above gel. Then the propylene glycol was added. The orange peel powder, sandalwood powder and the rice flour were triturated well into the mortar and pestle. Then the prepared gel was added into the active ingredient mixture and stirred. At the end, triethanolamine was added to adjust the pH of the formulation^[16]

Table 1: Formulation of Herbal face scrub

| S. No | Ingredients(gm) | F1 | F2 | F3 | F4 |
|-------|------------------------|--------|------|------|--------|
| 1. | Orange peel powder | 4 | 5 | 6 | 7 |
| 2. | Sandalwood powder | 5 | 6 | 7 | 8 |
| 3. | Rice flour | 5 | 6 | 7 | 8 |
| 4. | Carbopol 940 | 1.5 | 2 | 2.5 | 3 |
| 5. | Citric acid | 0.1 | 0.1 | 0.1 | 0.1 |
| 6. | Triethanolamine | 2.5 ml | 3 ml | 3 ml | 3.5 ml |
| 7. | Propylene glycol | 3.5 ml | 4 ml | 4 ml | 4.5 ml |
| 8. | Sodium lauryl sulphate | 1 | 1.5 | 2 | 2.5 |
| 9. | Rose water | q. s | q. s | q. s | q. s |

Evaluation parameters

Appearance

The prepared scrub was evaluated for its odor & color. The color was found to be brownish and pleasant characteristic odor.^[17]

Consistency

It was found to be semisolid and non-sticky with visual observation. The pH of the prepared various formulations of scrub was found to be in the range of 6.99 to 7.02. It is neutral in nature.^[18]

Spreadability

The spread ability is very important in the behavior of scrub that comes from tube. It is used to identify the spread ability by the scrub

on the skin. A small quantity of sample was placed above them. The time taken for the scrub to spread on the slide was noted and measured. It was calculated by using following formula^[19]

$$S = \frac{M}{l \cdot t}$$

S=Spreadability, M=Weight placed on slide, l=Length of the glass slide, t=time taken in seconds.

Extrudability:

Small amount of scrub was taken into an ointment tube. One end close and the other end keep opened. Slight pressure was applied on the enclosed side. The time taken to extrude and amount of scrub extruded was noted.^[20]

Irritability

A small amount of the scrub was applied on the skin and kept for few minutes and it was found to be non – irritated. ^[21]

Foamability

Small amount of scrub and water was taken into measuring cylinder and shaken gently and foam was measured. ^[22]

Viscosity

Brookfield Viscometer was used to measure the viscosity of the scrub. The viscosity was found to be 13700 centipoise. ^[23]

Results**Table 2: Evaluation parameters of Herbal face scrub**

| S. No | Parameters | Standards | F1 | F2 | F3 | F4 |
|-------|----------------|------------------------------------|-----------------------------|-----------------------------|-------------------|-------------------------|
| 1. | Color | - | Dark brown | Dark brown | Light brown | Brown |
| 2. | Odor | - | Characteristic odor | Unpleasant | Pleasant | Very lightly unpleasant |
| 3. | Consistency | Good | Lumps | Lumps and hard | Good | Good |
| 4. | pH | 5.7-7.0 | 8.0 | 7.5 | 7 | 8 |
| 5. | Viscosity | 10106cP-14900cP | 8090 cp | 9860 cp | 10500 cp | 10880 cp |
| 6. | Spread ability | 6.6-8.83 g.cm/sec | 5.3g.cm/sec | 6.0g.cm/sec | 7.5g.cm/sec | 8.2.g.cm/sec |
| 7. | Extrudability | Easily extruded | Hard | Lightly extruded | Easily extruded | Easily extruded |
| 8. | Irritability | Non-irritant | Light irritation | Light irritation | Non irritant | Non irritant |
| 9. | Washability | Washable | Hardly washable | Washable | Washable | Washable |
| 10. | Grittiness | Presence of small gritty particles | Presence of gritty particle | Presence of gritty particle | Slight grittiness | No grittiness |
| 11. | Foamability | Good | Poor | Poor | Good | Good |

Discussion

A simple technique of trituration method of herbal facial scrub into different pharmaceutical formulations was used in present study. Herbal face scrub was formulated, evaluated and studied. Herbal face scrub was prepared by using different quantities of Carbopol 940, triethanolamine and propylene glycol. Four different formulations were prepared separately for each scrub and they were labelled as F-1, F-2, F-3, F-4. The pilot plant techniques were used for the formulation of the facial scrub. A total of four scrubs were prepared and were subjected to evaluation studies. The herbal facial scrub formulated in the laboratory was found to be compared with various parameters such as appearance, pH, spread ability, viscosity, irritability and found to be satisfied with all the required characterization. Thus, the developed scrub was used for healthy and glowing skin. It contained orange peel powder, sandalwood powder and rice flour which has

exfoliation activity, lightens the skin tone and reduces the dark spots and cleaning of oil respectively. Orange peel powder has vitamin C and helps for glowing skin. Sandalwood powder softens the skin and removes the scars. Rice flour helps in exfoliation of skin and has anti-tanning properties. It also absorbs excess oil from the skin and tightens the pores. After using the scrub, skin felt softer, cleaner and refreshed. It made skin youthful, beautiful and soft and glowing. Herbal cosmetics showed lesser side effects or no side effects, hence use of herbal cosmetics get increased.

Conclusion

A systematic approach involving preparation and evaluation of herbal facial scrub using different types of formulation was attempted. The present study was attempted to make an herbal scrub using suitable base to form a gel. The evaluation studies of the herbal facial scrub such as spread ability, pH, irritability, viscosity

studies were conducted which projected satisfactory results. The developed formulation F4 is considered as optimized formulation and can be used as an effective scrub for a healthy and glowing skin. Herbal face scrub responded effectively and helped in exfoliation of skin, softened the face as well. The application of the scrub helps to improve blood circulation and increases oxygen supply all over the skin surface. After application of the scrub, skin becomes softer, cleaner and refreshed.

References

- Schneider, Günther; Gohla, Sven; Schreiber, Jörg; Kaden, Waltraud; Schönrock, Uwe; Schmidt-Lewerkühne, Hartmut; Kuschel, Annegret; Petsitis, Xenia; Pape, Wolfgang (2001). Skin Cosmetics. Ullmann's Encyclopedia of Industrial Chemistry.
- John Wiley & Sons, Ltd. doi:10.1002/14356007.a24_219. ISBN 978-3-527-30673-022.OCLC910197915.Archived from the original on 21 February 2022. Retrieved 2022--21.
- Liddell, Henry George and Scott, Robert κόσμος Archived 2020-11-01 at the Wayback Machine in A Greek-English Lexic
- "Cosmetics and Your Health – FAQs". Womens health.gov. November 2004.Archived from the original on 2013-03-12.
- Angeloglou Maggie, The History of Make-up. First ed. Great Britain: The Macmillan Company, 1970. 41–42. Print
- Pallingston, J (1998). Lipstick: A Celebration of the World's Favorite Cosmetic. St. Martin's Press. ISBN 978-0-312-19914-2.9
- "When Celebrity Endorsers Go Bad". The Washington Post. Retrieved 2 March 2022. British actress Lillie Langtry became the world's first celebrity endorser when her likeness appeared on packages of Pears Soap
- Marsh, Madeleine (2014). Compacts and Cosmetics: Beauty from Victorian Times to the Present Day. Casemate Publishers. p. 40.
- Dow, Bonnie J. (Spring 2003). "Feminism, Miss America, and Media Mythology". Rhetoric & Public Affairs. 6 (1): 127–149. doi:10.1353/rap.2003.0028. S2CID 143094250.
- Duffett, Judith (October 1968). WLM vs. Miss America. Voice of the Women's Liberation Movement. p. 4.
- North, Anna (24 September 2018). "What the rise of men's makeup means for masculinity". Vox. Retrieved 10 April 2022.
- Elan, Priya (23 February 2020). "Beauty and the bloke: why more men are wearing makeup". the Guardian. Retrieved 10 April 2022.
- "Cosmetic Industry". Archived from the original on 2010-09-08. Retrieved 2010-08-04.
- Wei, Daniela (2017-05-31)."Bloggers Touting Makeup Secrets Spur Estee Lauder's China Sales".BloombergNews.Archived from the original on 2017-06-01.Retrieved 2017-06-02.
- "FDA Authority Over Cosmetics". fda.gov. 8 March 2021.Archived from the original on 22 April 2019. Retrieved 16 December 2019.
- "Cosmetics and Your Health – FAQs". Womenshealth.gov. November 2004. Archived from the original on 2013-03-12.
- Regulation". Cosmetics Europe Association. Archived from the original on 4 November 2016.Retrieved 3 November 2016.
- Swati Siddheshwar Londhe1 Mangesh Gautam Bhosale2 Dr. A. A Joshi3 Geeta Sap kale, Formulation and Evaluation of Polyherbal Facial Scrub. [IJSRD -Vol. 7, Issue 11, 2020 ISSN (online): 2321-0613,].
- Pandge Vaishnavi Rajkumar1, Miss. Shinde.R.2, Dr. L. D. Hingane , Formulation and Evaluation of Face Scrub from Rice Powder [(IJARESM), ISSN:

- 2455-6211 Volume 9, Issue 12, December-2021].
- 20.** J. Prathyusha*, N. S. Yamani, G. Santhosh, A. Aravind, B. Naresh, Formulation and Evaluation of Polyherbal Face Scrubber for Oily Skin in Gel Form [: IJPSPP-2019; 11(4): 126-128].
- 21.** Mr K.G Bhutkar* And Mrs. M. Shah, FORMULATION AND EVOLUTION OF HERBAL ANTIBACTERIAL FACE PACK [JETIR May 2019, Volume 6, Issue 5. www.jetir.org (ISSN-2349-5162)].
- 22.** Himaja N, Ashok kumar A, Bhart kumar B, Preparation and Evaluation of Poly Herbal Fruit Face Mask [Volume 2 ~ Issue 11 (2015) pp: 07-13 ISSN(Online): 2347-2995].
- 23.** Mahajan S, Gayakwad D, Tiwari A, Darwhekar GN. Formulation and Evaluation of Herbo-Mineral Facial Scrub. JDDT [Internet]. 15May2020 [cited 21May2022]; 10(3):195-7.