



FORMULATION AND EVALUATION OF HERBAL SCRUB GEL OF WALNUT SHELL

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ABSTRACT

The main objective of present study was to prepare a Herbal scrub Gel. 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 cosmeceuticals are the product which influences the biological function of skin. Different herbs are used for cleaning, beautifying the skin. In this preparation Walnut, cinnamon, rice powder, sandalwood, neem, turmeric and honey is used as active ingredients and incorporated into the gel which is prepared with carbopol of different grades. Other ingredients like propylene glycol, triethanolamine, methyl parahydroxy benzoate was added along with sodium lauryl sulfate into the gel. The prepared gel was evaluated for various parameters such as appearance, pH, viscosity, spreadability, washability, irritability. Formulations showed good spreadability, good consistency, homogeneity, appearance, pH, ease of removal. The formulation shows no redness, edema, inflammation and irritation during irritancy studies. These formulations are safe to use for skin and found to be satisfied with all required characterizations. Thus, the developed formulation can be used as an effective scrub for using it to bear a healthy and glowing skin.

KEYWORDS: Scrub, Walnut, Glowing skin, Herbal, Gel

INTRODUCTION

Cosmetics are defined as the products used for the purposes of cleansing, beautifying, promoting attractiveness or alternating the appearance. Cosmetics are developed to reduce wrinkles, fight acne and to control oil secretion. Cosmetics are available as various forms and each has its own role to play on the skin. They have varieties of properties like antioxidant, anti-inflammatory, antiseptic, emollient, antikerolytic activity and antibacterial.

Skin care cosmetics include cosmetics to clean the skin, cosmetics to moisturize the skin, protective cosmetics and cosmetics to thin the skin or what are commonly called peels. One example of cosmetic skin care is scrubs. Just like skin cells on the face, skin cells in the body are also regularly replaced with new, healthier cells under the skin. The process of replacing these cells will slow down as we age. ^[1]

Face skin is the major part of the body, which indicates the health of an individual. Facial scrub is the cosmetic product which cleanses, exfoliates the skin of the face and gives healthy complexion. Skin becomes dull, non glowing due to various causes and these can effectively be overcome with the application of scrubs.

Generally, skins are of three types; dry skin, oily skin and sensitive skin. The people with dry skin must use facial scrub which contains hydrating ingredients and moisturizer is must for them after using scrub. For dry skin, cream based scrub is useful. Gentle scrubs should be used for sensitive skin. For those who are having oily skin, it is essential to get a scrub that exfoliates deeply to prevent the pores from clogging and also to balance the skin's oil production. For oily skin, Gel based scrub is preferred. We can use a face scrub twice or thrice a week followed by lightweight face oil. Regardless of skin type, always we should select a scrub which is not hurtful but gentle to the skin. The harsh ones can do more harm than good to the skin. For sensitive skin, scrubs with super soft granules are having good results.

Properties of Ideal Scrub

- It should be nontoxic
- It should possess small gritty particles
- It should be mild abrasive
- It should be non-irritating and non-sticky.
- It should be able to remove dead skin cells.

From the ancient time, different herbs are used for cleaning, beautifying and to manage them. These herbal



products claim to have less side effects, commonly seen with products containing synthetic agents.^[2]

Facial scrub in gel form is having many advantages than other formulations for topical application. Gels are the semi-solid dosage forms that are used for topical application. They are most predominant among all the semi-solid dosage forms. Gel is the network of mixture of gelling agent and a solvent. The drug molecules are embedded evenly in the solvent. Based on the nature of the solvent, gels are basically of two types, Hydrogels and Organogels. Gels are composed of two interpenetrating systems where the colloidal particles, also known as the gelator are uniformly distributed throughout a dispersion medium or solvent forming a three dimensional matrix known as the gel.^[6] The gels are prepared by adding a gelling agent (gelator) which could be natural, synthetic or semi-synthetic polymer or low molecular weight small molecules, into an organic, inorganic or aqueous solvent or solvent systems. The polymer in gels acts as the backbone of the gel matrix. The polymeric meshwork gives gel its structural strength, increased adherence to the surface where applied and decreased permeation of the larger molecules hence making the retention possible. During the gel formation, swelling occurs as a result of solvent penetration causing the polymer network to stretch and hold its shape and entwine the drug particles in them. Viscosity plays an important role in the preparation of a gel.^[3]

Face skin is the major part of the body, which indicates the health of an individual. There are two types of scrub being used on the skin such as facial scrub and body scrub. These two differ only with the ratios of oil and sugar added in each. Usage of oil is high in facial scrub due to which it is less abrasive. It removes the dead skin cell and exfoliates the skin. Scrub can be used on any type of skin. Only the essential oil used in scrub as ingredient will vary with the type of skin. Skin is classified into

three types such as dry skin, oily skin and sensitive skin. On regular use of scrubs, skin becomes glowing and smoother because dead skin cells are removed thereby exposing new skin cells. Mild abrasive agent is one of the key ingredients in facial scrub formulation. Scrubs can be directly applied on to the skin or can be applied with small cosmetic pad. Gentle massage is recommended on application of the scrub gel which helps to improve blood circulation and increases oxygen supply to all surface of the skin.^[4] Besides scrubbing agent body scrub contains emulgator and preservative. Emulgator commonly used in body scrubs is triethanolamine (TEA). TEA is a chemical that is widely used in topical or cosmetic product for emulsion forming.^[5]

MATERIALS AND METHODS

The extract was prepared by cold maceration process. Walnut shell, Cinnamon, Millet, Sandalwood, Neem, Turmeric were ground and kept with water for 72hrs. This was dried and stored in desiccator further use.

Preparation of Herbal Scrub Gel

Methyl paraben was weighed and dissolved in a beaker containing water. To this carbopol was added and stirred continuously for few minutes until it forms a gel. Sodium lauryl sulfate was weighed, dissolved separately with water and was added into the above gel. Followed by this propylene glycol was added. Drop wise triethanolamine added into gel to neutralise the pH. The active ingredient mixture was then added into the prepared gel and stirred.^[1] Formulation table of herbal scrub of walnut shell given in Table 1 and formulated herbal scrub gel of walnut shell shown in Figure 1.

Sr.No.	Common Name	Category	Quantity
1	Walnut Shell	Anti aging, anti oxidant	2
2	Cinnamon	Anti-bacterial	2
3	Rice powder	Improves complexation	3
4	Honey	Antiseptic, antioxidant	4
5	Sandalwood	Smoothing, cooling effect and improves fairness	1
6	Neem	Skin conditioner, antiseptic	0.5
7	Turmeric	Antiseptic, improves fairness	0.5
8	Carbopol	Gelling agent	2
9	Methyl paraben	Preservative	0.1
10	Triethanolamine	Nutraliser	0.1
11	Propylene glycol	Moisturiser	2
12	Sodium lauryl sulphate	Foaming agent	4
13	Distilled water	Vehicle	Qs

Table No. 1: Formulation of Herbal Scrub Gel of Walnut shell



Figure 1: Formulation of Herbal Scrub Gel of Walnut shell

EVALUATION OF HERBAL SCRUB GEL OF WALNUT SHELL

The prepared gel was evaluated for appearance, pH, consistency, Spreadability, extrudability, viscosity, irritability, wash ability, grittiness, foam ability, Patch test, stability studies.

1. Appearance-

The prepared scrub gel was evaluated for its odour and color.

2. pH

pH of the prepared gel was evaluated. Small amount of the gel was applied on the pH paper.

3. Consistency

It was found to be semi solid with visual observation.

4. Spreability

Two slides are taken and small amount of the gel was placed on the glass slide and another glass slide was placed on the gel. A wooden weight was placed on it. The time required for the gel to spread and the area was measured. The amount and the area of gel on the glass slide represents the efficiency of spreadability.

5. Extrudability

Small amount of gel was taken into a collapsible ointment tube. One end closed and the other end kept opened. Slight pressure was applied on the closed side. The time taken to extrude and the amount of gel extruded was noted.

6. Viscosity

Brookfield viscometer was used to measure the viscosity of gel.

7. Irritability

Small amount of the gel was applied on the skin and kept for few minutes and found to be non irritant.

8. Washability

Little quantity of gel was applied over the skin and was washed with water. Formulations when applied on the skin

can be easily removed by washing with water were tested manually.

9. Grittiness

The formulation was checked for the presence of any gritty particles by applying it on the skin.

10. Foamability

Small amount of gel was shaken with water in a graduated measuring cylinder and the foam was measured. Initial volume was noted; beaker was shaken for 10 times and noted the final volume.

11. Patch test

Patch testing is well established method for diagnosing the hypersensitivity as well as to determine the potential of a specific substance to cause the allergic action on patient skin. In patch test a small area of skin is exposed to those chemicals in dilute form whose specific effect on skin is to be studied. In patch test reaction of formulation on skin is observed in 2-3 days.

12. Stability study

The stability of the formulation was tested by filling the scrub in plastic containers and placing it in humidity chamber at 45°C and 75% relative humidity. The stability of the formulation was inspected for 3 months at interval of one month each. ^[6]

RESULT

Herbal scrub was formulated using simple gel preparation method. From results it was showed that scrub was soft, easy to spread and applies comfortably to the skin based on spreadability test. Spreadability, viscosity and pH of formulation was found to be good. Stability studies of gives good results during 3 months. All parameters are evaluated and results are in given in Table 2.



Table 2: Evaluation of Herbal scrub of walnut shell

Sr. No.	PARAMETERS	OBSERVATION
1	Color	Brown
2	Odour	Characteristic
3	Consistency	Good
4	pH	6.8
5	Viscosity	1.4 poise
6	Spreadability	5.72 g/cm/sec
7	Washability	Easily washable
8	Grittiness	Small gritty particles
9	Foam ability	100 ml at 5 min
10	Irritability	Non-irritant
11	Extrudability	Easily extruded
12	Patch test	Non-allergic

CONCLUSION

The present study was attempted to prepare a herbal scrub gel of walnut shell. The prepared scrub gel was evaluated using various parameters and was found to be satisfied for the application on the skin to make it healthy and glowing without any side effects. The prepared scrub is planned to carry out with *in vivo* studies for its irritancy.

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REFERENCES

1. Damayanti Hilda, Aprilliani Arini, Clarissa D. Nancy. Formulation of Body Scrub Cream From Extract of Arabika Green Coffee (*Coffea arabica L.*) as Antioxidant. *Advances in Health Sciences Research*, volume 33
2. Parashar Bharat, Sharma Pankaj, Kabra Atul, Sharma Pankaj. Formulation and evaluation of polyherbal face cream. *International pharmaceutica scientia/ july-september 2013 | vol. 3 | issue 3*
3. S. S. Londhe, M. G. Bhosale, Dr. A. A. Joshi, Geeta Sapkale. Formulation and Evaluation of Polyherbal Facial Scrub. *International Journal for Scientific Research & Development/ Vol. 7, Issue 11, 2020 | ISSN (online): 2321-0613*
4. S. B. Aglawe, A. U. Gayke, A. Khurde, D. Mehta, T. Mohare, A. Pangavane, S. Kandalkar. Preparation and evaluation of polyherbal facial scrub. *Journal of Drug Delivery & Therapeutics*. 2019; 9 (2):61-63
5. A. Ervinal, J. Santoso, B. F. Prasetyo, I. Setyaningsih, and K. Tarman. Formulation and characterization of body scrub using marine alga *Halimeda macroloba*, chitosan and konjac flour. *IOP Conference Series: Earth and Environmental Science* 414 (2020) 012004
6. J. Prathyusha, N. S. Yamani, G. Santhosh, A. Aravind, B. Naresh. Formulation and Evaluation of Polyherbal Face Scrubber for Oily Skin in Gel Form. *International Journal of Pharmaceutical Sciences and Drug Research* 2019; 11(4): 126-128