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Formulation and evaluation of polyherbal antioxidant Face Scrub

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Abstract

The need for the herbal cosmetics growing rapidly in comparison to conventional cosmetics Which is gain greater and greater importance around the world, especially herbal face scrub plays a crucial role for removing dead cells, dirt present on the skin surface which make a good skin appearance. The main objective of this study was to formulate the poly herbal antioxidant face scrub. Here we formulated five different formulations by using Rosary pea, Nutmeg, Jamun, Jujube, Multan clay, sodium lauryl sulphate

Triethanolamine, Propylene glycol, Citric acid, Rose water and Distilled water. Further evaluation is done by various parameters such as physical appearance, viscosity, pH, spread ability, washability and irritability. The active ingredients are having rich source of anti-oxidant activity which helps in increase level of oxygen supply, boost the blood circulation, regeneration of cells, removes dead cells and convert the free radicals into less reactive species.

Keywords: Antioxidant, Exfoliant, Seed, Sodhana

Introduction

The human skin covers huge area of the body and it consists two layers, mainly epidermis and dermis. Hypodermis is third layer of the skin. The skin involved within the following functions are regulation of body temperature; metabolism and disposal of biochemical wastes, protection from radiation and external stimuli like chemicals, light, heat and cold^[1]. Generally, skin is extremely smooth but we have to use cosmetics when the skin gets lost their smoothness. Cosmetics are defined at the same time as the products used for purposes of cleansing, beautifying, promoting attractiveness or changing the appearance^[2]. Among all kinds of cosmetics products, the skin care products are most generally employed by peoples. Cosmetics are applied to several parts, the most important part being the face. They have been largest sector of the cosmetics marketplace for a few years, and their market still continuous to grow. The health of an individual indicates by appearance of Facial skin^[3]. Cosmetics are available as various forms and every has its own role to play on the skin. Skin becomes dull, non-glowing due to various causes and these can effectively overcome with the application of scrubs. Scrubbing is the process of eliminating dead skin cells from the skin surface. Generally, a facial scrub may be a cream or gel-based products that contain tiny exfoliating pieces^[4]. Now a day, increasing demand for herbal products in the cosmetics market. Herbal cosmetics are safe to use, no side effects and compatible with all skin types. Antioxidant properties of herbs are playing an important role in the formulation of herbal face scrub. Antioxidant means "against oxidation" which offer the protection to living organism damage caused by uncontrolled production of reactive oxygen species^[5]. Facial scrub in gel form has many advantages than other formulations which should be non-toxic, possess small gritty particles, mild abrasive, non-irritating and capable to remove dead skin cells^[6]. Herbal facial scrub helps to recover blood circulation and increases oxygen supply when directly applied on to the skin and massage gently.

Materials and method

Collection of plant materials

The materials used in the present study were purchased from the local market of Coimbatore. Dried and powdered for further use.

Preparation of seed powder

Collected seeds were washed with water to remove dirt present on their surface. After washing, dried the seeds to remove moisture content. Grinded the seeds into powder form and sieved the powder for uniform particle size. Stored in well closed container.

Detoxification of *Abrus precatorius*

Abrus precatorius seeds contain a toxic lectin, abrin and Hypaphorine which are removed by sodhana process in ayurvedic detoxification system. They are subjected to Dola Yantra technique using sodium chloride solution. Accurately 50 gm of powdered seeds were weighed and placed in white cotton cloth and tied to a stick which looks as a Dola yantra: the powder was dipped completely but it was not touched to the bottom. This powder was boiled for 6 hours using sodium chloride solution. The detoxified powder was subjected to air dry in shade. The dried detoxified powder was stored in a well closed container^[7].

Drug and Excipients profile

Table 1: Ingredient's name and their categories

S.no	Name of Ingredients	Category
1	<i>Myrstica fragrans</i> powder	Exfoliant.
2	<i>Ziziphus jujuba</i> seed powder	Antioxidant
3	<i>Syzygium cumini</i> seed powder	Antioxidant
4	<i>Abrus precatorius</i> detoxificated powder	Antioxidant
5	Multani mitti	Cleansing agent
6	Carpobol 940	Gelling agent
7	Citric acid	Preservatives
8	Triethanolamine	pH neutralizer
9	Propylene glycol	Moisturizer
10	Sodium lauryl sulphate	Foaming agent
11	Rose water	Perfume



Fig 1: Carpbol 940 gel and poly herbal face scrub

Evaluation

1. Organoleptic properties

- Colour:** The colour of formulation was checked manually and observed.
- Odour:** The smell of formulation was checked by applying preparation on hand and feels the fragrance of perfume.
- Consistency:** The consistency of the formulation and particles were used to check the texture and homogeneity of preparation on the skin such as stiffness, grittiness, Greasiness effect.
- Homogeneity and texture:** It was tested by pressing a small quantity of the formulated scrub between the thumb and index finger.

2. pH

1% of solution of sample was measured by using a digital pH meter at constant temperature.

3. Spreadability

A small quantity of sample was placed on a glass slide and another slide was placed above them; 100 g of weight

12	Distilled water	vehicle
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Formulation of herbal face scrub

Table 2: Formulation of polyherbal face scrub

S.no	Ingredients	F1	F2	F3	F4	F5
1	<i>Myrstica fragrans</i> powder(g)	4	3	4	3	4
2	<i>Ziziphus jujuba</i> seed powder(g)	4	4	4	4	4
3	<i>Syzygium cumini</i> seed powder(g)	4	4	4	4	4
4	<i>Abrus precatorius</i> detoxificated powder(g)	2	1	1	2	3
5	Multani mitti(g)	4	4	4	4	4
6	Carpobol 940(g)	1	1.5	2	1	1.5
7	Citric acid(g)	0.025	0.025	0.025	0.025	0.025
8	Triethanolamine (ml)	2	2	2	2	2
9	Propylene glycol(ml)	3	3	3	3	3
10	Sodium lauryl sulphate(g)	0.5	0.5	0.5	0.5	0.5
11	Rose water(drops)	2	2	2	2	2
12	Distilled water (q.s)	q.s	q.s	q.s	q.s	q.s

Procedure for preparation of polyherbal face scrub

The required quantity of water was taken in beaker and dissolve citric acid. The weighed quantity of carbopol 940 was added and triturate well until uniform gel was obtained. Then sodium lauryl sulfate was dissolved and added. Then propylene glycol was added. To this seed powders was added one by one, then triturated well. And at last, triethanolamine was added to adjust the pH^[8].

was placed on the slide. The time taken for the gel to spread on the slide was noted and measured. It was calculated by using following formula:

$$S = M \times L / T$$

Where

S= Spreadability

m=Weight placed on slide

l=Length of the glass slide

t= Time taken in seconds

4. 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.

5. Viscosity

DVE Model Brookfield viscometer was used to measure the viscosity of our sample. Viscosity of sample and water were

taken in centipoises at 60 rpm.

6. Washability

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

7. Irritability

Small quantity of the preparation was applied on the dorsal part of hand and kept for few minutes

8. Grittiness

Gel was found to have a few gritty particles.

9. Foamability

Small amount of scrub was shaken with water in a graduated measuring cylinder and foam was measured.

Results

Table 3: Evaluation of formulated face scrub

S.no	Parameters	Observation				
		F1	F2	F3	F4	F5
1	Colour	Brown	Brown	Brown	Brown	Brown
2	Odour	Aromatic	Aromatic	Aromatic	Aromatic	Aromatic
3	Consistency	Semi solid				
4	Homogeneity	Good	Good	Good	Good	Good
5	pH	6.8	6.7	7.0	6.5	6.9
6	Spreadability	4.83g.cm/sec	4.5g.cm/sec	4.3g.cm/sec	4.6g.cm/sec	4.5g.cm/sec
7	Extrudability	Easily extrudable	Easily extrudable	Moderately extrudable	Easily extrudable	Easily extrudable
8	Viscosity	240 cp	230 cp	320cp	210 cp	250 cp
9.	Washability	Good	Good	Good	Good	Good
10.	Irritability	Non irritant				
11.	Grittiness	Small gritty particles				
12.	Foamability	5ml at 5min				

Discussion

Formulation F1 to F5 was tested using various evaluation parameters. All formulation was Brown in color, Aromatic odor and Semisolid consistency. Spread ability, viscosity, and pH of F5 formulation was found very good compared to F1, F2, F3 and F4. All formulation (F1-F5) had good washability, Foamability, Non-irritant property and contains small gritty particles. All the active ingredients used in the polyherbal antioxidant face scrub were collected from natural sources. So, the chances for its side effects may be less.

Conclusion

Herbal face scrub removes dead cells, boost blood circulation and increase oxygen supply of facial skin. The current work was done to formulate polyherbal antioxidant face scrub using Carbopol 940. The formulated scrub was evaluated using various parameters and was found to be satisfied with the application on the skin to make it healthy and glowing without any side effects. In future, the impact on the skin gets alter due to the changes of environment lifestyle and food habits which will lead to the development of various formulation of face scrub.

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