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Research Article

Formulation And Evaluation Of Face Scrub In Modern Pharmaceutics: An Herbal Formulation

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ABSTRACT

Background:

In today's life for both women and men cosmetics plays an important role to beautifying and altering the appearance of skin. The use of natural ingredients to remain healthy and of good appearance, the skin surface requires frequent cleansing to remove oil, sebum and other secretions, dead cells, crusts and applied make-ups. Aim: This study aims on the formulating an herbal Face Scrub using natural ingredients incorporated into gel, For the purpose of enhancing skin beauty, several skin conditions are developed, such as skin protection, sunscreen, anti-acne, and anti-wrinkle products.

Material and Method

In this preparation, Roasted gram peel are used to exfoliating activity. Other natural ingredients are tamarind powder and multani mitti used to remove grene, dust particles and acne. Esthetic ingredients used in this formulation include neutralizer, moisturizer and surfactants. Among this ingredients, gelling agent and preservative was used.

Result:

The herbal scrub was prepared and evaluated. The herbal facial scrub formulated in the laboratory was found to be compared with various parameters such as appearance, pH, and spreadability, wash ability, irritability and found to be satisfied with all required characterization.

Conclusion

The aim of formulating an Herbal face scrub was found to successful with good result

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The face scrub showed a good spreadability. The formulation showed a good peel off property on our skin without causing skin irritation or edema.

INTRODUCTION

Cosmetics Throughout History

The origin and evolution of cosmetics, from ancient times to the modern era.

Ancient Origins of Cosmetics

The term "cosmetics" traces its roots to the Greek word "kosmeticos," meaning adornment. Since ancient tribal days, humans have adorned themselves for beautification, with both men and women using various materials.

Evolution of Cosmetics

Over time, cosmetics expanded beyond adornment to include items like high-heeled shoes and artificial dentures. The acceptance and role of cosmetics in daily life increased significantly post-World War II, as they were recognized for their psychological and skincare benefits.

Modern Understanding of Cosmetics

Cosmetics are now considered essential commodities, not merely for adornment but also for skincare and psychological well-being. The skin, particularly the face, serves as an indicator of an individual's health.

Herbal Cosmetics and Cosmeceuticals

Herbal cosmetics utilize natural ingredients with cosmetic benefits, gaining popularity for their gentle and non-toxic properties. Cosmeceuticals, introduced in the 1990s, combine cosmetic and pharmaceutical properties, often using plant-based active ingredients for therapeutic benefits.

Medicinal Plants and Extraction Techniques

Medicinal plants have been used historically for various ailments and are now recognized as important sources of drugs. Extraction methods, including distillation, maceration, and solvent extraction, are used to obtain active components from plants for medicinal purposes.

Facial Scrubs and Exfoliation

Facial scrubs use mechanical or chemical means to exfoliate the skin, removing dead cells and promoting cell turnover. Herbal facial scrubs offer benefits such as reducing age-related changes and environmental damage.

Benefits of Scrubbing Your Skin

Scrubbing cleanses the skin, removes dead cells, and improves skin texture, promoting a clear, smooth, and glowing complexion. It can also help in the removal of dark patches, acne scars, and prevention of ingrown hair. At the end, Cosmetics have a rich history rooted in human desire for adornment and skincare. From ancient practices to modern formulations, cosmetics continue to play a vital role in personal grooming and well-being.

MATERIAL

Plant Material

Roasted gram Peel Powder, Tamarind Powder, Multani Mitti, Aloe vera, Saffron strand, Neem powder, Turmeric powder, Tulsi powder was taken as plant material in this formulation. Aloe-vera was collected from the Botanical Garden, Lucknow Model College of Pharmacy, Lucknow. Roasted gram Peel Powder, Tamarind Powder, Multani Mitti, Aloe vera, Saffron strand, Neem powder, Turmeric powder, Tulsi powder was purchased from the local market of Dubagga, Lucknow.

1. Aloe-Vera

Synonym-

Aloe vera, burn plant

Biological source –

Dried latex of leaves of it also known as cape aloe belong to the

Family-liliaceae

Description –

Colour- clear to slightly yellow / translucent gold

Odour-similar like rotten garlic or onion.

Taste- Bitter

Chemical constituents - aloe emodin.

Uses - heals burns and clears acne.



Fig 1: Aloe-Vera

2. Honey

Synonym – Shahad

Biological source –

It consists of saccharine liquid prepared from the nectar of the flowers by Honeybee *Apis mellifica* belonging to family Apadae.

Description –

Colour- Yellow brown coloured liquid,

Odour – Sweet, **Taste** – Sweet.

Chief chemical constituents - Dextrose and laevulose (70-80%) Dextrin (0.06-1.25%) Proteins

Uses - Good for wrinkles and aging Prevent acne Remove dirt from pores.



Fig 2: Honey

3. Turmeric Powder

Synonym –

Curcuma longa

Biological source –

It consists of dried rhizomes of *Curcuma longa* belonging to family Zingiberaceae.

Description –

Colour - Yellow,

Odour – Aromatic,

Taste – Bitter

Chief chemical constituents - Curcumin, Curcuminoids

Uses –

Reduce acne, Glowing skin and Lightens skin. Turmeric has the potential to reduce swelling (inflammation) and irritation. Inflammation and irritation can aggravate other skin conditions, so using turmeric as a regular face mask can help.



Fig 3: Turmeric Powder

4. Tulsi Leaves Powder

Synonym –

Tulsi

Biological source –

It consists of dried leaves of *Ocimum sanctum* L belonging to family Lamiaceae.

Description –

Colour- green , **Odour**-aromatic

Taste - Pungent

Chief Chemical constituents - oleanolic acid, ursolic acid, rosmarinic acid

Uses –

Prevents acne and pimples, Improve skin texture, Cleanser

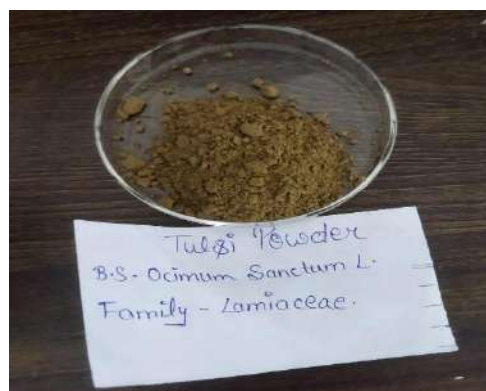


Fig 4: Tulsi Leaves Powder

5. Saffron

Biological source:

It is the dried stigma and style tops of *Crocus sativus* Linn., belonging to family Iridaceae.

Description:

Colour- yellow-orange, **Odour-**aromatic

Taste: Bitter

Chief Chemical constituents :

carotenoids (crocetin, crocin, β -carotene, lycopene and zeaxanthin), monoterpene aldehydes (picrocrocin and safranal), monoterpenoids, and isophenones.

Uses –

Protect the skin from harmful UV rays.



Fig 5: Saffron Stand

6. Sandalwood Powder

Biological source –

Its oil is obtained by distillation of sandalwood, *Santalum album* Linn., belonging to family Santalaceae.

Description –

Colour- soft neutral with subtle reddish-brown undertones,

Odour- rich creamy

Taste- creamy, nutty taste similar to a macadamia, hazelnut, or almond.

Chief Chemical constituents - Sandalwood oil contains more than 90% sesquiterpenic alcohols of which 50–60% is the tricyclic α -santalol.

Uses - Antiseptic and preservative

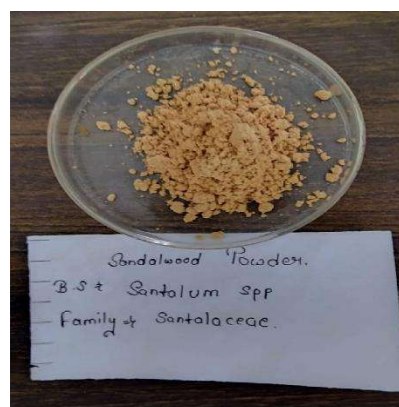


Fig.6: Sandalwood

7. Tamarind Powder

Synonym –

Indian date, sour pulp, savanna date, and tamarindo.

Biological source –

Its oil is obtained by distillation of sandalwood, *Santalum album* Linn., belonging to family Santalaceae.

Description –

Colour- soft neutral with subtle reddish-brown undertones,

Odour- rich creamy

Taste- creamy, nutty taste similar to a macadamia, hazelnut, or almond.

Chief Chemical constituents –

Sandalwood oil contains more than 90% sesquiterpenic alcohols of which 50–60% is the tricyclic α -santalol.

Uses –

Antiseptic and preservative

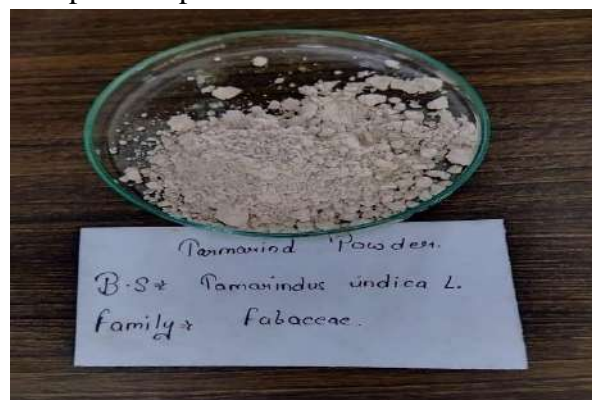


Fig.7: Tamarind

8. Neem

Synonym –

Margosa, neem, nimtree or Indian lilac, is a tree

Biological source –

Neem consists of the fresh or dried leaves and seed oil of *Azadirachta indica*

J. Juss (*Melia Indica* or *M. azadirachta* Linn.), belonging to family *Meliaceae*.

Description –

Colour- Vibrant green ,

Odour- garlic/sulfur

Taste- Extremely bitter.

Chief Chemical constituents –

Oleic acid (50-60%), palmitic acid (13-15%), stearic acid (14-19%), linoleic acid (8-16%) and arachidic acid (1-3%).

Uses –

Neem has antiseptic qualities that can benefit the face.



Fig 8: Neem

9. Rose

Description –

Colour- shade of red.

Chief Chemical constituents –

Flavonoids, triterpenes, tannins, phenolic acids, polysaccharides, fatty acids, organic acids, carotenoids and vitamins.

Uses –

It help regenerate skin tissues and delay the signs of aging. The antioxidants neutralize free radicals that quicken the appearance of wrinkles, fine lines, and freckles.



Fig.9: Rose petal

10. Multani Mitti

Synonym-

Multan clay

Biological source

It consists of hydrous aluminum silicates (clay minerals)

Description –

Colour- White Odour - Pleasant

Taste – Pleasant

Chief chemical constituents

Montmorillonite, Kaolinite, Attapulgite

Uses-

Nourishes skin, reduce oiliness, Remove blackheads.

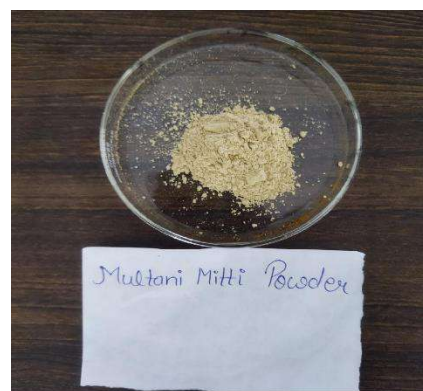


Fig.10: Multani mitti.

Chemicals

Carbopol 940, Methyl paraben, Triethanolamine, Propylene Glycol, Rose Water and Sodium Lauryl Sulphate was collected from the chemical store

room of Lucknow Model College of Pharmacy, Lucknow.

METHOD

Preparation of gel-

Methyl paraben was weighed and dissolved in a beaker containing water. Carbapol 940 was added and stirred constantly for few minutes 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, tamarind powder, sandalwood powder and the multani mitti was 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.

Preparation of exfoliant-

The tamarind peel powder was used as exfoliant. The tamarind peel was taken into the mortar and triturate by using pestle.

PREPARATION OF PLANT MATERIAL EXTRACT

Preparation of Tulsi extraction-

- Firstly, we collected Tulsi from local market.
- Then dried them in Sun light.
- After that, dissolve in a water.
- Then cover it well with aluminum foil and keep it for 3 to 4 days
- After that it will be heated in a water bath at 80 degree until the extract comes out .
- At last filter extract with the help of filter paper.



Fig 11: Extraction Process of Tulsi

Preparation of turmeric powder extraction-

- Firstly, we collected turmeric from local market.
- Then dried them in Sun light.
- After that, dissolve in a water.
- Then cover it well with aluminum foil and keep it for 3 to 4 days
- After that it will be heated in a water bath at 80 degree until the extract comes out .
- At last filter extract with the help of filter paper.



Fig 12: Extraction Process of Turmeric Powder

Preparation of turmeric powder extraction-

- Firstly, we collected turmeric from local market.
- Then dried them in Sun light.
- After that, dissolve in a water.
- Then cover it well with aluminum foil and keep it for 3 to 4 days
- After that it will be heated in a water bath at 80 degree until the extract comes out .
- At last filter extract with the help of filter paper.



Fig,13: Preparation of sandal-wood powder extraction

FORMULATION OF HERBAL FACE SCRUB

Formulation of herbal face scrub is as follows.



FIG 14: FORMULATED HERBAL FACE SCRUB.

Table 1: Formulation of Herbal Face Scrub

Sr.no.	Name of Ingredients	Category	Quantity
1	Roasted gram Peel Powder	Exfoliante	3
2.	Tamarind Powder	Lighten skin tone and reduce dark spots	4
3.	Multani Miti	Cleaning of oil and dust particles	4
4.	Aloe vera	Soothe sunburn	1
5.	Saffron strand	Improve skin tone.	2
6.	Neem powder	Soothes inflamed and irritated skin	3
7.	Turmeric powder	Glowing skin, Moisturizing dry skin.	3
8.	Tulsi powder	Anti-inflammatory, Antibacterial.	3
9.	Carbopol 940	Gelling agent	1
10.	Methyl paraben	Preservative	0.25
11.	Triethanolamine	Neutralizer	2
12.	Propylene Glycol	Moisturizer	3

Procedure

- Firstly, weighed all the ingredients properly
- Then methyl paraben weight and dissolve in a beaker containing water.
- carbopol was added and stirred continuously until it form a gel.
- sodioum loryl sulphate weight.dissolve saprately with water
- Then added into a gel followed by propylene glycol.
- Then mix a all ingredient in a gel.
- Then, take a pestle mortar and firstlypour Multani mitti.powder in it.

- After that add turmerind powder, sandalwood powder triturate it.
- Add a gel into a pestle motar.
- At last, grind mix all the ingredients properly.
- Then the product was prepared and transfer to the air tight container.

EVALUATION PARAMETERS

1. Appearance.

The prepared scrub was evaluated for its odour and colour. The colour was found to be brown in colour and odour was found to be characteristics.

2. Consistency.

It was found to be semisolid and homogeneity with visual observation.

3. pH

pH of the prepared scrub was evaluated. Small amount of the gel was applied on the pH paper and found to be 7. It is a neutral in nature.

4. Spreadability.

The spreadability is very important in the behavior of gel that comes out from the tube. It is used to identify the extend of spreadability by the gel on the skin. A small quantity of sample was placed on a glass slide and another slide was placed above them; 100 g of weight was placed on the slide. The time taken for the gel to spread on the slide was noted and measured which was found to be 4 cm in 60 sec. It was calculated by using following formula:

$$S=m \times l/t$$

S= Spreadability

m=Weight placed on slide

l=Length of the glass slide

t= Time taken in seconds

5. Extrudability.

Small amount of gel was taken into a collapsible 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 the amount of the gel extruded was noted.

6. Irritability.

A small amount of the gel was applied on the skin and kept for few minutes and found to be non-irritated.

7. Washability

A little quantity of gel was applied over the skin and was wash with water and it was easily washable.

8. Grittiness

Gel was found to have a few gritty particles

RESULT

The herbal scrub was prepared and evaluated. The herbal facial scrub formulated in the laboratory was found to be compared with various parameters such as appearance, pH, and spreadability, wash ability, irritability and found to be satisfied with all required characterization. Thus, the developed formulation can be used as an effective scrub for using it to bear a healthy and glowing skin. It contained Roasted gram peel powder, tamarind, tamarind powder, and multani mitti which has exfoliation activity, lighten skin tone and reduce dark spots and cleaning of oil and dust particles respectively. The Roasted gram peel powder was a natural exfoliating agent which was used to remove dead cells of skin, gives scrubbing property to the skin and which helps to improve the blood circulation. Tamarind powder helps to remove oil, sebum and other secretions of skin to lighten skin tone. The multani mitti was associated with removing dust particles and grene. After using the scrub, skin was sure to feel softer, cleaner and refreshed. It made skin beautiful, youthful and soft and glowing. Herbal cosmetics showed lesser or no side effects, hence use of herbal cosmetics get increased.

Table 2: Result of evaluation parameter of Herbal Aloe-Vera Skin Gel

Sr.No.	Parameters	Standards	Observations
1.	Color	-	Yellowish Brown
2.	Odor	-	Characteristics
3.	Consistency	Good	Good
4.	pH	5.7-7.0	7.2
5.	Spreadability	6.6- 8.83 g.cm/sec	6.66 g.cm/sec
6.	Extrudability	Easily extruded	Easily extruded
7.	Irritability	Non-irritant	Non-irritant
8.	Washability	Washable	Easily washable



CONCLUSION

The aim of formulating a Herbal face scrub was found to be successful with good results. The face scrub showed a good spreadability. The formulation showed a good peel off property on our skin without causing skin irritation or edema. The present study was attempted to make an herbal scrub using suitable base to form a gel. The prepared scrub was compared with various parameters like colour, odour, consistency, pH, spread ability, extrudability, irritability, wash ability, grittiness, foamability and found to be satisfied with all required characterization. Thus, the developed formulation can be used as an effective scrub for using it to bear a healthy and glowing skin. In this all-natural ingredient were used, so that they had no side effects or fewer side effects. The prepared herbal scrub was found to be satisfied for the application on the skin to make it healthy and glowing. The application of the scrub gel which helps to improve blood circulation and increases oxygen supply to all surface of the skin. After application of scrub, skin becomes softer, cleaner and refreshed.

CONFLICT OF INTEREST:

None

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