

**FORMULATION AND EVALUATION OF HERBAL FACE SCRUB CONTAINING
ORANGE PEEL POWDER, NEEM LEAVES POWDER AND CHIA SEEDS****Aqsa Rawoot*, Shruti Jadhav, Devesh Hardikar and Shivani Pawar**

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ABSTRACT

The main goal of this research is to prepare a cosmetic containing herbal face scrub derived from natural constituents. In everyday life, the skin on the face is frequently in contact with dirt, pollution, other pollutants and various environmental conditions. The safety, effectiveness and lack of adverse effects of herbal skincare products have led to their increasing popularity. This study focuses on creating and testing a herbal face scrub with chia seeds, powdered orange peel and neem leaves powder as main ingredients. Antioxidant and vitamin C rich orange peel helps fight free radical damage, brightens skin, and lessen acne. High omega-3 fatty acid and fibre containing chia seeds provide gentle exfoliation and hydration. Neem leaves powder mainly consist of nimbin, salanin, ascorbic acid, etc. used to remove blackheads and blemish and balance skin's oil production. It is composed only of natural ingredients that enhances softening, cleaning, moisturizing, combat oil, discoloration and brightens the skin. The preparation was evaluated for various organoleptic parameters such as colour, odour, texture, consistency, appearance, etc. and various physicochemical parameters such as pH, viscosity, irritability, patch test, spreadability, and foamability. The implications of the study suggest the growing acceptance and demand for herbal remedies in the cosmetics industry due to their perceived safety benefits.

KEYWORD:- Exfoliation, Herbal scrub, Spreadability, Herbal remedies.**1. INTRODUCTION TO HERBAL COSMETICS**

Cosmetic are chemicals used to improve, maintain, alter, or promote appearance. A variety of herbs since ancient times, they have been utilized for healing, cleaning, and beautification. What if herbal cosmetics contain no artificial ingredients, their name implies that they are neutral compounds. Natural remedies like plants and herbs are still used by many people in today's high-tech society for everything from particularly in rural areas, cosmetics such as neem, aloe vera, tulsi, orange peel, rose, and so forth and hilly terrain. The primary advantage of applying a herbal cosmetic is its purity and lack of adverse effects on the body. It comes in a range of forms and is used to enhance one's look. Skincare products are designed to address a range of skin concerns, including anti-aging, anti-wrinkle, sun protection and skin protection. For millennia, people have utilized herbs and herbal cosmetics to treat acne, pimples, dark circles, oily skin, and other cosmetic issues. Herbal cosmetics are arranged via the combination of medicinal products and bioactive ingredients.^[7]

1.1 Herbal face scrub

A facial scrub is a cosmetic or a beauty product used to

exfoliate and clean the skin on the face and body. Blackheads, whiteheads, sebum and skin cells can all be removed with the help of facial scrubs. It also supports keeping skin looking good. It is recommended to gently massage the skin after applying scrub to help enhance blood flow and increase oxygenation of the skin's surface. Face scrubs exfoliate the skin, clean out clogs and oil from pores, keep skin supple and quicken cell turnover. Scrubbing is utilized to treat every skin condition, regardless of the skin type.^[4]

1.2 Ideal properties

- It should be non-sticky and mild abrasive.
- It should be non-toxic.
- It must remove dirt and dead skin.
- It should be non-irritant.
- It must contain small gritty particles.
- It should be slightly rough^[10]

1.3 Route of administration**1.3.1 Skin**

Skin, also known as cutaneous membrane. It is the body's largest organ. Its function include regulating body temperature, serving as a blood reservoir, provides

protection from the outside world, etc. The largest exterior defence system is the skin. One of the human body's easiest organs to administer topically is the skin, which serves as the primary route for topical medication delivery system.^[6]

1.3.2 Types of skin

Oily skin

People with oily skin mostly have pimple problems as the extra sebum oil clogs their skin pores. Therefore, you need a face scrub that will not only remove the dead skin cells but also have anti-pimple properties in it. Neem leaves powder is known for its anti-acne benefits. If you have oily skin, you should get a face wash that contains appropriate or similar anti-acne ingredients.

Dry skin

Those with dry skin can use any facewash that has ingredients suited to remove dead skin cells. Chia seeds are one such ingredient that removes dead skin cells and flaky skin easily. It is known to be a great exfoliant. Look for a face scrub that has glycerin and also provides some moisturizing benefits for your skin.

Sensitive skin

People with sensitive skin should be more careful while choosing their skincare products. If you have sensitive skin, make sure that your face scrub is antibacterial and anti-inflammatory. Neem leaves powder can be used as a preservative, which provides both antibacterial and antifungal properties. Chia seeds are a natural ingredient that offers anti-inflammatory benefits. It also act as a natural skin exfoliant and works great to remove dead skin cells.^[1]

1.4 Ingredient

• Orange peel powder

It is a natural and versatile ingredient that offers a range of potential benefits for skin care, hair care and overall well-being. Orange peel powder is rich in vitamins, minerals and antioxidants that contribute to its potential health promoting properties.

Uses

1. Hydrates dehydrated skin
2. Protects skin from free radical damage and removes tan.
3. Work as a skin lightening agent.
4. Loaded with anti-ageing properties and fight wrinkles.
5. Its bleaching effects reduces skin pigmentation, dark spots and scars due to acne and skin infection.
6. Heals dry, flaky and itchy skin.^[6]

• Chia seeds

Chia seeds are one of the richest plant-based sources of omega-3 fatty acids, particularly alpha-linolenic acid (ALA). Omega-3 fatty acids are known for their anti-inflammatory properties, which can help soothe and calm, irritated or inflamed skin conditions such as acne,

eczema, and psoriasis. The addition of chia seeds allows the scrub to gently exfoliate and nourish the skin without stripping it. Unlike other ingredients it is gently enough for daily use. It is also use to remove acne scars and good products for strengthens the skin barriers.

Uses

1. It has anti-inflammatory, anti- bacterial and sebum regulating properties.
2. It is also used to remove acne scars and good product for strengthens the skin barriers.
3. It also improves the parasympathetic tone, heart rate variability and protect ventricular arrhythmia.
4. The exfoliating agents in chia seeds also help to remove dirt, sebum, and dead skin cells that contributes to acne breakout.^[9]

• Neem leaves powder

Renowned for its healing properties in Ayurveda medicine, neem is today a highly potent natural ingredient in beauty products, offering an array of benefits due to its unique combination of vitamins and minerals rich in antioxidants. As far as stopping premature aging and stimulating a smoother younger looking face, neem is extremely effective at combating free radicals.

Uses

- 1 It has antibacterial and anti-inflammatory effects that can be used to calm irritated skin.
- 2 It is rich in Vitamin E and fatty acids that strengthen skin by tightening it and assists in reducing aging symptoms.
- 3 It regulates oil secretion and shields against the sun.
- 4 It is applied as a toner, blackheads and blemish remover.
- 5 It has the bonus of cooling the skin and can be employed for calming sensitive skin.^[8]

1.5 MATERIAL AND METHODOLOGY

1.5.1 Orange peel powder

First the orange peel is dried in sunlight for 10-12 days and then crushed in mortar and pestle and then grinded in a mixer grinder to make fine powder.

1.5.2 Neem leaf powder

First the neem leaves are dried in sunlight for 10-12 days and once the water has completely evaporated then it is grinded in a mixer grinder to make a fine powder.

1.5.3 Chia seeds

Some amount of chia seeds were bought from the local market and slightly crushed in mortar and pestle.

1.6 Screening of excipients

1.6.1 Glycerine:- Glycerine has been selected as a viscosity modulator.

1.6.2 Carbopol934:- It is used to increase the spreadability of the formulation.

1.6.3 Triethanolamine (TEA):- It is used as a neutralizer to maintain the desired pH level.

1.6.4 Stearic acid:- It enhances the texture and viscosity of the scrub.

1.6.5 Methyl paraben:- It acts as a preservative.

1.6.6 Rose water:- It is used as a vehicle.

1.6.7 Bees wax:- First bees wax was selected to give a creamy texture to the scrub but later skipped because it causes hardness to the formulation and

also tightens it.

1.6.8 Xanthan gum:- Selected to increase the spreadability but then rejected because it makes our formulation very gummy or sticky.

1.6.9 Orange oil:- It is used as a perfume to provide a pleasant odor.

1.7 Formulation table

Table 1

Sr. No	Ingredients	Supplier	Category
1.	Orange Peel Powder	Natural Source	Anti-oxidant, Anti-aging and skin lightening agent
2.	Neem Leaves Powder	Natural Source	Anti-bacterial and toner
3.	Chia Seeds	Local Market	Anti-inflammatory
4.	Glycerine	Local Market	Moisturizing agent
5.	Triethanolamine	CSMU Laboratory	pH adjuster
6.	Methyl Paraben	CSMU Laboratory	Preservative
7.	Stearic Acid	CSMU Laboratory	Emollient
8.	Carbopol 934	CSMU Laboratory	Spreading agent
9.	Rose Water	Local Market	Vehicle
10.	Orange Oil	CSMU Laboratory	Fragrance
11.	Bees Wax	CSMU Laboratory	Thickner
12.	Xanthan Gum	CSMU Laboratory	Spreading agent

Table 2

Sr. No	Ingredients	F1(25g)	F2(25g)	F3(75g)
1.	Orange Peel Powder	3g	0.75g	3.75g
2.	Neem Leaves Powder	2.4g	0.5g	2.5g
3.	Chia Seeds	1.5g	0.5g	2.5g
4.	Glycerine	3ml	3.75ml	18.75ml
5.	Triethanolamine	0.6ml	1.25ml	6.25ml
6.	Methyl Paraben	0.25gm	0.25g	1.25g
7.	Stearic Acid	1.5gm	1.25g	6.25g
8.	Carbopol 934	-	-	1.25g
9.	Rose Water	13ml	15ml	25ml
10.	Orange Oil	2ml	2ml	2ml
11.	Bees Wax	2.4gm	-	-
12.	Xanthan Gum	-	0.25g	-



Formulation 1

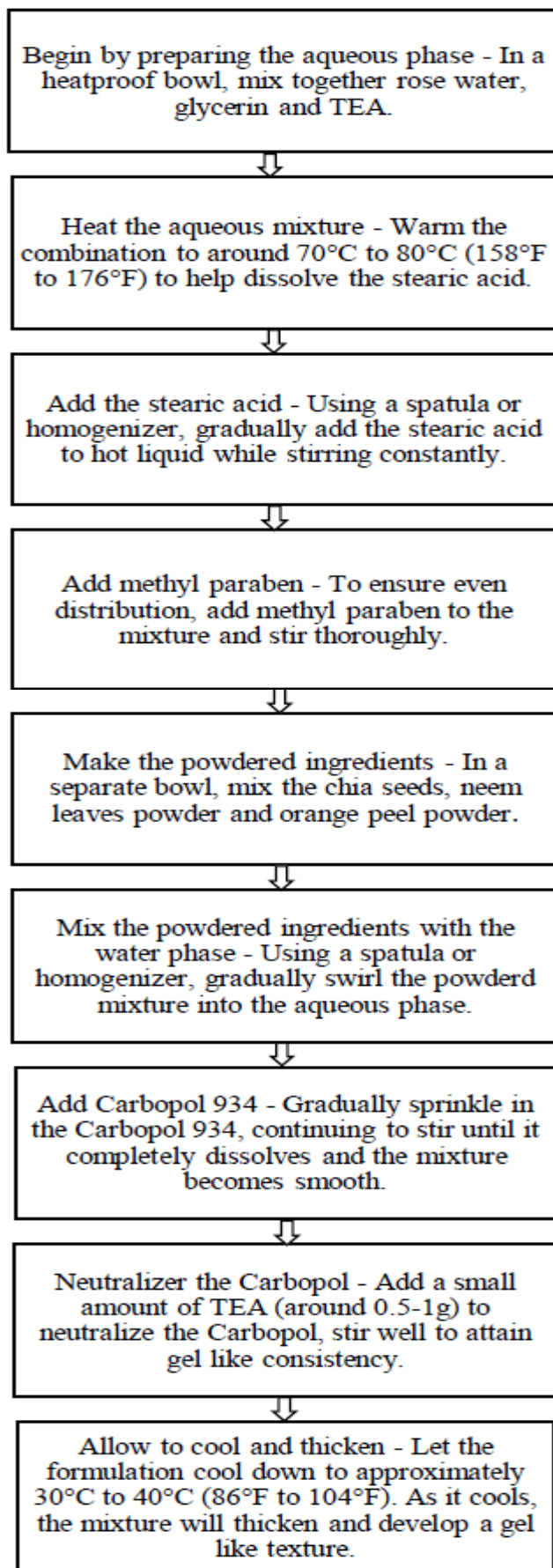


Formulation 2



Formulation 3

1.8 Method of preparation

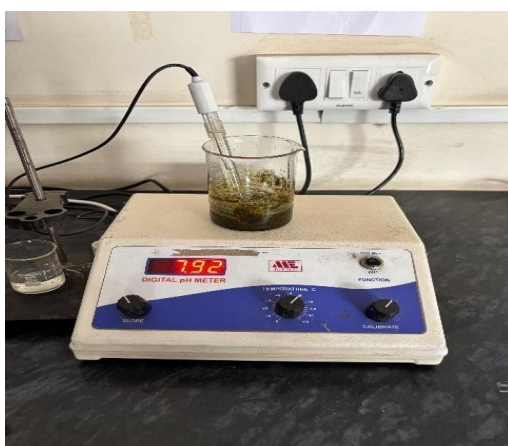


1.9 Evaluation test

- 1. Visual Appearance and Organoleptic evaluation:-** Colour, texture and scent were measured as a parameter for organoleptic evaluation. Colour and texture were evaluated using vision and touch perception, respectively. A team of five olfactory-sensitive people was selected to assess the scents.
- 2. Spreadability test:-** The ability to spread is the group that applies the product, and it should have good spreadability and smooth or free of particle grit.
- 3. Irritancy test:-** The irritation test, Mark a 1 sq-cm area on the left hand's dorsal surface. The chosen area was covered with a predetermined quantity of the prepared face pack, and the application time was noted. For upto 24hours, any erythema, edema or irritation was recorded and seen at regular intervals.
- 4. pH:-** pH of 1% aqueous solution of the formulation was measured by using a calibrated digital pH meter

at constant.

- 5. Preservative:-** Preservative provides protection against microbiological contamination.
- 6. Washability test:-** This is the standard technique for determining whether the formulation is washable. After applying the formulation to the skin, the ease and extent of washing with water were manually assessed using one litre of water to remove all the formulation's surface-applied content.
- 7. Patch test:-** Patch test is performed by applying 1gm of scrub on left hand and keeping it for 15-20 minutes. It is usually done to determine the effectiveness and cleansing property of scrub.
- 8. Viscosity:-** Viscosity of the scrub is determined by using Oswald Viscometer.
- 9. Foamability:-** 2gm of scrub dissolved in 10ml of water and shaken well for 5 minutes then the foamability is observed.



pH Test



Foamability Test



Spreadability Test



Patch Test

1.10 RESULT AND DISCUSSION

Sr. No	Parameters	Result
1.	Colour	Dark Green
2.	Odour	Pleasant
3.	Consistency	Good
4.	Texture	Smooth & Creamy
5.	Viscosity	Viscous

6.	pH	Alkaline (8.01)
7.	Irritability	Non irritant
8.	Foamability	2.5cm foam formed
9.	Patch Test	Effective after 15 minutes
10.	Spreadability	Easily spreadable (5.4 cm in 10sec)
11.	Washability	Easily washable within 10-12 sec

1.11 CONCLUSION

Natural ingredient potential in skincare applications was illustrated by the creation and testing of a herbal face scrub with chia seeds and orange peel powder. Together, orange peel's antioxidant and brightening qualities and chia seeds mild exfoliating and moisturizing qualities improved the texture and look of skin. Favorable physicochemical characteristics, such as the right pH, consistency and stability made the scrub fit for frequent usage. Its effectiveness in cleansing, exfoliating and skin compatibility without generating irritation or negative effects was validated by both in vitro and in vivo tests.

The formulated herbal scrub has good scope in future for natural remedies and research. This study shows that creating herbal cosmetics that are safe, effective and environmentally friendly is feasible and provides a sustainable substitute for synthetic formulations.

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