

FORMULATION AND EVALUATION OF POLYHERBAL FACIAL SCRUB

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ABSTRACT

The main objective of the present study was to formulate a poly-herbal facial scrub with the incorporation of active drug. Like rice flour, neem, lemon juice, mint, tulsi, gram flour, coconut oil, rose oil, Carbopol 940, sodium benzoate, sodium lauryl sulphate, etc. the herbal cosmeceuticals are in demand due to less or no side effect. Herbal cosmeceutical usually contains plant parts which possess antimicrobial, antiaging, antiacne, antioxidant property. The number of research has studied rice benefit namely good nutritional value, resistance to high blood pressure. The problem like blackhead, whiteheads, acne might irritate nowadays here scrubbing become useful. I created four different formulations F1, F2, F3 and F4 for scrubbing and whitening. These formulations were then tested for various parameters, including Physical appearance, Extrudability, Spread ability, Irritability, Washability, Grittiness, Foamability, Viscosity, and Consistency. And the result of this polyherbal scrub is satisfactory.

KEY WORDS: polyherbal scrub, herbal cosmeceuticals, antimicrobial, antiacne etc.

INTRODUCTION

Cosmetics are used universally to enhance beauty and are available in different forms. Various types of skin ailments are formulated like skin protective, sunscreen, anti-acne, anti-wrinkle for beautifying skin (Ashawat et.al, 2009). From ancient era people use herbs or herbal cosmetics for cleansing, beautifying, fighting oil, acne, blackheads, pimples, and dark circles. Herbal cosmetics are natural plants and their products that are utilized in cosmetic preparations for their aromatic value. Because there is a widespread assumption that chemical-based cosmetics are harmful, herbal goods have sparked a desire for natural products and natural extracts in cosmetics formulations.

A cosmetic product called a facial scrub is used to hydrate, exfoliate, and clean the skin on the face. The three types of skin are sensitive, oily, and dry skin.

Those have dry skin should wash their faces with a moisturizer-containing cleanser and then apply moisturizer. Gently scrubbing sensitive skin is recommended. To avoid clogged pores and to keep the skin's oil production in control, oily skin needs a scrub that exfoliates deeply.

Advantages of Scrub: -

- Exfoliation improves the quality and tone of skin by assisting in the removal of dead skin cells from the surface.
- Herbal Exfoliate produces soft, supple, re-energized skin and prevents premature skin aging. From the surface.
- The benefits of body scrubs include: Promoting efficient circulation and skin cell turnover. Removing dead cells from the skin's surface.
- Smoothing and softening rough, dry skin.

Disadvantages of Scrub: -

- Too much scrubbing will disrupt this layer and make the skin more sensitive to UV rays, leading to easy tanning, rashes and sunburns.
- The creams used for scrubs can block pores and cause whiteheads and infection of hair follicles, known as folliculitis.

BENEFITS OF SCRUBBING SKIN

1.Helps in Removing Dead Cells: Facial or body scrubs are the cosmetic which goes beyond surface level to remove dead skin and reveal the healthy glowing skin below.

2. Free the skin form Flakes: Loss of upper layer of skin (epidermis) is called as flaky skin. It gives rise to dry patches. Scrubbing your skin can help you to deal with flaky skin effectively.

3. Deep Cleaning of Skin: Scrubbing your skin helps skin to get free from dirt, oil and sweat. Other cleansing like face wash facial cleansers cannot clean the skin.

4. Thoroughly removing dust accumulated in the course of the skin, scrubbing does this work effectively.

5. Clears Blemishes: Accumulation of dead skin, can block the pores of skin and causes blemishes. Scrubbing frequently helps to remove dead skin and clears blemishes.

6. Gives glow to skin and smooth texture: Scrubbing actually helps to give glow and smooth texture to skin.

7. Remove the Acne Scars: As scrubbing used to remove dead skin cells, it also removes the acnes scars from skin.

8. Promotes Hydration of Skin: Facial scrubs contents moisturizing agents and hydrating Agents. Exfoliation of skin helps to absorb moisture and it leaves our skin with filling soft.

9. Reduces Stress: Exfoliation or scrubbing the skin gives good massage, which gives relaxing feeling and reduces stress.

MATERIALS

1. Rice Flour

- **Synonym:** meal of rice, rice vermicelli
- **Biological source:** Organic rice that has been thoroughly milled, rice starch on the other hand is commonly made by steeping rice in lye. It's a particularly good option for wheat flour, which might upset certain people's digestive systems.
- **Description:**
 - **Colour:** white to brown
 - **Odour:** neutral or faintly starchy odour
 - **Taste:** mild, almost neutral taste
- **Chemical constituents:** proteins, rice, starch, lipid
- **Uses:** Exfoliator, remove dead skin cell, dirt.



Fig: Rice Flour

2. Neem

- **Synonym:** Margosa, neem, nim tree 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.
- **Chemical constituents:** Oleic acid (50-60%), palmitic acid (13-15%), stearic acid (14-19%), linoleic acid (8-16%) and arachidic acid (1-3%).
- **Uses:** Antiaging, Humectant



Fig: Neem

3. Multani clay

- **Synonym:** Multani mitti, Fuller Earth clay
- **Biological source:** It consists of hydrous aluminum silicates (clay minerals)
- **Description:**
 - **Colour:** White
 - **Odour:** Pleasant
 - **Taste:** Pleasant
- **Chemical constituents:** Montmorillonite, Kaolinite, Attapulgite
- **Uses:** remove blackheads and whiteheads



Fig: Multani Mitti

4. Lemon Juice

- **Synonym:** lemonade citron juice
- **Biological source:** The endocarp (pulp) of ripe lemons, specifically the citrus limon fruit, family Rutaceae
- **Description:**
 - **Colour:** pale yellow
 - **Odour:** bright, tangy, citrusy and refreshing
 - **Taste:** sour taste
- **Chemical constituents:** high citric acid content around 5- 6% , along with other acids like malic acid, vitamin C and various phytochemicals and minerals

- **Uses:** Astringent and Antiseptic

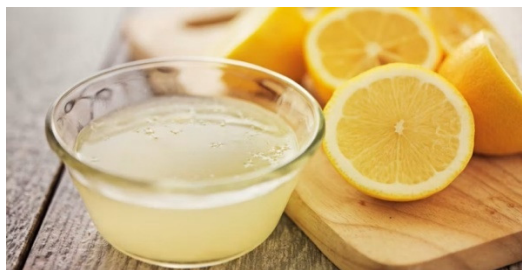


Fig: Lemon Juice

5. Coconut Oil

- **Synonym:** Coconut Oil / Coconut Butter
- **Biological source:** *Cocos nucifera*, commonly known as the coconut palm, specifically from the fruits kernel or meat (also called copra).
- **Description:**
 - **Colour:** typically colorless or white
 - **Odour:** pleasant, mild and slightly sweet coconutty scent
 - **Taste:** sweet, and slightly nutty flavor
- **Chemical constituents:** triglycerides composed of medium – chain fatty acids (MCFA's), with lauric acid being the most abundant, followed by myristic and palmitic acids
- **Uses:** moisturizing, protective property.



Fig: Coconut oil

6. Tulsi

- **Synonym:** *Ocimum Sanctum*, Holy Basil
- **Biological source:** it is the plant *ocimum sanctum*, which is part of the Lamiaceae family.
- **Description:**
 - **Colour:** Green and purple
 - **Odour:** clove-like, peppery and with hints of mint and sweet basil.
 - **Taste:** astringent, some time bitter
- **Chemical constituents:** volatile oils, flavonoids and other compounds.

- **Uses:** brighten skin, fight acne.



Fig: Tulsi

7. Gram Flour

- **Synonym:** Besan
- **Biological source:** it derived from chickpeas (*Cicer arietinum*) or brown / kaala chana.
- **Description:**
 - **Colour:** light yellow
 - **Odour:** nutty aroma
 - **Taste:** nutty, earthy, slightly sweet
- **Chemical constituents:** it is primarily contains chickpeas, it is fine, yellow powder made by grinding dried chickpeas into a flour.
- **Uses:** remove all the dead and dirt skin cell from your face.



Fig: Gram flour (Besan)

8. Mint

- **Synonym:** Mentha
- **Biological source:** a genus of plants commonly known as mint, is primarily its leaves and aerial parts.
- **Description:**
 - **Colour:** dark green to gray-green
 - **Odour:** strong, fresh, and pepperminty scent with a cooling sensation

- **Taste:** sweet, refreshing and cooling
- **Chemical constituents:** it include menthol, menthone, menthofuran, 1,8-cineole, and menthyl acetate.
- **Uses:** clean pore and slough off any dead skin cell.



Fig: Mint

9. Rose Oil

- **Synonym:** attar of roses
- **Biological source:** the petals of various Rosa species, primarily Rosa damascena and Rosa centifolia.
- **Description:**
 - **Colour:** light yellow color with a greenish tinge.
 - **Odour:** sweet, floral, characteristic aroma.
 - **Taste:** sharp balsamic taste
- **Chemical constituents:** primarily contains citronellol, geraniol, and nerol, with other significant components including paraffins, rose oxide and farnesol.
- **Uses:** moisturizing, soothing, and toning effects.



Fig: rose oil

Sr.No.	Name of Ingredients	F1	F2	F3	F4
1.	Rice Flour	2.2 gm	3gm	2gm	3gm
2.	Lemon juice	3ml	2ml	3ml	4ml
3.	Multani clay	2.2gm	3gm	2.5gm	2gm
4.	Neem powder	1gm	1gm	3.5gm	2gm
5.	Coconut oil	4ml	2ml	2ml	3ml
6.	Tulsi	2gm	3gm	2gm	3gm
7.	Mint	1.5gm	1gm	1gm	2gm
8.	Gram flour	2gm	3gm	3.5gm	2.5gm
9.	Sodium benzoate	1gm	1.5gm	1gm	1gm
10.	Carbapol 940	1.5gm	1gm	2gm	2.5gm
11.	Sodium lauryl sulphate	2gm	2gm	2gm	3gm
12.	Rose oil	2ml	1ml	1ml	2ml
13.	water	qs	qs	qs	qs

Table 1: Quantity of the ingredient used.

METHOD OF COLLECTION:

1. Collection of Rice Flour:

Fresh rice was gathered from a shop. Rice were washed and dried. To produce the product, these rice are appropriately ground in a grinder and produced a powder after going through sieve number 60.

2. Collection of Neem powder:

Fresh neem leaves were gathered from a field which located near my house. Neem leaves were washed and dried in the shade for about 4 days. To produce the product, these leaves are appropriately ground in a grinder and a fine powder after going through sieve number 60.

3. Collection of Mint powder:

Fresh mint leaves were gathered from my home garden. Mint leaves were washed and dried in the shade for about 4 days. To produce the product, these leaves are appropriately ground in a grinder and a fine powder after passed through sieve number 60.

4. Collection of Tulsi powder:

Fresh tulsi leaves were gathered from my home garden. Tulsi leaves were washed and dried in the shade for about 4-5 days. To produce the product, these leaves are appropriately ground in a grinder and a fine powder after going through sieve number 60.

5. Collection of other ingredient:

Lemon juice was collected from home, Multani mitti, gram floor was collected from shop. Carbopol 940, Sodium Benzoate, Sodium lauryl sulphate, Rose oil was collected from college laboratory.

METHOD OF PREPRATION (FORMULATION OF HERBAL SCRUB)

Step 1: Preparation of gel

Firstly, take a beaker; soak the specific amount of carbopol 940 with enough water. Using a petri plate, close the beaker. Set aside the beaker for 24 hours.

Step 2: Preparation of active ingredients

Weight all ingredients and mix them uniformly using mortar and pestle.

Step 3: Add prepared gel

The produced gel was added to the active ingredient mixture and mixed. The produced formulation was then assessed utilizing several parameters.

Step 4:

Using mechanical stirrer, and add specific amount of water to mixture and make scrub like texture.

EVALUATION PARAMETERS

1. Appearance:

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

2. Consistency:

It was found to be Good and semisolid Nature with visual observation.

3. PH:

PH of the prepared gel evaluated by using digital pH meter.

PH was found in the range of 5.5 – 6.8.

4. Spread ability:

The spread ability is very important in the behavior of gel that comes out from the tube. It is used to identify the extend of spread ability by the gel on the skin.



Fig: spread ability testing

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. Irritation Test:

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



Fig: Irritation Test

7. Foam ability:

In a measuring cylinder, a small amount of scrub was shaken and the foam was measured.

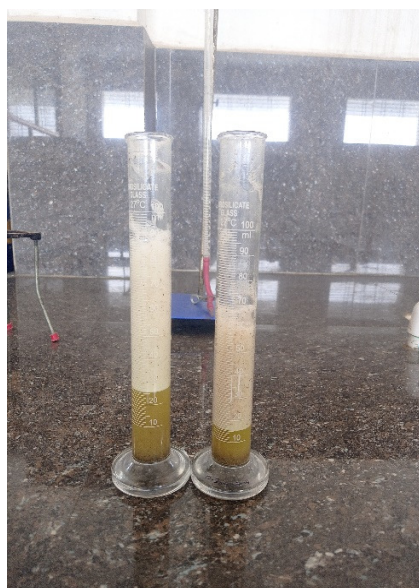


Fig: Foam ability

8. Washability:

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

9. Viscosity: Brookfield viscometer is used to measure polyherbal facial scrub viscosity.

10. Grittiness:

Grittiness was personally analyzed.



Fig: Grittiness

RESULT AND DISCUSSION:**Evaluation Test:**

Sr. No.	Parameters	Observation
1.	Colour	Yellowish brown
2.	Odour	Characteristics & pleasant
3.	Nature	Semisolid
4.	pH	5.5 – 6.8
5.	Extrudability	Easily extrudible
6.	Irritation test	Non irritable
7.	Wash ability	Easily wash property
8.	Grittiness	Small gritty particles
9.	Foam ability	Foam volume 95ml at 5 minutes
10.	Consistency	Good
11.	Spread ability	Easily spread
12.	viscosity	1246 cP

Table 2: Comparative evaluation results of trial formulation.

The face scrub was formulated and evaluated. The grading of evaluation parameters are contented in Table 2. The stability studies show slight change in pH of formulation which was stored at 40°C and no changes were observed at room temperature (Table 3).

Table 3: Result of Stability Studies			
Parameters	Colour	Odour	pH
Days			
Day 1	Yellowish brown	Characteristics& pleasant	5.66 ± 6.5
Day 2	Yellowish brown	Characteristics & pleasant	5.81 ± 6.1
Day 3	Yellowish brown	Characteristics & pleasant	5.38 ± 6.3
Day 4	Yellowish brown	Characteristics & pleasant	5.42 ± 6.5
Day 5	Yellowish brown	Characteristics & pleasant	5.40 ± 6.2

CONCLUSION:

In comparison to other cosmetic products available in the market, natural and herbal cosmetics are easy, safe and effective to use. One of the main reason of herbal products use is that they can be used for all skin types. The major use of herbal products is for health promotion and therapy for serious skin conditions. However, usage of traditional remedies increases when conventional products is ineffective or may causes harmful effects. The use of polyherbal face scrub gives effectiveness and healthier skin type. Scrub has good cosmetic properties on human skin. The skin is the body's outermost organ, and it is constantly and directly exposed to pro-oxidants such as UV rays, chemicals, and air pollution. There were no or minor negative effects because all natural chemicals were used. Vitamin C is an essential ingredient whose importance in the skin care industry is expanding. Lemon oil is high in vitamin C, so it softens and smooths your skin. This face scrub stimulates blood circulation while also reducing dark circles, acne, and scarring. The evaluation of odour, colour, consistency, pH, spread ability, Extrudability, viscosity, wash ability, irritability and grittiness of the formulated sample and found satisfactory.

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