

FORMULATION AND EVALUATION OF POLYHERBAL FACIAL SCRUB OF *DALBERGIA SISSO* BARK

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1.Absract:

The use of natural ingredient to fight against acne, wrinkles and also to control secretions of oil is known as natural or herbal cosmetics. Natural constituents are the safest and the best product to use in day to day life because they do not have any adverse effect and these cosmetics also influences the biological function of the skin.

Herbal cosmeceuticals usually contain the plant part which possess antimicrobial, antioxidant, and Antiaging properties. Herbal cosmetics are the safest product to use in routine without any side effects and cosmeceuticals are the product which influences the biological function of skin.

Dalbergia Sisso Aqueous extract is used as an Antioxidant. Particle size of abrasive agent used within range of 400-600um. Scrub study revealed that formulation is capable of enlarging pores, maintain moisture and soft external skin layer and enhancing cleansing of the skin by removing dead skin from the surface.

In this formulation of facial scrub coffee powder, rice flour, cinnamon, green tea, turmeric are used as an active ingredients. The prepared facial scrub was evaluated for various parameters such as appearance, pH, Viscosity, Spreadability, Extrudability, grittiness, stability studies, foamability, Washability, irritability, consistency are found to be contented with all required characterizations. Thus, this formulation can be used as an efficient facial scrub for using it for the maintenance of healthy and glowing skin.

Keywords: Natural, Anti-oxidant, Anti-aging, Anti-microbial, Less Abrasive, skin Exfoliate

2. INTRODUCTION

Cosmetics are products that are applied to the skin in order to cleanse, beautify, enhance attractiveness, or change the appearance. There are many different sorts of cosmetics, and each one affects the skin in a different way. There are several reasons why skin gets lifeless and dull, and using scrub can effectively combat these issues. [1,2,3] Body scrubs and facial scrubs are two different types of scrubs that are used on the skin. Because face scrubs are so bad at exfoliating the skin and removing dead skin cells, they require a lot of oil. The scrubs can be used on the skin directly or with a tiny cosmetic pad. When using a scrub gel to aid enhance blood circulation and promote oxygen flow to the full surface of the skin, a gentle massage is advised. The oldest healthcare system in the world is likely India's herbal medication industry. Scrubs for the face are an essential component of skin care. The skin on the neck can be kept smooth with the use of facial scrubs, which makes cleaning that area simpler. To make it simpler to use after removal, make sure to look up so that the skin around

the neck is smooth and taut ^[4,5]. All skin types can benefit from using facial scrubs, which are excellent for deep cleansing and are especially helpful for oily skin. These all work to remove excess oil, filth, grime, and dirt from the face. This adaptable mixture can be applied as a face scrub or mask. Apply to face, gently wash, and mix with water or herbal tea. You'll experience soft, clear, and revitalised skin. Your skin can feel lovely, youthful, soft, and luminous by using a face scrub. Facial scrubs, as opposed to regular soap or detergent, exfoliate the skin by removing old skin cells and generating new ones through a process known as exfoliation ^[6,7,8]. The simplest products to use were facial scrubs; simply select a chemical or neutral scrub that works for your skin type, massage it on moist skin for one minute, and then wash it off. Repeat a couple of times per week. Making facial cleansers a component of how to take care of delicate skin for all its advantages. The process of skin peeling entails removing very old, dead skin cells from the skin's outer layer. All facial conditions, whether treated with microdermabrasion or chemical peels, include exfoliation. Machines and chemicals can be used to remove skin. ^[6]

It exfoliates the skin and eliminates dead skin cells. Scrub can be applied to any skin type. Only the essential oil utilised as an ingredient in the scrub will change depending on the kind of skin. Three categories of skin exist: dry skin, oily skin, and sensitive skin. Regular use of a scrub makes skin smoother and more radiant because it removes dead skin cells to reveal new ones. One of the essential components in the creation of facial scrubs is a mild abrasive agent. Scrubs can be applied directly to the skin or using a little cosmetic pad. It is advised to use a gentle motion when applying the scrub gel, which helps to boost oxygen supply to the skin's surface and improve blood circulation ^[7,8,9].

2.1 Face scrub

Face scrubs are used to activate blood flow, revitalise muscles, support skin elasticity maintenance, and clear debris from skin pores. It is employed to promote beauty or one's look by cleaning, beautifying, or other means. Through mild abrasion, exfoliation helps to remove rough and dead skin. Exfoliation involves scraping away the oldest, surface-level dead skin cells from the skin's top layer ^[10,11].

Face scrubs clean the skin, get rid of blackheads, pigmentation spots, treat acne, prevent wrinkles, keep the skin's elasticity, and speed up skin cell renewal. A face scrub should have the following qualities: mild abrasion, non-stickiness, non-toxicity, removal of debris and dead skin. include tiny grit particles, Non-irritant.

2.2 Benefits of Scrubbing Your Skin: ^[12,13,14,15]

2.2.1 For A Squeaky-Clean Skin:

You get clean skin after scrubbing, free of sweat, oil, and filth. In actuality, the containers of cleansing milk, face wash, and facial cleansers are unable to remove all the dust that gathers in your skin's pores. Scrubbing does this task well.

2.2.2 Frees Your Skin from Flakes:

Patches of dry skin result from flaky skin. It permits the accumulation of dead cells over time. You can easily treat flaky skin by exfoliating it.

2.2.3 Helps in Removing Dead Cells:

Dead cells make your skin look dull and tired. Scrub them off with a gentle scrub.

2.2.4 Adds Glow to Skin:

Exfoliation can actually make your skin glow.

2.2.5 Removes Dark Patches:

Use of scrub twice a week to get results. It is especially effective on knuckles, elbows and knees.

2.2.6 Removes Acne Scars:

Exfoliation helps in doing away with acne scars.

2.2.7 Prevents Ingrown Hair:

Ingrown hair is a perennial problem and scrubbing is the solution to prevent this problem.

2.2.8 For Smooth Skin:

The secret to becoming more gorgeous is having smooth skin. Your skin will not only look absolutely smooth thanks to the scrub, but it will also feel supple and well-nourished.

2.2.9 Improves the Texture of Your Skin:

Scrubbing your skin gives you clean and smooth skin with an improved texture.

2.2.10 Promotes Clear Complexion:

Upon removal of the flaking, dead cells, imperfections, and collected pollutants. Since the scrub contains natural ingredients that lighten skin, the results are much better.

2.3 Required Qualities and Characteristics of Scrubs for Face: [16,17]

The essential considerations in formulating a Scrub are as follows:

- ✓ It should be a smooth paste or gel without flocculation or gritty particles.
- ✓ It should not have an "earthy" or objectionable odour.
- ✓ It should form an adherent coating that can be easily removed by gentle washing.
- ✓ It should produce a definite sensation of tightening or a therapeutic tingling or warming.
- ✓ It should produce a perceptible modification of skin, hair, or scalp feel.
- ✓ It should produce a significant and noticeable cleansing of the skin, scalp, or hair.
- ✓ It must be nontoxic, dermatologically innocuous, and appropriately preserved.

2.4 Selection of Scrub according to type of Skin: [18, 20]

2.4.1 Oily Skin:

Due to the additional sebum oil clogging their skin pores, people with oily skin typically struggle with pimple issues. You therefore require a face scrub that not only gets rid of the skin's dead cells but also has anti-pimple capabilities. Salicylic acid is well known for its ability to treat acne. Get a face cleanser with salicylic acid or other comparable anti-acne chemicals if you have oily skin. [19]

2.4.2 Dry Skin:

Any face cleanser with components designed to remove dead skin cells can be used by those with dry skin. One such chemical that eliminates flaky skin and dead skin cells quickly is glycolic acid. It is a well-known excellent exfoliant. Look for a face scrub that contains glycolic acid and improves your skin by moisturising it. [21,22,23]

2.4.3 Sensitive Skin:

Skincare product selection should be extra cautious for those with sensitive skin. Make sure your face scrub is antibacterial and anti-inflammatory if you have sensitive skin. Antibacterial and antifungal activities are present in propylene glycol. Yoghurt and turmeric are both organic foods with anti-inflammatory properties. Sugar scrubs are thought to be excellent for skin that is sensitive. Dead skin cells can easily be removed with the help of sugar, a natural skin exfoliator. [18]

2.4.4 Combination Skin:

It can be challenging to find a face scrub for combination skin because it is a mix of dry and oily skin. However, according to specialists, those who have combination skin should use a facial scrub to remove extra oil without irritating their skin.

Dalbergia Sissoo:



Fig.1 *Dalbergia sissoo*

2.5 Morphological characteristics: [34]

- Kingdom – Plantae
- Order – Fabales
- Family – Fabaceae
- Genus – *Dalbergia*
- Species – *Sissoo*
- Common name- Indian Rosewood
- Synonym- Sissoo
- Hindi - Shisham, sissu.

2.6 Chemistry:

The processes of isolation, purification, and structure elucidation of interesting secondary metabolites are facilitated by continual development of chromatographic techniques. [27] Secondary metabolites, consisting of main classes of flavonoids, phenol, and sesquiterpene derivatives, as well as several aryl benzofurans, quinones, and fatty acid are isolated from various parts of this plant. [28]

2.7 Medicinal properties:

Cytotoxic Behaviours antidiabetic impact, antiparasitic effect, analgesic and anti-inflammatory effect, dermatological effects bactericidal action, antioxidant action CNS action, anti-diarrheal impact, and antiulcer. [29,30,31]

2.8 *Dalbergia* benefits for skin:

The tannins, flavonoids, and other substances found in the bark and leaves of the sheesham tree have been proven to have antioxidant, anti-inflammatory, and antibacterial activities. [31,32] These substances can benefit the skin, according to recent studies. Sheesham bark contains tannins that can aid to lessen inflammation and redness, and flavonoids that can help to shield the skin from UV radiation damage. [33]

A natural exfoliating scrub made from the bark can also be made and used to help the skin look better. [36]

4. AIM AND OBJECTIVE:

4.1 AIM:

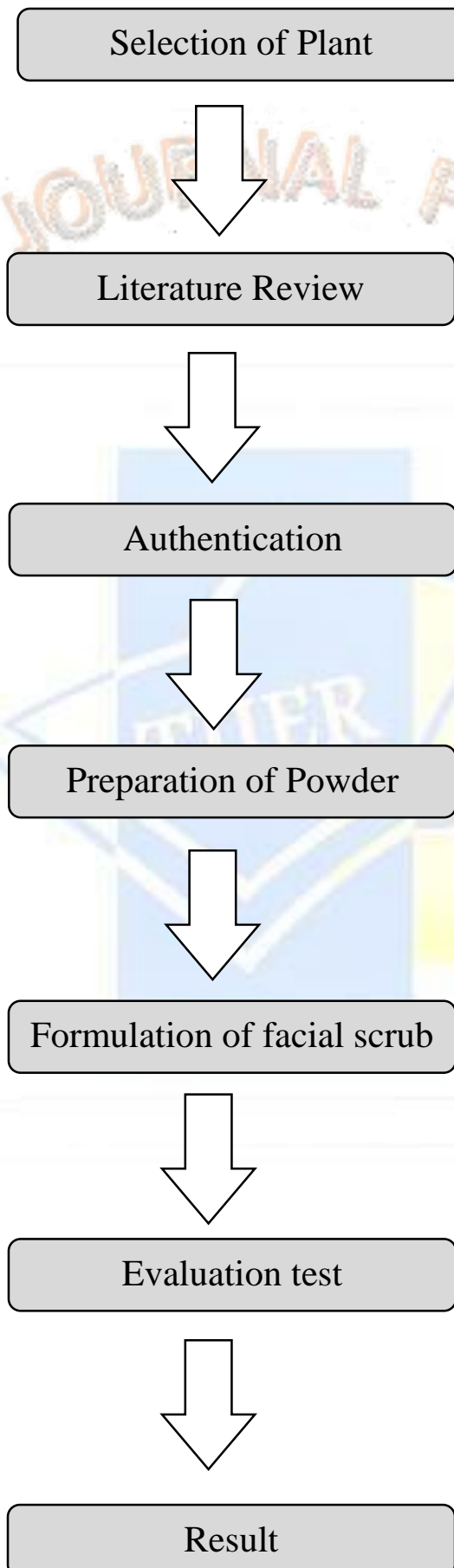
The main aim of the present study is to formulate a poly-herbal facial scrub with the incorporation of *Dalbergia Sissoo* bark powder as an active ingredient.

4.2 OBJECTIVE

- ✓ To remove Acne and blemishes and add moisture to the skin.
- ✓ Gets rid of the problem of dry skin while also providing the skin with much needed nourishment.
- ✓ To remove dead cells that can clog your pores.
- ✓ It helps in exfoliating your skin.
- ✓ To prevents Ingrown Hair.

- ✓ Improves the texture of skin.
- ✓ provides Smoother skin.

5. PLAN OF WORK:




6. EXPERIMENTAL SECTION:

6.1 Method and Methodology:

Table 3. Formulation of Face scrub [39-41]

Ingredient	Category/ Role	F1	F2	F3	F4	Picture
Dalbergia sissoo	Antioxidant Antibacterial Protects from UV radiation, improves skin appearance.	0.5	0.5	0.5	0.5	 <p>Fig 2. D.S bark</p>
Coffee powder	Skin whitening, glowing skin, tan removal, increases beauty, removes dark circles.	0.25	0.25	0.25	0.25	 <p>Fig 3. Coffee Powder</p>
Rice flour	Skin whitening agent Protects from sun damage, exfoliate skin, helps in wound healing, removes excess sebum.	1.25	1.25	1.25	1.25	 <p>Fig 4. Rice flour</p>
Cinnamon	Clears skin, reduces dark spots, reduces melanin, clears acne.	0.25	0.25	0.25	0.25	 <p>Fig 5. Cinnamon</p>

Green tea	Improves skin texture, makes skin looks younger, reduce face fat, skin tightening, tightens pores.	5	5	5	5	 <p>Fig 6. Green tea</p>
Turmeric powder	Heals acne, deals with dull skin, protects against environmental damage, prevents premature ageing.	0.5	0.5	0.5	0.5	 <p>Fig 7. Turmeric powder</p>
Methyl paraben	Antifungal, preservative.	0.015	0.015	0.015	0.015	 <p>Fig 8. Methyl paraben</p>
Propylene glycol	Humectant, increases moisture, softens skin, skin brightening, boost penetration.	0.3	0.3	0.3	0.3	 <p>Fig9. Propylene Glycol</p>
Sodium lauryl sulfate	Reduces skin damage, redness, dryness, used in makeup remover, cleanser.	0.5	0.5	0.5	0.5	 <p>Fig 10. SLS</p>

Triethanolamine	Moisturiser, cleansing action, reduce skin, neutralizer.	0.3	0.3	0.3	0.3	 <p>Fig 11. Triethanolamine</p>
Honey	Whitens the skin, removes pimples, protects against UV rays.	qs	-	-	-	 <p>Fig 12. Honey</p>
Buttermilk	Even tone, glows skin, removes dark spots, moisturizer.	-	Qs	-	-	 <p>Fig 13. Buttermilk</p>
Milk	Skin glow, lightens & brightens the skin, treats acne, reduces ageing.	-	-	qs	-	 <p>Fig 14. Milk</p>


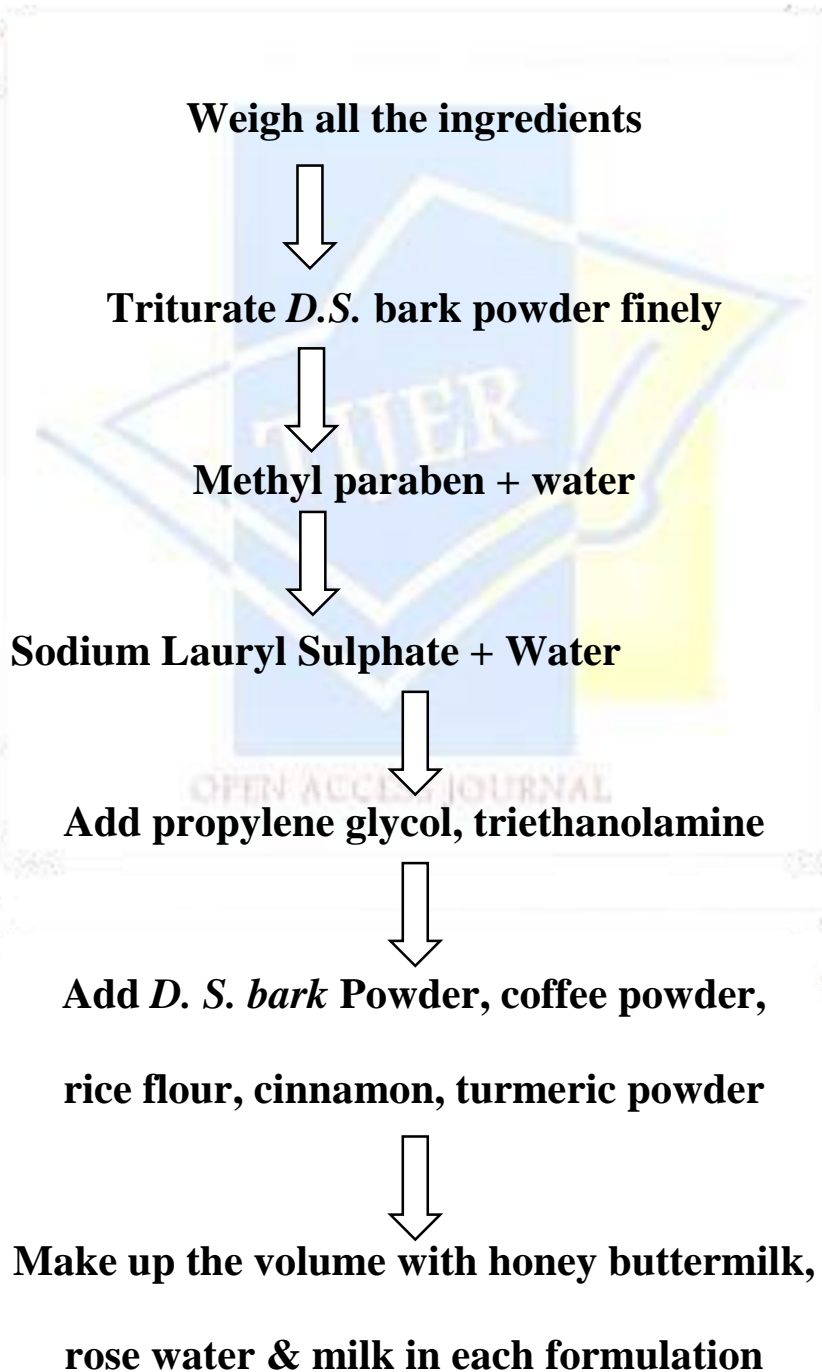
Rose water	Reduces redness & puffiness, clears pimples, clears skin, skin whitening.	-	-	-	qs	
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Fig 15. Rose water

PROCEDURE:



Evaluation Parameters:

Method of Evaluation ^[44-48]

Following evaluation parameters were performed to ensure superiority of prepared face scrub;

1. Physical Appearance:

- a. Physical appearance of formulation was observed visually. In this test colour, odour, nature, and consistency were observed.

2. Homogeneity:

- a. Homogeneity of the formulation was inspected visually.

3. pH:

- a. pH of prepared scrub formulation was determined by using digital pH meter.

4. Extrudability:

- a. Extrudability was determined by the time required by sample to completely extrude from the container, i.e. Sample amount/ time required

5. Determination of spreadability of scrub:

On the glass slide, a small amount of the scrub was applied before another glass slide was placed on the gel. On top of it was a 20 gm. wooden weight. The amount of time needed for the brush to cover the region was calculated. According to the formula $\text{Spreadability} = M L/T$ ^[42,43], the quantity and area of scrub on the glass slide determine spreadability efficiency.

6. Washability:

- a. Little quantity of scrub was applied over the skin and washed with water.

7. Grittiness:

- a. Grittiness was checked manually

8. Foamability:

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

9. Viscosity:

- a. Brookfield viscometer was used to measure the viscosity of scrub.

10. Stability study:

- a. The formulation was stored at different temperature conditions for a period of 56 days and evaluated for parameters like colour, odour, pH, and consistency.

RESULT AND DISSCUSSION:

By the studying all Evaluation Parameter like Organoleptic, Physicochemical & General powder Characteristic of Poly herbal Face Scrub was developed. The face pack is beneficial, economical & passed all evaluation Parameter. 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 4. RESULT OF STABILITY STUDY

Sr.no.	Parameters	Colour	Odour	pH
	Days			
1	Day 1	Buff green	Aromatic & pleasant	6.81+_0.1
2	Day 8	Buff green	Aromatic & pleasant	6.66+_0.2
3	Day 15	Buff green	Aromatic & pleasant	6.42+_0.1
4	Day 30	Buff green	Aromatic & pleasant	6.38+_0.1

Table 5: Effects of Various Ingredients in Formulation Of Scrub

Sr.no.	Ingredients	Effect produced
1	Honey	Poor
2	Milk	Better
3	Buttermilk	Excellent
4	Rose water	Good

- ✓ In Buttermilk due to astringent properties of lactic acid it helps in preventing premature aging and tightens the skin and keeps it wrinkle-free and youthful.
- ✓ Rose water has its own fragrance.

Table 6: Evaluation Parameter of Facial Scrub ^[49-54]

Parameters		Observation
Organoleptic Evaluation	Nature	Powder
	Colour	Dark green
	Taste	Characteristic
	Texture	Finely rough
	Odour	Pleasant
Physicochemical Evaluation	pH	6
	Total ash	0.3% w\w
	Moisture content	4% w\w

	viscosity	-
General Powder Characteristics	Tapped density	18 gm\cc
	Bulk density	25 gm\cc
	Angle of repose	50.19 ⁰
	Grittiness	No gritty particles
	Nature of face after wash	Soft, & fresh, clean from dirt
Physical characteristics	Consistency	Smooth
	Homogeneity	No aggregation
	Extrudability	Easily extruded
	Spreadability	5.76 cm\sec
	Irritability	Non-irritant
	Washability	Easily washable
	Grittiness	Small gritty particles
	Foamability	Foam volume 85 ml at 5 min

CONCLUSION:

In the current study herbal face scrub was formulated, evaluated for various parameters. The results indicated that the formulation passed the tests. The prepared poly-herbal formulation nourishes, moisturize, cleanses, protect the skin against premature aging, acne, and pimples.

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.

FUTURE SCOPE:

Comparison of the effectiveness of Facial Scrub with the marketed Herbal Formulation.

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