



Research Article

Formulation And Evaluation Of Polyherbal Facial Scrub

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ABSTRACT

The primary goal of this study was to create a polyherbal face scrub that included *Nigella sativa* (Kalonji) as the primary active ingredient. Natural ingredients are used in herbal cosmetics because they have the ability to prevent wrinkles and acne as well as assist regulate oil discharge from the skin by opening pores. The plant components used in herbal remedies and cosmeceuticals often include antibacterial, antioxidant, and anti-aging qualities. Because they have no negative side effects and don't alter the biological function of the skin, natural ingredients are the safest and greatest products to use in daily life. The active components in this face scrub mixture are Fuller's earth, Neem, Turmeric, Green tea, Kalonji, Liquorice, and Aloe Vera. The produced face scrub satisfied all necessary characterisation requirements after being assessed for look, pH, viscosity, spread ability, extrudability, grittiness, stability tests, foamability, washability, and irritability, among other factors. Therefore, this mixture may be effectively used as a face scrub to maintain skin that is radiant and healthy. Herbal compounds with antibacterial, anti-inflammatory, antioxidant, and anti-aging qualities are typically included in cosmeceuticals. The main goal of the current study was to create a polyherbal facial scrub using natural ingredients to protect and fight against various skin problems, such as acne, pimples, wrinkles, dark spots, black heads, and dark circles, as well as to control oil secretion on the skin's surface. Herbal cosmetics are among the safest products that can be used in daily routines without causing any side effects. Many cosmetics can cause rashes and dry skin when used topically. The use of a scrub made entirely of natural substances can solve all of these issues and improve the skin's washing, softening, moisturizing, and fairness. Cosmeceuticals are products that enhance skin function. Multani mitti were added to the polyherbal scrub's composition as active ingredients. Numerous parameters, including appearance, pH, viscosity, spread ability, washability, and irritation, are used to evaluate the polyherbal scrub, and the results are determined to be good. As a result, the created mixture works well as a scrub to support skin that is radiant and healthy.

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INTRODUCTION

Cosmetics come in a variety of forms and are used by people throughout to improve their appearance. For skin protection, sunscreen, anti-acne, and anti-wrinkle, a variety of skin problems are created. In the past, people used herbs or herbal cosmetics for washing, beautifying, and combating oil, acne, blackheads, pimples, and dark circles. According to Ayurveda, blood impurities are a primary contributor to skin issues. Face scrubs are cosmetic formulas that often come in the shape of a cream or gel with microscopic exfoliating particles in them. Face scrubs remove adhering cells in the stratum corneum and dead skin cells, which exfoliate the face, increase blood circulation, and accelerate skin turnover. Face scrubs preserve skin suppleness, clean the skin, extract oil, debris, and filth from pores, and hasten the skin's cell regeneration process. A face scrub should be mild abrasive, nonstick, non-toxic, and remove dead skin cells and grime. include tiny, non-irritating grit particles. Natural and herbal components work as a cleaning solution to remove dead and old skin cells from any kind of skin condition. The primary component in this recipe is orange peel powder, which has antibacterial and antioxidant qualities in addition to being high in vitamin C. The grit in powder aids in clearing the skin's pores and getting rid of dead skin. Another active component is fuller's earth, or Multani mitti. It is used as a natural astringent and cleanser and has several advantages for the skin, such as lowering oil production, combating acne, balancing and lightening skin tone, and lessening pigmentation. Because of its therapeutic qualities, sandalwood powder helps to reduce inflammation, eliminate scars, and purge the skin of impurities to leave the skin with a uniform tone. The antioxidant properties of turmeric may give skin a healthy shine and gloss. Honey acts as a natural humectant, which helps to keep the skin hydrated. It also contains antibacterial and antiseptic properties,

which may be beneficial for oily and acne-prone skin. Additionally, moisturizing ingredients like aloe vera gel—which contains 80% water—along with a host of vitamins, minerals, and other nutrients help to create incredibly smooth, radiant skin. Glycerine helps moisturize skin, relieve dryness, and revitalize the skin's surface. Cosmetics are a blend of chemicals used for washing, beautifying, and attractiveness that come from synthetic or natural sources. Skin is a good indicator of one's health. Regular application of scrubs leaves skin smooth, velvety, radiant, and healthy as new skin cells are revealed and old skin cells are eliminated. One of the main components in the composition of the face scrub is a mild abrasive agent. Scrub may be applied directly to the skin or with the use of a little cosmetic pad. It is advised to massage the skin gently after applying the scrub, as this promotes better blood flow and an increased supply of oxygen to all areas of the skin. These days, the most common skin problems are acne and pimples, with dry skin, wrinkles, and dark spots coming in second. To get rid of all these skin issues on any kind of skin, scrub is utilized. Since the skin is the area of our body that is most exposed to bacteria, it needs to be protected against skin conditions, particularly those that cause acne. Eighty-five percent of the skin conditions that young people nowadays deal with are caused by acne. It may even worsen as one ages, affecting the face and neck in particular—areas where there is a severe lack of oil. Seborrhea, inflammatory lesions, comedones, excessive sebum production, and bacterial infections of the follicles by *Propionibacterium acnes*, *Staphylococcus epidermidis*, and *Malassezia furfur* are the most prevalent causes of acne. Therefore, it is possible to target these microbes for the potential therapy of acne. When long-acting antibiotics are used for medical purposes, living things become increasingly drug-resistant. This complex adaptability is influenced



by a variety of factors, including the body's reaction to medication, hormones, stress, and other circumstances. Studies on alternative remedies have been conducted to address this issue. Herbal extracts were made into a polyherbal anti-acne face gel since they cannot be used directly as a therapy. The anti-acne and antibacterial properties of gels prepared with Hydroxy propyl methyl cellulose (HPMC) and Carbopol in different doses of herbal remedies were investigated in this study. Cosmetics are items that are used to improve or alter the face's texture, scent, or look. A crucial step in the skin care routine is using facial washes. Typically, facial scrubs are cream-based products with tiny cleaning particles that, when applied to the skin, physically remove dead, dry skin cells to help smooth out the skin. Additionally, facial washes work wonders at maintaining the smoothness of the neck's skin, which facilitates cleaning. It will be simpler to use if you glance up when removing so that the neck skin is tight and smooth. A facial scrub is a fantastic deep cleansing treatment that is good for all skin types, but it works particularly well for oily skin. These neutral face scrubs are all effective in getting rid of extra oil as well as dirt and grime. This versatile mixture works well as a face mask or scrub. Blend with water, or give her a herbal remedy; apply to her face and gently wash. It will feel fresh, clean, and velvety on your skin. Your skin might feel smooth, vibrant, young, and lovely after using a face scrub. Facial scrubs, as opposed to regular soap or detergent, exfoliate the skin by removing dead cells and generating new ones through the application of tiny particles, beads, or chemicals. The simplest facial scrubs to use were those that involved selecting a neutral or chemical scrub that was appropriate for the skin type, massaging it for a minute on moist skin, and then cleaning it. Once or twice a week, repeat. Considering all its advantages, including face washes in your routine for taking care of sensitive skin. The process of

skin peeling entails removing extremely old, dead skin cells from the skin's surface. All face problems require exfoliation, whether receiving chemical or microdermabrasion peels. Chemicals or machinery can be used to remove skin.

Selection of Scrub according to type of Skin

1. Oily Skin

Due to the excess sebum oil clogging their skin pores, people with oily skin typically suffer from pimples. As a result, you require a face scrub that has anti-pimple qualities in addition to removing dead skin cells. Benefits of salicylic acid against acne are well recognized. Get a face cleanser with salicylic acid or other comparable anti-acne components if you have oily skin.

2.Dry Skin

Any face cleanser with components designed to eliminate dead skin cells is suitable for those with dry skin. One such component that readily eliminates flaky skin and dead skin cells is glycolic acid. It's a well-known excellent exfoliant. Seek for a glycolic acid-containing face scrub that also offers your skin some hydrating properties.

3.Sensitive Skin

Sensitive skin types need to exercise extra caution while selecting skincare products. Make sure the face scrub you use is antibacterial and anti-inflammatory if you have sensitive skin. Propylene glycol possesses antifungal and antibacterial properties. Yogurt and turmeric are two natural substances with anti-inflammatory properties. Scrubbing with sugar is said to be beneficial for delicate skin. Sugar is an excellent natural skin exfoliator that effectively eliminates dead skin cells.

4.Combination Skin

It might be challenging to select a face scrub for combination skin because it is a blend of dry and oily skin. However, experts advise using a face scrub that will remove excess oil from the skin without drying it out for those with mixed skin.

Difference between Face wash and Face Scrub



Smooth face washing is often performed with cream. In addition to cleansing, the grit on facial scrubs is utilized to exfoliate dead skin cells. Most doctors advise using simply face wash, not scrubs, if you have sensitive skin. Scratching can be facilitated by facial cleansers, which can irritate the skin. A face wash uses chemicals like soap to remove oil and grime from your face. Exfoliants like walnut shells or microbeads are used in facial scrubs to remove oil and grime from your face.

Benefits of Scrubbing Your Skin:

1. For A Squeaky-Clean Skin:

You may have clean, sweat-free skin after scrubbing off debris and oil. Actually, not all of the dust that builds up in your skin's pores can be removed by the bottles of cleaning milk, face wash, and cleansers. Scrubbing successfully completes this task.

2. Frees Your Skin from Flakes:

Itchy skin leads to dry areas. Over time, it permits dead cells to amass. You may successfully manage your flaky skin by giving your skin a good scrub.

3. Helps In Removing Dead Cells:

Dead cells give the appearance of worn, lifeless skin. Use a soft brush to gently clean them off.

4. Adds Glow to Skin:

Exfoliation has the ability to enhance skin glow.

5. Removes Dark Patches:

To see results, use the scrub twice a week. It works particularly well on knees, elbows, and knuckles.

6. Removes Acne Scars:

Exfoliation aids in the removal of acne scars.

7. Prevents Ingrown Hair:

Scrubbing is the best way to avoid the recurring issue of ingrown hair.

8. For Smooth Skin:

Having smooth skin is essential to becoming more attractive. Your skin will look immaculately smooth after the scrub, but it will also feel soft and nourished.

9. Improves The Texture of Your Skin:

Your skin seems cleaner, smoother, and has a better texture when you scrub it.

10. Promotes Clear Complexion:

as soon as the buildup of pollutants, dead cells, flake debris, and imperfections is eliminated. With a natural skin-whitening component in the scrub, the results are even greater.

MATERIAL AND METHODS: -

1. Aloe Vera (Indian aloe)

Aloe vera does wonders for cuts! Its calming qualities can work in tandem with exfoliation to leave your skin feeling nourished and renewed. Aloe vera gel may be gently scrubbed to help remove dead skin cells and encourage a healthy shine. You can also combine it with sugar or oatmeal, two natural exfoliants.



Figure 1 Aloe vera

Botanical name: Aloe barbadensis

Common name: Kattarvazha

Kingdom: Plantae

Clade: Angiosperms

Clade: Monocots

Order: Asparagales

Family: Asphodelaceae

Subfamily: Asphodeloideae

Genus: Aloe

Species: A. Vera

Medical use:

Antioxidant, anti-inflammatory, and antimicrobial, treats acne and oily skin, reduce sebum secretion.

2. TURMERIC (Haldi)

Turmeric is a common condiment and colouring ingredient. Turmeric's main benefit is skin

revitalization. In addition to delaying signs of aging such as wrinkles, it also possesses antibacterial, antimicrobial, and anti-inflammatory properties. The greatest place to get blood purification. Turmeric works wonders for skin that is impacted by certain disorders. Rosacea and eczema are two skin problems that it can relieve.



Figure 2 Turmeric

Botanical name: *Curcuma longa*

Common name: Malayalam: Manjal

Kingdom: Plantae (unranked): Angiosperms

(unranked): Monocots (unranked): Commelinids

Order: Zingiberales

Family: Zingiberaceae

Genus: *Curcuma*

Species: *C. Longa*

Medical use: -

Antioxidant, anti-inflammatory, and antimicrobial, treats acne and oily skin, reduce sebum secretion Antiseptic and improves Fairness.

AMLA

Its high antioxidant and vitamin C content helps to minimize dark spots and hyperpigmentation. By scavenging free radicals in your skin cells, the antioxidant and other polyphenols in amla contribute to the natural lightening of your skin. Get rid of your suntan and sunburn. Sandalwood shields the skin from the damaging effects of the environment and maintains its cool, fair, and healthy appearance.



Figure 3 Amla

Kingdom: - Plantae

Class: - Dicotyledone

Order: - Malpighiales

Family: - Phyllanthaceae

Botanical Name: *Phyllanthus emblica*

Chemical Constituents: Chebulagic acid, Gallic acid, Ellagic acid

Genus: - *Phyllanthus*

Medical use: -

Anti-aging, treats acne, evens skin tone, treats skin pigmentation, removes dead skin, natural hair straightener

NEEM

Because of its well-known antibacterial and antifungal qualities, neem is a fantastic addition to DIY scrubs, especially for skin that is prone to acne. Neem powder may be used with other natural substances, such as yogurt, honey, or turmeric, to make a mild exfoliating scrub that helps remove dirt and bacteria that causes acne. Just use caution as neem may be fairly strong if you have sensitive skin.



Figure 4 Neem

Kingdom: - Plantae
Class: - Dicotyledonae
Order: - Sapindales
Family: -Meliaceae
Genus: - Azadirachta
Botanical Name: Azardicachta indica
Chemical Constituents: Azadirachtin, Nimbin, Gedunin

Cosmetic Uses:

Neem leaves are used to treat skin sores and leprosy. It has antibacterial and antioxidant characteristics that filter into the skin and eliminate all dirt and microbes. Some of its health improving properties are useful for acne, rashes, and skin infections.

KALONJI (Black caraway)

Kalonji, often referred to as black seed or *Nigella sativa*, has nourishing and exfoliating qualities that make it a useful ingredient for a scrub. To make a scrub, finely ground kalonji seeds and combine them with honey, yogurt, or olive oil.



Figure 5 Kalonji

Kingdom: - Plantae
Class: Nigelids
Order: - Nigella

Family: -Ranunculaceae

Botanical Name: *Nigella sativa*

Chemical Constituents: Thymoquinone, Linoleic acid

Medical use: -

Anti bacterial, prevent acne, antioxidant, fights hair fall, fights skin infections

LIQUORICE (Mulethi)

Because liquorice, also known as mulethi, has calming and whitening properties for skin, it may be used as a scrub. Ground liquorice root to a fine powder and combine with other ingredients (such as chickpea flour, honey, or rose water) to prepare a paste to use as a scrub.



Figure 6 Liquorice.

Kingdom: - Plantae

Order: - Fabales

Genus: - *Glucyrrhiza*

Family: - Fababacea

Botanical Name: *Glycyrrhiza glabra*

Chemical Constituents: Glycyrrhizin, Liquirtin, Anethole

Cosmetic Uses:

Brightens skin, hide sun damage, fade dark scars, treat skin condition, ease inflammation, firm and tightens skin, treat acne

FULLERSEARTH (Multani mitti)

Multitani mitti has several advantages, including as pore reduction and blackhead eradication. Enhancing blood circulation. They provide skin with a healthy shine and decrease acne since they are packed with essential nutrients. Multani Mitti has an abundance of magnesium chloride.



Figure 7 Fullers Earth

Botanical Name: Bentonite Clay

Chemical Constituents: Hydrous aluminum silicates, Calcite

Medical Uses:

Oil and impurities absorber, provide fairness and glow, fights acne and pimple.

Rose water

Rose water has several applications, including relieving skin irritation, reducing skin redness, soothing sore throats, healing wounds, scars, and burns, improving mood, relieving headaches, having anti-aging qualities, and easing digestive issues. It also includes antioxidants.

Kingdom: - Plantae

Family: - Rosaceae

Order: - Rosales

Genus: - Rosa

Class: - Angiosperms

Use: -

For a number of reasons, rose water may be an excellent complement to a face scrub. It is well renowned for its calming qualities, which make it perfect for delicate skin. Additionally, it has antibacterial and anti-inflammatory qualities that help combat acne-causing germs and reduce redness and irritation. Rose water also gives the scrub a beautiful scent that improves the whole experience. Just be careful not to be allergic to rose water, and always do a patch test beforehand.



FORMULATION TABLE:

Sr. No	Name Of Herbal Drug	F1	F2	Use
1	Aloe Vera (Indian aloe)	5ml	7ml	Antioxidant
2	Fullers Earth (Multani mitti)	10gm	12gm	Anti-acne, anti-inflammatory
3	Turmeric (Haldi)	5gm	5gm	Antiseptic
4	Amla (Indian gooseberry)	5gm	7gm	Antioxidant
5	Neem (Nim)	5gm	7gm	skin conditioner, antiseptic
6	Kalonji (Black caraway)	5gm	7gm	Anti-bacterial, Anti-fungal
7	Liquorice (Mulethi) Glycyrrhiza glabra	10gm	10gm	Anti-inflammatory, soothing effect
8	Rose water	5ml	5ml	Perfume



Figure 8 Formulation of Scrub F1 & F2

Preparation and Evaluation of Polyherbal Facial Scrub:

Formulation of herbal face scrub Preparation-

1. Accurately weighed all of the herbal powders, including green tea, amla, neem powder, and sandal wood powder. Sieved through 120 and combined using a mortar and pestle to create a homogenous mixture.
2. To create a homogenous mixture, precisely weighed fuller's earth, turmeric, kalonji, and liquorice powder. To get a consistent drug powder for face scrub, add the previously made herbal medicine to the mixture and triturate it.
3. Aloe vera gel was added as the basis to a mortar and pestle along with all the herbal powders, which were triturated to a paste-like consistency and scented with rose water.

EVALUATION PARAMETER: -

The prepared polyherbal hair oil estimated performance of product which by the evaluation test:

1. Organoleptic Property: -

Color: Detected by naked eyes

Sensitivity: Applied to the skin and exposed to the sunlight for 5 minutes to check for any irritation over skin.

Grittiness: Rubbed to the skin and observed.

2. pH Determination: -

Take a pH paper and dip into the formulated hair oil and check for the color change. or. Detected by pH meter.



Figure 9 Measurements of pH

3. Homogeneity:

Homogeneity of the formulation was inspected visually

4. Extrudability:

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

5. Determination of spread ability of scrub:

Small amount of the scrub was placed on the glass slide and another glass slide was placed on the gel. A wooden weight of 20gm was placed on it. The time required for the scrub to spread and the area was measured. The amount and the area of scrub on the glass slide represent the efficiency of spread ability, i.e.

$$\text{Spread ability} = M \times L/T$$



Figure 10 Determination of spread ability

6. Irritability:

Little quantity of the scrub was applied on the surface of skin and kept for few minutes.

7. Washability:

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

8. Grittiness:

Grittiness was checked manually.

9. Foamability:

Add 1 gm formulation in 5ml water in test tube, shake it for 5 min. Allow it to stand for 15min. Observe the foam in cm. If the height of foam is less than 1 cm, the foaming index is less than 100. If the height of foam is more than 1 cm then it is over 1000.



Figure 11 Foamability

10. Viscosity:

Brookfield viscometer was used to measure the viscosity of scrub.

11. Stability study:

The formulation was stored at different temperature conditions for a period of 36 days and evaluated for parameters like colour, odor, pH, and consistency

RESULTS AND DISCUSSION

The face scrub was formulated and evaluated. The grading of evaluation parameters is 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 2).

Table No. 2. Evaluation of Face Scrub

Sr No	Parameters	Observation
1	Colour	Buff green
2	Oduor	Aromatic and pleasant
3	Nature	Semisolid
4	Consistency	Smooth
5	Homogeneity	No aggregation
6	pH	6.81±0.1
7	Extrudability	Easily extruded
8	Spread ability	5.76cm/sec
9	Irritability	Non irritant
10	Grittiness	Small gritty particles
11	Foamability	Foam volume 85ml

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, nourish, moisturize, cleanses, protect the skin against premature aging, acne, and pimples.

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