

# Formulation and Evaluation of Polyherbal Face Scrub

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**Abstract:** My project deals with the topic titled as "Formulation and Evaluation of Polyherbal Face Scrub". Herbal cosmetics are the preparations are used to beautify and enhance the human appearances. The aim of the present project was to formulate and evaluate the herbal face scrub containing plant extracts prepared Herbal face scrub was prepared using natural polyherbal ingredients. In this formulation of facial scrub Reetha, Amla, Neem, Sandalwood, Turmeric, and Orange Peel The prepared facial scrub was evaluated for various parameters such as appearance, pH, viscosity, Spreadability, Foamability, washability, irritability and 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.

The main objective of the present study is to prepare a multi-herbal facial scrub. Nowadays, cosmetics have become an important part of daily life for both men and women to lead a happy and confident life. Since herbs and spices have been used to preserve and enhance human beauty, as herbs have many beneficial properties such as sun protection, anti-aging, moisturizing, antioxidant, anti-cellulite and antimicrobial. Compared to synthetic cosmetic products, herbal products are gentle, biodegradable and have a low toxicity profile,[1] so we decided to prepare and evaluate a polyherbal facial scrub to protect against acne, scars, tanning, wrinkles, aging and rash.

This facial scrub contains herbs that exhibit antioxidant, antiseptic, antibacterial, skin whitening, fade permanent marks and reduce inflammation properties. Today, cosmetics play an important role in the daily lives of women and men to make the skin glow and change the appearance. The use of natural ingredients to maintain health and look good requires frequent cleaning of the skin surface to remove oil, sebum and other secretions, dead cells, dandruff and applied makeup. The increasing demand for natural and sustainable skin care products has led to the development of multi-herbal facial scrubs that harness the benefits of multiple plant ingredients. This study focuses on the formulation and evaluation of a polyherbal facial scrub with natural exfoliants and plant extracts. Ingredients such as aloe vera, neem reetha power, sandalwood powder, coffee, orange peel powder and amla powder are included. The scrub demonstrated excellent exfoliating properties without causing irritation and improved skin texture, clarity and smoothness after regular use. This polyherbal facial scrub is a natural alternative to synthetic products, offering an eco-friendly and effective solution to maintain healthy and glowing skin.

**Keywords:** Exfoliation, Natural skincare, Skin friendly, Herbal cosmetics

## I. INTRODUCTION

Skin is one of the largest organs of the body. Skin functions as a protective wrapper, keeping everything beneath it safe from daily threats such as the harsh effects of sun, wind and pollution, germ filled grime. Skin is also a sensory organ, which indicates the health of an individual. Skin care is very important to make it healthy and fresh; there are so many market preparations for skin care. Skin care is at the interface of cosmetics and dermatology but skin care differs from dermatology, it does not require any medical professional every time.

Cosmeceuticals are the future generations of skin care. The term cosmetic derived from Greek word 'Kosmetikos' which mean pertaining to cosmetics or beautifying substance or preparation. The word 'cosmesis' (Gr. Kosmesia) used



for two things: the preservation restoration or bestowing of body beauty, the surgical correction of disfigured physical effect. Cosmetics are defined as the products used for the purposes of cleansing, beautifying, promoting attractiveness or alternating the appearance. From ancient times, different herbs have been used for cleaning, beautifying and to manage them. Face skin is the major part of the body, which indicates the health of an individual. Skin becomes dull, non-glowing due to various causes and these can effectively be overcome with the application of scrubs.



**Fig 1 . Cosmetic Product**

#### **Advantage of Polyherbal Scrub:**

The application of the Scrub which helps to improve blood circulation & increases oxygen supply, to all surface of the skin.

1. After application of Scrub, skin become softer cleaner & refreshed.
2. Remove dead skin cells
3. Unlock skin pores .
4. Reduce Acne Scars.

#### **Disadvantages**

1. Hard scrubbing motions and hard scrubbing chemicals may cause skin irritation including redness, inflammation.

## **II. LITERATURE REVIEW**

### **1. Skin care with herbal exfoliants :**

(Nilani Packianathan, Ruckmani Kandasamy : Skin Care with Herbal Exfoliants, Functional Plant Science and Biotechnology 2010;5(1):94-97)

The given article gives the different types of exfoliation methods such as manual or mechanical skin exfoliation, chemical exfoliation, enzyme exfoliation. The formulation is from luffa, algae extract, grapefruit seed extract, apricot shell cucumber extract, papaya extract, mung dal, pineapple extract, rosehip seed powder, cranberry, green tea, tree tomato. Herbal skin exfoliation is important part of general skin maintenance. It smoothens and chemically balances skin, unclogs pores and stimulates fresh cell growth, reducing blemishes, discoloration and wrinkles which helps the skin stays healthy and clean, hydrated and blemish free.[5]

### **2. Formulation and evaluation of multipurpose herbal scrub in gel from using limoniaacidissima:**

(Mr.Vishal Ashok Chaudhari, Dr.Manoj V.Girase, Mr.Bhushan Gulab Borase, Mr.Shashikant Kailas Bhoi, Miss.Kalyani Ashok Chaudhari: Formulation and

Evaluation of Multipurpose Herbal Scrub In Gel Form Using Limonia Acidissima, International Journal Of Research and AnalyticalReviews 2020;7(2))

The Formulation is based on herbal scrub using limonia acidissima .The objective behind the study was to prepare multi purposeherbal scrub in the form of gel that are used for their medicinal and cosmetic properties and limonia acidissima is one of them.The valuable part of plant includes its roots, fruits bark and leaves which are used for various therapeutic



purposes. Extraction of fruit parts were done and incorporated to gel phase. The formulation contains ethanol extract of *Limonia acidissima* fruit pulp which possess antioxidant, anti-aging, anti-wrinkle, skin tightening, lightening and brightening property. They can exfoliate skin without scratching skin surface by applying pressure on them. Suitable base materials such as gelling agents, preservative, neutralizer and foaming agents were selected and incorporated into extract to design a suitable herbal gel. The formulation was evaluated using various parameters and found to be satisfied upon application to skin.[6]

**3. Clinical review of deep cleansing apricoat scrub: An herbal formulation: (Debbarma Dona, Moharana PK, Mishra Baidyanath, Ramana Vivekananda and W Dimple: Clinical Review of deep cleansing apricoat scrub: An Herbal Formulation, International Journal of Bioassays 2015;4(9):4251-4253)**

Exfoliation to your skin care routine helps the natural shedding process of skin and encourages healthier, smoother more even-toned skin some of the big beauty benefits like acne prevention, smaller pores, wrinkles, etc.

#### **Ingredients of formulation:**



##### **• Reetha powder**

- 1) Synonyms - Soap Nut Powder, Arishtakadi Powder
- 2) Biological Source - Reetha powder is obtained from the dried fruits of *Sapindus mukorossi*, which belongs to the Sapindaceae family.
- 3) Color Description - Color: Light brown to sandy brown.
- 4) General Information - Reetha is a natural detergent, mainly known for its high content of natural saponins, which create a soapy lather when mixed with water. Reetha powder is made by drying the fruit husks, removing the seeds and grinding the husks into a fine powder.
- 5) Family - Sapindaceae
- 6) Chemical constituents - Saponin, sugars, fatty acids, tannis
- 7) Uses - Treats acne, eczema and other skin conditions. Acts as an exfoliant to remove dirt and dead skin.



• **Amla Powder:**

- 1) Synonym- Indian eggplant powder, Myrobalan Emblic Powder
- 2) Biological source-Amla powder is prepared from the dried fruits of *Emblica officinalis* (*Phyllanthus emblica*), which belongs to the *Phyllanthaceae* family
- 3) Description (color)- Color-light brown to greenish brown
- 4) General Information- Amla (Indian bitter gourd) is a rich source of vitamin C and antioxidants. The fruits are small, round and yellow-green with a sour and astringent taste. The powder is made by drying the fruit, removing the seeds and grinding the pulp into a fine powder.
- 5) Family - *Phyllanthaceae*
- 6) Chemical constituents -Ascorbic acid , Ellagic acid , Gallic acid, Tannins
- 7) Uses- Increases immunity and general health, brightens skin and reduces dark spots.



Fig 7. Sandalwood

• **Sandalwood Powder:**

- 1)Synonym: Chandan (Hindi), White sandalwood 2)Biological Source:  
Derived from the heartwood of the tree *Santalum album* (main species used).  
Other species include *Santalum spicatum* (Australian sandalwood) and *Santalum paniculatum* (Hawaiian sandalwood).
- 3)Family: *Santalaceae*
- 4)Order: *Santalales*
- 5)Family- *Santalaceae*
- 6)Chemical constituents - Alpha santalol,Beta santalol
- 7)Colour: Typically light brown to yellowish brown, depending on the source and processing.
- 8)Uses:  
Cosmetic: Face masks, skin brightening, anti-acne treatments



**Turmeric Powder:**

- 1) Synonym: Haldi ,Curcuma , Indian Saffron
  - 2) Biological Name: Turmeric is obtained from the rhizomes of *Curcuma longa* Linn .
  - 3) Colour: Bright Yellow to Orange -yellow.
  - 4) General Information:
    1. Turmeric is a perennial herb native to South Asia especially India.
    2. The plant grows about 1 meter tall with broad leaves and yellow-white flowers.
    3. The rhizomes are boiled, dried, and ground into a deep orange-yellow powder.
  - 5) Family -Zingiberaceae
  - 6) Chemical constituents -Curcumin,Resins, protein, Sugars
  - 7) Family: Zingiberaceae (Ginger family)
  - 8) Order: Zingiberales
- Uses:Natural dye and Colouring agent



**Orange Peel Powder:**

- 1) Synonym:- Orange Zest
- 2)Biological Source:- It consist of dried fruits of *Citrus sinensis*.
- 3)Family:- Rutaceae Description colour:- Dark orange, red etc.
- 4)General information:- An Orange is a type of Citrus fruit whichoften eaten.  
Orange is a very good source of vitamins, especially vitamins orange juice is an important part of many people's breakfast.
- 5) Family - Rutaceae
- 6)Chemical constituents -Limonene, Ascorbic acid, Pectin, carotenoids
- 7)Uses:- Reduce skin mark, Skin spots helps to skin whitening, Treat pimples, Acne



**• Aloe Vera Gel:**

- 1) Synonym:- Aloe, Musabbar
- 2) Biological source: - Aloes is obtained from the dried juice of the leaves of a) *Aloe barbadensis*Miller. b) *Slow perry*l Baker





- 3) Family: -Asphodelaceae Description Colour - Pale green
- 4) General Information:- The Aloe vera mean "aloe" meaning shining bitter substance while "vera" mean true Aloe Vera contains vitamin A and C and it also shows anti-inflammatory properties.
- 5) Uses:-Strong purgative, Laxative, Anti-spasmodic, Irritation and Malignancy, Prevent skin ulceration.
- 6) Chemical Consistent: Polyphenols and Flavonoids



**• Neem Powder:**

- 1)Synonym: Neem tree
- 2)Organic source - Consists of dried leaves of Azadiracta indica belonging to the family Meliaceae.
- 3)Description color - Green Odor - Wild Taste - Bitter.
- 4)General information- Neem powder is made by drying neem leaves and grinding them into a fine green powder. It is rich in bioactive compounds such as nimbin, nimandial, nimbinin and quercetin, which contribute to its antimicrobial, anti-inflammatory and antioxidant properties.
- 5)Family - Meliaceae
- 6)Chemical constituents - Azadirachtin, Triterpenoids, Tannis
- 7) Uses - Antifungal, antibacterial, antiseptic and anti-inflammatory, relieves wounds



**Rose Water:**

- 1) Synonyms- Margosa
- 2) Biological source- Rose water comes from the petals and sepals of the Rosa genus of plants Discription – Colour- shead of red
- 3) General information - kingdom- plantae
- 4) family- rosaceae
- 5) order-Rosales
- 6) Class – Angiosperms
- 7) Family-Rosaceae
- 8) Chemical constituents - Phenyl ethyl alcohol,Nerol,Geraniol
- 9) Uses- Rose water may be an excellent complement to a face scrub. their appearance





#### Xanthan Gum

- 1) Synonyms- Guar gum
- 2) Biological source- bacterium xanthomonas campestris
- 3) Description - Colour - White powder. 4) General information - Kingdom- bacteria
- 5) Family- Xanthomonadaceae.
- 6) Chemical constituents -D -glucose, Mannose, Glucuronic acid.
- 7) Class- Gamma subdivision of proteobacteria.
- 8) Uses- Xanthan gum gives gluten - free doughs and batters elasticity and stickiness so they don't crumble

#### Procedure:

Firstly collect all essential glassware's, apparatus

Clean and dry it properly.

Sieve reetha powder, Amla powder, neem powder, xanthan gum and turmeric powder from mesh no. # 60 separately.

Sieve Sandalwood Powder from mesh no. # 20.

Take Accurately Weigh quantity of all sieved ingredient separately.

Take mortar and pastel, add reetha powder glycerine in it .

Add Amla powder, neem powder, Orange Peel Powder, xanthan gum, turmeric powder.

Triturate and mix it uniformly

Then add Sandalwood powder, rose water in it and mix it well & add preservative.

Collect it in proper container.

Perform evaluation tests for it.

Label it properly<sup>[2][3]</sup>

Sr.No.	Ingredient	Quantity	Uses
1.	Reetha powder	25gm	Cleansing Agent
2.	Amla Powder	10gm	Anti-Ageing agent
3.	Neem Powder	05gm	Anti-Septic Agent
4.	Orange Peel Powder	05gm	Anti-Oxidant
5.	Sandalwood Powder	02gm	Exfollient
6.	Xanthan Gum	02gm	Thickening agent
7.	Turmeric	01gm	Anti- Inflammatory Agent
8.	Tea tree Oil	0.5 %	Preservative



9.	Glycerine	2.5ml	Humectant
10.	Rose Water	QS	Solvent

**d) Evaluation Parameters:**

Following are the evaluation parameters were performed to ensure superiority of prepared Polyherbal Scrub. <sup>[1] [2] [3]</sup>

Colour: It was observed visually.

Odour: It was observed visually.

Texture: Appearance: It was observed visually.

Nature: It was observed visually.

Consistency: It was observed visually.

Angle of repose: The flow properties of Powders were studied by measuring Angle of

Repose. It was determined by funnel method. Height of granules forming cone (h) and Radius of the base circle  $R$  was measured. The angle of repose was calculated as follow

Bulk density: Bulk volume was measured after manually tapping the cylinder two times on a flat table top surface.

Tapped density: Tapped Volume was measure with tapping for 100 times on flat table top surface

Carr's Index: The bulk and tapped densities were used to calculate Carr's Compressibility index to provide measure of the flow properties and compressibility of powder

Hausner ratio: It is indicative of flow properties. It is derived property from bulk and tapped density. Lower the Hausner ratio is indicating better flow whereas higher ratio indicates poor flow of granules. It is calculated by the following formula.

pH: pH of the prepared Polyherbal scrub was evaluated by using pH paper.

Fomability: Small amount of scrub was shaken with water in measuring cylinder and foam was measured.

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

Sr. no.	Tests	Results
1.	Colour	Brownish Green Colour
2.	Odour	Slightly Woody
3.	Texture/ Appearance	Smooth
4.	Nature	Solid
5.	Consistency	Good
6.	Angle of repose	Good
7.	Bulk density	Good
8.	Tapped density	Good
9.	Carr's Index	Good
10.	Hausner ratio	Good
11.	pH	7
12.	Foamability	Adequate





13.	Washability	Easily washable
14.	Nature of Skin After wash	Smooth
15.	Irritability	Non irritant
16.	Cleaning effect	Good

**Table No. 5 Evaluation Table**

## **II. RESULTS AND DISCUSSION**

The formulated herbal scrub was evaluated at different parameters. All the organoleptic properties were checked visually such as colour, odour, consistency, homogeneity and texture. As a result, the colour observed was Desert Colour, no bad smell occurred from formulation and the consistency of the formulation was found suitable as required to apply on skin. Sandalwood particles used were checked for their texture. The homogeneity of preparation was checked on skin and was found to be good and satisfactory. Washability and cleansing properties of Reetha was found to be good, and it is easily removed by washing with normal water. It left a smooth feel on the skin after washing and no dryness was observed. Spreadability quality was also tested with the help of glass plates and found that the preparation had good consistency and was easily spreadable when compared with a marketed gel based scrub. No irritation, redness or any dermatological effects were observed on skin during irritancy testing. [6]

### **Conclusion:**

From the above results, it is concluded that the prepared herbal based scrub formulation can be safe to use and reetha used as a cleansing agent shows good cleansing effect. As most of the ingredients used are natural ingredients, so chances for side effects/irritation are less. The prepared scrub was evaluated using various parameters and was found to be satisfied with the application on the skin to make it healthy and glowing without any side effects. Since, Amla is a natural anti-aging and anti-wrinkle agent and neem which is an antibacterial, anti-inflammatory and antiseptic agent, they are both incorporated into the formulation which increases the efficiency of the product.

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 are ineffective or may cause harmful effects. The use of polyherbal face scrub gives effectiveness and healthier skin type. The antioxidant, antiseptic, anti-aging effect of fenugreek, turmeric and amla enhance the importance of use of polyherbal face scrub. The prepared formulation was suitable to skin and was evaluated using various parameters. The formulation has passed all the tests included in evaluation.

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