

# Preparation And Evaluation of Moringa Seed Powder Facial Scrub

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**Abstract**—The capacity of face scrubs to enhance skin health and their affordability have made them more and more popular in recent years. Moringa seeds (*Moringa oleifera*) is rich in antioxidants, minerals, vitamins and bioactive compounds that helps in skin nourishment and rejuvenation. Moringa seeds could be utilized as an extra cosmetic ingredient. The majority of cosmetic products are made with natural ingredients because they have no negative effects and are used to maintain good health and beauty. In this preparation moringa seeds powder is used which work to exfoliate, brighten and maintain the skin moisture. The preparation was evaluated by various parameters such as colour, odour, texture, consistency, pH, spreadability and foamability. The results from the evaluation indicated that the scrub was satisfactory after application and nonirritating to the skin and the skin become even more softer.

**Index Terms**—Antioxidant, Facial-scrub, Moringa Seed, Moringa face exfoliant

## I. INTRODUCTION

Moringa seeds produce oil commercially known as the behen oil. The oil is widely used in beauty products because it has a high antioxidant content with an IC50 value of 91.13 µg/mL. Moringa seeds are also known to have nutrients such as vitamins and minerals that are beneficial to skin health. *Moringa oleifera* Lam. (Moringaceae) is a tree growing up to 5-12 m with an open umbrella-shaped crown native to India, Africa, Arabia, Southeast Asia, South America, and the Pacific and Caribbean Islands. The species is cultivated in many tropical and sub-tropical regions worldwide, where it is known by various vernacular names as horseradish tree, drumstick tree, bean oil tree, miracle tree, and “Mother’s Best Friend”. Various parts of the plant are used culturally for its nutritional and medicinal values. The leaves can be eaten fresh,

cooked, or stored as a dried powder for later use as a food flavoring or additive and also as animal feed. Studies have indicated that *M. oleifera* leaves are a good source of nutrition and exhibit anti-tumor, anti-inflammatory, antiulcer, anti-atherosclerotic and anticonvulsant activities. Moringa contains high enough minerals such as calcium, copper, phosphorus, zinc, magnesium, manganese, potassium and sodium. The mineral content of calcium, sulfur, magnesium, and potassium can lift dead skin cells (exfoliator) and nourish the skin so the skin feels soft and smooth. Moringa seeds are rich in vitamins B1, B2, B3, C, and E. Vitamin B1, B2, B3 are known to have a role in maintaining skin moisture and brightening the skin. Moringa seeds have potential as raw materials in cosmetic because they have a high nutrient content that is beneficial to the skin. Cosmetics has now become a necessity that is considered important for some people. Various types of cosmetic products are used for skin care in order to appear more attractive. Cosmetic product used for other skin care is scrub cream. Based on the content of vitamins, minerals, and high antioxidant content in moringa seeds, researchers have an interest in using moringa seed powder as an active component of skin abrasive and also as a nutritional addition to cream scrub. The effort to add moringa seed powder in scrub cream has never been done before. Scrub cream is made by varying the concentration of moringa seed powder 3.5; 4.5; and 5.5%, followed by organoleptic test by 30 panelists and characterization test (pH analysis, emulsion stability, species weight, and total microbial contamination) in accordance with the quality standard of National Standardization Body 1996. Body scrub cream fulfills the quality requirement of Agency National Standardization 1996 followed by dermal acute irritation test. The content of the substances used

for the production of scrub cream has the possibility to cause irritation to the skin, therefore to know the safety of the use of cream scrubs on the skin, then this study conducted dermal acute irritation test. This test uses the white rat rats (*Rattus norvegicus*) Sprague-Dawley strain with the method Draize. The Draize method is done by observing the reaction of erythema and edema in the skin that occurs after cream scrub products applied to the skin of test animals for 24 hours and 48 hours.

### 1.1 Plant Profile

Common name: - Drumstick tree, horseradish tree, miracle tree, tree of life

Botanical Name : - *Moringa Oleifera*

Family: - Moringaceae

Chemical constituents : Fatty acid, Threonine, Gallic acid, Behenic acid, Beta- Sitosterol, Stigmasterol, Campesterol, Quercetin, p-Coumaric acid, Protocatechuic acid.

Moringa Seed:

Seeds are round 1cm in diameter with brownish semi – permeable seed hull with 3 papery wings hulls of seed are brown to black but can be white if kernels are of low viability. Viable seed germinate within 2 weeks, each tree can produce around 15,000 to 25,000 seeds/year. Average weight is 0.3 gm/seed. Moringa seeds, characterized by their small, round, and winged morphology, are rich in oil and antioxidants, making them highly valuable in cosmetic formulations for skin nourishment and protection.



Fig.1 Moringa seeds

Botanical Description Of Moringa :

Taxonomic classification:

Kingdom : Plantae

Subkingdom : Tracheobionta

Super Division: Spermatophyta

Division : Magnoliophyta

Class : Eudicots

Subclass : Rosids

Order : Brassicales

Family : Moringaceae

Genus : *Moringa*

Species : *oleifera*.

### 1.2 Herbal Uses Of Moringa seed

1. Moringa seeds have potential as raw materials in cosmetic because they have a high nutrient content that is beneficial to the skin.
2. Moringa contains powerful antioxidants, including quercetin, chlorogenic acid and beta-carotene. These antioxidants help to neutralize free radicals, which can reduce signs of aging and promote a youthful complexion.
3. Moringa has anti-inflammatory compounds that can help soothe irritated skin and reduce redness.
4. Helps to exfoliate and unclog pores.
5. Gives Healthy glow.
6. Helps blemish dark spots and black heads.
7. Regulates blood sugar levels.
8. Great source of iron.
9. Improves bone health.
10. Reduces tiredness and fatigue.
11. Promotes heart health.

1.3 Nutritional value of moringa seeds: The benefits of moringa seeds will leave you looking for ways to include them this nutrient-dense superfood in your diet. Vitamin B6, beta carotene, vitamin C, magnesium and protein are rich in these seeds. This tree has a high nutritional density and can appeal skin problems and improve digestive health and vision. protein, iron and vitamins present in the seeds maintain energy levels and to provide energy.

Let's learn about the nutritional value of moringa seeds. Following are ranges for different macronutrient compositions from 100 grams dry weight of seeds:-

| Nutrients     | Ranges             |
|---------------|--------------------|
| Fat           | 34.7 to 40.4 grams |
| Proteins      | 29.4 to 33.3 grams |
| Carbohydrates | 16.5 to 19.8 grams |
| Fibre         | 6.8 to 8.0 grams   |
| Moisture      | 5.7 to 8.9 grams   |

#### 1.4 Facial Scrub :

A face scrub is a skincare product used to exfoliate your skin. It helps in the removal of dead skin cells from the surface of your skin, reducing the chances of clogged pores and acne breakouts. With the practice of scrubbing and exfoliation dating back to ancient times, history indicates that people used something abrasive to exfoliate their skin. Facial Scrub is defined as a product that is applied to the human body for cleansing, beautifying, promoting attractiveness or altering the appearance without affecting the body structure or functions.

Scrub can be used on any type of skin. Only the essential oil used in scrub as ingredient will vary with the type of skin. Mild abrasive agent is one of the key ingredients in facial scrub formulation. Scrubs can be directly applied on to the skin or can be applied with small cosmetic pad. Scrub is mainly used to remove dirt, nourishes and softens human skin.

##### 1.4.1 Properties of Facial scrub :

1. The facial scrub used in remove dead skin cells from face.
2. It removes excess sebum from the skin and unclog the skin pores.
3. Dry skin called flakes it is used to remove flakes from skin.
4. Facial scrubs also contribute in reducing acne scars and dark patches of skin.
5. Facial scrubbing is one of the best way to prevent ingrown hair from ruining your facial features.
6. Face scrubs also make your skin epithelial layer smooth and glowing.
7. Facial scrubs improve the texture of the skin by encouraging the skin renewal process.
8. Exfoliating your face with a scrub can ensure that other facial products are properly absorbed and that they blend easily on your skin.

##### 1.5 Benefits of using scrub cream :

1. Removes Dead Skin Cells
2. Unclogs Skin Pores
3. Removes Flakes
4. Reduces Acne Scars
5. Prevents Ingrown Hair
6. Provides Smoother Skin
7. Improves the Texture of Skin
8. Better Absorption of Skincare Products

#### 1.6 What Does a Face Scrub Do to Your Face?

Facial scrubs contain coarse particles which help to exfoliate the skin. When you apply a face scrub, the particles rub against your skin and remove all the dirt from your skin pores. It also removes dead skin cells, making your skin smoother and softer. The addition of a good facial scrub in your weekly skincare routine will provide you with healthy and glowing skin.

## II. MATERIALS

Materials : Moringa seed powder, Lavender Oil  
Chemicals : Glycerin, Stearic acid, Cetyl alcohol, Triethanolamine, Iso-propyl alcohol, Propyl paraben , Distilled water.

## III. EXPERIMENTAL WORK AND RESULTS

#### 3.1 Preparation of Moringa seed powder based facial scrub :

| INGREDIEN<br>TS     | QUANTI<br>TY | ROLE                                                             |
|---------------------|--------------|------------------------------------------------------------------|
| Glycerin            | 3.75 gm      | Humectant                                                        |
| Steric Acid         | 3 gm         | Moisturizing                                                     |
| Cetyl Alcohol       | 1 gm         | Softening Effect                                                 |
| Triethanolam<br>ine | 0.75 gm      | Emulsion Stabilizer                                              |
| Isopropyl Alcohol   | 0.5 gm       | Antibacterial Agent                                              |
| Propyl Paraben      | 0.02 gm      | Preservative                                                     |
| Lavender            | 2 Drops      | Perfume                                                          |
| Distilled Water     | 25 ml        | Vehicle                                                          |
| Moringa Powder      | 5 gm         | Antioxidant, Skin brightening, and maintaining the skin moisture |

#### 3.2 METHODS OF PREPARATION OF MORINGA SEED POWDER FACIAL SCRUB

##### 3.2.1 Preparation Of Moringa Seed Powder

Collected and cleaned moringa seeds by removing outer shells, hulls and wings to extract the inner white kernels. Placed the cleaned seeds kernels on tray, dry them in an oven at temperature 60<sup>0</sup>c for one hour until

they are completely dry and brittle. Transfer the dried seeds into a clean blender. Grind them steadily until fine texture. Then this powder sieved with a particle size filter 595-420  $\mu\text{m}$ .



Fig.2 Moringa seed powder

### 3.2.2 PREPARATION OF SCRUB

1. The preparation of a cream base is carried out according to the composition of the formula.
2. The method of making moringa seed cream scrub is as follows stearic acid and Cetyl alcohol which is the oil phase mixed and melted in porcelain cup until it reaches 70 °C above water bath.
3. After a perfect melt the temperature is lowered to 65 °c then fed into a cup of trophies and then added propyl paraben and isopropyl impregnate into the oil phase mixture while stirring until homogeneous (dough 1).
4. Glycerin and water which is a water phase mixed and heated to temperature 80°C in different containers and then cooled to at temperature of 65 °C while slowly incorporating triethanolamine (dough 2).
5. Dough 1 and 2 are mixed while stirring until a fine cream emulsion (dough 3) is formed. Dough 3 is allowed until the temperature drops to 40 °C. Moringa flower dust and powder with concentration variation (b/b) is added while continuous stirring. A cold cream scrub is inserted into a plastic bottle.

### 3.3 EVALUATION PARAMETERS FOR MORINGA SEED POWDER SCRUB :

- 1) Organoleptic characteristics for moringa seed powder facial scrub :

The prepared Moringa seed powder facial scrub formulation was inspected visually for their colour, odour, texture, consistency.

| Sr. No. | PARAMETERS  | RESULT           |
|---------|-------------|------------------|
| 1       | Colour      | White            |
| 2       | Odour       | Lavender like    |
| 3       | Texture     | Sandy            |
| 4       | Consistency | Thick And smooth |

- 2) pH of Moringa seed powder facial scrub :

Weigh 5g of facial scrub and measure its pH by using digital pH meter. The pH of facial scrub formulation should be between standard pH i.e. 6-7 to provide sufficient properties of facial scrub.

| Formulation                      | pH |
|----------------------------------|----|
| Moringa seed powder facial scrub | 7  |

- 3) Foamability of moringa seed powder facial scrub :

Weigh 2gm of facial scrub and add 3ml of water in measuring cylinder and add the foam was measured initially volume was noted; the beaker was shaken for 10 times and the final volume was measured. And it was found 7 ml in 5 min.

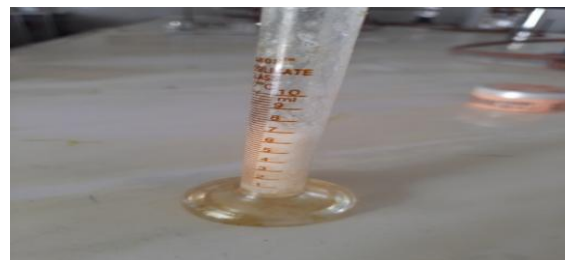


Fig.4 Foamability of facial scrub

- 4) Spreadability

Accurately weigh 0.5 gm of sample of Moringa seed powder facial scrub was pressed between two slide and left for about five minutes where no more spreading was expected. Diameter of spreaded circle was measured in centimeter and was taken as comparative values for Spreadability.

Moringa seed powder facial scrub was easily spreadable.

| Sr. No. | Weight | Spreadability |
|---------|--------|---------------|
| 1       | 20gm   | 2.7           |
| 2       | 100gm  | 4.6           |



Weight 100gm



Weight 20gm

#### IV. DISCUSSION OF MORINGA SEED POWDER FACIAL SCRUB

The formulation of moringa seed powder facial scrub was evaluated for several organoleptic properties. The facial scrub was white in colour having a lavender like odour and it was in thick and smooth form like other marketed facial scrub. The pH value of moringa seed powder facial scrub was found to be 7 permitting the safe use of formulation on the skin. The foamability of moringa seed powder facial scrub was found to be 7 which is able to remove dirt.

#### V. CONCLUSION

The Moringa seed powder based facial scrub was successfully prepared and evaluated. It was observed that moringa seed powder based facial scrub was found to be consistent with respect to its pH, colour, odour, spreadability, texture and appearance.

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