

## PREPARATION AND EVALUATION OF HERBAL FACE SCRUB

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**ABSTRACT**

The main objective of the present study was to prepare a herbal face scrub incorporated into a gel. In daily life both men and women apply cosmetics for beautifying and altering the appearance of the skin. Now days consumers are well aware about the product benefits and their side effects, hence the usage of the herbal cosmetics increases because of fewer or no side effects. A facial scrub is a cosmetic or a beautify product used to exfoliate and clean the skin on the face. Blackheads, whiteheads, sebum and dead skin cells can be removed by using face scrub. In this face scrub we used turmeric and amla as common ingredients and other ingredients like carbopol, triethanolamine and methyl paraben were added to into the facial scrub. For exfoliation property powder of pomegranate peel, orange peel, coffee beans and green tea were added. The prepared herbal face scrub was evaluated for various parameters such as physical appearance, consistency, washability, grittiness, spreadability, antibacterial activity and antioxidant activity and found to be satisfactory outcome.

**KEYWORDS:** Face scrub, Exfoliation, Brightening, Antibacterial, Antioxidant.**INTRODUCTION**

Cosmetics can be defined as any product intended to be rubbed, poured, sprinkled or sprayed on, or introduced into, or otherwise applied to, the human body or any part thereof for cleansing, beautifying, promoting attractiveness, or altering the appearance, includes any article intended for use as a component of cosmetic.

Cosmetics (Colloquially known as makeup or make-up) are care substances used to enhance the appearance or odor of the human body. They are generally mixtures of chemical compounds, some being derived from natural sources, many being synthetic.<sup>[1]</sup>

Facial scrub is the cosmetic product which cleanse, exfoliates the skin of the face and gives healthy complexion. Skin becomes dull, non-glowing due to various causes and these can effectively be overcome with the application of scrubs. Scrubbing is the removal of dry /dead skin cells on the surface of the skin and is the most important of skincare routine for face. Scrubbing increases blood circulation, which in turn helps you to achieve healthy and glowing skin.<sup>[2]</sup>

There are two type of scrub facial scrub and body scrub. On regular use of scrubs, dead cells of the skin will be removed, exposing new skin cells, making the skin smoother and glowing. Scrubs can be directly applied on to the skin or applied with small cosmetic pad. Gentle massage is recommended on application of the facial

scrub which helps to improve blood circulation and increase oxygen supply.<sup>[3]</sup>

**MATERIALS****Turmeric**

Turmeric (*Curcuma longa*) a plant in the ginger family Zingiberaceae is native to Southeast Asia. Its rhizome (underground stem) is used as a culinary spice, colouring agent and traditional medicine. The anti-inflammatory properties and scar lightening abilities of the turmeric brighten and clarify dull and dry skin.<sup>[4]</sup>

**Amla**

Amla (*Embllica officinalis*) is the fruit obtained from small to medium sized deciduous tree belongs to the family of Euphorbiaceae and is also known as *Phyllanthus emblica* or Indian gooseberry. Amla is one of the richest sources of vitamin-C and low molecular weight hydrolysable tannins which makes amla a good natural antioxidant.<sup>[5]</sup>

**Orange**

Orange peels contain citric acid that helps lighten and brighten the skin organically. Regular use of orange peel powder can effect of the powder will help reduce any pigmentation, dark spots or scars caused due to skin infections Orange (*Citrus sinensis*) is a fruit of various citrus species in the family Rutaceae. help remove tan and give skin a youthful radiance. Also, the bleaching.<sup>[6]</sup>

### Pomegranate

The pomegranate (*Punica granatum*) is a fruit bearing deciduous shrub in the family Punipaceae. These peels are loaded with antioxidants and Vitamin C which are required for better detoxification and can help to treat skin problems.<sup>[7]</sup>

### Coffee

Coffee (*Coffea arabica*) is dried ripe seed belongs to the rubiaceae family. Coffee contain antioxidants and anti-inflammatory action, caffeine and chlorogenic acids effectively protects the skin from UV induced damages.<sup>[8]</sup>

### Green tea

Green tea is a type of tea that is made from *Camellia sinensis* leaves from family Theaceae Green tea contains a huge number of polyphenols called catechins. The presence of catechins in green tea help reduce irritation, redness, swelling and itching When applied to the skin, green tea also reduces blackheads, whiteheads and paves the way for calm and clear skin.<sup>[9]</sup>

### Collection of materials

#### 1. Turmeric powder

Dried turmeric rhizomes (*Curcuma longa*), with uniform size and maturity, free from diseases, were bought from a local market. Dried turmeric rhizome was ground into powder and sieved using sieve 60. Store turmeric powder in an air tight container at room temperature.

#### 2. Amla extract powder

Amla fruit extract was obtained from Missionary wellness private limited; Eranakulam, Kerala.

#### 3. Orange peel powder

Fresh orange peels taken from orange fruit (*Citrus sinensis*) were brought from local market. Cut in half and peels were separated. Peel was cleaned under tap water and remove dirt and other extraneous matters. Peel was dried under sunlight for 6 days. Dried orange peel was

ground into coarse powder and sieved using sieve 20. Stored orange peel powder in an air tight container at room temperature.

#### 4. Pomegranate peel powder

Fresh pomegranate obtained from local market. The pomegranates were peeled manually to obtain the peel. The blanching of obtained fresh pomegranate peel was carried out in a water bath at 90 °C for 30 s to remove surface impurities and contamination. The peel obtained was subjected to drying under sun light to obtain dried peel. Dried pomegranate peel was ground into coarse powder and sieved using sieve no20. Store pomegranate peel powder in an air tight container at room temperature.

#### 5. Coffee powder

Dried coffee beans (*Coffea arabica*) were brought from local market. Dried coffee beans ground into coarse powder and sieved using sieve no 20. Store the coffee powder in an air tight container at room temperature.

#### 6. Green tea powder

Clean and dried green tea (*Camellia sinensis*) leaves were brought from the local market Dried green tea leaves were hand crushed into coarse powder and sieved using sieve no 20. Stored the green tea powder in an air tight container at room temperature.

### Method of preparation of herbal scrub:

Methyl paraben was weighed and dissolved in beaker containing water. To this Carbopol was added and stirred continuously for few minutes until it forms a gel. Drop-wise Triethanolamine was added to the gel to adjust the pH. Then the ingredients such as turmeric powder and amla extract powder was added to the gel and stirred until homogeneous. Then orange peel powder, pomegranate peel powder, coffee powder and green tea powder were added. Formulated face scrub were transferred into and stored in suitable air tight containers.<sup>[10]</sup>

**Table no. 1: Formulation of herbal face scrub.**

Sl. No.	Ingredients	F1	F2	F3	F4
1	Turmeric powder	0.25g	0.25g	0.25g	0.25g
2	Amla fruit extract powder	0.25g	0.25g	0.25g	0.25g
3	Orange peel powder	1g	—	—	—
4	Pomegranate peel powder	—	1.5g	—	—
5	Coffee powder	—	—	1g	—
6	Green tea powder	—	—	—	1g
7	Carbopol	0.187g	0.187g	0.187g	0.187g
8	Methyl paraben	0.05g	0.05g	0.05g	0.05g
9	Triethanolamine	qs	Qs	Qs	qs
10	Distilled water	qs to 25g	qs to 25g	qs to 25g	qs to 25g

### Evaluation parameters

- Physical appearance /Visual inspection:** The formulation prepared was evaluated for the colour, odour, consistency and state.<sup>[11]</sup>
- Determination of pH:** pH of 1% aqueous solution of the formulation was measured by using a

calibrated digital pH meter at constant temperature.<sup>[12]</sup>

- Test for grittiness:** Grittiness of the formulated preparation was inspected manually.<sup>[11]</sup>
- Test for Washability:** Washability of the formulation was determined by applying small

quantity of the scrub on the skin and wash with water.<sup>[11]</sup>

- v. **Test for Spreadability:** Spreadability of the formulated preparations were tested by small quantity of sample placed on a glass slide then another slide placed above them. Amount of weight placed on slide, then it spread on slide and how much time it taken for spread is measured.<sup>[11]</sup>

It calculated by using formula:

$$S = m \times L/t$$

S= spreadability

M= weight placed on slide (1g)

L= length of glass slide (7.5 cm)

vi. **Anti bacterial test**

- Preparation of media:** Modified agar well method was used for the preparation of media and to determine the anti-bacterial activity of formulation. Agar plates are inoculated with a standardized inoculum of the test microorganism (E.coli). After

solidifying the agar plates, wells are cut at equal distance in each plate by using a sterile 8mm borer.

- Test:** The wells of plates were filled with formulation. The plates were then incubated at constant temperature for 24hr. The antibacterial activity was evaluated by measuring the zone of inhibition (in mm)<sup>[8]</sup>

vii. **Anti –oxidant test**

**Preparation of control:** 0.01g of ascorbic acid dissolved in 10 ml ethanol.

**Preparation test solution:** 0.01g of each herbal scrub formulation was reconstituted with 10ml of ethanol.

Antioxidant testing was carried out on all 4 formulation as well as vitamin C (positive control). To 1ml of sample 2 ml of DPPH solution and then kept in a dark room for 30min.

Calculated by using following equation.

Percentage inhibition =  $\frac{\text{Absorbance of DPPH} - \text{Absorbance of Test}}{\text{Absorbance of DPPH}}$  After 30 min the absorbance was determined at 517nm.<sup>[13]</sup>

## RESULTS AND DISCUSSION



Fig. 1: Photographs of prepared scrubs.

Table No. 2: Evaluation of herbal face scrub.

Parameters	Formulations			
	F1	F2	F3	F4
Colour	Mustard yellow	Mustard yellow	Coffee brown	Greenish yellow
Odour	Aromatic	Aromatic	Aromatic	Aromatic
State	Semisolid	Semisolid	Semisolid	Semisolid
Consistency	Homogenous	Homogenous	Homogenous	Non Homogenous
pH	5.53	5.49	5.75	5.51
Grittiness	No	Yes	Yes	No
Washability	Washable	Washable	Washable	Washable
Spreadability (gm.cm/s)	0.21	0.23	0.28	0.25
Antimicrobial activity(mm)	14	10	15	10

### Anti oxidant test

Table No. 3: Percentage inhibition of different formulations.

Formulations	Percentage inhibition
F1	84.15%
F2	76.19%
F3	41.66%
F4	40.47%

The prepared formulations could not be diluted to series of concentrations as mentioned in the procedure, since it contains more than one herbal ingredients. Hence determination of IC50 was difficult.

### CONCLUSION

The study was aimed to formulate herbal face scrub and to evaluate it. The formulation were evaluated for various parameters such as physical parameters, pH, grittiness, washability, spreadability and antibacterial activity. In this study we attempted to determine anti-oxidant activity. But since the formulated face scrub contain more than one ingredient, it was difficult to prepare the different concentration as mentioned in the available procedure to determine IC50. However, further studies maybe undertaken to determine the anti-oxidant potential of formulated face scrubs. Based on the results of evaluation, it was found that formulation F3 possess pH 5.75, good spreadability and antibacterial activity when compared to other three formulations.

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