



## FORMULATION AND DEVELOPMENT OF FACIAL SCRUB WITH NATURAL EXFOLIANTS

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### ABSTRACT:

The aim of the present work was to study formulation and development of facial scrub with natural exfoliants. Natural exfoliants work well as granules that can remove dead or flaky skin from outermost surface of skin and help to keep skin smooth, healthy and vibrant. The idea of formulation of facial scrub with natural exfoliants was conceptualized by observing that the facial scrub with numerous synthetic exfoliants is available in market. They can have some side effects. Hence, scrub with salt and sugar was formulated with its own unique exfoliation property with deep cleansing effect. Salt and sugar were validated by physical methods like odour, colour, pH and appearance. Suitable scrub base was formulated with various concentrations of salt and sugar and the formulation was evaluated for the functional parameters. Facial scrub thus prepared was subjected to stability study. Subjective evaluation of scrub was carried out to study the functional parameters like appearance, ease of spreadability, exfoliation efficacy, improvement in texture and irritancy on human volunteers. The study showed that facial scrub with 4% sugar and 2% salt gives excellent exfoliation with deep cleansing and moisturizing effect.

**Keywords :-** Salt, Sugar, Scrub base, Cleansing of skin, Healthy Skin.

### INTRODUCTION :

The cosmetic industry offers a vast armamentarium of skin care products and procedures to clean, soothe, restore, reinforce and to protect skin damaging from harmful chemicals and to keep skin in good condition. Cosmetics is used to enhance beauty of skin and it also improves skin appearance [1]. The skin is visible organ and it is highly vulnerable that interfaces with environment. Skin performs many vital functions including protection against external, physical, chemical, biologic assailants [2]. Human skin undergoes natural cell turnover process. It continuously generate new skin cells at the surface of dermis which rise to the surface of epidermis and then it slowly die off [3]. Dead skin cells present on surface of skin further gets keratinized. To remain healthy and good appearance, the skin surface requires frequent cleansing to remove dirt, grime and sebum and impurities from skin.

Facial scrubs are an essential part of skin care routine. It consist of coarse particles which helps to exfoliate skin [4]. Particles rub against skin and it removes all dirt and impurities and dead skin cells. Facial scrub in weekly skincare routine will provide good, healthy and flawless skin [5]. Exfoliation is the process of removing the dead skin cells from the surface of skin's outermost surface [6]. By removing the dead layers from skin, essentially allows skin to breathe better. Exfoliation also stimulates skin repair by removing dead layer and improving circulation [7].

### Facial scrub with natural exfoliants

Skin need exfoliation because it generally produces new cells at the lower layer (dermis) and sends them to the surface of epidermis. As the cells rise to the top they gradually die and become filled with keratin. The purpose of facial scrub with natural exfoliant is to exfoliate the dead skin cell with no harsh effect [8]. It is

effective but gentle, and also provides a sense of achievement when experiencing the dead skin coming off. The skin appearance becomes much more clear, smooth and vibrant without stripping it's natural oil after each application of scrub [9]. In the present study, facial Scrub with natural exfoliants like salt and sugar was formulated to have its own unique exfoliation property. Now a days market is saturated with chemical based scrub, which may be harsh to the skin surface. Hence there is a need for milder and natural exfoliating scrub [10].

#### **Salt and Sugar**

Salt is filled with minerals like magnesium, sodium, calcium and potassium. The abrasive action of salt scrub refreshes the skin and makes it healthy [11]. Exfoliating dead cells with salt encourages regeneration of skin. Sugar is a natural moisturizer having excellent gentle exfoliant property. Sugar scrub are mild and help to remove dead skin cells. It help to rejuvenate skin by cleansing all the dirt and grime from the skin pores[12].

#### **MATERIAL AND METHODS :**

##### **Analysis of salt and sugar**

Salt was procured for the present study from "Genex Scientific" Bhendarkar layout, Gondia., and sugar was procured from Mawana Sugar Limited. Procured samples were validated by performing tests such as colour, odour, Appearance, grain size. The result are summarized in table no. 2

##### **Formulation and development of facial scrub with natural exfoliants:**

Scrub base was selected by taking different trials and facial scrub was formulated with four different concentrations of sugar and salt, i.e. sugar 2%, 2%, 3%, 4% and salt 1%, 1%, 1.5%, 2% respectively and studied for having its own unique exfoliating property and good skin moisturizing ability. (Table No. 1)

##### **Study of Functional parameters of facial scrub with natural exfoliants:**

All the 4 trials of the facial scrubs with natural exfoliants were subjected to study the functional parameters i.e. exfoliation and consistency of product. The results are summarized in table no.3.

**Analysis of facial scrub:** All the scrub formulations were subjected to study parameters like Spreadability, Tackiness and after use feel on the skin The result are summarized in table no.4.

**Stability Study:** The objective of stability study is to ensure that product will remain stable till the consumer has used the entire product. The stability not only indicates stability of base formulation but also indicates the stability of other ingredients present in formulation. After analyzing all the four formulations on the basis of functional parameters it was observed that the formulation - trial 4 with 4% sugar and 2% of salt was giving satisfactory results. Hence the trial 4 formulation was selected for further study of accelerated stability tests (i.e trial-4 was observed for, physical state of product at three different temperatures i.e. at 4°C, at room temperature and at 45°C) [13].

**Subjective evaluation:** To study the facial scrub with natural exfoliants and its effects subjective evaluation was carried out for 4 weeks. Trial-4 Scrub containing salt and sugar was given to 10 volunteers and evaluation was carried out on the basis of their feedback. Subjective evaluation was carried out on the basis of ratings (1-5) for parameters like Appearance, Ease of spreadability, Exfoliation efficacy, Improvement in skin texture and irritancy on skin.(Graph No. 1)

#### **RESULT AND DISCUSSION :**

##### **Result of analysis of Salt and sugar:**

Salt and Sugar was analyzed and results were noted. It passes all the tests and hence was used for incorporation in facial scrub formulation. The results are summarized in table no.2

### Study of Functional parameters of facial scrub with natural exfoliants:

In the present study after analyzing all the four formulations on the basis of functional parameters it was observed that formulation (Trial 4) with 4% salt and 2% sugar was giving satisfactory results. Hence, the trial-4 was selected for further study. The results are summarized in table no.3

### Analysis of facial scrub:

From the results of analysis of all the scrub formulation (i.e Trial 1,2,3 and 4) it was observed that Trial-4 was satisfactory with respect to spreadability, tackiness and After use feel on skin. Hence it was selected for further study. The results are summarized in table no.4

### Stability study:

From the result of stability study it was observed that the facial scrub with salt and sugar (Trial-4) was stable with respect to physical parameters such as odor, colour and state of product at three different temperatures i.e. at 4°C, at room temperature and at 45°C.

### Subjective evaluation:

From the results of subjective evaluation, it was observed that facial scrub with natural exfoliants (Trial 4) was well appreciated, it showed good exfoliation property with deep cleansing effects and improvement in skin texture. (Graph No. 1)

### CONCLUSION :

From the above study it can be concluded that the facial scrub formulation Trial 4 with natural exfoliants (salt 2% and sugar 4%) is good formulation in terms of appearance, ease of spreadability, odor, and exfoliation property. It cleanses skin in gentle way and gives a good exfoliation with deep cleansing and moisturizing effects on skin.

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**Table 1 - Formulation and development of facial scrub with natural exfoliants**

S. N.	Ingredients	Use of ingredients	Quantity for 100g in %			
			Trial 1	Trial 2	Trial3	Trial4
<b>Phase A</b>						
1	Cocoa butter	Emollient	40	40	40	40
2	Shea butter	Emollient	20	20	20	20
3	Coconut oil	Emollient	33.5	29.5	25	22.5
4	BHT	Antioxidant	2	2	2	2
5	Bees wax	Emulsifier	1	1	1	1
6	Cetyl alcohol	Emulsifier	0.5	0.5	0.5	0.5
7	Tween 80	Emulsifier	1	2	3	3
8	Hydrogenated vegetable oil	Emollient	0	3	5	5
<b>Phase B</b>						
9	Sugar	Exfoliant	2	2	3	4
10	Sea salt	Exfoliant	1	1	1.5	2
11	Orange oil	Perfume and also improve skin texture	0.2	0.2	0.2	0.2

**Table No.2 Analytical tests results of salt and sugar**

S.N.	Characteristic	Analysis of salt and sugar		Result		Inference
		Salt	Sugar	Salt	Sugar	
1	Colour	White	White	White	White	Passes the test
2	Odor	None	None	None	None	Passes the test
3	Appearance	Small crystals	Small crystals	Small crystals	Small crystals	Passes the test
5	Grain size	Very fine crystals	Fine Crystals	Very Fine Crystals	Fine Crystals	Passes the test

**Table No.3 Results of Functional parameters of facial scrub with natural exfoliants**

S.N.	Formulations	Observed parameters		Inference
		Consistency	Exfoliation	
1	Trial 1	Thin	Less exfoliation	Increased oils and exfoliating agents
2	Trial 2	Thick	Less exfoliation	Increased the dosage of oil thickener, and exfoliants
3	Trial 3	Thick	Less exfoliation	Increased salt as exfoliant
	Trial 4	Satisfactory	Enough exfoliation	Good

**Table No. 4: Results of analysis of facial scrub base**

Sr. No.	Parameters	Trial 1	Trial2	Trial 3	Trial 4
1	Spredability	Fine	Fine	Good	Good
2	Tackiness	Tacky	Tacky	Slightly tacky	Non tacky
3	After use feel on skin	Fine	Fine	Fine	Good

**Graph No.1 Graph of Subjective Evaluaton**

