

FORMULATION AND EVALUATION OF FACIAL SCRUB CONTAINING SUNFLOWER SEEDS AND OTHER NATURAL INGREDIENTS

**¹*Dr. Shweta P. Ghode, ¹Vibhavari M. Chatur, ²Dr. Prashant D. Ghode,
³Nikhil Shaha, ³Satyajeet Prajapati and ³Atul Thorave**

¹Rasiklal M. Dhariwal Institute of pharmaceutical Education and Research, Chinchwad,
Pune-19.

²JSPM'S Rajarshi Shahu College of Pharmacy and Research, Tathawade, Pune-33.

³B. Pharm Third year students, Rasiklal M. Dhariwal Institute of pharmaceutical Education
and Research, Chinchwad, Pune-19.

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***Corresponding Author**

Dr. Shweta P. Ghode

Rasiklal M. Dhariwal
Institute of pharmaceutical
Education and Research,
Chinchwad, Pune-19.

ABSTRACT

The main objective of the present study was to prepare polyherbal scrub. Nowadays cosmetic have become an important part in the day to day life for both men & women to lead a happy & confident life. Keeping in the mind that the cosmetic should be free from synthetic chemicals/Drug, so we came on conclusion to prepare & evaluate a polyherbal facial scrub to prevent Acne, Scars, Tanning, Wrinkles, Aging, and Redness. This facial scrub content herb which shows Antioxidants, Antiseptic, Antibacterial, Skin brightener, Diminish permanent marks & Reducing inflammation properties. In this preparation we have used the main ingredient as Sunflower seeds and other natural ingredients as Charcoal, Fuller's Earth, Coffee, Turmeric, and Rice flour, Gram Flour. Sunflowers seeds are also rich in minerals like calcium, copper, iron, magnesium, manganese, selenium, phosphorous, potassium, sodium and zinc. 128 gm of sunflower seeds contains 89.6 mg calcium, 4.9 mg iron, 165 mg magnesium, 1478 mg phosphorus, 1088 mg potassium, 3.8 mg sodium, 6.8mg zinc, 2.3 mg copper, 2.7 manganese mg and 102 mcg selenium as given by USDA (2008).^[10,11] Sunflower seed oil has been studied for its protective effect on biophysical properties of skin in humans. The prepared scrub was evaluated for various parameter Color, Odor, Consistency, pH, Viscosity, Spreadability, Washability & Irritability found to be satisfy with all require characterization.

Thus, the prepared polyherbal facial scrub can be used for bearing a healthy & glowing natural skin.

KEYWORDS: Sunflowers seeds, Facial Scrub, Antioxidants, Vit E (Alpha Tocopherol).

INTRODUCTION

The demand for herbal cosmetics is high nowadays due to its ability to act as cosmetics and drugs. Skin care products are important factor to improve the confidence in individuals. Women were thought to be the larger consumer of skin care products but in the present scenario men are equally concern about their look.^[1] This concept about the beauty, look and attractiveness leads to the boom in this field. The cosmeceutical companies produce their product based on the skin texture like men require special type of products due to the roughness of their skin than women.^[2]

The health of an individual is mainly represented by the skin which is the major part of the body. Lipids, amino acids, carbohydrates are the composition of skin. Skin can be affected by biological, hormonal, environmental factors. To keep the skin healthy and glossy it should be nourished with balanced diet. Environmental factors such as UV rays, pollution, dust, climatic changes will intensify the issues related to skin. Environmental causes can be prevented from skin damage by treating with topical application of synthetic or herbal cosmetics. Cosmetic is a Greek word, which is intended to be applied on the skin to improve the beauty and health of the skin.^[3] It can be used for various purposes such as cleansing, glowing, protecting, moisturizing, softening, whitening etc. Today herbal cosmetics are great in demand due to its ability to nourish the skin with all its necessity without any side effects. Different types of herbal topical application of cosmetics are in the market such as facial mask, peel off, sunscreen gel, facial scrub etc.

Facial Scrub

Cosmetics are available as various forms and each has its own role to play on the skin. Skin becomes dull, non glowing due to various causes and these can effectively be overcome with the application of scrubs. There are two types of scrub being used on the skin such as facial scrub and body scrub. These two differ only with the ratios of oil and sugar added in each. Usage of oil is high in facial scrub due to which it is less abrasive. It removes the dead skin cell and exfoliates the skin. 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. Skin is classified into three types such

as dry skin, oily skin, and sensitive skin.^[4] On regular use of scrubs, skin becomes glowing and smoother because dead skin cells are removing thereby exposing new skin cells. 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. Gentle message is recommended on application of the scrub gel which helps to improve blood circulation and increases oxygen supply to all surface of the skin.^[5]

Ideal Properties of Scrub

An ideal scrub is accepted to possess the following properties.^[6]

It should be

- ✓ Non toxic
- ✓ Possess small gritty particles
- ✓ Mild abrasive
- ✓ Non irritating
- ✓ Non sticky
- ✓ Able to remove dead skin cells

Why scrub

- In a nutshell, lipids are skin's natural fats.
- They are essential components of skin and play a crucial role in maintaining the strength of the skin's protective barrier, which holds moisture, protects the skin from damage and keeps dirt and impurities out.
- The epidermal lipids of keratinocyte origin play an essential role in the skin's barrier function.
- These lipids provide a barrier against the movement of water and electrolytes as well as a barrier against microorganism invasion.
- The epidermis has a very active synthesis of cholesterol, fatty acids and ceramides.

Benefits of Ingredients Used In Facial Scrub

1. Sunflower seeds (*Helianthus annuus*) Sunflower plant a leading oil seed crop which is cultivated primarily for its seeds, ranks second for edible oil production globally after soybean oil.^[7,8] It is native to Middle American region later being commercially available at global level.^[11] Sunflower is cultivated globally for its oil and protein content predominantly. Proteins present in sunflower seeds have favourable amino acid distribution. Also in addition, tocopherols, minerals, and vitamins are provided by sunflower seeds in substantial

amounts.^[9] Half cup [64gm] of dry roasted sunflower seeds provide 370 kcal energy, 7gm of dietary fibres and 12 gm of proteins Among vitamins, 17mg of vitamin E, 4.5gm of niacin, 0.5mg of pyridoxine, 4.5mg of pantothenic acid and 151mcg of folic acid are present in 64gm of dry roasted sunflower seeds. Sunflowers seeds are also rich in minerals like calcium, copper, iron, magnesium, manganese, selenium, phosphorous, potassium, sodium and zinc. 128 gm of sunflower seeds contains 89.6 mg calcium, 4.9 mg iron, 165 mg magnesium, 1478 mg phosphorus, 1088 mg potassium, 3.8 mg sodium, 6.8mg zinc, 2.3 mg copper, 2.7 manganese mg and 102 mcg selenium as given by USDA (2008).^[10,11] Sunflower seed oil has been studied for its protective effect on biophysical properties of skin in humans.

Sunflower Seeds are mainly grown for Youthful Skin. Sunflower seeds are rich source of selenium, another powerful antioxidant nutrient, which assists vitamin E in repairing your DNA. They contain copper, which helps to produce the melanin that gives your skin its unique pigment. Sunflower seeds are an excellent source of vitamin E and a very good source of copper and vitamin B1. In addition, sunflower seeds are a good source of manganese, selenium, phosphorus, magnesium, vitamin B6, folate and niacin.

Being rich in nutrients and antioxidants, it is widely used for medicinal and cosmetic purposes and is found to be effective against acne, eczema, inflammation, general redness and irritation of the skin. Some of the benefits of sunflower oil for the skin. As the seeds of the sun-worshipping sunflower, they also help to promote glowing, youthful skin. They're rich in vitamin E, your body's main fat soluble antioxidant. Further benefits of sunflower seeds for a youthful complexion include its high levels of magnesium.

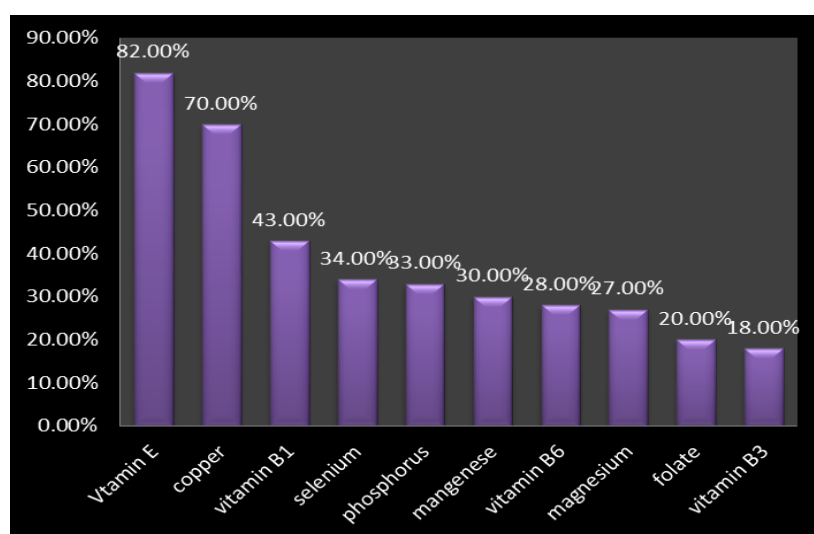




Fig. 1: Contents of Sunflower seeds.

2. **Coffee** (*Coffea arabica*) The mixture of coffee and milk will leave your skin clear from dirt and dead skin cells and makes skin soft and smooth. It will also calm your skin's redness and reduce inflammation of the skin. Note: you can apply it as an eye mask for puffy eyes. It can help you to reduce inflammation of the skin.
3. **Orange peel** (*Citrus sinensis*) Orange is a citrus fruit which contains different nutritional source such as vitamin C, calcium, potassium and magnesium. It prevents the skin from free radical damage, skin hydration and oxidative stress. Also it has instant glow property, prevent acne, blemishes, wrinkles and aging.^[7]
4. **Rice Flour** (*Oryza sativa*) Rice Flour has been used for centuries as a natural beauty aid by Asian women. It's natural anti ageing and oil-absorbing properties, makes them good for oily or acne-prone and dull mature skin. It's also a good anti-inflammatory and skin whitening agent that soothes sunburned skin and makes skin smooth and fairer.
5. **Gram flour** (*Cicer arietinum*) Gram flour face mask is good for acne-prone skin and can help to lighten any acne scars. It can also be applied all over the body to remove dark spots caused by the sun and will leave your skin feeling brighter.
6. **Turmeric** (*Curcuma longa*) Turmeric is mainly used to rejuvenate the skin. It delays the signs of aging like wrinkles and also possesses other properties like antibacterial, antiseptic and anti-inflammatory. It is best source of blood purifier. It is effective in treatment of acne due to its antiseptic and antibacterial properties that fight pimples and breakouts to provide a youthful glow to your skin. It also reduces the oil secretion by the sebaceous glands.^[8,9]
7. **Activated charcoal** (*Charcoal Mora*) Activated charcoal draws bacteria, poisons, chemicals, dirt and other micro-particles to the surface of skin, helping you to achieve a flawless complexion and fight acne. Charcoal is not metabolized, adsorbed or absorbed by the body, but it can be used to treat some poisonous bites and disinfect some wounds.
8. **Multani Mitti (Calcium bentonite)** Multani mitti helps skin by different ways like diminishing pore sizes, removing blackheads and whiteheads fading freckles, soothing sunburns, cleansing skin, improving blood circulation, complexion, reducing acne and blemishes and gives a glowing effect to a skin as they contain healthy nutrients. Multani mitti is rich magnesium chloride.^[10]

MATERIALS AND METHODS**Different formulations of Face pack****Table 1: Different formulations of Face pack.**

Ingredients	Role	F1 (gm)	F2 (gm)	F3 (gm)	F4 (gm)	
Sunflower seeds	Photo protective	5	5	5	5	
Coffee Powder	Smoothing skin	0.25	0.25	0.25	0.25	
Orange Peels	Vitamin C	0.5	0.5	0.5	0.5	
Rice Flour	Skin whitening agent	1.25	1.25	1.25	1.25	
Gram Flour	Remove dark spot	1.25	1.25	1.25	1.25	
Turmeric Powder	Anti-inflammatory	0.5	0.5	0.5	0.5	
Charcoal	Remove oil and dirt	0.5	0.5	0.5	0.5	
Multani Mitti	Remove blackheads	1.15	1.15	1.15	1.15	
Honey	-	Qs	-	-	-	
Milk	-	-	Qs	-	-	
Rose Water	-	-	-	Qs	-	
Butter Milk	-	-	-	-	Qs	

Preparation of Face Pack

The powdered ingredients were mixed and sieved using #40 mesh weighed accurately and mixed geometrically for uniform mixing. This was then stored in an air tight container for evaluation.



Fig. 2: Prepared face pack.

Evaluation of Scrub with different solvents

Table 2: Evaluation of scrub with different solvents.

Honey	Poor effect
Milk	Better effect
Butter milk	Excellent effect
Rose Water	Good effect

- ✓ In Buttermilk due to astringent properties of lactic acid it helps in preventing premature aging and tightens the skin and keeps it wrinkle-free and youthful.
- ✓ Rose water has its own fragrance.

How to use?

- Make the paste by mixing final mixture of herbs with rose water or butter milk.
- Apply paste locally on face for 10-15 mins.
- Rub the face for 2-3 mins and wash with fresh water.

Evaluation Parameter of Facial Scrub

Table 3: Evaluation parameter of facial scrub.

Parameters		Observation
Organoleptic Evaluation	Nature	Powder
	Color	Dark Green
	Taste	Characteristics
	Texture	Fine
	Odor	Pleasant
Physicochemical Evaluation	pH	6
	Total ash	0.3 % w/w
	Moisture content	4 % w/w
General Powder Characteristics	Tapped Density	18gm/cc
	Bulk Density	25gm/cc
	Angle of repose	50.19 ⁰
	Grittiness	No gritty particle
	Nature of Face after wash	Soft and fresh, clean from dirt



Before Scrub Applied After

Fig 2: Photographs of Before and After Polyherbal Scrub Application.

RESULT AND DISCUSSION

By the studying all Evaluation Parameter like Organoleptic, Physicochemical & General powder Characteristic of Poly herbal Face Scrub was developed.

The face pack is beneficial, economical & passed all evaluation Parameter. This scrub mainly contains the sunflower seeds provides rich source of selenium, another powerful antioxidant nutrient, which assists vitamin E and repairs your DNA. The scrub contains copper, which helps to produce the melanin that gives your skin its unique pigment. Sunflower seeds are an excellent source of vitamin E and a very good source of copper and vitamin B1. In addition, sunflower seeds are a good source of manganese, selenium, phosphorus, magnesium, vitamin B6, folate and niacin. The dosage of vit. E (Alpha Tocopherol) and topical use in skin care products is mostly used at conc. of 5% or less. By regular topical application of alpha Tocopherol of less than 0.2% leads to significant increased levels of vit. E in the stratum corneum of human skin and protects against lipid peroxidation *in vivo*.^[16] Therefore topical formulations containing alpha tocopherol at concentration ranging from 0.1% to 1% are likely to be effective skin care measures to enhance antioxidant protection of the skin barrier.

CONCLUSION

In the present work, we found good properties for the Face Scrub on human Skin as cosmetic products. Skin is outermost organ of the body, which frequently and directly exposed to a pro-oxidative environment including UV radiations, drugs and air pollutants. Vitamin E is an essential nutrient that is receiving growing attention in the skin care industry because of its antioxidant properties. Sunflower seed oil is a good source of essential fatty acids such as linoleic, oleic, palmitic and stearic acids which encourage the formation of collagen and

elastin, thus making your skin soft and smooth. This Face scrub comes in use of stimulation of blood circulation, Reduction in Dark circle, Acne & Scars.

By performing and studying various formulations we came to know that rose water and butter milk gives the best result but we have chosen rose water. Because rose water have its fragrance as compare to butter milk.

In the prepared, 5gm of sunflower seed contains 1.75mg i.e 11% of vit. E which is sufficient to enhance antioxidant protection of the skin barrier.

The face pack is beneficial, economical & passed all evaluation Parameter.

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