

**FORMULATION, CHARECTERIZATION AND EVALUATION OF TOPICAL
MULTIPURPOSE POLYHERBAL SCRUB IN GEL FORM WHICH HAVE HIGH
EFFICACY AGAINST ANTIAGING AND WRINKLE SKIN****Dr. Satendra Kumar^{*1} and Dr. Anil Kumar²**¹Department of Pharmaceutics, L.N Pharmacy College, Baitalpur, Deoria, U.P.²Department of Pharmacognosy, Pharmacy College, Itaura, Chandeshwar, Azamgarh, U.P.***Corresponding Author: Dr. Satendra Kumar**

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ABSTRACT

The main objective of present study was to prepare a polyherbal scrub incorporated into gel. For healthy and glowing skin, regular cleansing was necessary thereby remove dirt, dead cell, sebum etc. The use of natural ingredients to fight against acne, wrinkle and also to control secretion of oil is known as natural or herbal cosmetics. Herbal cosmeceuticals usually contain the plant parts which possess antimicrobial, antioxidant and anti aging properties. In daily life for both women and men apply the cosmetics for beautifying and altering the appearance of the skin. Nowadays consumers well aware of the product benefits and their side effects, hence the usage of the herbal cosmetics gets increases because herbal cosmetics have fewer or no side effects. Herbal cosmetics are the safest product to use routine with no side effects and cosmeceuticals are the product which influences the biological function of skin. These active ingredients and excipients are looked for incompatibility studies. Studies showed that all of them are compatible with each other in this preparation, Camphor, Guava seed Sandalwood, Tulsi, and honey is used as active ingredients and incorporated into the gel which is prepared with carbopol of different grades. Other ingredients like propylene glycol, Triethanolamine, was added along with sodium lauryl sulfate into the gel. The prepared gel was evaluated for various parameters such as appearance, pH, viscosity, Spread ability, wash ability, irritability and found to be satisfied with all required characterizations. Thus, the developed formulation can be used as an effective scrub for using it to bear a healthy and glowing skin.

KEYWORDS: Antioxidant, Glowing skin, Anti Aging, Polyherbal, Less Abrasive, Skin Exfoliate.**INTRODUCTION**

Herbal cosmetics are prepared by the association of bioactive ingredients and pharmaceutical products. The presence of number of phytochemical and botanicals in the herbal products have dual significance, one that they are used as cosmetics for body care and another that photochemical improve the biological functions of human body naturally results in healthy skin.

As the realization said that the chemical medicines are not always work as magic bullets and they may have side effects. The current trend moves toward the herbal and use of natural products. Indian herbs are the richest source to be used in cosmetic industries. Herbal cosmetics were gaining tremendous demand in the world market. There is a wide range of herbal cosmetic products used as beauty regime to satisfy the purpose of beautification.^[1]

Skin is the one of the largest organ of body. It serves as a major protective organ for other body parts. Skin functions as a protective wrapper, keeping everything

beneath it and keep safe from daily threats such as the harsh effects of sun, wind and pollution germ filled grime.^[2,3]

Generally herbal cosmetics are also referred to as natural cosmetics. Herbal cosmetics, referred as products are formulated using various permissible cosmetic ingredients to form the base in which one or more herbal ingredients are used to provide defined cosmetics benefits only shall be called as herbal cosmetics.

The skin supports its own ecosystem of microorganism, including yeast and bacteria, which cannot be removes by any amount of cleaning. Skin is also a sensory organ, which indicates the health of individual. It is consists of material such as amino acid, lipid and carbohydrate etc. so that a balanced nutrition is required for skin to keep it glossy, clean and clear and healthy.^[4,5] Cosmetics are defined as the products used for the purposes of cleansing, beautifying, promoting attractiveness or alternating the appearance.^[6]

The science of Ayurveda had utilized many herbs and floral to make cosmetics for beautification and protection from external affects the natural content of in the botanicals do not cause any side effects on human body; instead enrich the body with nutrients and other useful minerals. The natural herbs and their products when used for their aromatic value in cosmetics preparation are termed as herbal cosmetics.

From the ancient time, different herbs are used for cleaning, beautifying and to manage them. Face skin is the major part of the body, which indicates the health of an individual.^[7] 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 skincare differ from dermatology, it does not required any medical professional's every time.^[8]

Cosmetics are available as various forms and each has its own role to play on the skin. Skin becomes dull, none 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.^[9]

Herbal Cosmetics for Various Types of Skin^[12]



Example- Rubia Example-Tulsi Example-Curcuma longa
 -Cardifolia (Manjistha) -Nimba -Triphala
 -Triphala, - Curcuma longa -Nimba in coconut oil
 -Tulsi, -Fruit face mask -Fruit face mask
 -Glycerihza glabra in sesame oil. -Idhora -Banana Pulp
 - Fruit face mask -Papaya pulp - Ushereeo
 -Banana or avocado pulp.

Ideal Properties of Scrub

An ideal scrub is possess to the following properties.^[13]

- It should be non toxic
- It should possess small gritty particles
- It should mild abrasive
- It should none irritating
- It should non sticky
- It should able to remove dead skin cell

Precaution should taken while applying scrub

A Scrub is selected based on the skin type

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.^[10] To remain healthy and of good appearance, the skin surface requires frequent cleansing to remove grin, sebum and other secretions, dead cells, crusts and applied make-ups.^[11]

Facial scrub was very easy to use, choose a neutral or chemical scrub suited for skin, massaged on damp skin for one minute, and then rinsed skin. Cosmetics are products used to enhance or change the appearance of the face, fragrance or the texture of the body. Facial scrubs are an essential part of a skin care routine. A facial scrub is usually a cream-based product that contains little exfoliation pieces that when massage across the skin help smooth the skin by physically lifting of dry, dead skin cells. Facial scrubs also work very well to keep the skin on the neck to smooth to make exfoliation easier. When exfoliating, make sure to look upwards so the skin on the neck is nice and taut, which will make for easier use. Facial scrub is an excellent deep cleansing, exfoliating applications for all skin types and especially beneficial for oily skin. This all neutral facial scrub aids in removing.

Excessive Scrub and rubbing can damage the skin
 Do not Scrub skin if any open wounds, cuts, and sunburns present
 Apply twice a week
 Apply with a rotating motion to face and neck for about 30secs.
 Thoroughly rinse with water

Multiple benefits for Scrubbing the Skin

For a squeaky clean skin

Scrubbing gives you clean skin, free from dirt, oil, and sweat. Actually, the bottles of cleansing milk, face wash and facial cleansers cannot pull out all the dust that accumulates in the pores of your skin. Scrubbing does this job successfully.

Frees your skin from flakes

Flaky skin gives rise to dry patches. It allows dead cells accumulate over time. Scrubbing your skin can help you

deal with flaky skin effectively.

Helps in removing dead cells

Dead cells make your skin look dull and tired. Scrub them off with a gentle scrub.

Adds glow to skin

Exfoliation can actually make your skin glow.

Removes dark patches

When scrub use twice in a week get better result. It is especially effective on knuckles, elbows and knees.

Removes acne scars

Exfoliation helps in doing away with acne scars.

Prevents ingrown hair

Ingrown hair is a perennial problem and scrubbing is the solution to prevent this problem.

For smooth skin

Smooth skin is the key to a more beautiful you. The scrub will not only make your skin look flawlessly smooth, but will also make it soft and well-nourished.

Improves the texture of sour skin

Scrubbing your skin gives you clean and smooth skin with an improved texture.

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Scrubbing your skin gives you clean and smooth skin with an improved texture.

Promotes Clear Complexion

As soon as the flakes, dead cells, blemishes and accumulated impurities are done away. The scrub has natural skin whitening ingredient, the effect is even better.

DIFFERENCE BETWEEN SYNTHETIC PRODUCTS AND HERBAL

Sr.no.	Synthetic scrub	Herbal Scrub
1	Synthetic product is maybe slightly harmful chemicals as they are Synthetically derived.	Herbal products are completely free from all the harmful chemicals as they are naturally derived.
2	More side effect than herbal product.	Herbal refer to products that are prepared from plants for their medicinal value
3	They may be harmful for sensitive skin	safe to use as compared to chemical-based cosmetics.
4	Synthetic refer to product that are prepared from chemicals.	Synthetic refer to product that are prepared from chemicals
5	E.g. Cetaphil Extra gentle daily scrub	E.g. Plum Green Tea gentle revival face scrub

PREFORMULATION STUDIES

Preformulation studies may be defined as testing of the physical and chemical properties of a drug substance alone and in combination with excipients proposed to be used in formulation. Preformulation investigations are designed to deliver all necessary data, especially physico-chemical, physico-mechanical and biopharmaceutical properties of drug substances, excipient and packaging materials as well as compatibility. The overall objective of the preformulation testing is to generate information useful to the formulator in developing stable and bioavailable dosage forms, which can be produced.

Collection of Plant Material

Identified fresh leaves of plants were collected from herbal garden of L.N. Pharmacy College Baitalpur Deoria u.p. India and other ingredient were purchase from local super market.

Selection of excipients

Selection of base

The main objective of the present study was to prepare a Multi-Purpose Herbal scrub incorporated into the gel, hence gel base are used

Carbapol940:- Gelling agent

In this preparation carbapol are used to prepare gel Because, Carbapol contain good consistency and gel become whiter or clear.

Propylene glycol:- Moisturizer

It is the clear liquid acts as a humectants and one of the most effective moisturizer

Triethanolamine:- Neutralizer

It is a widely used surfactant in cleaning products, cosmetics, and personal care products. SLS is also used in lower concentrations in household and personal care products.

Distilled Water:- Solvent

It is universal solvent acts as hydrating agent

The excipients for the development of herbal facial scrub using natural Exfoliant were selected after performing various experimental trials. The excipients include carbapol as gelling agent, Triethanolamine as neutralizer for adjusting the p^H , propylene glycol as moisturizer, Phenoxethanol as preservative and glycerin as humectants.

Compatibility Study between the drugs and excipients by using FTIR Spectroscopy

The compatibility between drug and excipients was carried out in the ratio of 1:1. Physical observation

should be done at every week up to one month and FTIR study was carried out to determine the compatibility of excipients with the drug.

Formulation of the Herbal Scrub

Sr.no	Name of the ingredient	Category	Quantity (%)
1.	Camphor	Humectant, Anti-aging agent	0.25%
2.	Tulsi extract	Anti-infective	1%
3	Honey	Antiseptic, Antioxidant	4%
4	Sandalwood	Soothing, Improving fairness	1%
3.	Guava seed	Exfoliant	2%
4.	Triethanolamine	Neutralizer	0.1%
5.	Propylene glycol	Moisturizer	0.1%
6.	Carbapol940	Gelling agent	8%
7.	Glycerin	Humectants	q.s.
8.	Phenoxyethanol	Preservative	0.2%
9.	Sodium lauryl sulphate	Foaming agent	4 %
10.	Perfume	Fragrance	q.s.
11.	Distilled water	Vehicle	q.s.

Method of Preparation

Preparation of Extract:

Preparation of Tulsi Extract: Tulsi extract was prepared by using Soxhlet apparatus. Tulsi leaves kept with water for 72 hrs. Extraction was dried and stored in desiccator for further use.

Add all remaining ingredient according to their needs

Preparation of Carbapol Base:

Required quantity of carbapol taken in a separate beaker.

Add rest of ingredient one by one in to it with continuous and homogeneous stirring.

Step 1- Mixed camphor, Honey, glycerin and propyl paraben together in a separator beaker.

Step 2- Mixed crushed Guava seed (pre alcohol mixed), Sandalwood, Tulsi extract and methyl paraben in another container.

Step 3- Add carbapol in little quantity of alcohol, and triturate well in pestle mortar.

To this triturate carbapol add Sodium lauryl sulfate which was weighed and form gel it was dissolved separately with water and added into the above gel. Followed by this propylene glycol was added. Drop wise tri ethanolamine and Phenoxyethanol added into gel to neutralize the pH.

EVALUATION AND CHARACTERIZATION SCRUB FORMULATION^[14,15]

Organoleptic properties

Colour- The color of formulation was checked manually and observed as creamish white.

Odour- The smell of formulation was checked by applying preparation on hand and feels the fragrance of perfume.

Consistency- The consistency of the formulation and particles were used to check the texture and homogeneity of preparation on the skin such as stiffness, grittiness, greasiness effect. Preparation found semi-solid in nature.

Homogeneity and texture- It was tested by pressing a small quantity of the formulated scrub between the thumb and index finger.

p^H

The pH of the gels was determined using a digital pH meter. The pH value of the Scrub was 7.4 which are considered acceptable to avoid the risk of irritation on application to the skin.

Spread ability

The spread ability is very much important as it shows the behavior of gel that comes out from the tube. It is used to identify the extent of spread ability by the gel on the skin. A small quantity of sample was placed on a glass slide and another slide was placed above them; 100 g of weight was placed on the slide. The time taken for the gel to spread on the slide was noted and measured which was found to be 6.5 cm in 5 min. It was calculated using the following formula:

$S = m \times 1/t$ S=Spread ability

m=Weight placed on the slide l=Length of the glass slide
t=Time taken in seconds

Extrudability

To determine Extrudability, a closed collapsible tube containing formulation was pressed firmly at the crimped end. When the cap was removed, formulation extruded until the pressure dissipated. Weight in grams required to extrude a 0.5 cm ribbon of the formulation in 10 s was determined. The average extrusion pressure in g was reported. It was found to be 15.3 g/cm².

Viscosity

The thickness of the different gel designs was determined at 25°C using Brook field viscometer apparatus DV2T model. The gel sample (5g) was placed in the sample holder of the viscometer and permitted to settle for 5 min, and the viscosity measured a rotating

speed of 50 rpm at room temperature (25–27°C). The viscosity was found to be 1050 centipoises.

Irritability

A small amount of gel was applied externally on the skin surface for a few minutes and checked for reactions on the skin. It was found to be non-irritant.

Wash ability

A small amount of gel was applied externally on the skin surface, and it was washed with running water. It was found to be easily washable.

Foam ability

A small amount of gel was taken in a measuring cylinder, and it was shaken for 5 min and the foam stability of the gel was measured.

Grittiness

Needs to have abrasive property so to satisfy that the leaves were powdered and passed through sieve no 30 such that the preparation has few gritty particles.

RESULT AND DISCUSSION

Sr. No	Evaluation Parameters	Observation
1	Colour	Sticky Brown
2	Odor	Aromatic
3	Consistency	Good
4	pH	7.4±0.8
5	Viscosity	1050±0.2 centipoise
6	Spread ability	6.5±0.6 cm
7	Wash ability	Easily washable
8	Grittiness	Presence of gritty particles

The herbal scrub was prepared and evaluated. The herbal facial scrub formulated in the laboratory was found to be compared with various parameters such as appearance, pH, and viscosity, spread ability, wash ability, irritability and found to be satisfied with all required characterization. Thus, the developed formulation can be used as an effective scrub for using it to bear a healthy and glowing skin. It contained Tulsi powder, Sandalwood powder has very potential to lighten the skin tone and reduce dark spots and cleaning of oil and dust particles respectively. The sandalwood powder was a natural exfoliating agent which was used to remove dead cells of skin, gives scrubbing property to the skin and which helps to improve the blood circulation. Camphor helps to remove oil, sebum and other secretions of skin to lighten skin tone.

After using the scrub, skin was sure to feel softer, cleaner and refreshed. It made skin beautiful, youthful and soft and glowing. Herbal cosmetics showed lesser or no side effects, hence use of herbal cosmetics get increased.

CONCLUSION

The present study was attempted to prepare a polyherbal scrub. The prepared scrub gel was evaluated using various parameters and was found to be satisfied for the application on the skin to make it healthy and glowing without any side effects.

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