

Formulation & Evaluation Of Face Scrub

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Abstract:- Abstract:The main objective of present study was to prepare a polyherbal scrub incorporated into gel. 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. 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. In this preparation Green apple , cinnamon, Millet, Sandalwood, Neem , Turmeric 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; methyl parahydroxy benzoate was added along with sodium lauryl sulfate into the gel. The prepared gel was evaluated for various parameters such as appearance, pH, viscosity, Spreadability, washability, 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.

INTRODUCTION-

The importance of cosmetics is increases day by day. Cosmetics help to enhance our appearance and make us feel more confident. With more cosmetics on the market today than ever before, it becomes obvious to us that they play a great role in our everyday life. So, there is huge scope in cosmetic industries.

1.1. Definition of Cosmetic

The FD and C act Sec 321, Title 21 provide the definition of cosmetic product. The term "Cosmetic" means

Articles intended to be rubbed, poured, sprinkled or sprayed on, introduced into or otherwise applied to the human body or any part there for cleaning, beautifying, promoting attractiveness or altering appearance.

1.2 Skin [1]

The skin, also known as the cutaneous membrane covers the external surface of the body and is the largest organ of the body in weight. In adults, the skin covers an area of about 2 square meters (22 square feet) and weighs 4.5–5 kg (10–11 lb), about 7% of total body weight. It ranges in thickness from 0.5

mm (0.02 in.) on the eyelids to 4.0 mm (0.16 in.) on the heels. Over most of the body it is 1–2 mm (0.04–0.08 in.) thick.

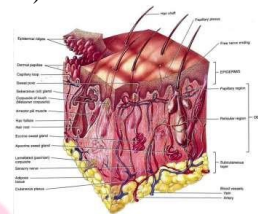


Fig.1 Skin

Face skin-

Face skin thickness varies between areas and individuals, and undergoes a universal age-related thinning of the dermis. Subcutaneous fat exists throughout the face skin with connective tissue septa dividing the fat into lobules.

The skin and subcutaneous tissue of the face can be divided into aesthetic units, each unit aracterized by the skin having a similar color, texture, thickness and mobility. This visual separation becomes more apparent with advancing age. Aesthetic units have an important clinical application to consider in skin resurfacing procedures as well as in surgery.

Type of skins [2]

Normal Skin - Neither oily nor dry, few discolorations, blemish free, appears smooth.

Good oil-water balance.

Fluctuates during seasons.

Follicles are normal size.

Usually blemish free.

Goal- maintenance+ preventative care Combo skin- Can be both oily and dry or oily and normal.

The T-zone is oilier.

Pores are noticeable this area.

Outer portion of the face may be dry/flaky.

Goal- balancing oil water in the skin, avoid harsh products. Dry Skin- Flaky, dry or red patches, tight appearance, looks dull, lines may develop easily.

Does not produce enough oil.

Pores are usually small.

Sebum (oil) is minimal.

Acid mantle & barrier functions are not healthy.

Goal-increase oil production, hold moisture in with occlusiveproducts.

Oily Skin - Shiny appearance, enlarged pores, prone to acne, prone to blackheads.

Excess all production (lipidic skin)

Follicle sue is larger.

Pores are noticeable.

Prone to blemishes due to dead skin buildup.

Goal- balance oil production, avoid harsh cleansers which stripskin of oils.

Skin Problems^[2]

Fig.2 Type of skin

Blemishes, Wrinkles, Acne vulgaris, Prickly heat (Miliari), Body Odor. **Blemishes** - Blemishes are marks or areas of discoloration /dark spots on the skin,generally cause by acne breakouts. They also be attributed two factors like hormonal imbalance, genetics, improper skin care, poor diet, sun exposure and aging. Pimples, pustules, blackheads and whiteheads can also be categorized as blemishes caused by clogged pores. Common types include acne, scars, birthmarks, age spots and an uneven skin tone.

Wrinkles - It is also known as rhytid, is a fold, ridge or crease in the skin or on fabric. Skin wrinkles typically appear as result of aging processes such as glycation, habitual sleeping position, loss of body mass, or temporarily, as a result of prolonged immersion in water. When an elastic fiber is broken in an extended state, it may be replaced by a long collagen fiber.

Acne vulgaris - It is chronic skin disease of the pilosebaceous unit and develops due to blockages in the skin hair follicle. These blockages are thought to occur as a result of the following four abnormal processes:

A higher-than-normal amount of sebum production.

Excessive deposition of the protein keratin leading to come done formation,

Colonization of the follicle by Propionibacterium acnes bacteria.

The local release of pro-inflammatory chemicals in the skin.

Prickly heat -It is an itchy rash of small, raised red spots that causes a stinging or prickling sensation on the skin. It is the common disorder of the eccrine sweat glands that often occurs in the conditions of increased heat and humidity. Clinically, this form of the disease produces tiny, fragile, clear vesicles.

Body odour - It is the unpleasant smell produced by bacteria on the skin that break down the acids in the sweat. Anyone who has reached puberty can produce body odour, as this is when the apocrine sweat glands develop, which produce the sweat that bacteria can

quickly break down.

Cosmetics used in Skin Treatments - Peel-off-face mask, Sunscreen Lotion, Cleanser, Moisturizer, Scrub, Scarring Cream, Face Mask, Creams, Laser Treatment.

Face Scrub

Introduction^[4]

A skincare item used to exfoliate your skin is a face scrub. It assists in removing dead skin cells from the skin's surface, lowering the likelihood of clogged pores and acne outbreaks. History shows that individuals have scrubbed and exfoliated their skin since prehistoric times, perhaps using an abrasive substance.

Mechanism^[4]

The coarse particles in facial scrubs help to exfoliate the skin. The particles in a face scrub scrape against your skin when you apply it, clearing all the dirt from your skin pores. Additionally, it gets rid of dead skin cells, leaving your skin softer and smoother. You can have healthy, radiant skin by using a nice face scrub in your weekly skincare regimen.

Benefits of face Scrub^[5]

Detoxifies Your Skin

The removal of dead skin cells from your face is the main benefit of utilising a facial scrub. Your skin's dead cells give you a dry, dismal expression on your face. These also clog the pores of your skin. Your skin is completely exfoliated and the dead skin cells are removed by facial cleansing.

Unclogs Skin Pores

Sebum is a natural oil that the body produces to keep the skin moisturised. But occasionally, production can become excessive, and the extra sebum oil is stored in your skin pores. Skin breaks out results from the skin pores becoming entrapped rather than being excreted into the environment. Sebum oil is eliminated via shedding, which also clears skin pores.

Gives Smoother Skin

Apart from the over, face scrubs moreover make your skin surface smooth and shining. When you confront shows up smoother, softer, and shining, your self-esteem is actually bound to extend.

Improve skin texture for better absorption of skin.

Facial skin is delicate, thinner, and more inclined to harm as compared to the skin on other parts of the body. Inappropriate skincare, contamination, etc, can lead to unpleasant, gloomy skin.

Evacuates Flakes

Many people pay attention to dry spots of skin. Drops are the name for these areas of dry skin. These are not only unpleasant, but they also make the skin look extremely dismal. You may get rid of the flaky skin and make it smoother by exfoliating your

faceusingafacialscrub.

Aim & Objective

Formulation and evaluation of novel herbal facial scrub.

Objective

- To formulate the multi herbal facial scrub.
- To exfoliate the skin and get rid of dead skin cells and other impurities from surface of the skin.
- To give various effects in one formulation.
- To evaluate the various parameter to the formulation.
- To formulate the cost-effective face scrub.
- To formulate safe dosage form.

Plan of Work

- The goal of the current work was to revitalize the skin's tone and make it healthier by removing dead cells, debris, and impurities from the epidermis and dermis.
- Searching of various literature regarding face scrub.
- Segregate the required literature.
- Selecting appropriate research articles for face scrub.
- Survey for need of market.
- Formulation of face scrub using various Multi Herbal Ingredients with the help of sophisticated equipments and instruments as per required procedure.
- Evaluation parameter for face scrub
- Organoleptic properties-
- Colour
- Odour
- Consistency
- Homogeneity and texture
- Washability
- pH
- Viscosity
- Extrudability
- Spreadability
- Skin irritation
- Comparison with the market.
- Compilation and submission of data.

Plant Profile

Tomato ^[13]

Common Name- Tomato plant

Scientific Name- Solanum Lycopersicon

Description- Species originated in South America. It was spread to Europe and the rest of the world by

Spanish colonists since the discovery of America. It is a green bush with yellow flowers that produces red edible fruits.

Plant care- It needs water every two days to grow and produce fruit. It also needs direct sunlight.

Location- All over the world.

Uses- It's used as a food product because it is edible. It is used in salads, fried tomatoes, tomato sauces... and in lots of recipes around the world.

Chickoo ^[14]



Fig.4 Chickoo

Common Name- Sapodilla

Scientific Name- Manilkara Zapota

Description- Chikoo has brown fuzzy skin and is more oval-shaped than its Central American cousins, though some develop pointed ends. The skin is inedible, but serves a purpose as a kind of bowl for the sweet flesh.

Plant Care- The soils varieties suitable for Sapota cultivation are deep alluvium, sandy loam and medium black soil. Sapota is a tropical fruit and needs warm, humid climate for growth and development.

Uses- Chikoo is an excellent source of antioxidants and helps with skin texture. Chikoo can make for excellent exfoliants when used with honey and sugar.

Neem ^[15]

Fig.5 Neem



Synonym- Neem

Biological source- It consists of dried leaves of Azadircta indica belonging to family Meliaceae.

Description Colour- Green **Odour -** Pungent **Taste -** Bitter

Plant care- Neem tree needs little water and plenty of sunlight. The tree grows naturally in areas where the rainfall is in the range of 450 to 1200 mm.

Uses- Treats acne. The antibacterial properties of neem fight acne-causing bacteria, which helps in the treatment and prevention of acne. Pacify irritated skin. Fight signs of ageing.



Fig.6 Aloe Vera

Synonym- aloe vera, burn plant

Biological source- dried latex of leaves of it also known as cape aloe belong to the family-Liliaceae

Description- Colour- clear to slightly yellow / translucent gold Odour-similar like rotten garlic or onion taste- Bitter

Plant care- Aloe vera are succulents, so they store water in their leaves. It is important not to overwater them – water whenever the top few centimetres of compost to dry out between waterings.

Chemical constituents- aloe emodin

Uses- heals burns and clears acne

Excipients Profile

Xanthan Gum

Non-proprietary Names- BP Xanthan gum

Synonyms- Corn sugar gum

Empirical Formula Molecular Weight- The USP describes xanthan gum as a high molecular weight polysaccharide gum. It contains D-glucose and D-mannose as the dominant hexose units, along with D-glucuronic acid, and is prepared as the sodium, potassium, or calcium salt. The molecular weight is approximately 2×10^6 .

Description- Xanthan gum occurs as a cream or white-colored, odourless, free-flowing, fine powder.

6.2. Triethanolamine ^[16]

Description- Triethanolamine is an organic compound with the chemical formula $N(CH_2CH_2OH)_3$. It is a colourless viscous liquid. It is both a tertiary amine and

a triol. A triol is a molecule with three alcohol groups. It is a colourless compound although samples may appear yellow because of purities.

Uses- In pharmaceuticals, triethanolamine is the active ingredient of some eardrops used to treat impacted earwax. It also serves as a pH balancer in many different cosmetic products, ranging from cleansing

creams and milks, skin lotions, eye gels, moisturizers, shampoos, shaving foams.

Sodium Lauryl Sulfate ^[17]

Description- Sodium dodecyl sulfate (SDS) or sodium lauryl sulfate (SLS), sometimes written sodium laurilsulfate, is an organic compound with the formula $CH_3(CH_2)_{11}OSO_3Na$ and structure $H_3C-(CH_2)_{11}-O-S(=O)_2-O^-Na^+$. It is an anionic surfactant used in many cleaning and hygiene products.

Uses- Sodium lauryl sulfate is widely used in the pharmaceutical field as an ionic solubilizer and emulsifier that is suitable for applications in liquid dispersions, solutions, emulsions and micro emulsions, tablets, foams and semi-solids such as creams, lotions and gels.

Honey ^[15]



Fig.10 Honey

Synonym- Shahad

Biological source -It consists of saccharine liquid prepared from the nectar of the flowers by the Honey-bee *Apis mellifica* belonging to family Apidae.

Description Colour- Yellow brown coloured liquid
Odour - Sweet Taste – Sweet
Chief chemical constituents- Dextrose and laevulose (70-80%) Dextrin proteins
Uses- Good for wrinkles and aging Prevent acne Remove dirt from pores.

Rose Water ^[18]



Rose water uses for different purposes like helps soothe skin irritation, soothes sore throats, reduces skin redness, helps prevent and treats infections, contains antioxidants, heals cuts, scars, and burns, enhances mood, relieves headaches, it has anti-aging properties, soothes digestion problems.

Materials and Methodology

Material

Method

The multi herbal face scrub was made according to the formula presented below: Steps for preparation of multi herbal face scrub-

Step 1- Preparation of Mixture- 1

The chickoo pulp was scoop out from the raw chickoo and dried in hot air oven at 100°C for 2-3 hrs approximately.

Step 2- Preparation of Mixture- 2.

For **F1**, Xanthan Gum powder was used to prepare a gel base.

Step 3- Preparation of Mixture- 3

The appropriate quantity of SLS was dissolved in water and added to the Step 2 Mixture.

Step 4- Preparation of mixture-4

The remaining ingredients were added to the step 2 mixture along with the preservative, moisturizer and rose water.

Finally Step 3(SLS preparation) mixture was added to it.

Evaluation Parameter^[19,20,21,22]

Organoleptic Properties-

Colour-

Odour

Consistency- Check grittiness, softness,

Homogeneity & Texture- it was tested by pressing a small quantity of formulated scrub between thumb and index figure.

Washability- This test was performed on neck region.

Grittiness- Gel was found to have Few gritty particles.

pH- Using a digital pH metre, the pH value of face scrub is determined. A pH reading is made by dipping an electrode into the appropriate gel formulation after one gramme of gel has been dissolved in 100 ml of distilled water and left to stand for two hours.

Spreadability- Keeping 1gm of sample between two transparent glass slides. The standard weight 20gm apply on upper glass of slide. It is calculated

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

were,

S- Spreadability

m- Weightless on slide (1gm) t- Time taken in sec (22sec) L- Length of glass slide (7.5)

Skin Irritation- The scrub can be used sparingly and left on the skin for a short time and found to be non-irritant.

Extrudability – Small amount of gel was taken into a

collapsible ointment tube. One end closed and the other end kept opened. Slight pressure was applied on the closed side. The time taken to extrude and the amount of gel extruded was noted.

Stability Study- Stability of formulation can be tested by filling the scrub in plastic container. Placing it in humidity chamber at 45°C and 75% relative humidity.

Result and Discussion

The face scrub was easy to apply and wash effectively on all skin types. The formulated face scrub was evaluated by different physical properties

Organoleptic Properties

Colour - Light Brown

Odour - Characteristic odour

Consistency-Good

Homogeneity & Texture-

Washability

Little quantity of face scrub was applied over the skin and washed with water. It was easily washable.

Grittiness

Gel was found to have a few small gritty particles

pH

The measurements of pH of the formulation were done and it was observed that the pH of formulations F1 to F5 was found to be in the range of 6.9 to 7. From the values of pH, it is concluded that the face scrub was compatible with skin.

Spreadability

Spreadability denotes the extent of area to which the gel readily spreads on application to skin or the affected part. The spreading was expressed in terms of time in seconds taken by two slides to slip off from the gel, placed in between the slides, under certain load. Lesser the time taken for separation of the two slides, better the spreadability. Two sets of glass slides of standard dimensions were taken. The gel formulation was placed over one of the slides. Spreadability of different scrub formulation were studied.

Irritability

The formulated face scrub from F1- did not show any skin irritation when applied on the cheek area of group of 4 volunteers.

Stability Study

According to ICH guideline the formulation was kept in humidity chamber at 45°C and 75% relative humidity which is under process.

Conclusion

From the recent years studies the youth move towards the herbal formulation over the synthetic formulation. There are various herbal cosmetics are available in market but youth focus for clean glossy

skin and dirt removal formulation, so overcome on the problems regarding with skin like oily skin, blackheads on skin, dull skin we formulate the **Face scrub** with goodness of chickoo.

This study target for enhancing the face skin appearance by formulating multi herbal facial scrub which includes **Chickoo, Neem, And Tomato**

The combination of these herbal constituents produces an effect to minimize the Acne problem along with Antiaging, Antioxidant as well as antimicrobial effect.

The formulation results were appreciable and therefore, it may be considered as a best face scrub.

Overall, this study reports concluded that the formulation of multi herbal facial scrub may offer an effective which leads to patient adherence and compliance to the formulated product.

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