

Herbal Dragon Fruit-Aloe Vera Face Sheet Mask

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Abstract—The objective of this project is to formulate and evaluate a herbal face mask using natural ingredients for cosmetic application. Day by day, human skin is affected by various problems such as early pimples, acne, and dark spots, especially in adults, leading to an increased demand for herbal products in daily life. In this study, a facial serum for a sheet mask was developed using a blend of natural ingredients known for their antimicrobial, anti-aging, anti-inflammatory, and soothing effects. The formulation includes camphor oil, rose water, vitamin E, aloe vera, and coconut oil, all carefully chosen for their potential to reduce inflammation, redness, and acne caused by microbial activity on the skin. They are used to purify and safeguard the body and skin. They have become widely popular in the global market because of their natural beauty benefits and minimal side effects. The primary function of a sheet mask is to deliver concentrated active components directly to the skin while minimizing evaporation and enhancing absorption. The occlusive nature of the sheet creates a favourable microenvironment that allows deeper penetration of moisturizing and rejuvenating agents. Face sheet masks can be used irrespective of time and place, which are affordable and effective in moisturizing the skin, eliminating excess oil

I. INTRODUCTION

Herbal sheet masks have existed for a considerable time, and their benefits are nearly

.. These masks can hydrate the skin, eliminate excess oils and impurities, and enhance the appearance of pores. Materials such as microfibers or cellulose are utilized in the production of these sheet masks. These facial masks are affordable, making them accessible for everyone to use with ease .They are also budget-friendly, allowing individuals to save time at the spa and avoid purchasing expensive cosmetics.

The removal mask is specially designed for cosmetic procedures used in beauty salons. Because our formula is ready to use, our masks can be used

directly on the skin. The basic ingredients in the formula can penetrate the skin and quickly provide the nutrients the body needs.

This mask can be used to treat facial problems such as black heads whiteheads, especially by opening the pores and allowing dirt to enter. Our skin is a largest organ on our body made up of different components including water, protein, lipid, and minerals. Throughout our life, our skin will change constantly, for better or worse. Our skin regenerates itself approximately every 27 days. So proper skin care is essential to maintain healthy skin.

There are four layers of skin:

1. Stratum corneum
2. Dermis
3. Subcutaneous
4. Epidermis
- 5.

Types of skin:

1. Normal skin



2. Dry skin



3. Oily skin



4. Combination skin



5. Sensitive skin

II. ADVANTAGES OF HERBAL FACE MASK SHEET

- 1) Remove adhering dirt and improve blood circulation.
- 2) Nourishes the skin of the face.
- 3) Herbal cosmetics are non-toxic and natural.
- 4) It mixes better with your skin in a short time.
- 5) After washing, toning, and before moisturizing.
- 6) Masks usually remove dead skin cells.
- 7) They give a tough skin.
- 8) It has a relaxing effect on the skin.

III. ROLE OF THE MASK

- 1) Moisturizes the skin.
- 2) Remove excess oil.
- 3) Improve the image of friends.
- 4) Eliminating impurities and assisting in reducing again symptoms.
- 5) If you compare a fabric mask to a face gaiter, you'll observe that the gaiter is transparent.
- 6) Work well for oily skin to unclog your pores and reduce their look.
- 7) You can achieve clean, tighter, exfoliated, softer, and brighter skin by utilizing face masks.
- 8) It can soothe irritated skin and stop outbreaks,

IV. DISADVANTAGES OF HERBAL FACE MASK SHEET

- 1) May irritate
- 2) Make wrinkles, sagging skin and large pores.
- 3) Probably a collagen product.
- 4) Allergy or sensitivity.
- 5) May cause dryness and sunburn.

V. SELECTING THE RIGHT FACE MASK SHEET

The best way to decide is by understanding your skin type and the results you want. Below are some popular sheet mask categories to help guide your choice:

1. Hydrating Sheet Masks:
Perfect for dry or tired skin, these masks deliver an intense moisture boost.
2. Anti-Aging Sheet Masks:
Formulated to reduce visible signs of aging, they often include ingredients such as collagen and peptides.
3. Brightening Sheet Masks:
These help enhance your natural glow and even out skin tone, commonly using ingredients like vitamin C.
4. Soothing Sheet Masks:
Ideal for sensitive or irritated skin, they help calm redness and provide gentle relief.
5. Acne-Fighting Sheet Masks:
Designed to target breakouts, these masks frequently contain salicylic acid to help clear clogged pores..

● Plants Profile

1. Aloe vera Plants



Kingdom	Plante
Division	Magnoliophyta
Class	Liliopsida
Order	Asparagales
Family	Asphodelaceae / Liliaceae
Genus	Aloe
Scientific name	Aloe Barbadensis miller

Uses:

- Skin hydration
- Soothing and Cooling Effect
- Anti-inflammatory Action
- Healing properties
- Anti-microbial and Antioxidant Effect

2. Glycerine



- Glycerine, also known as glycerol, is a carbohydrate belonging to the sugar alcohol (polyol) group.
- It is a colourless, odourless liquid with a sweet flavours and a thick, syrup-like texture.
- Although it can be naturally derived from plants through the fermentation of sugars, most commercial glycerine today is obtained through the hydrolysis of fats and oils.

Uses:

- Glycerine is a skin product that traps moisture
- Giving youthful glow
- Reduces wrinkles

3. Sandalwood oil



Botanical name	Santalum album L
Family	Santalaceae
Part used	Heartwood (distilled to obtain essential oil)
Extraction method	Steam distillation or hydro- distillation
Main active constituents	α -Santalol (40–55%) β -Santalol (15–25%)

Uses:

- Provides instant cooling and hydration effect.
- Reduces acne, redness, and dark spots.
- Improves skin tone and radiance.
- Acts as a natural antiseptic for sensitive or oily skin.
- Regular use supports smooth, blemish-free complexion.
- 4.Dragon fruit



Scientific name	Hylocereus polyrhizus / Hylocereus undatus
Part used	Fruit pulp and peel extract
Key constituents	Vitamin C, betacyanins, phenolic compounds, flavonoids

Uses:

- Soothing and cooling
- Detoxifying property
- Improves skin elasticity
- Brightening effect
- Anti-aging property
- Antioxidant protection

6. Camphor



Kingdom	Plante
Odour	Minty sharp, pungent camphoracepus
Family	Lauraceae
Genus	Cinnamomum camphora

Uses:

- Anti-microbial activities
- Anti-inflammatory
- Allopathic and Algicidal activities
- Insecticidal and acaricidal

7. Rose oil



Biological source -

Rose oil is obtained from the petals of difference Rosa species especially Rosa centifolia L and Rosa Damascena

Uses:

- Rose oil has antiseptic, bactericidal and anti-inflammatory properties.
- it can be a very valuable remedy for inflammation and irritation.
- including eczema and allergic rashes. Soothes irritated skin.
- Hydrates & nourishes the skin prevents early signs of ageing.

8. Vitamin E



- Vitamin E refers to a family of eight fat-soluble compounds, consisting of four tocopherols and four tocotrienols.
- Deficiency of this vitamin is uncommon and typically occurs due to issues with absorbing dietary fats rather than inadequate intake.
- When it does occur, it may lead to neurological problems.

uses:

- Vitamin E have antioxidant properties protect skin from pollution and sun damage

- promoting balance and wrinkle prevention. It also helps make skin firm and elastic
 - thereby reducing the appearance of wrinkles.
9. Coconut oil



- It is nourishing fatty acids and linoleic acid which help retain the moisture in the skin and help protect and hydrate your skin
- it is commonly added to the serum or essence phase.

Uses:

- Acts as an occlusive agent to lock in moisture.
- Strengthens the lipid barrier of the skin.
- Reduces redness, swelling, and skin inflammation.
- Useful for sensitive, irritated, or dry skin.

Composition

Sr no	Ingredients	Quantity %	Role
1	Aloe vera	20%	Moisturizer, skin soother
2	Dinesha Valli tail	5%	Healing and anti-inflammatory
3	Glycerine	5%	Humectant, provide softness
4	Sandalwood oil	1-2%	Cooling and fragrance
5	Tween 20	2%	Emulsifying agent
6	Distilled water	q s. to 100%	Solvent
7	Preservative	0.5-1%	Prevent microbial growth
8	Dragon fruit extract	10%	Antioxidant and brightening
9	Vitamin E	1%	Antioxidant and skin nourishment
10	Rose oil	1%	Aroma and soothing
11	Camphor	0.2-0.5%	Cooling, antiseptic
12	Coconut oil	5%	Moisturizing

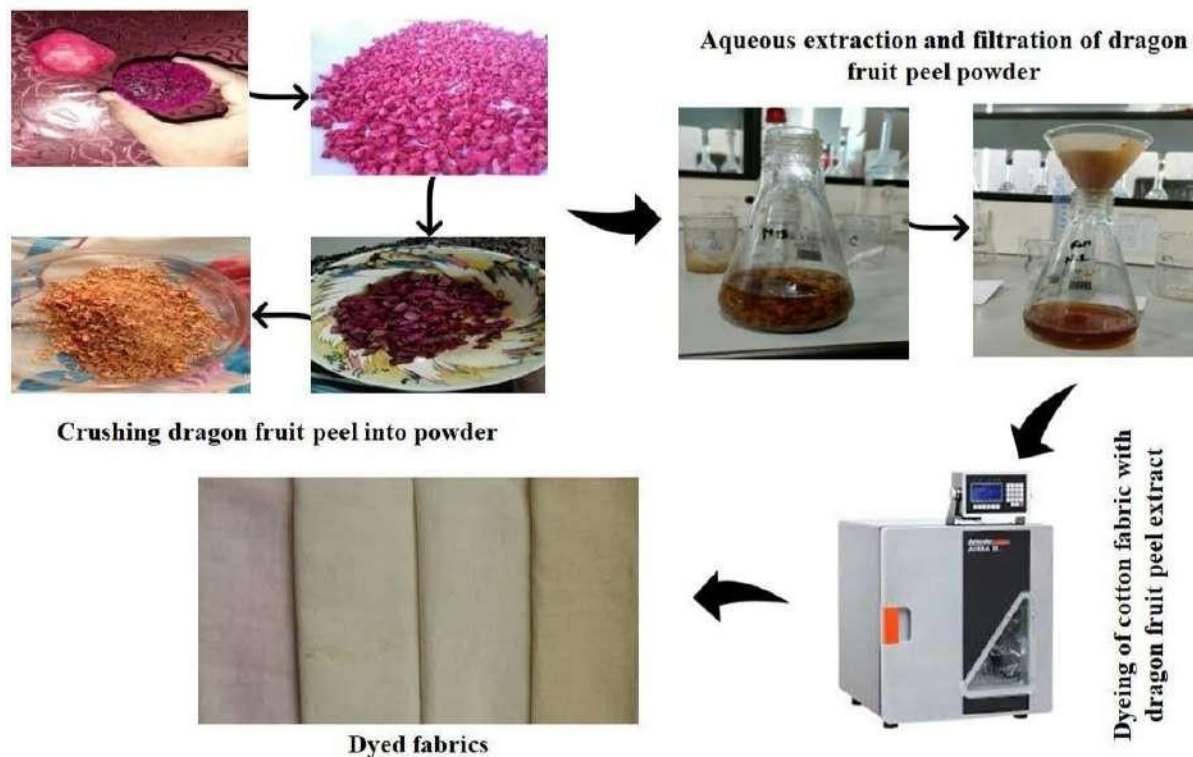
Extraction procedure of Dragon fruit

Fresh red dragon fruit whose original weight has been measured. After the pulp and fruit peel are separated, their weights are determined.

Begin preparing dragon fruit peel extract by slicing the fruit peel to 1×5 cm and dehydrating it at 60°C for 8 h in a food dehydrator.

The dragon fruit peel powder was produced by

grinding and sieving the dried products to a 60-mesh size. The next step was extraction using the maceration method with 50% ethanol solvent at a ratio of 1:10 between the powdered dragon fruit peel and the solvent, which took 24 h in dark conditions. The maceration results were then filtered and evaporated using a BÜCHI rotary vacuum evaporator R-300 at 50°C and 80 revolutions per minute (rpm) in a rotary vacuum evaporator to



● Procedure

Step 1-Preparation of Aqueous Phase:

Take distilled water and add Aloe vera gel and glycerine slowly with gentle stirring until a uniform smooth gel base is obtained.

Step 2-Preparation of Oil Phase:

Mix Dinesha valli taila, coconut oil, sandalwood oil, rose oil, and vitamin E. Add Tween 20 and stir until uniform. Warm slightly (-40°C) to dissolve camphor completely.

Step 3-Combine Phases:

Add oil phase to aqueous phase slowly under constant stirring until uniform emulsion forms.

Step 4-Add Active Ingredient:

Add dragon fruit extract slowly and mix. Adjust pH to 5.5-6.0 and add preservative.

Step 5-Soak Sheet Mask:

Soak sterile sheet mask in the prepared herbal mixture for 10-15 minutes, then store in airtight sachet or jar.

Usage:

Clean face, apply the sheet mask for 15-20 minutes, then massage remaining serum into skin.

VI. EVALUATION OF SERUM AND SHEET

1. physical Evaluation

The colour and appearance of the formulation was observed visually. This test was confirmed by visual appearance and by touch

2. pH Value

A pH meter was calibrated using a standard buffer solution. Nearly 1 ml of the face serum was properly weighed and dissolved in 50 ml of distilled water and finally its pH was calculated.

3. Microbial Examination of the Product:

Agar well-diffusion method was followed to determine the antimicrobial activity (Bauer et al., 1966). Nutrient agar plates were swabbed (sterile cotton swabs) with fresh broth culture of bacteria. Wells were made in each of these plates using sterile corkborer. About 100 μl of different concentrations of sample serum and standard Ciprofloxacin were

added sterile micropipette into the wells and allowed to diffuse at room temperature for 2hrs.

Control experiments involving inoculums distilled water were set up. The plates were incubated at 37°C for 24 h for bacterial pathogens. The diameter of the inhibition zone (mm) was measured and the activity index was also calculated. Triplicates were maintained and the experiment was repeated thrice, for each replication the readings were taken in three different fixed directions and the average values were recorded.

4. Stability Studies:

Formulation and development of a pharmaceutical product is not complete without proper stability analysis carried out on it to determine physical and chemical stability and thus safety of the product. The stability studies were carried out as per ICH guidelines. Short term accelerated stability study was carried out for the period of 15 days for the prepared formulation. The samples were stored at different storage conditions of temperatures ranging from 2°C to 40°C

5. Cyclical Temperature:

This test is not carried out at any fixed temperature and humidity. In this test, temperature was changed cyclically every day. At room temperature and frizzing temperature to stimulate the changes in temperature.

6. Determination of Viscosity:

Viscosity is a critical parameter for topical formulation. Topical solutions with low viscosity have faster clearance than viscous solutions. In addition, highly viscous solutions can have an undesirable effect on the skin. (range for water-based serum I to 30 mPast)

7. skin irritancy:

Apply some amount of serum on the back of your hand or dorsal side of your hand and observe for 24 hours if any irritation is caused at that area of application.

8. sheet absorbance:

The cotton sheet is dipped in the serum to check how much serum can be absorbed by the sheet and to check the ease of absorbance.

9. Soaking Time:

The cotton sheet is dipped in the serum to determine the amount of time taken to soak the serum completely and get saturated from the serum.

VII. CONCLUSION

The prepared herbal dragon fruit-aloe vera sheet mask is an effective, natural skincare product with antioxidant and hydrating properties. It is suitable for all skin types and promotes smooth, glowing, and refreshed skin.

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