

FORMULATION AND EVALUATION OF MULTI HERBAL PEEL OFF MASK

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ABSTRACT

Skin care preparations are designed to exert local activity when applied over the skin mucous membrane, these skin preparations include gel, lotion, ointment, cream, peel off mask etc. Peel off mask is the type of dosage form which is gently applied onto the facial skin surface and is peeled off after a few minutes of its application. It is designed to address common skin concerns and tightening of skin, moisturizing and tan removal from the skin. Here we are formulating of Multi herbal peel off face mask. Herbal cosmetics are deeply rooted in ancient practices to enhance beauty and minimize skin problems like acne, pigmentation, dryness, wrinkles, etc. These products offer a spectrum of physiological benefits, including anti-acne, brightening, anti-inflammatory, moisturizing, antioxidant and anti-aging properties, all while minimizing adverse reactions. Herbal formulations have gained widespread global appeal. Time-tested Indian herbs like Turmeric, Fenugreek, saffron aloe vera, Neem, sandalwood, etc. have been integral part of skincare rituals for centuries. Fenugreek is known

for its anti-aging properties and is used to reduce blemishes and dark circles. Neem is known for its anti-fungal characteristics and aid in the lightning of acne scars. Saffron is used for skin brightening and skin moisturizing. Turmeric is used as an anti-inflammatory and antioxidant. Aloe is used for the soothing of skin. In this research, multiple herbs are used for the formulation of peel-off mask. The extract of fenugreek, neem, turmeric, and saffron and aloe vera gel were used and evaluation parameter has been performed to meet the requirements of ideal peel-off mask formulation. peel-off mask has neutral PH and is non-

irritant, peel off time, Stability test was performed. The multi-herbal mask will have ability to deeply cleanse, minimize pores, and rejuvenate the skin, leaving behind a residue-free elastic membrane.

KEYWORDS: Multiherb Peel of mask, Fenugreek, saffron, Neem, aloe vera, Anti-acne.

INTRODUCTION

The term "herbal cosmetics" refers to beauty products that contain herbal elements and therefore exhibit desired physiological activity, such as healing, calming, appearance, boosting skin radiance, and conditioning qualities. These herbal cosmetics help rejuvenate, protect, and restore skin.^[1] Herbal plants have a long history of being used in medicine and cosmetics. These products that derive their desirable physiological effects, such as brightening, anti-inflammatory, hydration, nourishment, and anti-aging properties, from herbal ingredients. These herbal cosmetics serve to protect and enhance the skin. Acne is a prevalent and persistent inflammatory skin issue that targets the sebaceous glands. It commonly arises during adolescence and troubles individuals aged 12 to 25. According to the Global Burden of Disease report, around 85% of teenagers and young adults encounter acne vulgaris.^[2] In Indonesia, traditional practices have long utilized natural plant remedies to address various health concerns, including acne treatment.^[3] Acne frequently originates from bacterial presence on the skin's surface, with *Propionibacterium acnes* and *Staphylococcus epidermidis* being prevalent microbes found in acne lesions. These microorganisms significantly contribute to the development of acne. Research has shown that both *P. acnes* and *S. epidermidis* exhibit resistance to multiple antibiotics.^[4] Acne is one of the conditions that affect children the most, mainly those between the ages of 18 and 25. Teenagers who suffer from acne frequently feel self-conscious about their appearance and inferior.^[5] It is crucial to protect the skin since it is a highly delicate and protective covering of the body and is exposed to environmental contamination. In order to combat the issues linked with it, facial skin needs to be taken care of, and one way to do this is by utilizing face masks. A peel-off mask is applied to the face as a thin liquid film that is spread evenly using the fingers. After fully drying, the liquid film peels off the face as a thin plasticized film with no residue. It may deep clean pores, remove skin dirt, and tighten, rejuvenate, and heal facial skin. Peel-off can also slightly moisturize while enhancing the occlusive effect, which increases blood flow, activates skin cells, and removes.^[6] To help women get rid of wrinkles, dark circles, zits, and acne, Ayurveda offers face packs. The smoothness and brightness of the skin are enhanced by

using herbal face masks. We can maximize the benefits of herbal face packs by utilizing them in accordance with the type of skin we have. Using ayurveda face treatments, which make the skin glow, is the best ayurveda way for enhancing fairness. Face packs can be used to treat, encourage, and prevent skin problems. An appealing powder for the face is called a face pack. A good herbal face pack should transport the vitamins and nutrients that the skin need to the subcutaneous tissues as well as provide the skin with the nutrition that it needs. Different herbal face packs are needed for different skin types. The use of Ayurvedic face packs.^[7] A commonly chosen method for improving facial-skin is a peel-off face mask gel, often employed as a topical skincare treatment. One advantage of this mask is its elastic membrane, making it easy to remove. This gel mask is known for minimizing pores and aiding in the healing, treatment, and rejuvenation of facial skin. Additionally, it serves as a cleanser, refresher, and can contribute to relaxing facial muscles.^[8] Skin diseases can vary widely in type and cause. Here are some common types of skin diseases:

1. INFECTIONS

- Bacterial Infections: Such as impetigo, folliculitis, and cellulitis.
- Viral Infections: Including warts (caused by HPV), cold sores (herpes simplex virus), and chickenpox (varicella-zoster).
- Fungal Infections: Examples are athlete's foot, ringworm, and candidiasis.
- Parasitic Infections: Scabies (caused by mites) and lice infestations.

2. Allergic Reactions

- Eczema (Atopic Dermatitis): Often related to allergies, characterized by red, itchy, inflamed skin.
- Contact Dermatitis: A rash caused by contact with irritants or allergens.
- Hives (Urticaria): Raised, itchy welts, often from allergic reactions.

3. Genetic and Hereditary Disorders

- Epidermolysis Bullosa: A group of diseases causing the skin to be fragile and blister easily.
- Ichthyosis: A condition where the skin becomes dry, scaly, and thickened.
- Vitiligo: A condition where the skin loses pigment, resulting in white patches.

4. Skin Cancers

- Basal Cell Carcinoma (BCC): The most common form of skin cancer, usually appearing as a shiny, pearly bump.
- Squamous Cell Carcinoma (SCC): Often appears as a red, scaly bump or sore.
- Melanoma: A more dangerous form of skin cancer that can appear as a new mole or changes in existing moles.

5. Inflammatory Skin Conditions

- Rosacea: A condition causing redness, pimples, and visible blood vessels on the face.
- Acne: Blocked pores that cause pimples, blackheads, and cysts, common during adolescence but can persist into adulthood.

6. Environmental Damage

- Sunburn: Skin damage caused by overexposure to ultraviolet (UV) rays from the sun.
- Age Spots (Liver Spots): Dark, flat spots often found on sun-exposed areas of the skin as people age.

7. Pigmentation Disorders

- Melasma: Dark patches of skin, usually on the face, often related to hormonal changes.
- Albinism: A genetic condition where individuals have little or no pigment in the skin, hair, and eyes.

8. Blistering Disorders

- Bullous Pemphigoid: A condition causing large, fluid-filled blisters.
- Pemphigus Vulgaris: A rare autoimmune disorder causing painful blisters and sores on the skin and mucous membranes.

TYPES OF PEEL OFF FACE MASK

Masks, as we know them today, come as one of 4 categories:

1. Peel off: One continuous sheet was applied to the skin, left to dry for 30 minutes, and then peeled off. They are perfect for offering both a purifying and rejuvenating action and perception. When the polymeric network is removed, they efficiently remove the very top layer of old, dead skin cells to reveal younger-looking skin beneath.



Fig: 1 Peel off mask.

2. Sheet: Sheet masks are the most versatile because they are effective serum formulations with actives added to achieve the product purpose, e.g.: o Whitening o Anti-aging o Anti-sebum The sheet of the mask helps stabilize the formulation and give it the necessary structure, so little in the way of stabilizing and structuring ingredients are needed to achieve anything you wish based on the active selected.



Fig: 2 sheet mask.

3. Leave-on: These kinds of masks come in crème-gel or cream forms that are extremely moisturizing. They are applied to the skin, kept on for 15 to 30 minutes (or overnight), and then the remaining product is rubbed in. They are meant to deliver more moisture and emollience than regular creams, hence they have greater lipid and humectant content.



Fig: 3 leave on mask

5. **Charcoal/clay:** With the addition of charcoal or clay, these types of masks serve as necessary cream cleansers. Additionally, this increases viscosity. Clay and charcoal are excellent food sources for microorganisms, but they should be purchased properly prepared. So proper preservation is crucial for this product.



Fig : 4 charcoal mask.

MATERIALS AND METHODS

Plant material refers to the substances utilized in the formulation. i.e. Fenugreek, neem, turmeric, saffron were extracted from plant source and some ingredients were purchased from local market 4 . The ingredients used for the formulation of peel off mask are mentioned below;

- i) **Fenugreek extract:** fenugreek extract was prepared at the laboratory of the Institute of Mother Teresa pharmacy college on August 2024. Fenugreek is known for its effectiveness in treating oily skin and reducing acne. The extraction process involved maceration, where 5 grams of fenugreek was combined with 50 milliliters of ethanol and macerated for 4-5 days 5 .As mentioned in table no 1. Fenugreek extract serves multiple functions within a peeloff mask formulation. It acts as a natural exfoliant, aiding in the removal of dead skin cells and the clearing of pores. Moreover, fenugreek extract contains antioxidants and anti-inflammatory properties, which contribute to soothing and calming the skin. Its antimicrobial characteristics may also aid in diminishing acne and blemishes, fenugreek extract can contribute to the overall brightening and rejuvenating effect of the peel-off mask, leaving the skin looking refreshed and radiant.
- ii) **Neem extract:** The neem powder was purchased from the local market and subsequently subjected to an extraction process using maceration. This method entailed combining five grams of neem with 50 milliliters of ethanol and macerate for 4-5 days. Neem is renowned for its skinpurifying properties, aiding in the reduction of spots and promoting

well-hydrated, blemish-free skin. As mentioned in table no 1. Neem extract offers many benefits when incorporated into a peel-off mask formulation. Well-known for its antibacterial and antifungal attributes, neem extract is effective in combating acne-causing bacteria and minimizing inflammation, making it a valuable option for addressing blemish-prone skin. Furthermore, neem extract boasts antioxidant qualities, aiding in shielding the skin from environmental harm and premature aging. Its astringent properties help to tighten pores, leading to a smoother complexion. Neem extract also aids in balancing oil production, making it suitable for oily and combination skin types. Overall, neem extract contributes to the effectiveness of the peel-off mask by promoting clearer, healthier-looking skin. As mentioned in table no 1.

iii) Turmeric extract: Turmeric is highly incorporated into skincare products, including peel-off masks, due to its potential benefits for the skin. Turmeric contains curcumin, a compound known for its anti-inflammatory and antioxidant properties. ²³ As mentioned in table no 1. The turmeric powder was purchased from the market and subsequently subjected to an extraction process using maceration. This method entailed combining five grams of neem with 50 ml of ethanol and macerate for 4-5 days.

iv) Saffron: Two grams of saffron threads are dissolved in 20ml of water for 24 hours. The extract used for further processing. Saffron is a key ingredient in peel-off masks, known for Saffron is used for its skin-brightening properties, helping to improve complexion and reduce the appearance of dark spots and pigmentation. This makes it an ideal ingredient for promoting a more radiant and even-toned complexion. Moreover, saffron is known for its antioxidant properties, which play a crucial role in shielding the skin against environmental harm triggered by free radicals. This protective action aids in averting premature signs of aging, such as fine lines and wrinkles, thereby maintaining a youthful and healthy appearance of the skin. As mentioned in table no 1.

v) Aloe vera gel: aloe vera gel; sourced from medicinal garden was incorporated into the formulation in a quantity of 4 to 5 drops. Aloe vera comes as a gel that you can apply to your skin and as a juice or gel that you can drink. The leaf also contains a yellow liquid called aloe latex. This plant-based remedy contains chemicals that reduce swelling in the skin, relieve redness and scaling, soothe itchy skin, and promote the growth of new skin cells. These properties make aloe vera useful for treating skin conditions such as Acne Cold sores (herpes) Cuts and scrapes Insect bites and stings Minor burns and Psoriasis.

- vi) Lavender oil:** Lavender oil, sourced from the local market, was incorporated into the formulation in a quantity of 4-5 drops. It is known for its antibacterial and soothing properties; lavender oil is also valued for its delightful fragrance. Lavender oil imparts a pleasant and soothing aroma to the peel-off mask, enhancing the overall sensory experience during application. Antimicrobial properties: Lavender oil possesses natural antimicrobial properties, helping to inhibit the growth of bacteria on the skin. This can contribute to a cleaner and clearer complexion, reducing the risk of acne and other skin irritations. As mentioned in table no 1.
- vii) Methyl and propyl paraben:** Preservatives were collected from laboratory of Mother Teresa Pharmacy College in august 2024.
- viii) Glycerin:** In the mixture, 4-5 drops of glycerin were employed. Glycerin plays a role as a moisturizing agent in this formulation. Hydration: Glycerin is a humectant, meaning it attracts moisture from the environment and binds it to the skin. When applied in a peel-off mask, glycerin helps to hydrate the skin by drawing moisture from the surroundings and retaining it within the skin layers. Furthermore, this aids in preventing moisture loss, thereby preserving the skin's hydration levels and suppleness. Glycerin also contributes to skin barrier protection by forming a shielding layer on the skin's surface. This protective barrier helps prevent moisture loss and shields the skin from various environmental stressors, including pollution and harsh weather conditions. By strengthening the skin's barrier function, glycerin helps to maintain its health and resilience. Smooth texture: Glycerin has emollient properties, which help to soften and smooth the skin's surface. When included in a peel-off mask, glycerin helps to improve the texture of the mask, making it easier to apply and ensuring a comfortable experience during removal.
- ix) HPMC & PVA:** A combination of PVA (polyvinyl alcohol) and HPMC (hydroxypropyl methylcellulose) are employed as agents for forming films. In formulating the peel-off gel mask, polyvinyl alcohol is used as the foundational component, while Hydroxypropyl Methylcellulose serves the purpose of enhancing viscosity. The objective lies in evaluating the antioxidant efficacy of this specific formulation.



Fig: 5 Extracts for Peel off Mask.

METHOD

- 1) To begin, accurately measure all the ingredients.
- 2) Dissolve methyl paraben and propyl paraben in sufficient amount of water.
- 3) The film forming agent (HPMC & PVA) dissolve in water.
- 4) In extract of Fenugreek, Turmeric, Neem and saffron, and aloe vera gel Film formers has been added.
- 5) Then the methyl paraben and propyl paraben was added to above formulation.
- 6) Add enough of glycerine in the formulation.
- 7) After that, the lavender oil was added in the formulation to enhance the odour of product.
- 8) Then the formulation was placed in electric stirrer for 20 min for proper mixing.
- 9) At the end fill the formulation in to the well label and airtight container.

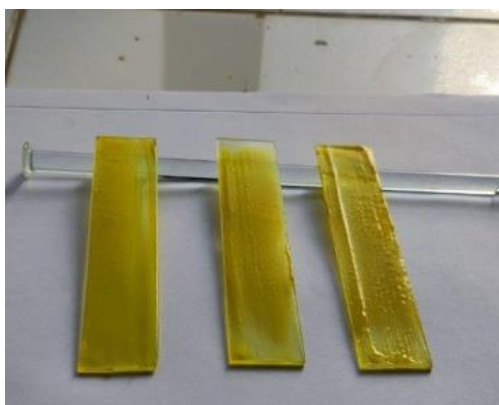


Fig:6 drying of formulation.

Table 1: Formula For Preparing Multi-Herb Peel Off Mask.

Sr. No	Formulation Ingredients	Category	F 1	F2	F3
1	Fenugreek extract	Anti-acne	3ml	2ml	1ml
2	Neem extract	Anti-bacterial	1ml	2ml	2ml

3	Saffron extract	Anti- aging	3ml	3ml	3ml
4	Turmeric extract	Anti-inflammatory	1ml	2ml	2ml
5	Lavender oil	Fragrance	0.5ml	0.3ml	0.3ml
6	Methyl paraben	Preservatives	0.5gm	0.5gm	0.5ml
7	Propyl paraben	Preservatives	0.2gm	0.2gm	0.5ml
8	Glycerin	Moisturizing agent	4-5 drops	4-5 drops	4-5 drops
9	PVA	Film forming agent	2gm	1.5gm	1gm
10	HPMC	Film forming agent	4gm	3gm	2gm
11	Water	Solvent	7ml	7ml	7ml

EVALUATION TESTS

1.ORGANOLEPTIC PROPERTIES

We have done the visual inspection of product and observed that it was:-

Colour: yellow

Odour: sweet

Consistency: - smooth and thick

2. pH: The pH value of this herbal peel off mask was determined by using pH paper and pH value of this cucumber and turmeric peel off mask was found to be 6.5.

3.IRRITANCY TEST: The irritation test was done by applying a formulation on hand's back skin and leave it for 15 minutes to check irritation reaction such as swelling, itching and redness effect on the skin.

4. PEEL OFF TEST: The formulation film of 4x4mm was spread on backside of the hands skin. Leave it for 15-20 minutes to dry properly. After 15-20 minutes, peel off the dry film from the skin surface. Easy removal of peel without any complications was observed.

5. AFTER FEELING: After the utilization of fixed measure of peel off face mask emollience, thickness, and measure of build-up left was checked.

6. REMOVAL TEST: The peel off face mask was applied on the skin was handily taken out by peeling.

7. SPREAD ABILITY: To assess spread ability, surplus sample gel was sandwiched between two glass slides and pressed to a consistent thickness by applying a weight of ---

grams on the pan. The duration for which the upper glass slide took to separate from the lower plate, indicating spread ability 20

$$S = m \times 1/t \text{ (18).}$$

S-Spreadability

m-Weight tied to upper slide.

Length moved on glass slide

t- time taken.

TEST RESULTS

Table: 2: Evaluation Parameters Data.

Test	pH	Irritancy test	Peel off time	After feeling	colour	odour	consistency	Spread ability	Drying time
F1	7	Non-irritant	5 min	Cool	Pale yellow	Sweet	Semi– solid	9.8	17-20 min.
F2	7.4	Non-irritant	7 min	Cool	Pale yellow	Sweet	Semi –solid	8.1	20-25 min.
F3	7.76	Non-irritant	6 min	Cool	Pale yellow	Sweet	Semi –solid	7.6	23-27 min.

CONCLUSION

Comparing the F1, F2, and F3 evaluation parameters F1 exhibits superior spreadability, consistency, stability, peeling time, and drying time, therefore its formulation found better than F2 and F3. Nowadays, people are searching for side-effect-free remedies for a range of skin related problems. Using herbal ingredients, it is possible to create cosmetics that are safer and less harmful than synthetic formulations. The study on peel-off masks includes natural ingredients such as Fenugreek, aloe vera gel, Neem, saffron, Turmeric, lavender oil etc.

Nowadays, people are looking for solutions to various skin-related issues without any side effects. In order to eliminate herbal plant ingredients and their derivatives, there is a chance to create cosmetics that are safer and less harmful than synthetic formulations. The study on peel-off masks includes natural ingredients such as turmeric, aloe vera, etc. This study found that the formulation is highly stable at room temperature and shows good spreadability, which makes people comfortable while applying the peel-off mask. The peel-off mask has good compatibility with all skin types and shows no irritation or allergies. The peel-off masks showed good peel-off properties on human skin, with no irritation or itching and no residue. The herbal peel-off mask study confirmed that it removes dead cells, extra hair on the face,

pigmentation, provides a glow to the skin, cleans the skin pores, moisturizes, and hydrates the skin. The stable nature of the product and its compatibility with all skin types Good spreadability Cleanse the skin surface. Protect the skin from environmental factors.

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