

# Formulation and Evaluation of Activated Charcoal Peel Off Mask

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## Abstract:

Over the past few years, activated charcoal has been used as an active ingredient in cosmetic products. Due to its adsorbing properties, it is well being used in all kinds of beauty products from face masks to cleansers and also even soaps. Activated charcoal is used as an active ingredient in this formulation. Natural remedies are more acceptable in the belief that they are more safe with fewer side effects than the synthetic formulations. Herbal formulations have growing demand in the world market. Herbal face masks are applied to increase the blood circulation, rejuvenates and helps to maintain the skin elasticity and it also remove the dirt from skin pores. It is a very good endeavor to establish the herbal face mask containing various herbal powders. The main advantage of herbal cosmetics is its non-toxic nature, and it reduces the allergic reactions. In this article, we have formulated activated charcoal peel off mask and also evaluated it by using different test methods. The formulation showed amazing results after its application. The use of these face masks include cleansing, moisturizing and nourishing facial skin. This peel-off masks have the advantage of being practical because of their peeling off property and it lift like an elastic membrane.

**Keywords:** Activated charcoal, peel off mask, film forming, mask, dead skin.

## INTRODUCTION

The cosmetics are the utility product used extensively throughout the world for maintaining and improving general appearance of face and other part of body e.g. skin, eye, hair, hand, etc. herbal cosmetics are the preparation which represent cosmetics associated with active bio-ingredients, neutraceuticals and pharmaceuticals. [1]

Peel-off mask have been developed especially for cosmetic treatment which is used in beauty salon. Our mask is applied directly on the skin because our formulation is in ready to use form. When it applied on skin and it slowly hardens, moisture collects in the horny layer under the elastic mask film, through which air and water is not allowed to permeate. At the same time on other the hand, the main active substances and other active substances of the formulation, are able to penetrate well into the skin and intensively supply the substances within a short space of time. [2] In Solid film peel off mask film forming ingredients used is named as tragacanth gum which is responsible for forming a film on face after drying for few minutes. After removal, it provides clean, fresh and moisturized skin, removes dead skin layer and other debris deposited on the facial skin. The skin cleansing and smoothening effect is revealed after using it. [3]

Peel off Mask gently stimulates the metabolism because of its occlusive effect. Waste products and accumulated tissue fluid are quickly transported away. So that, A significantly improved skin profile is quickly achieved. The outer most layer of the body is skin that's why it is easily get contaminated from outer environment hence, it is necessary to protect the skin.[4]

Peel off mask can be used as a remedy in treatment of facial skin related problems such as black hairs, dark-spots, dead skin, white heads and especially used to open the closed pores then remove dirt and closing it. Its main role is to Stimulate the metabolism because of its occlusive effect heads. [5]

The most important feature of this peel off mask is its adsorption capacity. It removes a large variety of particulates or contaminants, which can be either organic or inorganic contaminants. [6]

## Benefits of Applying Face Mask: [7, 8, 9, 10]

1. It nourishes the skin.
2. It helps to reduce acne, and black heads depending on its herbal ingredients.
3. Face masks usually remove dead cells of skin.
4. These face masks provide a soothing and relaxing effect on skin.
5. They help to restore the lost shine and glow of skin in short span of time.

## MATERIALS AND METHODS

**Plant material:** All the ingredients used in the formulation i.e., tragacanth powder, orange peel, neem powder, nutmeg powder, babool gum, turmeric powder and aloevera were purchased from local market and also some ingredients were obtained from plants (garden). [11] The details of all ingredients used in peel off mask formulation are mentioned below;



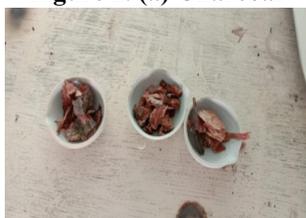
Figure 1. Ingredients used in formulation.

**(a) Activated charcoal powder:** Activated charcoal powder was prepared in laboratory, Lucknow Model College Of Pharmacy, sadrauna, lucknow. It was prepared by burning the bark of neem in muffle furnace and making ash. It increases the role of peel off mask by

absorbing dust particles and opening the blocked pores. [12]



Figure 2. (a) Charcoal



(b) Neem bark

**(b) Tragacanth powder:** Firstly, gum was purchased from market. After then, powder was prepared by crushing the gum by the use of mixer grinder. It used as an emollient in cosmetic. [13]

**(c) Orange peel powder:** Orange peel was purchased from the juice shop. Peel was dried in sunlight for 2 or 3 days. When the peel was dried properly then grind it. Finally, powder was obtained. It shows an Anti-oxidant, anti-inflammatory, anti-microbial activity. The properties of orange peel can maintain the natural balance of skin oils and tighten the skin by absorbing excess oils and removing dead skin cells. Orange is a citrus fruit that contains various sources of nutrition such as vitamin C, calcium, potassium and magnesium. [14, 15]



Figure 3. Orange peel powder

**(d) Neem powder:** Leaves of neem was dried in sunlight for 24 hours and then grind it by using mixer grinder. Finally, powder was obtained. It contain Antibacterial, anti-fungal, anti-inflammatory, antiseptic properties and also it is highly beneficial for oily and acne prone skin. [16, 17]

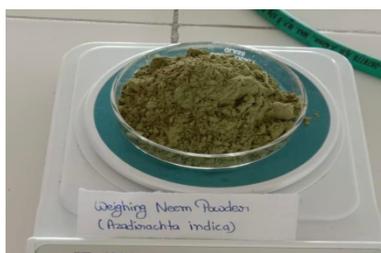


Figure 4. Neem powder

**(e) Aloe vera:** Aloe vera was obtained from the garden. Peel off the outer layer of aloe vera and get the pulp. Lastly aloe vera gel was obtained by grinding the pulp in grinder. Aloe vera rejuvenates skin, moisturizes it and keeps the skin fresh all time. Aloe vera has anti-microbial property making it ideal for treating acne and pimples. [18,19]



Figure 5. (a) Aloe vera plant (b) Aloe vera pulp

**(f) Nutmeg powder:** Nutmeg fruit was purchased from market and break the fruit in small pieces in mortar pestle. Powder was prepared by grinding the small pieces of fruit in mixer grinder. Nutmeg powder have Antibacterial, anti-inflammatory, antiseptic, bactericide activity. It is used to reduce wrinkles, fine lines and other signs of aging. [20, 21]



Figure 6. Nutmeg powder

**(g) Turmeric powder:** It was prepared by grinding the whole turmeric. It protects the skin from many skin infections and also adds glow to the face. Turmeric is mainly used to revive the skin. It reduces the signs of aging like wrinkles and also contains other properties like antibacterial, antiseptic and anti-inflammatory. [22, 23]



Figure 7. Turmeric powder

**Method of preparation: [24,25,26,27]**

1. Firstly, weighed all the ingredients accurately.
2. Took mortar and pestle and put turmeric powder and nutmeg powder in it.
3. Triturate the above mixture properly.
4. After then, add neem powder, orange peel powder, and tragacanth gum one by one respectively and also triturate the mixture after every addition for proper mixing.

5. Add aloe vera to the powder mixture.
6. Finally charcoal was added to the above preparation and formulation was prepared.
7. Perfuming agent was added to the formulation to enhance the odour of product.



Figure 7. Herbal peel off activated charcoal face mask.

Table no. 1 Ingredients list with their quantity.

Sr. No.	Ingredients	Quantity (100gm)
1	Neem Powder	10 gm
2	Nutmeg Powder	3 gm
3	Orange Peel Powder	10 gm
4	Turmeric Powder	2 gm
5	Tragacanth Gum	10 gm
6	Charcoal	10 gm
7	Aloe vera Gel	55 gm
8.	Perfuming agent	q.s.

**Evaluation:**

**1. Organoleptic properties:** We have done the visual inspection of product and observed that it was of:-

Colour:-Black

Odour:-Scented

State:-Semi solid

Consistency:- Smooth and thick. [28,29]

**2. pH:** The pH value of this purely herbal peel off mask was determined by using digital pH meter and pH value of this activated charcoal peel off mask was found to be 5.9. [30,31]

**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. [32,33]

**4. Spreadability test:** Placed 1 gm formulation on a butter paper and on the formulation put watchglass. After that 5gm weight was placed on watch glass for 2 minutes to compress the sample to uniform thickness and its diameter was measured. [34,35]



Figure 8. Spreadability test

**5. 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. [36, 37]

**6. Folding endurance:** The formulation film was applied onto the skin. After drying, a portion of film (3x3cm) was cut and folded it at the same place until it was broken. Folding endurance can be defined as the value of number of times the film can be folded without breaking. [38,39]

**RESULT** [40,41,42]

Table 2: The prepared peel off face mask was evaluated and data was reported in table 2.

Sr.No.	Test	Result
1	Color	Black
2	Odour	Scented
3	Consistency	Smooth and thick
4	State	Semi solid
5	pH	5.9
6	Irritancy test	No irritation effect shown
7	Spreadability test	Smooth and light to spread
8	Peel off test	Peel removed from skin easily without breaking
9	Folding endurance	20

**CONCLUSION**

Presently, people need cure for various types of skin related problems without side effects. Herbal ingredients provides an opportunity to formulate cosmetics product without any harmful effect. Herbal formulations are more acceptable in the belief that they are more safe and having less side effects as compare to synthetic formulations. This peel off mask are believed as a sustaining and productive way to advance the appearance of skin. Thus in the present work study, formulation shows good attempt to formulate the herbal peel off mask containing naturally available ingredients like activated charcoal, turmeric, aloe-vera, orange peel, neem and nutmeg, tragacanth.

In present study we found that the formulation was much more stable at room temperature and had good flow properties. This formulation shows compatibility with all types of skin and shows no irritation effect. This peel off mask showed a good spreadability also which helps to make people comfortable during application. A good peel off property is shown by the formulation on human skin without causing skin edema or irritation. The study of this activated charcoal solid film peel-off mask revealed that it is capable of removing the dirt from skin-pores and increasing the cleanliness of the skin by removing dead skin cells from the surface. And it also nurish and protect the skin from the outer environment.

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