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Formulation And Evaluation Of Peel Off Face Mask By Using Coconut Milk

Sk. Simran., B. Gowthami sree.,G. Deepika.,J. Sasi preetham., K. Sai teja., K.Venkatesh

Abstract:

The present study aims to formulate and evaluate a natural peel-off face mask using coconut milk as the main active ingredient. In recent years, herbal cosmetic products have gained immense popularity due to their safety, effectiveness, and minimal side effects. Coconut milk is rich in vitamins, minerals, fatty acids, and antioxidants, which provide excellent moisturizing, nourishing, and skin-protective properties. In this project, a peel-off face mask was prepared using coconut milk, polyvinyl alcohol (PVA) as a film-forming agent, glycerin as a humectant, and natural preservatives. The formulated product was evaluated for various parameters such as physical appearance, pH, viscosity, spread ability, drying time, peel-off property, homogeneity, skin irritation test, and stability studies.

The results showed that the developed formulation possessed good film-forming ability, smooth texture, uniform consistency, acceptable pH, and excellent peel-off characteristics without causing irritation to the skin. The stability study indicated that the formulation remained stable under different storage conditions. Thus, the formulated peel-off face mask using coconut milk can be considered a safe, effective, and economical herbal cosmetic product for skincare applications.

Keywords: herbal cosmetic product, skin-protective properties, natural preservatives, skin irritation test, stability studies.

Introduction:

Peel-off masks provide a non-invasive method of skin care by forming a flexible film that adheres to the skin and removes impurities upon peeling, improving skin cleanliness and smoothness. In recent years, there has been increasing interest in the use of natural ingredients in cosmetic formulations because they are safer, biodegradable, cost-effective, and have minimal side effects compared to synthetic chemicals. Coconut milk, obtained from the grated endosperm of Cocos nucifera, is a rich natural source of vitamins, minerals, proteins, and fatty acids. It possesses moisturizing, nourishing, antioxidant, and skin-softening properties, making it an ideal ingredient for skincare products.Skin care products are widely used for maintaining healthy skin. Peel off mask remove dirt, dead cells and improve skin glow. Traditional peel off mask film forming polymers such as polyvinyl alcohol or gelatin, to create a layer that upon drying, helps to remove dead skin cells, dirt and excess oil from pores. Coconut milk is a nutrient rich ingredient widely recognized in skin care for its profound hydrating, soothing anti- aging properties. Coconut milk helps in maintaining skin hydration, improving skin texture, and providing a soothing effect. Its natural lipid content supports skin barrier function and enhances the overall appearance of the skin. Therefore, incorporating coconut milk into a peel-off mask formulation can improve its cosmetic and therapeutic benefits**.** The prepared formulation is evaluated for various parameters such as physical appearance, pH, viscosity, drying time, spread ability, peel ability, and skin compatibility to ensure its quality, safety, and effectiveness.

Materials:

- ❖ Coconut milk
- ❖ Beet root powder
- ❖ Honey
- ❖ Polyvinyl alcohol
- ❖ Gelatin
- ❖ Rose water

Methods:

Methods of preparation (formulation method):

- ➢ Preparation of Coconut milk
- ➢ Preparation of Beetroot extract
- ➢ Preparation of PVA solution
- ➢ Preparation of Gelatine solution
- ➢ Incorporation of Natural Ingredients
- ➢ Final Homogenization and Cooling
- ➢ Packaging and storage

Step 1: Preparation of Coconut Milk:

- Select a fresh, mature coconut and wash it thoroughly with clean water.
- Break the coconut carefully and collect the white kernel (endosperm).
- Remove the thin brown skin from the kernel and wash the white portion.
- Grate the coconut kernel using a coconut scraper or grater.
- Transfer the grated coconut into a mixer grinder.
- Add a small quantity of warm distilled water and grind to obtain a smooth paste.
- Transfer the paste into a clean muslin cloth and squeeze gently to extract the milk.
- Filter the extracted liquid to obtain clear, fresh coconut milk.
- Collect the coconut milk in a clean beaker and use immediately for formulation.

Step:2 Preparation of Beetroot extract:

- Take fresh beetroot, wash thoroughly with clean water.
- Peel the outer skin and cut into small slices, that upon drying.
- Put the dried slices into grinder and grind to make small powder.
- Collect the powder and store in a clean container.

Step: 3 Preparation of rose water:

- Collect fresh, clean rose petals and wash them with distilled water.
- Place the petals in a distillation flask and add distilled water.
- Heat the mixture gently.
- During heating, steam carries the volatile aromatic compounds from the petals.
- The vapours pass through the condenser, where they cool and convert back into liquid.
- Collect the distillate, which is rose water.
- Filter if necessary and store in a clean, airtight amber bottle.

Step:4 Preparation of PVA solution:

- First, take a clean and dry beaker (100 ml capacity).
- Measure 50 ml of cold distilled water using a measuring cylinder and transfer it into the beaker.
- Weigh the required quantity of polyvinyl alcohol (PVA) powder (for example, 5 g for 10% w/v solution) using a digital weighing balance.
- Slowly sprinkle the polyvinyl alcohol powder into the cold water with continuous stirring to avoid the formation of lumps.
- Stir the mixture continuously using a glass rod or magnetic stirrer until the PVA powder is uniformly dispersed in water.
- Place the beaker on a hot plate or water bath and heat the solution at 80–90°C with continuous stirring.
- Continue heating and stirring until the polyvinyl alcohol is completely dissolved and a clear, transparent, and homogeneous solution is obtained.
- Remove the beaker from heat and allow the solution to cool to room temperature.
- Make up the final volume, if required, by adding distilled water and mix well.
- Filter the solution if necessary to remove any undissolved particles.
- Store the prepared polyvinyl alcohol solution in a clean, airtight container for further use in formulation.

Step 5: Preparation of Gelatine Solution:

- **Weighing of Gelatine**

➢ Accurately weigh 2 g of gelatine using a weighing balance.

- **Addition of Water**

➢ Take 30 ml of distilled water using a measuring cylinder.

➢ Transfer the distilled water into a clean beaker.

- **Soaking (Blooming) of Gelatine**

➢ Add the weighed gelatine slowly into the distilled water.

➢ Allow the gelatine to soak for 5–10 minutes so that it absorbs water and swells.

➢ This process is called blooming.

- **Heating Process**

➢ Place the beaker on a water bath or hot plate.

➢ Heat the mixture gently.

- **Stirring**

➢ Stir continuously using a glass rod to prevent lump formation.

➢ Continue stirring until the gelatine completely dissolves.

➢ Formation of Clear Solution

➢ Heating and stirring will produce a clear and homogeneous gelatine solution.

- **Cooling**

➢ Remove the beaker from heat and allow the solution to cool at room temperature.

- **Storage / Use**

➢ The prepared gelatine solution is then ready to use in formulations such as peel-off masks, capsules, or gels.

Step 6: Incorporation of Natural Ingredients:

Now add natural ingredients one by one:

- Add 10ml of fresh coconut milk slowly.
- Stir gently for 5 minutes.

Role: Moisturizing, nourishing, softening agent.

- Add 2ml of pure honey slowly.
- Stir continuously to ensure uniform mixing.

Role: Humectant, antibacterial, skin healing.

- Add 3gm of filtered beetroot extract
- Mix until uniform reddish-pink colour is obtained.

Role: Antioxidant, natural colour, glow enhancer.

- Add 5ml of rose water slowly with continuous stirring.

Role: Skin toner, fragrance, soothing agent

Step 6: Final Homogenization:

- Stir the complete mixture for 20–30 minutes using:
- Magnetic stirrer or
- Mechanical stirrer
- Ensure uniform, lump-free, smooth gel consistency.
- Allow formulation to cool to room temperature.
- Remove entrapped air bubbles by slow stirring or standing.

Results and disscussion:

S.NO	Test	Results
1.	Organoleptic evaluation test	Colour: deep red colour Odour: pleasant odour Texture: smooth
2.	pH determination	5.0-6.6(skin compatible)
3.	Spread ability test	M*l/t
4.	Drying time test	15-30 minutes
5.	Peel ability test	Peel in a single layer
6.	Film forming property	No cracks
7.	Wash ability test	Remove easily
8.	Irritation test	No irritation
9.	Viscosity test	13000 to 38000cPs

10.	Stability study	No colour change No pH change No odour change

➢ he peel-off mask was successfully formulated using polyvinyl alcohol and gelatine as film-forming agents along with natural ingredients such as coconut milk, beetroot extract, honey, and rose water.

➢ The prepared formulation showed good homogeneity, smooth texture, and attractive pink colour due to the presence of beetroot. The mask had a pleasant odour because of rose water and showed good spread ability when applied to the skin.

➢ The pH of the formulation was found to be in the range of 5.5–6.5, which is suitable for skin application. The drying time was approximately 15–20 minutes, and after drying it formed a flexible film that could be easily peeled off without causing irritation.

➢ After removal of the mask, the skin appeared clean, soft, moisturized, and refreshed, indicating the beneficial effects of the natural ingredients used in the formulation.

Conclusion:

The present study concluded that a herbal peel-off mask can be effectively formulated using coconut milk, beetroot, honey, and rose water with polyvinyl alcohol and gelatine.The formulation showed good physical properties, acceptable pH, appropriate drying time, and easy peel ability, making it suitable for cosmetic use. The natural ingredients provided moisturizing, nourishing, and skin-enhancing properties.Therefore, the prepared peel-off mask can be considered a safe, effective, and economical herbal cosmetic formulation for improving skin texture and hydration.

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