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FORMULATION AND CHARACTERIZATION OF HERBAL FACE MASK

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ABSTRACT

The cosmetics industry has seen steady growth over the past ten years. A key factor driving this growth is the large and expanding youth population. Nowadays, women in India are becoming increasingly mindful of their skin health, not just focusing on complexion but also on reducing wrinkles to maintain a youthful and radiant look, resulting in higher demand for a variety of skincare products. Serums, which are highly concentrated formulations made from water or oil, are a popular choice, much like creams. The main objective of this article is to develop and evaluate a herbal face mask for glowing skin using natural ingredients in various concentrations are cinnamon, green tea, nutmeg, honey. Herbal face masks are used To stimulate blood circulation, rejuvenates the muscles and help to maintain the elasticity of the skin and remove dirt from skin pores Facial serum was tested, colour, pH, physical appearance, spreadability, viscosity, moisturizer, Homogeneity, Irritation etc.

KEYWORDS

Face sheet mask, Herbal ingredients, Acne and Moisturize.

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INTRODUCTION

The term “herbal cosmetics” refers to beauty products that contain herbal elements and therefore exhibit desired physiological activity, such as treating, calming, appearance, boosting skin radiance and conditioning qualities. These herbal cosmetics help rejuvenate, protect and break the skin. Herbal plants have a long history of being used in medicine and cosmetics¹. Teenagers who suffer from acne frequently feel self-comfortable about their appearance and inferior. Acne is condition that affect the children’s, younger, women, men at the age of 18 to 25.

Face mask 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 need to be the care of face mask. It may deep clean pimple, duet, clean the facial skin. Face mask can also slightly moisturize while enhancing the occlusive effect. Which increases the blood flow, activate skin cells, and dead skin cells are removes². Skin is the largest organ of the body. And cover the body's entire external surface. It is made up of three layers

Epidermis

Dermis

Hypodermic

The skin structure is made up of an intricate network which serves as a body initial barrier against the pathogens, UV light and chemicals, and mechanical injury³.

Face serum

Face serums contain only what we need most. Face serum strips away all of the additives, Fillers and fluff that we don't need⁴. As the serum formulation is not necessarily an Emulsion, it does not require emulsifiers which could damage the active ingredient. Usually, the serum has few ingredients designed to optimize the availability of the active agent, which May be a vitamin, growth factor, botanical extract, etc⁵. Serums are thinner in consistency as they are made with smaller molecules and no heavy oil or other ingredients. Unlike your Face creams and moisturisers, serums could have upto 70 percent active ingredient Concentrations, thus making them perfect for nourishing and layering your skin⁶.

Types of face mask⁷

Mask are come in 4 categories

Peel off

Sheet are apply to the skin and wait for 15-30 min for dry the application. And then peeled. Reveal younger-looking skin beneath.

Sheet

Sheet of mask are most useful in now a day. It added in serum formulations with actives added to achieve the product purpose, e.g.

Whitening

Anti-aging

Anti-sebum

Leave-on

These kinds of mask type is cream or gel they form extremely moisturizing. They are applied overnight or 15 to 30 min. and they remove. They meant to provide moisturizer and emollient effect than regular cream.

Charcoal/clay

The addition of charcoal or clay, these types of masks more as necessary cream cleanser.

MATERIAL AND METHODS

The materials used in the present study were purchased from local market, dried and powdered for further use. The below mentioned are the details of the plant materials used for the formulation of face mask.

Cinnamum bark

Scientific name: *Cinnamomum cassia*

Biological source: Cinnamon bark comes from the inner bark of the Cinnamomum verum tree, also known as the Sri Lankan cinnamon tree.

Family: Lauraceae

Uses: Improves blood circulation, Heals minor wounds, Lightens skin, Treats hyperpigmentation, Soothes skin, Treats acne.

Green tea

Scientific name: *Camellia sinensis*

Biological source: Green tea is made from the leaves of the Camellia sinensis plant, which is an evergreen shrub or small tree native to Assam.

Family: Theaceae,

Uses: May help with acne, Protects from UV damage, Reduces puffiness, Shrinks pores, Controls oil, Skin regeneration, Prevents premature aging, Anti-inflammatory, Fades dark spots.

Nutmeg

Scientific name: *Myristica fragrans* Houtt

Biological source: Nutmeg is the seed of the Myristica fragrans tree, which is a member of the Myristicaceae family.

Uses: Anti-inflammatory, Antimicrobial, Antioxidant, Exfoliating, Brightening,

Pigmentation, Balancing oil production, Reducing redness and irritation, Improving skin pore.

Honey

Scientific name: *Apis mellifera*

Biological source: Honey is a sugary substance secretion stored in the honey comb by various species of bees, such as *Apis mellifera*, *Apis dorsata*, *Apis florea*, *Apis indica* and other species of *Apis*.

Family: Apidae

Uses: Hydration, Anti-aging, Antimicrobial, Anti-inflammatory, Wound healing, Soothing.

METHOD OF PREPARATION

Preparation of cinnamon bark⁸

The stem bark was dried, ground into powder and then extracted by the maceration process Using 96% ethanol with a 1:3 ratio. The maceration was carried out for 24 hours, at room temperature and with three replicates. Afterward, the extract solution was evaporated in a vacuum rotary Evaporator at 40°C and 220m Bar. A chemical constituents present, Such as alkaloids, flavonoids, saponins, quinone, tannin, terpenoids, polyphenol and steroids, was Conducted according to the conventional phytochemical methods.

Preparation of green tea extract

By using soxhlet extraction

100gm of defatted green tea powder was subjected to soxhlet extraction using 200ml of ethanol in an conical flask as solvent. The extraction process was carried out at a temperature ranging from 60-70°C. Until the tea powder gets completely exhausted green tea contains many constituents, including polyphenols, caffeine and flavonoids.

Preparation of nutmeg extract

Nutmeg seed were grinded into small pieces by using grinder. Desired quantity of herbal drug weight and each herb macerated with distilled water in conical flask.

Dried herb were allowed to mix with conical flask for 4 days separately after 4 days contents were filtered out by using simple filtration method and filtrate were collected in vessel separately.

FORMULATION OF HERBAL FACE MASK

Rice based fabric

To make a rice-based fabric

Steps to Create a Rice-Based Fabric (Rice Starch Sheet Mask)

Ingredients

Rice Flour or Cooked Rice: Source of starch.

Water

For boiling the rice.

Glycerin

Acts as a plasticizer to prevent the fabric from cracking.

Optional Additives

Aloe vera, essential oils, or herbal extracts can be added to the rice fabric mixture.

Steps

Extract rice starch using rice flour

Mix 2-3 tablespoons of rice flour with 1 cup of water in a pot.

Heat the mixture while stirring continuously. The rice flour will start releasing its starch and turn into a thick gel.

Prepare the gel for fabric formation

Add Glycerin

Add 1-2 teaspoons of glycerin to the rice starch mixture. This step is important as glycerin acts as a plasticizer, making the fabric more flexible and preventing it from becoming too brittle after drying.

Optional Additives

If desired, you can mix in aloe vera gel or other skin-beneficial ingredients (herbal extracts, essential oils) at this stage. Be careful with the amounts, as you don't want to alter the consistency of the rice starch gel too much.

Spread the Rice Starch Gel

Take a non-stick surface like parchment paper, a silicone mat, or a flat tray lined with plastic wrap. Pour the rice starch gel onto the surface and spread it evenly into a thin layer using a spatula. Aim for a thickness of about 1-2 mm.

Create a Sheet Mask Shape

You can use a pre-made sheet mask as a template to cut out the desired shape after the film has dried. Make the holes for the eyes, nose and mouth.

Dry the Rice Fabric

Allow the gel to dry completely in a cool, dry place. This may take several hours or overnight, depending on humidity. Once dried, the rice starch will form a flexible, thin sheet that can be peeled off from the non-stick surface.

Soak in Essence and Use

After you've created the rice fabric, you can store it in a dry place or soak it in your essence (the herbal liquid formulation). The sheet should remain intact when soaked, as the glycerin and rice starch combination gives it the flexibility and strength to withstand moisture without dissolving.

Packaging and Storage

After soaking the rice fabric in the essence, store it in airtight, sealed pouches to prevent drying and contamination.

FORMULATION OF FACE SERUM

Mixture A

Take an extraction of cinnamon bark, green tea leaves and nutmeg into a beaker.

Mixture B

Weight all ingredients (glycerine, rosemary essential oil, rose water, Vit.E) and mix them in a beaker.

Mixture B pour into mixer A very slowly and mix it well to make the serum. Then dip the mask into serum. Then pack a mask sheet in the air tight polybag with label. Herbal face mask sheet was ready for use.

EVALUATION TEST

Organoleptic property

The organoleptic test is performed the physical appearance of the formulation by observing changes of the colour, odour, shape, size of the formulation⁹.

PH determination

Using a standard buffer solution a PH meter was calibrated. The PH of the combination was determined by accurately measuring and blending almost 1ml of face serum with 10ml of clean water¹⁰.

The skin has an acidic PH and skin serum should have a PH between 4.1 to 6.7. The formulation of serum pH should be similar to that of skin¹¹.

Irritability

A Small amount of serum was applied on the skin and kept it for few minutes and found to be non-irritated⁷.

Determination of homogeneity

To test the homogeneity of a face serum, you can use visual inspection to ensure a uniform appearance and texture, looking for any lumps or inconsistencies, and potentially use a microscope for a more detailed analysis. The preparation must show a homogeneous arrangement and no coarse grains are visible. This homogeneity test The formulation produced uniform distribution.

Spreadability test

To test the spreadability of a face serum, you can place a sample between two glass slides, apply a weight and measure the time it takes for the slides to separate, or measure the diameter of the spread on filter paper after a set time. Spreadability is affected by many factors such as viscosity, temperature etc. The spreading time must be very less¹¹.

It was calculated by using following formula.

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

S= Spreadability

M=Weight placed on slide

L=Length of the glass slide

T= Time taken in second

Soaking time

The sheet of mask is dipped in the serum to determine amount of time taken to soak the serum completely and get saturated from the serum⁷.

Viscosity

Viscosity govern the many properties such as pourability, spreadability, of the product from the container. Viscosity affect the many factor such as change in temperature, change in manufacturing condition, quality of raw material. Viscosity is the most important parameter in the evaluation of cosmetic product.

Topical solution is low viscosity have faster clearance than viscous solution. In addition to

highly viscous solution can have an undesirable effect of the skin⁷.

Film drying time

The sheet of mask is dipped in the serum to determine amount of time taken to dry the film.

Stability study

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 product⁷.

Sheet absorbance

The sheet is dipped in the serum to Check how much serum can be absorbed by sheet and the check the ease of absorbance⁷.

RESULTS

Table No.1: Name of instruments used in herbal preparation

S.No	Name of instruments	Uses
1	Weight balance	Weight
2	Macerator	Maceration
3	Soxhlet apparatus	Extraction
4	PH meter	Measurement of PH

Table No.2: Formulation table

S.No	Name of ingredients	Quantity (ml/gm)
1	Cinnamon	3ml
2	Green tea	3ml
3	Nutmeg	3ml
4	Honey	3ml
5	Glycerin	3ml
6	Rosemary essential oil	q.s
7	Vit.E	2gm
8	Rose Water	2ml

Table No.3: Result for herbal face mask

S.No	Parameters	Result
1	Colour	Brown Translucent
2	Odour	Aromatic
3	Consistency	Good
4	PH	5.3
5	Irritancy	Non irritant
6	Homogenicity	Good
7	Viscosity	22.3mpas
8	Soaking time	5 min
9	Drying time	15 min
10	Absorbance	Good



Figure No.1: Cinnamum bark



Figure No.2: Green tea



Figure No.3: Nutmeg



Figure No.4: Honey

CONCLUSION

From the above study is a through review on formulation and characterization of herbal face mask, which is included to whether therapeutics and cosmetics purpose of formulation.

This study satisfies all the objectives included,

Skin calming

Skin nourishment

Extraction of herbal components without adding any chemical preservatives

Skin protection

To reduce ageing property of skin

To reduce the oil content on the skin

To give glow to the skin

Hence concluded.

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CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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