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# "FORMULATION AND EVALUATION OF POLYHERBAL FACE SERUM"

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## ABSTRACT

Products for skin care mostly consist of serums because they are so widely used. Skin saturation is caused by coloured compounds such as free radicals generated in our bodies, as well as too dry skin, among other factors. Serums are extensively used in the cosmetics industry. These products help to prevent all black spots. This lotion reduces skin ageing and saturation caused by ageing. The sun has a considerable impact on geriatric skin ageing, with severe conditions leading to Actinic Keratosis and carcinoma of the skin. These products also help to prevent wrinkles and sagging skin while improving the appearance of the skin. There are several natural antioxidants that can prevent or decrease pigment development while also improving skin tone, moisturising, and whitening. Nature includes several antioxidants, including grape seed oil and olive oil. These antioxidants rejuvenate and protect the skin from ageing. Given these concerns, the major goal was to create a product that had an antioxidant effect, minimising cell damage and preventing pigmentation. Moisturise the skin to make it soft and supple. Natural ingredients have antioxidant, moisturising, brightening, and nourishing qualities. Taking this antioxidant characteristic into mind, the primary purpose of this research is to develop and validate a de pigment serum with fruit extract that will give antioxidant and moisturising activity by using fruit extract.

**Keyword:** Polyherbal face serum, liquorice, Pumpkin seed, and Grape seed.

## 1. INTRODUCTION

The term cosmetic originated from the Greek word "kosm tikos," which means " possessing the power, arrange, or skill in decorating." The skin face requires periodic sanctification to eliminate dirt, sebum and other concealing, dead cells, crusts, applied make-ups, atmospheric change, and irregular lifestyle(1). Herbal dress is also known as "natural cosmetics." The demand for herbal medicines is rapidly increasing due to their absence of negative effects (2).

What is the Face serum?

The rising worldwide cost of living has contributed to an increase in demand for beauty items. The value of cosmetics has soared as people seek to remain youthful and fascinating. (3) Skin is the body's largest and most self-defensive organ, working 24 hours a day to mend and repair itself; however, dry patches can develop for a variety of causes, including UV rays, pollutants, and makeup left on overnight, which can cause vexation or antipathetic responses(4).

Types of face serum

1. Oil based serum

2. Water based serum

**1. Oil based serum**

Oil-based serums are those that contain jojoba, avocado, or organ oil. The purpose of these canvases is to protect the skin's surface from UV damage, dry terrain, and pollution. Depending on your skin type and condition, these serums can be used day or night. For example, those with dry skin can apply oil-based serums both throughout the day and at night to keep their skin moisturised and moisturised all day. People with oily skin types are increasingly claiming that they used to have oleaginous skin and do not require any additional oil in their skincare regimen.

**2. Water based serum**

Water-based serums have a foundation of water. These serums allow for the easy and simple delivery of elements.(5) While looking for a water-based serum, aloe is the ideal initial ingredient because it is more hydrating than a basic water basis (6). Benefits include rapid absorption and less clogging.

Method Of preparation

1) Extraction Process of liquorice ;

Take 40 gm of liquorice powder, add 10 ml of water and ethanol, heat on a water bath sludge, and collect the filtrate for extraction.(7)

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2) Extraction process of pumpkin seed oil

20 gm. of crushed pumpkin seed fed into lab-scale soxhlet extractor with condenser and 250 ml RBM. 200 ml of ethanol added in Round Bottom distillation flask. Soxhlet equipment heated to reqired temperature using a heating mantle. The controller controls the desired heating value. After heating for a predetermined amount of time, a thimble of sample was acquired. The condensed oil was collected into a flask. After extraction, the flask containing the solvent and lipid is removed using the distillation procedure. To eliminate the surplus detergent, detergent and excerpt blend were placed on the water bath (8).

3) Extraction process of Turmeric Rhizome

Turmeric rhizomes were dried in an oven set at 105 degrees Celsius. For 3 hours. Dried rhizomes were triturated with mortar and screened through a sieve with mesh 80 to produce a homogeneous powder with particle size 0.18mm.The turmeric powder was refrigerated to prevent humidity absorption.

4) The soxhlet extraction process was performed as follow

15gm of ground turmeric powder was weighed, imbedded in a thimble, and placed in a soxhlet device that was gradually filled with acetone as an extraction solvent. Following extraction, acetone was extracted from the extract using a rotary evaporator under vacuum at 35 degrees Celsius.(9)

5) Aloe Vera gel

1. Slice off an external leaf from a fresh aloe plant; external leaves have a higher probability to be mature and contain a lot of fresh, nutritious gel. Choose leaves at the plant's base, with strong, green, firm stalks growing close to the leaf. Rinse the aloe leaf with cold water and cut away any yellow gel. Next, inspect the bottom of the leaf where the cut was made and remove any areas that show a yellow or discoloured discharge. (In other words, any substance other than translucent aloe gel).

This discharge contains latex, which might cause antipathetic responses in some persons. Peel the leaves with a vegetable peeler or cutter. Make sure to remove the thorns before cutting through the inner white layer to the gel below. Peel all of the skin off one side of each leaf. Scoop out the gel with a ladle or knife. Mix the aloe gel in a blender.(10)

**Formula:**

**Table no -1**

| Ingredients Standard Formula (100 ml) | Ingredients Standard Formula (50ml) |
|---|---|
| Pumpkin seed oil Extract | 20% |
| Liquorice Extract | 20% |
| Aloe Vera Gel | 20% |
| Turmeric Extract | 15% |
| Honey | 12% |
| Grape seed oil | 1% |
| Olive oil | 1% |
| Perfume | q.s. |

**Formulation of Polyherbal Face serum:**

Procedure: Using the mechanical homogenization process, a reasonable quantity of extracts was obtained and their size was reduced. The various aqueous extracts were thoroughly combined in required proportion and gradually put to the mortar and pestle, where they were triturated until they formed a thick, transparent liquid. A suitable proportion of perfume was used as a flavouring ingredient. The formula for serum is shown in the Table 1.

**How to use face serum:**

Before applying your serum, your skin is cleansed and exfoliated. Warm 3-5 drops of serum on the palms of your hands before applying to your face. Taping your skin gently for 30 to 60 seconds until the serum is entirely absorbed. Wait one minute before applying moisturiser to the face.

Evaluation test of face serum

1. Physical evaluation

The colour and look of the prepared serum were assessed with the eyes. The formulation technique ensures a consistent distribution of elements. This test was confirmed through visual appearance and touch.

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2. Physical appearance

The textural viscosity of expressiveness was noted.

3. pH Value

A pH meter was calibrated using the standard buffer result. Almost 1 ml of the face serum was weighed and dissolved in 50 ml of pure water, after which the pH was determined. The skin is acidic, and the pH of the skin serum should be between 4.1- 6.7.

4. Skin moisture

We will test the level of skin moisture by applying cosmetic serum to the skin layer and measuring it with a Scalar moisture checker.

5. Test for microbial growth in formulated serum

The formulated serum was applied to agar media plates using the striking plate methods, and a control was made by leaving out the cream. Plates were then placed in a closed incubator and incubated for 24 hours at 370 degrees Celsius. After 24 hours of incubation, plates were removed from the incubator and microbial growth was assessed by comparing them to the control.

6. Determination of Spread capability

A serum sample of 2 gm was applied on the face. A slide was linked to a visage, and 20 mg of weight was applied. The time (in seconds) necessary to separate the upper slide from the face was used to determine Spread capability.

7. Rheological Study

The viscosity of the expression was evaluated using a Brookfield® Viscometer at 100rpm.

8. Uniformity

This test will be validated by spreading some of the serum formulation on clean, transparent glass and observing it. The designed serum ensures homogeneous dispersion.

9. Dispersion test

This was accomplished by using a micro centrifugation device. The formulations were centrifuged for three minutes at 2000 rpm. After centrifugation, the product was shaken out to check for redispersion. However, the mixture has the potential to be beneficial if redistributed.

10. Globule size determination

Serum was examined under a microscope to validate the drop size. A drop of serum was placed on a glass slide, diluted with water, covered with a glass cover, and viewed under a microscope.

Result

1. Physical Evaluation test Physical evaluation

Colour Yellow Translucent

Odour Characteristic Odour

Texture Smooth

Homogenous Good Unity

2. Physical Appearance

2gm. The serum formulation was a brownish yellow thick liquid dosage with a smooth, homogenous texture and shiny look. Thickness was designed to be excellent.

3. pH Value

The pH of expression was set at 6.4. This range of expression is appropriate for skin, which has an acidic pH of roughly 4.1-6.7.

4. Skin Moisture

Test Skin moisture will be measured by putting a cosmetic serum to the skin. The scale will indicate the skin's current moisture level after applying the cosmetic serum.

5. Tested for microbial growth in formulated serum, and the formulation was free of germs because they did not induce any microbial growth when placed in the agar medium. It's shown in fig.

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6. Spread capability tests

The spread capability of a liquid formulation, which is the ability of the facial serum to spread over the skin and serve a vital role in administering the standard dose of medicament serum to the skin. The spreadability of face serum was set at 5 to 6 cm.

7. Rheological study

The viscosity of the expression was evaluated using a Brookfield® Viscometer at 100rpm and a spindle type model S64.5 mL of serum. The serum will be poured in a large mouth vessel and the spindle will be immersed in it for about 5 minutes prior to measurement.

8. Homogeneity was confirmed by spreading part of the serum expression onto a transparent glass and observing it. The expression resulted in an invariant distribution of serum.

9. The dispersion test was performed using a micro centrifugation equipment. The formulations were centrifuged for three minutes at 2000 rpm. Following centrifugation, the product was forcefully agitated and checked for redispersion. However, the statement is designed to be beneficial if it is diffused.

10. Drop Size Determination The produced serum was appropriately examined under a microscope to identify and validate the drop size. One drop of serum was placed on a glass slide, diluted with water, covered with a coverslip, and then examined under a microscope to measure drop size using a stage micrometre.

## 2. CONCLUSION

The objective of this research was to create and assess extracts of various herbs into a serum for fairness action, dark spot removal, acne reduction, and sunburn relief. The liquorice root and turmeric rhizomes were successfully removed with ethanol and acetone, respectively. The serum was evaluated and found to be non-sensitizing and safe to use. The spread capability was designed to be good. There were no residues found, and it was simple to wash off. The pharmacological study of the serum revealed that it causes the fairness action within a week. Microbial analysis of serum confirmed that the formulation is free of microorganisms and safe to use.

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