

Formulation and Evaluation of Polyherbal Sheet Mask

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ABSTRACT-This abstract presents the formulation and evaluation of Polyherbal Sheet Mask. On day by day the human skin is affected in many ways such as early pimples, acne, dark spots in adults so the demands in herbal products is increased in daily life. In this study, facial serum for sheet mask was formulated using a combination of natural ingredients which are known for their antimicrobial, anti-inflammatory and soothing properties. The formulation is comprised of Camphor oil, Rose water, Vitamin E, Aloe Vera, coconut oil which were carefully selected for their potential use of reducing inflammation, redness, acne caused by microbial induced pimples on the skin. The formulated Serum underwent rigorous evaluation to assess its efficacy and safety. The antimicrobial activity of the serum was evaluated against a panel of common bacteria by using standard methods. The results demonstrated significant inhibition of microbial growth, highlighting the effectiveness of the Product.

Keywords: Camphor oil, Aloe vera, Rose water, Coconut oil, Vitamin-E.

I. INTRODUCTION:

Our skin is a largest organ on our body made up of different component including water, protein, lipid, and minerals. Throughout our life, our skin will change constantly, for better or worse. Our skin regenerate itself approximately every 27 days. So proper skin care is essential to maintain healthy skin.

There are four layers of skin:

1. Stratum corneum
2. Dermis
3. Subcutaneous
4. Epidermis

Skin is classified according to several factor related to its balance: sebaceous secretion, hydration and sensitivity level. Thus, each type of skin will have its own characteristics and require different cares.

Based on characteristic there are five types

of healthy skin:

1. Normal skin
2. Dry skin
3. Oily skin
4. Combination skin
5. Sensitive skin

Sheet Mask



Sheet masks are thin, pre-cut masks that are soaked in serum and natural ingredients. They are typically made out of paper, cotton, fibers, or thin gels. They are designed to hydrate, balance, moisturize, calm, and brighten the skin. It delivers desirable dose of beneficial ingredients to penetrate effectively and provide skincare. Can provide instant glow, helps skin look brighter, dewier and feel renewed as you remove them. Can remove excess oils, and improve the appearance of pores. They can also help combat acne, fade hyperpigmentation, minimize redness, and address signs of aging. The sheet acts a barrier for the serum and helps the serum to stay in contact with the skin for a longer time which will result in better penetration and effect of serum.

Serum

Serum is a concentrated product which widely used in Cosmetology. The name comes from itself in professional cosmetology. The cosmetic serum is as concentrated in water or oil as

any other cream. Serum, or other concentrated product that contains ten times more organic matter than cream. Therefore, deal with the cosmetic problem quickly and effectively. Rising global cost of living has led to an increase in demand for cosmetic products. The value of cosmetics has increased as more and more people want to stay young and attractive. Serum is a skin care product that contains a gel or lightweight lotion or moisturizer and has the ability to penetrate deep to bring the active ingredients to the skin. A good skin serum may give your skin firmness, a smooth texture, make the pores appear smaller and increase moisture levels. Whether it is a moisturizing, anti-aging or anti-wrinkle product or serum for skin, all of these products should contain antioxidants, cell-based ingredients and skin-like ingredients. All skin types need these ingredients to stay as healthy as possible.

Anti-microbial serum

An antimicrobial serum for the face is a drug, chemical, or other substance that kills, inactivates, or slows the growth of microbes, including bacteria, viruses, fungi, and parasites. Some serums contain ingredients that can break down oil, dirt, and makeup, and also have antibacterial properties to protect skin from bacteria.

Camphor obtained from camphor trees has long been used as a treatment for various symptoms such as inflammation, infection, and irritation on face. The traditional use of *C. camphora* for antiseptic purposes can be attributed to the antimicrobial activity of its essential oil, which has demonstrated a broad range of antimicrobial activities against different pathogens.

Ingredients Used:

1. Camphor:



Taxonomy:

Kingdom: Plantae

Odour: Minty sharp, pungent camphoraceous odour

Family: Lauraceae

Genus: *Cinnamomum camphora*

Species: *Cinnamomum camphora*

Morphology:

Camphor appears as a colorless or white colored crystalline powder with a strong mothball-like odor. About the same density as water. Emits flammable vapors above 150 °F. Used to make moth proofing, pharmaceuticals, and flavorings.

Medicinal Uses:

Antimicrobial activities, anti-inflammatory activities, insecticidal and acaricidal activities, antioxidative activities, allelopathic and algicidal activities.

2. Aloe vera:



Aloe vera has been traditionally used for various medicinal purposes due to its rich chemical composition. The gel extracted from its leaves contains several bioactive compounds, including vitamins, minerals, enzymes, polysaccharides, and anthraquinones. Aloe vera gel is commonly used for treating burns, wounds, and skin irritations. It has moisturizing and soothing properties that promote healing and reduce inflammation. Aloe vera is found in many cosmetic and skincare products.

3. Rose:



Rose petals and rose hips contains Vitamin A, B1, B2, B3, B6, C, E and K, folic acid, potassium, Calcium, Iron, tannin and wide range of enzymes. Rose flowers are Anti-depressant, cleansing, anti- bacterial and antiseptic. They are used as toners in many pharmaceutical products.

4. Coconut oil:



It contains nourishing fatty acids and linoleic acid which help retain the moisture in the skin and help protect and hydrate your skin.

5. Vitamin E:



Vitamin E is a fat-soluble vitamin that can be found in many cosmetic products. It's also hydrating, as it helps your skin absorb water and traps it within the skin.

❖ **FORMULATION:**

In formulating a face serum, the physical properties and stability are the main characteristics in determining its quality. A face serum formulation is basically an emulsion consisting of two immiscible liquids. In order to prevent emulsion instabilities, thickener and emulsifier are introduced to the system. Emulsifier will balance the system by minimizing the interfacial tension between the two immiscible liquids and at the same time stabilizes the dispersion phase from coalescence. The mixing of water phase and oil phase is crucial in order to create a stable system over an extended period or longer product shelf life. Naturally, the oil and water systems are thermodynamically unstable. Incorporation of emulsifiers into the system can minimize the interfacial difference between the water and oil phases thus mix the system.

Method of Preparation:

The emulsion (o / w) was prepared according to the formula given below. The oily component consisting of Camphor oil, Vitamin E and coconut oil is mixed together for few minutes to obtain a uniform solution. At the same time the water phase was prepared by mixing aloe vera gel, rose water and distilled water uniformly. The oil phase is added to the liquid phase by drop wise under mechanical vibration at 600 rpm to obtain oil in water based on biphasic emulsion.

Material and collection:

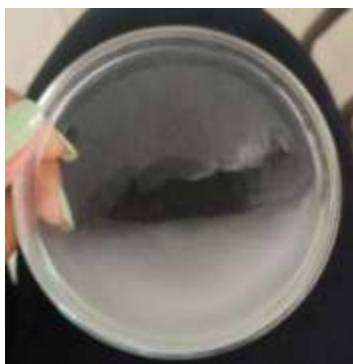
| Ingredients | Place |
|---------------|--|
| Camphor oil | Was collected from online shopping sites |
| Aloe vera Gel | Was collected from B. Pharmacy college Rampura, Kakanpur |
| Rose | Was collected from B. Pharmacy college Rampura, Kakanpur |
| Vitamin E | Was collected from medical store of Godhra |
| Coconut oil | Was collected from local store of Godhra |

Composition and role of 20 ml Face serum:

| Sr. no. | Ingredients | Quantity | Role |
|---------|---------------|----------|------------------------------|
| 1 | Camphor | 2 drops | Antibacterial |
| 2 | Rose water | 7.5 ml | Toner |
| 3 | Coconut oil | 2 ml | Moisturizing |
| 4 | Vitamin E | 0.4 ml | Preservative, hydration. |
| 5 | Aloe vera Gel | 3 ml | Soothing, anti-inflammatory. |
| 6 | Water | 6.5 ml | Vehicle |

❖ EVALUATION OF SERUM AND SHEET:

Physical Evaluation:



The Colour and appearance of the formulation was observed visually. This test was confirmed by visual appearance and by touch.

pH Value:



A pH meter was calibrated using a standard buffer solution. Nearly 1 ml of the face

serum was properly weighed and dissolve in 50 ml of distilled water and finally its pH was calculated. The skin has an acidic range and the pH of the skin serum should be in the range of 4.1-6.7.

Microbial Examination of the Product:

Agar well-diffusion method was followed to determine the antimicrobial activity (Bauer et al., 1966). Nutrient agar plates were swabbed (sterile cotton swabs) with fresh broth culture of bacteria. Wells were made in each of these plates using sterile corkborer. About 100 µl of different concentrations of sample serum and standard Ciprofloxacin were added sterile micropipette into the wells and allowed to diffuse at room temperature for 2hrs. Control experiments comprising inoculums distilled water were set up. The plates were incubated at 37°C for 24 h for bacterial pathogens. The diameter of the inhibition zone (mm) was measured and the activity index was also calculated. Triplicates were maintained and the experiment was repeated thrice, for each replicates the readings were taken in three different fixed directions and the average values were recorded.

Stability Studies:

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 product.

The stability studies were carried out as per ICH guidelines. Short term accelerated stability study was carried out for the period of 15 days for the prepared formulation.

The samples were stored at different storage conditions of temperatures ranging from 2°C to 40°C

Cyclical Temperature:

This test is not carried out at any fixed temperature and humidity. In this test, temperature was changed cyclically every day. At room temperature and frizzling temperature to stimulates the changes in temperature.

Determination of Viscosity:



Viscosity is a critical parameter for topical formulation. Topical solutions with low viscosity have faster clearance than viscous solutions. In addition, highly viscous solutions can have an undesirable effect on the skin. (range for water-based serum 1 to 30 mPas)

Skin Irritancy:

Apply some amount of serum on back of your hand or dorsal side of your hand and observe for 24 hours if any irritation is caused at that area of application.

Sheet Absorbance:

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

Soaking time:

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

II. RESULT:

| Sr. no. | Parameters | Result |
|---------|-------------|-------------------|
| 1 | Color | White translucent |
| 2 | Odor | Aromatic |
| 3 | Consistency | Good |
| 4 | Ph | 6.05 |
| 5 | Irritancy | Non irritant |
| 6 | Absorbance | Good |
| 7 | Soak time | ±4 seconds |
| 8 | Viscosity | 22.3 mPas |

Stability studies:

The formulation was undertaken stability studies for physical and chemical changes considerable variations in properties of the formulation were observed.



Under lower temperatures (2°C to 4°C)

Visual appearance – clusters of oil phase observed
Phase separation - present



Under room temperatures (20°C to 25°C)

Visual appearance – white translucent
 Phase separation - nil



Under room temperatures (30°C to 40°C)

Visual appearance – white translucent
 Phase separation - nil

Cyclical Temperature Test:

| | |
|--------------------|----------|
| Freeze temperature | Unstable |
| Room temperature | Stable |



Microbial Examination:

Microbial test was performed and antibacterial activity was proven.

| | |
|---------------|------------------------------|
| Sample | Staphylococcus aureus |
| Facial Serum | Absent |

Application of Sheet Mask:

This sheet mask contains camphor which has antibacterial property that helps combat bacterial acne and pimples while giving a cooling effect on skin. Aloe vera for anti-inflammatory and soothing effects on skin while coconut oil, vitamin E, Rose water for its moisturizing, nourishing and skin glowing properties.

How to use?



III. CONCLUSION:

The main motive was to formulate a sheet mask using mainly natural ingredients. Camphor was used for its antibacterial property, cooling effect and aroma therapy, aloe vera for soothing skin, rose water for its hydrating and glowing properties, coconut oil for retaining moisture, vitamin e for its nourishing properties. Evaluation of the formulated serum were performed and it was found that the formulation was prepared successfully. On the basis of tests, it was concluded that the optimum storage condition is at room temperature. The sheet acts a barrier for the serum and helps the serum to stay in contact with the skin for a longer time which will result in better penetration and effect of serum. Sheet mask can be used twice or thrice a week. It can be kept on for 8-10 minutes on face and when removed it will provide a healthy-looking glow to skin, it also helps with bacterial skin blemish.

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