A REVIEW: FORMULATION AND EVALUATION OF MULTIPURPOSE HERBAL CREAM

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ABSTRACT

The primary objective of this study is to formulate a herbal cream with multiple benefits, including moisturizing, acne reduction, wrinkle reduction, and skin nourishment, using natural herbal ingredients such as Aloe vera, Turmeric, and Neem. Herbal medicine, also known as Herbalism or botanical medicine, utilizes herbs for their therapeutic properties. These plants contain various chemical compounds that exert effects on the body. Herbal cosmetics are beauty products enriched with herbal ingredients, offering skin healing, smoothing, appearance enhancement, and conditioning properties. The formulated creams were assessed for physiochemical parameters like appearance, irritancy, pH, texture, washability, and spreadability. The goal of the herbal cream is to promote healthy skin and impart a natural glow.

Keywords: Herbal Cosmetics, Azadirachta Indica (Neem), Aloe Barbadensis (Gel), Curcuma Longa (Turmeric).

I. INTRODUCTION

Cosmetics and beauty are as old as civilization and humanity itself. Indian plants are well-known around the world for their significance. Herbal cosmetics are a helpful gift from nature that are in increasing demand on the global market. Formulas made using herbs have traditionally drawn a lot of owing to their strong action and comparatively minimal or nonexistent adverse effects while taking synthetic medications. The term “herbal cosmetics” refers to cosmetics that, since they contain herbal ingredients, have favorable physiological action such as improving, conditioning, healing, and smoothing appearance. The use of herbs in the manufacturing of cosmeceuticals has greatly expanded in the modern healthcare system, and there is a strong market for herbal cosmetics. Cosmetics are substances that are meant to be applied to the physical body in order to promote beauty, cleanse, beautify, and change appearance without changing the functions or structure of the body. Utilizing synthetic products poses increasing risks for both young individuals and the surrounding environment. Numerous man-made substances, chemicals, dyes, and their derivatives have been shown to induce a range of skin conditions with a multitude of adverse effects. As a result, we are making the most use of herbal cosmetics. The fundamental principles of skincare in cosmetics have deep roots in the medical traditions of the Rigveda, Yajurveda, Ayurveda, Unani, and homeopathy. These are the goods that use raw or extracted herbal ingredients. These herbs must to possess various qualities such as anti-oxidant and herbs are chosen based on a standard methodology, scientific rationale, and contemporary applications. A herbal cream that, when applied consistently, will provide skin with efficient protection, be free of toxins or harmful residues, cause no irritation, and even be acceptable visually. Our primary objective is to develop a herbal cream with multifunctional benefits, such as moisturizing, acne reduction, alleviating irritation, and addressing various skin conditions like psoriasis, eczema, wrinkles, dryness, and rashes. Our formulation utilizes Aloe vera, Neem, and Turmeric, each offering specific properties: Aloe vera for anti-ageing, anti-inflammatory, and moisturizing effects; Neem for promoting wound healing, relieving dryness and itching, reducing pigmentation and scarring; and Turmeric for its antibacterial properties and ability to enhance skin radiance. The cream must meet specific criteria: it should not cause skin irritation or sensitization, hinder wound healing, be smooth and inert, and remain physically and chemically stable while being compatible with the skin.

WHAT IS CREAM?

Creams are semi-solid mixtures made of one or more therapeutic ingredients dissolved or dispersed in an oil-in-water, water-in-oil, or other form of base that can be washed in water. Cream falls into one of two categories: water in oil emulsion or oil in water. It is utilized on surface or superficial area of skin, and its benefit is that it
can stay on the application site for a longer period of time. A skin cream’s primary purpose is to protect the skin from various environmental factors and weather conditions while also having a calming effect on the skin. Cold, cleansing, vanishing, foundation, massage, sleep, hand, and body creams are among the common varieties of creams.

**HERBAL CREAM:**

The herbal cream is essentially an emulsion of water in oil. It contains a blend of natural ingredients including turmeric, papaya, aloe vera, tulsi, and neem, selected for their specific properties.

**ADVANTAGES OF HERBAL CREAM:**

- Herbal cream includes natural ingredients.
- Natural products exhibit fewer side effects in contrast to synthetic counterparts.
- They have potential effectiveness in treating various skin issues.
- Herbal creams are generally considered to be more environmental friendly compared to synthetic creams, as they are often biodegradable and do not contain harmful chemicals.

**DISADVANTAGES OF HERBAL CREAM:**

- Herbal creams may have variability in effectiveness depending on individual skin types and conditions.
- They may have potential allergic reactions to certain herbal ingredients.
- Herbal creams may have shorter shelf life compared to synthetic creams.
- Herbal creams may be more expensive compared to synthetic creams, as they often contain higher-quality natural ingredients. As a result, they may be less accessible to certain consumers due to affordability concerns.

II. **MATERIALS AND METHODOLOGY**

**MATERIALS:**

The study utilized herbal ingredients including Aloe vera, Neem, and Turmeric. Below are the specifics of the plant materials used in formulating the multipurpose herbal cream:

1. **ALOE VERA:**

   **Botanical name:** Aloe barbadensis miller
   **Family:** Asphodelaceae (Liliaceae)
   **Genus:** Aloe
   **Uses:** Aloe vera helps maintain facial health and gives a natural glow by deeply moisturizing, removing dead skin cells, reducing wrinkles, and lightening dark spots. Additionally, it can assist in managing various skin conditions such as acne, eczema, and sunburn.

   ![Figure 1: Aloe vera.](image)

2. **NEEM:**

   **Botanical name:** Azadirachta indica
   **Family:** Meliaceae (Mahogany family)
   **Genus:** Azadirachta
   **Uses:** Neem possesses antibacterial properties effective in eliminating pimples and lightening acne scars. Its anti-inflammatory nature, attributed to its fatty acids and glycerides, aids in soothing skin irritations. Additionally, neem's abundance in antioxidants and vitamin E contributes to wrinkle reduction, while its fatty acids and vitamin E content nourish the skin.
Figure 2: Neem.

3. TURMERIC:

Botanical name: Curcuma longa
Family: Zingiberaceae
Genus: Curcuma
Uses: In Ayurveda, turmeric is recognized as a key ingredient for skin brightening. Its versatile use extends to treating acne and various skin issues due to its anti-inflammatory, antimicrobial, and antioxidant properties, offering multiple benefits for the skin.

Figure 3: Turmeric.

Table 1: Formulation table of Multipurpose herbal cream.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Ingredients</th>
<th>Quantity</th>
<th>Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Aloe vera gel</td>
<td>3.5 ml</td>
<td>Moisturizer, Reduce acne and pimples.</td>
</tr>
<tr>
<td>2.</td>
<td>Neem extract</td>
<td>1.2ml</td>
<td>Alleviate dryness of skin.</td>
</tr>
<tr>
<td>3.</td>
<td>Turmeric extract</td>
<td>3.3ml</td>
<td>Anti-bacterial.</td>
</tr>
<tr>
<td>4.</td>
<td>Bees wax</td>
<td>5.8ml</td>
<td>Emulsifying agent.</td>
</tr>
<tr>
<td>5.</td>
<td>Liquid paraffin</td>
<td>18.6ml</td>
<td>Lubricating agent.</td>
</tr>
<tr>
<td>6.</td>
<td>Borax</td>
<td>0.36g</td>
<td>Alkaline agent.</td>
</tr>
<tr>
<td>7.</td>
<td>Propyl paraben</td>
<td>0.03g</td>
<td>Preservative.</td>
</tr>
<tr>
<td>8.</td>
<td>Distilled water</td>
<td>q.s</td>
<td>Vehicle.</td>
</tr>
<tr>
<td>9.</td>
<td>Rose oil</td>
<td>q.s</td>
<td>Fragrance.</td>
</tr>
</tbody>
</table>

METHODOLOGY

PREPARATION OF EXTRACT:

- **Turmeric**: Combine 1g of turmeric powder with 10ml of distilled water in a flask. Shake well and heat in a water bath at 80 to 100°C for 5 to 10 minutes. Filter the mixture to obtain turmeric extract.
- **Neem**: Gather fresh Neem leaves and wash them with distilled water. Dry the leaves in a hot air oven, then grind them into powder. Take 5g of Neem powder and mix it with 20ml of Dimethyl sulfoxide. Heat the mixture in a water bath at 100°C for 5 to 10 minutes, then filter it to obtain a clear solution.
- **Aloe vera**: Harvest an Aloe vera leaf and wash it thoroughly. Dry the leaf in a hot air oven, then cut it longitudinally. Collect the semi-solid aloe vera gel, removing any fibers and impurities. This yields the Aloe vera extract.
PROCEDURE OF MULTIPURPOSE HERBAL CREAM FORMULATION:

1. Begin by heating liquid paraffin and beeswax in a borosilicate glass beaker to 75°C, maintaining this temperature (oil phase).

2. In a separate beaker, dissolve borax and propyl paraben in distilled water at 75°C using a water bath. Stir the solution with a glass rod until solid particles are dissolved (aqueous phase).

3. Carefully add the heated aqueous phase to the heated oily phase while stirring continuously.

4. Once both phases are mixed, add Aloe vera gel, Neem extract, and Turmeric extract, and continue mixing with a glass rod until a smooth cream forms.

5. Incorporate rose oil as a fragrance.

6. Transfer the cream onto a slab and mix it geometrically to ensure a smooth texture and proper blending of all ingredients.

7. Adjust the consistency by adding a few drops of distilled water if necessary. Your multipurpose herbal cream is now prepared.

III. EVALUATION

Following evaluation parameters were performed to ensure superiority of prepared herbal cream:

1. ORGANOLEPTIC PROPERTIES:

   The cream obtained was assessed for its sensory qualities such as color, odour, texture, and state. Its overall appearance was evaluated based on color and texture, then graded accordingly.
2. pH:
The pH meter underwent calibration using a standard buffer solution. Approximately 0.5g of the cream was weighed and dissolved in 50ml of distilled water, and its pH was then measured using a digital pH meter.

3. IRRITANCY:
Mark a 1 square centimeter area on the dorsal side of the left hand. Apply cream to that area and make a note of the time. After a period of up to 24 hours, examine the area for any signs of irritation, erythema, or edema, and report your findings.

4. WASHABILITY:
Apply a small amount of cream to the hand and rinse it off under running tap water.

5. PHASE SEPARATION:
Store the prepared cream in a tightly closed container at room temperature, away from sunlight, and observe it for 30 days to check for phase separation, monitoring every 24 hours.

6. GREASINESS:
The cream is applied by smearing it onto the skin's surface and observing whether the smear appears oily or greasy. Based on this observation, we can conclude that the cream is non-greasy.

OBSERVATION TABLE:

<table>
<thead>
<tr>
<th>Sr.no.</th>
<th>Parameter</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Colour</td>
<td>White</td>
</tr>
<tr>
<td>2.</td>
<td>Odour</td>
<td>Pleasant</td>
</tr>
<tr>
<td>3.</td>
<td>Texture</td>
<td>Smooth</td>
</tr>
<tr>
<td>4.</td>
<td>State</td>
<td>Semi-solid</td>
</tr>
<tr>
<td>5.</td>
<td>pH</td>
<td>7.98</td>
</tr>
<tr>
<td>6.</td>
<td>Irritancy</td>
<td>No Irritant Effect</td>
</tr>
<tr>
<td>7.</td>
<td>Washability</td>
<td>Easily washable</td>
</tr>
<tr>
<td>8.</td>
<td>Phase separation</td>
<td>No phase separation.</td>
</tr>
<tr>
<td>9.</td>
<td>Greasiness</td>
<td>Non-greasy</td>
</tr>
</tbody>
</table>

IV. RESULTS AND DISCUSSION

Organoleptic evaluation showed that cream is smooth in texture and has a pleasant smell. pH of the cream was found to be 7.98 to suit the requirements of all the skin types. Irritancy test showed negative results for the irritancy, erythema, edema as the herals were found to be compatible with the skin proteins. Washability test showed that the cream is easily washable on the skin. Phase separation test revealed that no phase separation is observed in the cream. Test for the greasiness of the cream revealed that the cream is non-greasy on the skin and moisturizes the skin in well manner. The results proved that the formulation is stable in all aspects and useful and beneficial for all skin types.

V. CONCLUSION

The cream, formulated with Aloe vera gel, Neem, and Turmeric, demonstrated versatile effects with each herbal ingredient showing distinct significant activities. The stability of the formulation at room temperature suggests its safe application on the skin. This study underscores the potential of herbal extracts in cream formulations, which have seen a surge in both cosmetic and medicinal applications. Bioactive ingredients in topical formulations play a crucial role in enhancing skin health by providing essential nutrients. Natural herbs offer diverse benefits in cream preparations, as evidenced by this study, highlighting the safety and absence of toxic reactions compared to commercial semi-solid products.
VI. REFERENCES


