FORMULATION AND EVALUATION OF A FACE WASH GEL OF NARDOSTACHYS JATAMANSI

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ABSTRACT
Acne is the common disorder in today’s time; hormonal changes are the reason for the acne. Face and neck are the major affected area. Preventive approaches involve removal of oil from the face. Proper cleaning and washing require for this purpose. Various researches have been proved utility of herbal based formulations for cleaning purpose which also removes excess oil; considering this fact present work was intended to prepare a face wash gel with antioxidant and antibacterial properties. Prepared gel was evaluated for various quality control parameters like; spreadability, pH, consistency and grittiness, etc. The results of quality control parameters were found to be satisfactory.

KEYWORDS: Nardostachys Jatamansi, Herbal formulation, Gel, Acne.

INTRODUCTION
Herbs are generally utilized as chief ingredients of herbal formulation. Pure extract of herbs are generally used in these formulations. The traditional system of medicine suggested various principles of skin care. The development of herbal formulation mainly focuses on production of safe and elegant product, which has wider range of people acceptability. Herbs are considered safe and possess many therapeutic properties which are essential features of cosmetic formulations like; antibacterial and antioxidant properties etc. Skin is the major part of the body. Imbalance of internal constitutions and hormonal balances during the puberty may cause many skin problems; treatment and prevention of skin problem require utilization of formulations having antibacterial, antioxidant and moisturizing properties. Antioxidants reduces the presence of free radicals which prevent ageing and inflammatory effects of skin,
antibacterial property prevents any chances of skin infections and moisturizing effect keeps skin smooth and oil free, there are many herbs which possess such properties; thus in present work it is proposed to prepare and evaluate face wash gel of *nardostachys jatamansi*. This was expected to give better result.

**MATERIALS AND METHOD**

Plant material were collected, dried and grinded into powder and stored for further study. Other ingredients used were of analytical grade.

**Preparation of extract**

Powdered plant material was extracted with ethanol. After 24 hours the supernatant was collected by filtration and the solvent was evaporated to make the crude extract. The residues obtained were stored in airtight bottles in a refrigerator for further use.

**Preparation of gel**

A little quantity of water along with preservatives was added to the previously prepared solution of propylene glycol and sodium lauryl sulphate, then carbopol was added slowly and stirred well until a gel like dispersion was obtained, to this the extract was added, then triethanolamine was added finally.

**EVALUATION**[^4-8]

The prepared face wash gel was evaluated for various quality control parameters as follows

- **pH:** pH of the formulations were determined using digital pH meter.
- **Colour:** The colour of the face wash gel was checked visually.
- **Odour:** The formulation was evaluated for its odour by smelling it.
- **Consistency:** It was determined manually.
- **Viscosity:** Viscosity of the gel was determined using Brookfield viscometer. The values obtained for the sample and for water were noted.
- **Spreadability:** Spreadability of formulations was measured as a capacity of formulation to spread over a definite area within specified time. Between the two glass slides excess amount of sample formulation was placed then a weight of 1000g was placed in slides for few
minutes to compress sample. The time required to separate the two slides was measured as a spreadability of formulation using the following formula

\[ S = \frac{M \cdot L}{T} \]

Where; \( S \) is spreadability,
\( M \) is weight tied to upper slide,
\( L \) is the length of glass slide,
\( T \) is time taken.

**Washability:** The product was applied on hand and exposed to running water.

**Foamability:** Small amount of gel was taken in a beaker containing water. Initial volume was noted, beaker was shaken for 10 times and the final volume was noted.

**Grittiness:** The product was checked for the presence of any gritty particles by applying it on the skin.

**RESULTS AND DISCUSSIONS**

The different gel formulation of *Nardostachys Jatamansi* was prepared using various ingredients as mentioned in Table 1. The formulation was prepared trial & error basis until a gel was obtained with characteristic feature. The *Nardostachys Jatamansi* utilized as chief ingredient since individually it is possess all essential of properties of face wash formulation like; antioxidant and antimicrobial properties. The various other ingredients used for specific purpose like; Carbopol 940 as gelling agent, Methyl Paraben & Propyl Paraben as preservatives, Triethanolamine as neutralizer, Propylene Glycol as Humectant and Sodium Lauryl Sulphate as Foaming agent. Finally volume of formulation was adjusted with distilled water. The formulation was also evaluated for various quality parameters and results of quality parameters revealed that formulation possess all desire quality parameters as mentioned in Table 2. Formulation showed pH with range of skin application, it also showed characteristic consistency of gel, viscosity was found to be 1650cp. Finally homogenous, spreadable and washable formulation was obtained without any grittiness.

**Table 1:** Composition of Gel Formulation (% w/w)
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Ingredients</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drug extract</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Carbopol 940</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Methyl paraben</td>
<td>0.1</td>
</tr>
<tr>
<td>4</td>
<td>Propyl paraben</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Triethanolamine</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>Propylene glycol</td>
<td>2.5</td>
</tr>
<tr>
<td>7</td>
<td>Sodium lauryl sulphate</td>
<td>2.5</td>
</tr>
<tr>
<td>8</td>
<td>Distilled water</td>
<td>Q.S.</td>
</tr>
</tbody>
</table>

Table 2: Quality Control Evaluations of Formulation

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Parameters</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Colour</td>
<td>Brown</td>
</tr>
<tr>
<td>2</td>
<td>Odour</td>
<td>Characteristic</td>
</tr>
<tr>
<td>3</td>
<td>Consistency</td>
<td>Consistent</td>
</tr>
<tr>
<td>4</td>
<td>pH</td>
<td>7.2</td>
</tr>
<tr>
<td>5</td>
<td>Viscosity (cp)</td>
<td>1650</td>
</tr>
<tr>
<td>6</td>
<td>Spreadability (gm. cm./ sec)</td>
<td>30.22</td>
</tr>
<tr>
<td>7</td>
<td>Washability</td>
<td>Washable</td>
</tr>
<tr>
<td>8</td>
<td>Foamability</td>
<td>100 ml at 5 minutes</td>
</tr>
</tbody>
</table>

CONCLUSION

Skin is very sensitive part of body and may easily get affected by various external infections; thus prevention of such infection is the essential feature of skin care formulation, the skin care formulation must also maintain skin texture. In the present scenario, people need remedy for skin disease without side effects and various research proved that herbal formulations can be applied on skin without any harmful effect. Thus present study involves formulation and evaluation of herbal face wash gel containing extract of *Nardostachys Jatamansi*. Study proved that this formulation can be used as an effective face wash gel. Formulation possesses optimum gel properties and expected to provide desire drug diffusion profile which may contribute towards the topical antimicrobial activity of extract. Study also concluded that prepared herbal gel possess all essential features of gel formulation for topical application.

REFERENCES