FORMULATION AND EVALUATION OF HAND WASH OF VITEX NEGUNDO

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ABSTRACT

Hand-washing is very important process in day to day life. Hands are major source through which microbial infections may occur thus proper hand was must be required using appropriate hand wash formulation. Herbs are known to have antimicrobial properties thus utilization of such herbs as antimicrobial agent is a common practice now. Present study involves formulation of herbal hand wash using extract of Vitex negundo. The anti-microbial activity of the prepared hand wash was tested against the skin pathogens like P. vulgaris, S. aureus and B. subtilus using dip-well method. The results of antimicrobial activity were found to be satisfactory. The results may be attributed to the phytoconstituents present in the extracts. The formulation also evaluated for the quality parameters.

KEYWORDS: Hand-wash, Anti microbial activity, Herbal formulation, Vitex negundo.

INTRODUCTION

Skin is one of the most important parts of the body and very susceptible to microbial infections; this requires great protection and care. Skin protection from harmful microorganisms can be achieved by proper skin care and hand washing is an important process of skin care. Contaminations through hand is very often since hands are directly exposed to the environment and utilized mostly for the handling purpose thus appropriate hand wash with antimicrobial agent must require to assure removal of transient microorganisms. Hand washing is also important in homes and day to day care operations. Hand washing is an important way to reduces spread of disease. Hand washing removes harmful material from hands along with harmful microorganisms. Plants with medicinal properties are being used as
a traditional medicine ancienly. The extract from the different parts of various medicinal plants have been employed as a natural remedy in curing various ailments and diseases. Recently the medicinal properties of the plants have been explored largely as therapeutic as well as cosmetic agent.[1]

_Vitex negundo_, belonging to the family Verbenaceae, is a shrub. The major constituents are Oleanolic acid, Flavonoids, Vitamin-C, p-hydroxybenzoic acid and Sitosterol.

Therapeutically it posses anti-fungal, anti-microbial, analgesic and anti-histamine properties. Many researchers have investigated plant extract for various purposes. The present study focuses on a novel hand wash formulation with the extract of _Vitex negundo_ having antibacterial and anti-fungal properties, which can also be used as a regular hand-wash.[2-5]

**MATERIALS AND METHODS**

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

**Preparation of extract**

The hand wash was prepared from the methanolic extracts of plant material 10 g of the powdered material were extracted with 100 ml of methanol solution (9 parts of methanol and 1 part of distilled water) by means of extraction. This mixture was heated on water bath for 1 hour. The content was filtered through Whatman filter paper in order to get particle free extract.

**Preparation of Hand-wash**[6]

The hand wash was prepared by adding methanolic extracts of plant material in glycerin and distilled water. Finally sodium lauryl sulphate, methyl paraben, colouring and flavouring agents were added as per the requirement of standard procedure for preparation of hand wash. The solution was made homogenous using homogenizer under room temperature and stored for the further analysis.

**EVALUATION**[7]

**Stability**

The stability studies were carried out by storing at different temperature conditions like 40°C, 25°C & 37°C for 1 week. During the stability studies change in colour and phase separation was observed in the formulated hand wash.
pH
The pH was determined by using digital pH meter.

Viscosity
The viscosity of hand wash was determined by using digital Brookfield viscometer. 50 ml of herbal hand wash is taken into 100 ml of beaker and the tip of viscometer was dipped into the beaker containing hand wash formulation and its viscosity was measured.

ANTI MICROBIAL STUDIES[8]
The anti-microbial activity of prepared hand wash was performed on various microorganisms using Dip well method. Different microorganism i.e Putida vulgaris, Staphylococcus aereus, and Bacillus subtilis organism were selected for the study. The plates were filled with nutrient agar solution and allowed for solidification. After solidification the microorganisms were inoculated into the nutrient agar media. Then cavities of media were filled with different type of samples. Samples were placed at the level of cavity, then; plates were incubated at 37°C. After 24 hours the plates were observed for the growth of microorganisms. Anti microbial activity measured in terms of zone of inhibition of microbial growth around various cavities.

RESULTS AND DISCUSSION
The antimicrobial herbal hand wash was formulated using Vitex negundo extract along with various ingredients as mentioned in table 1. Glycerin was used as viscous media; Methyl paraben and Sodium lauryl sulphate were used as preservatives and surfactant respectively. The formulation evaluated against various quality parameters like pH and viscosity. The results of quality study revealed that the formulation lies within quality parameters as shows in table 2, the formulation was found to be clear and homogenous with pH value of 6.8 which is optimal for skin use. The rheological value also supported the good quality of hand wash. The stability study of formulation was also performed and it was found to be stable since no phase separation was observed.

The Anti-microbial efficacy of the formulated herbal hand wash was tested using various microorganisms like; Putida vulgaris, Staphylococcus aureus and Bacillus subtilis by dip well technique. The results of antimicrobial study revealed that the prepared hand wash possess significant activity against selected species (Figure 1). The antimicrobial activities may be attributed to the various constituents present in plant like; polyphenols. Vitamin C
also reported to have potential effect on bacteria which is also chief constituent of plant. Selected plant possesses many chemical constituent which play significant role against skin pathogens.

Table 1: Composition of Formulation

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Ingredients</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drug extract (g)</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>Glycerin (ml)</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Methyl paraben (ml)</td>
<td>0.2</td>
</tr>
<tr>
<td>4</td>
<td>Sodium lauryl sulphate (g)</td>
<td>2</td>
</tr>
<tr>
<td>5</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>Appearance</td>
<td>Clear</td>
</tr>
<tr>
<td>2</td>
<td>Homogeneity</td>
<td>Homogenous</td>
</tr>
<tr>
<td>4</td>
<td>pH</td>
<td>6.8</td>
</tr>
<tr>
<td>5</td>
<td>Viscosity (m pascals)</td>
<td>40 – 120</td>
</tr>
</tbody>
</table>

**Figure 1. Result of antimicrobial study.**

**CONCLUSION**

The herbal hand wash was prepared as antiseptic agent and evaluated for antimicrobial activity. Results of study suggested that the constituents of the extract were effective against the skin pathogens. Thus it can be concluded that such type of herbal extract can be incorporated in bases in order to prepare superior anti microbial hand wash with less side effects.
REFERENCE


