A REVIEW: FORMULATION AND EVALUATION OF POLYHERBAL ANTIBACTERIAL SOAP

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ABSTRACT
Polyherbal soap is made by combining several different herbal extracts. The usage of polyherbal soap has increased in popularity due to its perceived benefits in treating various skin problems. Selecting and combining herbs based on their therapeutic properties and compatibility with other soap-making ingredients is the process of making polyherbal soap. Testing is done on polyherbal soap's chemical, physical, and microbiological properties to confirm its safety and quality. Positive results from these studies suggest that polyherbal soap may be a safe and practical alternative to conventional soaps. In summary, the formulation and evaluation procedure for polyherbal soap includes evaluating the soap's physical, chemical, and microbiological properties as well as selecting and combining herbs based on their therapeutic properties. Further research is needed to evaluate the safety and efficacy of polyherbal soap in treating various skin conditions.

Keywords: Preparation Of Herbal Soap, Polyherbal.

I. INTRODUCTION
A combination of sodium ions of different naturally occurring fatty acids makes up soap. A softer lather forms when potassium is added to the fatty acid salt instead of sodium. Saponification, or the basic hydrolysis process of an oil or fat, is how soap is made. A natural herbal soap can be a healthy substitute for the chemicals included in most commercial soaps, which can be damaging to skin. Natural herbs and components that are healthier, better for the skin, and less prone to have negative effects are used to make herbal soaps. Certain producers of natural soaps additionally employ aromatherapy and herbal remedies to provide the optimal skin care option for your skin type. Herbal soaps, which are made entirely of natural components and uncommon herbs, are proven to be quite useful for skin health. These soaps’ infusion of herbs has therapeutic and medicinal properties that provide targeted advantages to the skin, including moisturising, strengthening, nourishing, and healing. Super fatty oils, vitamin E, aloe vera, and essential oils linked to improved skin and general wellness are also present in these soaps. Herbal soaps are also useful in treating a variety of skin conditions. Glycerine, which is typically not utilised in commercial soaps, is also included in these soaps. These soaps are for dry skin conditions since glycerine helps the skin retain moisture. Herbal soap preparations are medications or treatments that are made primarily from plant components, such as leaves, stems, roots, and fruits, and contain anti-bacterial and anti-fungal compounds to treat illnesses and promote overall health. The skin’s functions include regulating body temperature, serving as a blood reservoir, providing protection from the outside world, cutaneous sensations, excretion and absorption, and the creation of vitamin D.

II. METHODOLOGY
The Wadgoan sheri market in Pune is where the fresh Allium sativum bulb, Azadirachta indica oil, and Curcuma longa powder were gathered.

Preparation of Extracts:
For six hours, the powdered Curcuma longa was extracted hot and continuously in a Soxhlet device using 70% alcohol and 30% water. The solvent was evaporated and concentrated to dry residue when the extraction process was finished. Fresh Allium sativum bulbs were crushed with a mortar and pestle, sifted through a clean cloth, and then placed into an airtight container that was sealed. This process was known as aqueous extraction.
Preparation of Formulations:
The three extracts—Curcuma longa, Azadirachta indica, and Allium sativum—that shown antibacterial action were combined to yield 750 mg of extract total; these extract combinations were then added to the produced formulation.

Ingredients :

Preparation of Basic Glycerin Soap:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>INGREDIANT</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Distilled Water</td>
<td>32.7 gm</td>
</tr>
<tr>
<td>2.</td>
<td>Sodium Hydroxide</td>
<td>15.7 gm</td>
</tr>
<tr>
<td>3.</td>
<td>Palm Oil</td>
<td>34.0 gm</td>
</tr>
<tr>
<td>4.</td>
<td>Coconut Oil</td>
<td>35.3 gm</td>
</tr>
<tr>
<td>5.</td>
<td>Caster Oil</td>
<td>34.0 gm</td>
</tr>
<tr>
<td>6.</td>
<td>Glycerine</td>
<td>19.6 gm</td>
</tr>
<tr>
<td>7.</td>
<td>Ethyl Alcohol</td>
<td>38.0 gm</td>
</tr>
<tr>
<td>8.</td>
<td>Sugar</td>
<td>23.6 gm</td>
</tr>
<tr>
<td>9.</td>
<td>Distilled Water</td>
<td>17.0 gm</td>
</tr>
</tbody>
</table>

PROCEDURE:

The prepared basic glycerin soap was broken down into small pieces.

\[\text{Put into the pan and melted on the water bath below } 50^\circ\text{C.}\]

The prepared extract combinations (30 gm) were added. Then 100 ml of ethanol was added.

Then 0.66 gm of stearic acid. 20 ml of cinnamon oil and 20 ml of almond oil was also added into the melted soap.

The all ingredients mixed for about 30 minutes.

The liquid was poured into the molds then allowed to solidify at room temperature and observed the many changes in characteristics of prepared soap.

![Fig 1. Formulated polyherbal soap](image)
III. ANALYSIS

Evaluation of Physicochemical Parameters of the Prepared Formulation

Organoleptic evaluation
Organoleptic evaluation (color, and clarity) was done by sensory and visual inspection.

Determination of pH
The pH of prepared herbal formulation (soap) was determined by using a digital pH meter.

Determination of percentage free alkali
Dissolved 5 gm of prepared herbal soap in 50 ml of neutralized alcohol in a conical flask. Then boiled under the reflux on a water bath for 30 minutes. Then cooled and added 1 ml of phenolphthalein solution as an indicator. Then the solution was titrated with 0.1 HCL.

Foam Height
Dissolved 0.5 gm of prepared soap in distilled water then make up the volume up to 50 ml with distilled water in 100 ml measuring cylinder. Measured the foam height, above the aqueous volume by given 25 strokes.

Foam Retention
Prepared the 25 ml of the 1% soap solution and transferred into the 100 ml of measuring cylinder. Then the cylinder was shaken 10 times. The volume of foam was recorded at one minute for 4 to 5 minutes.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>PARAMETER</th>
<th>RESULT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Formulation</td>
<td>Soap</td>
</tr>
<tr>
<td>2</td>
<td>Colour</td>
<td>Dark Brown</td>
</tr>
<tr>
<td>3</td>
<td>Odour</td>
<td>Aromatic</td>
</tr>
<tr>
<td>4</td>
<td>Appearance</td>
<td>Good</td>
</tr>
<tr>
<td>5</td>
<td>PH</td>
<td>7.5</td>
</tr>
<tr>
<td>6</td>
<td>% Free Alkali</td>
<td>0.35</td>
</tr>
<tr>
<td>7</td>
<td>Foam Height (cm)</td>
<td>2.6 cm</td>
</tr>
<tr>
<td>8</td>
<td>Foam Retention (min)</td>
<td>03 min</td>
</tr>
<tr>
<td>9</td>
<td>Alcohol Insoluble Matter</td>
<td>10.6%</td>
</tr>
</tbody>
</table>

IV. RESULT

Three plants were used to make antibacterial polyherbal soap: Azadirachta indica, Allium sativum, and Curcuma longa. This study revealed that extracts from Curcuma longa, Allium sativum, and Azadirachta indica may provide a cost-effective and efficient substitute for the other antibacterial soap. The best antibacterial activity and highest percentage yield were found in the alcoholic soxhlet extract. The soap underwent an antibacterial screening process. The majority of the 1% soap solution had antibacterial action and maximum activity with zones of inhibition on 06 and 09 mm, respectively, for Staphylococcus aureus and Escherichia coli, according to the results.

When tested for antibacterial activity, the produced formulations showed zones of inhibition between 06 and 09 mm, which was much better than the zones of inhibition of the individual extracts. Additionally, a number of physicochemical characteristics, including pH, clearing, appearance, percentage free alkali, foam height, foam retention, and alcohol-insoluble matter, were assessed to standardise the created soap formulations and determine which ones had appropriate characteristics. Further standardisation is necessary for these formulations to have strong antibacterial and antifungal action.

V. CONCLUSION

Three plants were used to make antibacterial polyherbal soap: Azadirachta indica, Allium sativum, and Curcuma longa. This study revealed that extracts from Curcuma longa, Allium sativum, and Azadirachta indica may provide a cost-effective and efficient substitute for the other antibacterial soap. The best antibacterial activity and highest percentage yield were found in the alcoholic soxhlet extract. The soap underwent an antibacterial screening process. The majority of the 1% soap solution had antibacterial action and maximum activity with zones of inhibition on 06 and 09 mm, respectively, for Staphylococcus aureus and Escherichia coli, according to the results. When tested for antibacterial activity, the produced formulations showed zones of
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VI. REFERENCES