FORMULATION AND EVALUATION OF HERBAL SOAP

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ABSTRACT

Our study's objectives included creating a polyherbal hygienic soap using the cold process technique and assessing its antimicrobial potential using the agar well diffusion method. Coconut oil, castor oil, neem oil, mentha oil, rose petals extract, and NaOH (lye) were used to make soap, and the various extracts were added to the fundamental saponification reaction. Following the preparation of the herbal mixture, the using various concentrations of soap solution in comparison to the standard, analyse pH, Moisture content, foaming index, foam retention time, saponification, TFM measurement, ethanol soluble matter, and antimicrobial activity. The findings showed that the herbal soap had the following properties: pH 6.5-7, moisture content 3.5%, foam index 16.5, foam holding time 10.0 minutes, saponification value 161.287 mg/ml, 72% TFM, and ethanol soluble matter 63.80%. Additionally, the evaluation experiments revealed that the herbal soap performs satisfactorily against microbes when compared to conventional antibiotics. Additionally, oils are used both everyday and to treat a variety of skin infections.

KEYWORDS: Neem, Tulshi, Vit.C., VitE., Aloevera, Turmeric, Rose Water, Cleanser Base, Lavendar Basic Oil.

INTRODUCTION

The word "cosmetic" comes from the Greek word "kosm tikos," which means having the ability to plan and decorate.\[1\] As cosmetics evolved throughout the course of human history, a consistent narrative about their beginnings emerged. In prehistoric times (3000 BC), man utilised colour as adornment to entice the animals he wanted to hunt. He also used colour to shield himself from attacks by the adversary by decorating his body and colouring his skin to frighten the enemy (whether man or animal).\[2\] The Drugs and Cosmetics Act defines cosmetics as anything that are meant to be rubbed, poured, sprinkled, sprayed, introduced...
into, or otherwise applied to the human body or any portion of it for washing, beautifying, enhancing attractiveness, or changing the appearance.

The cosmetic is not covered by a drug licence pre-approval. The term "herbal cosmetics" refers to products made with phytochemicals derived from a variety of botanical sources that influence skin functions and supply nutrients for healthy skin or hair. Herbal cosmetics refer to natural plants and their products that are utilised for their aromatic properties in the creation of cosmetics.[3-4] The Drug and Cosmetics Act states that herbs and essential oils used in cosmetics cannot make claims that they can penetrate deeper than the skin's outer layers or have any therapeutic properties.\[5\]

The manufacture of herbal soap is a pharmaceutical or therapy that contains antibacterial and antifungal agents and mostly uses plant parts, including as leaves, stems, roots, and fruits, to treat wounds, treat illnesses, and promote good health.\[6\] The diversity of creams and soap qualities have been used to treat a number of skin illnesses. This preparation has antimicrobial properties that are administered topically and available to apply in numerous forms including creams, lotion, gel, soap, solvent extract, or ointment.\[7\] Typically, fungus, staphylococcus aureus, and streptococcus species 6 cause skin infections. When treating skin conditions such eczemas, ringworm, and pruritus, juice and extract from plant leaves are topically administered as antibacterial and anti-inflammatory agents.\[8\] The scrumptious gel form is used to treat psoriasis diseases. Unprocessed soapy plant preparations have the power to soften the skin's surface, improve acne cleaning and deeper penetration, and hasten healing and resolution.

Neem, tulsi, shikekai, and reetha are all natural plant constituents in the herbal soap reviewed in this article, and their combination exhibits antibacterial, antifungal, and anti-inflammatory properties. Neem, the primary ingredient in this soap, exhibits therapeutic benefits. Neem leaf and its extract have anti-inflammatory, anti-ulcer, anti-malarial, anti-fungal, antibacterial, antioxidant, and anticarcinogenic properties that have an immunomodulatory effect. The highest therapeutic value is found in tulsi. Tulsi lowers blood glucose levels, making it a useful treatment for diabetics. Additionally, severe acute respiratory syndrome uses tulsi. Its leaf juice provides relief from cough, fever, and bronchitis. The key ingredient in this herbal soap is tulsi, which has antifungal, anti-inflammatory, and stress-relieving properties. Tulsi's primary antifungal property makes it useful in soap formulation. Reetha is a fantastic cleaner. Because saponin is present, it is an excellent substitute for soap and facewash. Additionally
beneficial for sensitive skin. Reetha and chickpeas together provide a pleasant and nourishing experience for the skin. Because of its conditioning characteristics, it keeps the skin cool and moisturised. Reetha helps cure eczema and psoriasis while preventing the skin from drying out and keeping it moist and supple. Shikekai is extremely efficient in treating a variety of skin conditions, including scabies, and is also used as an anti-aging agent.\[^9\]

**Skin Types and Basic Skin Care**

The conditions for fundamental skin care

a) A cleansing agent that clears the dirt, dead skin cells, and dust from the skin's pores. Vegetable oils including coconut, sesame, and palm oil are some of the popular cleaners.

b) Utilisation of Toners: Toners tighten the skin and protect it from exposure to various airborne poisons and other environmental pollutants. Witch hazel, geranium, sage, lemon, ivy burdock, and essential oils are a few of the herbs used as toners.

c) Moisturising: Moisturising makes the skin supple and smooth. Those who moisturise have a healthy glow and are less likely to age. Vegetable glycerin, sorbitol, rose water, jojoba oil, aloe vera, and iris are a few of the herbal moisturisers.

The herbal treatments for particular skin issues are listed in (Table 1).\[^{10-16}\]

**Table 1: Special skin problem and Herbal remedies.**

<table>
<thead>
<tr>
<th>Sr. no</th>
<th>Skin Problem</th>
<th>Skin Problem</th>
<th>Skin Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Chapped skin</td>
<td>Rough surface that occasionally results in the skin cracking</td>
<td>Applying olive oil, mashed potatoes, or St. John's Wort oils. Avocado following a warm olive oil massage or after washing, 30 minutes prior to bathing, use coconut oil or mustard.</td>
</tr>
<tr>
<td>2.</td>
<td>Withered skin</td>
<td>Extremely rough texture and several creases</td>
<td>carrot juice plus an egg white and honey concoction</td>
</tr>
<tr>
<td>3.</td>
<td>Sallow skin</td>
<td>No colour appearance, dull skin that lacks lustre, and lifelessness</td>
<td>Inclusion of Vitamin B in diet</td>
</tr>
<tr>
<td>4.</td>
<td>Sensitive skin</td>
<td>Be quick to respond to both heat and cold. Windburns and sunburns are common. Skin becomes sensitive, dry, and more allergic reaction-prone. Alcohol, cosmetics, and detergents can irritate the skin, causing it to become red and blotchy with visible surface veins.</td>
<td>Use of chamomile, lavender, neroli, rose, and sandalwood oil essential oils.</td>
</tr>
<tr>
<td>5.</td>
<td>Acne</td>
<td>Infected spots that appear as boils, pimples, and red sores.</td>
<td>Application of Red Sandal Wood Oil.</td>
</tr>
</tbody>
</table>
Soap making Term

Additives
Throughout the hand milling process, ingredients are added to soap. These features provide unique the completed bar's qualities. An illustration would be the inclusion of additional oils to form a super fatted soap, which provides additional moisturising properties and makes the soap richer and gentler.

Anti-Oxidants
Antioxidants Ingredients that stop natural ingredients like fruits and vegetables from reacting with oxygen and going bad to slow down the decomposition of soap. For instance, vitamin E oil.

Antiseptics
Substances that inhibit the growth of bacteria on living tissue and in the product. Example: Lavender.\[^{17}\]

Aromatic
Having a fragrant smell and/or taste

Detergents
A cleanser in which petroleum distillates take the place of natural fats.

Emollients
Ingredients that moisturize the skin, smooth wrinkles, improve elasticity and protect. Example: glycerine.

Hand milling
Superior grade soap may be produced by shredding a base soap, remelting it with water, adding healthy components, and then remoulding.

Herbs
A plant with a delicate stem that, after flowering, dies of withers to the ground and is utilised in medicines, food, or scent. The official definition of a herb according to the American Herb Society is "any plant that can be utilised for pleasure, scent, or physic."
Hydrating
maintaining or reestablishing the skin's or body's proper fluid balance. used in cosmetics to maintain firm, youthful-looking, and moisture-rich skin. For instance, chamomile and sweet orange oil.

Irritant
A substance that produces irritation or inflammation of the skin. Examples: natural and synthetic substances.

Sponification
A chemical process in which fats or oils are combined with alkali to make soap and glycerin.

Spice
A strongly flavored, aromatic substance usually obtained from the seeds or fruit of tropical plants. With a few exceptions, spices are not grown in home gardens in the northern hemisphere. Example: cinnamon, cloves.

Ingredients
The constituents used to make hand-mulled cleaner include base detergents, complements, canvases, spices, and colorings. They can be set up in grocery stores, health food stores, medicine stores, and crafts stores and can be ordered from canons. It's important to come familiar with constituents and their rates before you start. For illustration, using instant oatmeal rather of regular oatmeal can result in a soppy mess. Just because sauces and flowers are natural does not mean they're inoffensive in every situation; numerous deadly venoms come from shops. The sauces and flowers used in the fashions in this book are bones that are generally considered safe. If you would like to.

Ambrosial
Ambrosial canvases are a significant part of creating bath products. Scents from botanicals and complements aren't strong enough for beautiful, sweet products.

MATERIAL AND METHODS
Chemical-
- Glycerine soap base, Lavendar essential oil,
- Rose water.
Collection and Extraction
1. The leaves of the neem is collected from the fresh plant and is wash properly and dried.
2. Tulsi leave also used same method.
3. Extraction of the neem leaf mix in mixture and extract it juce same method used in tulshi leaf. The alovera gel extract proper. This extraction is best for the soap results.

Content of the soap
Neem

Fig. no. 1.

- Botanical name- Azadiracta indica.
- Part typically used- Leave. Color- Green.
- Constituents- flavonoids, Alkaloids, Azadirone, nimbin, nimbidin, terpenoid, steroids, tannic acid and saponins.

Tulsi

Fig. no. 2.

- Biological name- Ocimum tenuiflorum.
- Common name- holy basil.
- Chemical constituents- eugenol germacr derivative, flavonoids and terpenoid.
- Part typically used- leaves. Colour- Green.

**Alovera**

![Alovera Plant](image1)

**Fig. no. 3.**

- Biological name- Aloe Vera.
- Common name- Aloe barbadensis Miller.
- Chemical constituents- vitamin, enzyme, minerals, sugars, lignin, saponin, salicylic acid and amino acid. Part typically used- leaves Color- Green.

**Turmeric**

![Turmeric](image2)

**Fig. no. 4.**

- Biological name: Curcuma longa
- Common name: haldi
- Chemical constituents: protein, fat, Mineral and Carbohydrates.
- Part typically used: root

**Vitamin E**
- Rejuvenates and restores dehydrated skin
- Moisturizes the skin
- Reverses premature skin aging
- Lightens dark spots
- Acts as a cleansing agent
- Prevent wrinkle\textsuperscript{[18-22]}

Lavendar essential oil (Flavouring agent)

Fig. no. 5.

- Antioxidant protection
- Used as a diabetes natural treatment
- Promotes healthy skin and hair
- Improve sleep
- Relieves pain

Formulation of herbal soap

Table no. 2.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neem</td>
<td>5g</td>
</tr>
<tr>
<td>Tulsi</td>
<td>2g</td>
</tr>
<tr>
<td>Alovera</td>
<td>3g</td>
</tr>
<tr>
<td>Turmeric Powder</td>
<td>0.5g</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>1.5g</td>
</tr>
<tr>
<td>Glycerine soap base</td>
<td>22g</td>
</tr>
<tr>
<td>Rose water</td>
<td>5ml</td>
</tr>
<tr>
<td>Lavendar essential oil</td>
<td>1ml</td>
</tr>
</tbody>
</table>

METHODOLOGY

Give 5g of neem powder in a beaker then this beaker may be add 2g Of tulshi, 3g Of aloevera, 1.5g of vitamin E, rose water 5ml., and turmeric 0.5g then all are mix 2 to 3 min.
The double heat method give for the melting glycerine soap base, so give span on induction and add some water then small content take in water and add 22g Of glycerine soap base in the container and it melt. After melt base add mix all ingredient in the melt soap and mix it them finally heat Stop and add lavender essential oil in the preparation solution will be give in small, small container for the shape of the soap. Final soap is ready and it packing in the paper.

**Activity of ingredients**
- Neem – Antibacterial properties treat acne.
- Aloevera – Moisturizer or sunburn.
- Turmeric – Antimicrobial agents
- Tulshi – Antimicrobial agents.
- Rose water – Cooling agent emollient.

**Use of Soap**
- Treat acne antibacterial properties of neem fight acne causing bacteria which help in the treatment and prevention of acne.
- Tackles blacheads and whiteheads.
- Aloevera shows moisturizer it is moisture the skin without giving it a greasy feel. So it is perfect for anyone with an oily skin.
- It also fight sunburn oracne. This soap is mainly used all skin problem.

**Evaluation test for herbal soap**
1. Physical properties -: Color – dark Green.
2. Thermal stabilit -: Thermal stability of the formulation was determined by the humidity chamber controlled at 60-70/ RH at room temperature. This soap is mainly stable at room temperature temperature increases it mainly unstable.
3. Determination of PH 5 to 6 g of the soap was weighted accurately in a 100ml beaker 40ml water was added and dispersed the soap in it. The pH of the solution is determined by using ph meter. PH of soap is 9.5.
4. Stability studies The stability studies were carried out as per ICH guidelines. the soap filled in bottle and keep in humidity chamber maintained at30to 2 ,60 to 5 and 70 to 5/ RH for two months. At the end of studies sample were analysed for the physical properties and viscosity. High moisture content it well be affect on the soap.
5. Microbial growth Using agar plates the plates were placed in to the incubator and are incubator at 37c for 24 hours and compared with standard

6. Foaming ability and foam stability Foaming ability was determined by using cylinder shake method brietel 40ml of the formulation soap solution was placed graduate cylinder. It was covered with ane hand and shaken 10 times the total volume of the foam content after 1 min of shaking recovered foam stability was evaluated by recording the foam volume after 1 min and 4 min is 80 to 93/ foam formed.

CONCLUSION
The extraction of neem, tulshi turmeric, and aloevera plant ingredients was researched. When the developed compound was evaluated for various tests, it produced positive findings. It was discovered by using these soaps by a few volunteers; thus, it is shown that soap does not provide any irritancy to skin. Furthermore The produced soap was evaluated for a variety of physical and chemical characteristics, including pH, appearance, and scent, and was found to have good results.

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