

Role of Polyherbal in Formulation of Hand Wash

Mr. Siddharth Gajanan Wankhade¹, Mr. Pruthviraj Ashok Chavhan², Mr. Sumit Santosh Mule³

Mr. Abhishek Kumar Sen⁴, Dr. K. Raja Rajeshwari Reddy⁵

Students, Vardhaman College of Pharmacy, Koli, Karanja (Lad), Maharashtra, India^{1,2,3}

Associate Professor, Vardhaman College of Pharmacy, Koli, Karanja (Lad), Maharashtra, India⁴

Principal, Vardhaman College of Pharmacy, Koli, Karanja (Lad), Maharashtra, India⁵

Abstract: Hands are the primary source of transmission of germs in healthcare, so hand cleanliness is the most vital measure to avoid the spread of harmful germs and avoid healthcare-related contamination. Numerous irresistible diseases can be transmitted from one individual to another through sullied hands. These maladies incorporate gastrointestinal diseases, such as salmonella, and respiratory contamination, such as the flu. Appropriate hand washing can offer assistance to anticipate the spread of germs (such as microscopic organisms and infections) that cause these maladies. So an attempt is made to get ready home-grown hand wash utilizing drugs like neem, tulsi, reetha, Aloe vera, and glycerin, which are having antibacterial, antiviral, anti-fungal exercises and skin hydration properties. Home grown hand wash was prepared as per standard strategy utilizing home grown fixings and swab tests streaked on Blood and Macconkey agar, hatched at 37°C for 24 hrs in oxygen consuming condition for microbial stack evaluation consider. The results propose that hand-washing herbs can make great concealment zones to ensure against skin pathogens. This seem to be the reason for utilizing herbs in arrangement for handwashing and utilizing these compounds in the generation of disinfectant salves or cleansers instep of chemicals.

The increasing demand for natural and safe personal hygiene products has prompted research into herbal formulations for antibacterial hand wash. This review explores the formulation and evaluation of an antibacterial herbal hand wash utilizing the synergistic properties of Tulsi, Neem, Reetha, Glycerin, and Aloe Vera. The antibacterial efficacy of these herbal ingredients against common pathogens is discussed, along with their potential for skin-friendly formulations. Various formulation techniques and parameters for optimizing the efficacy, stability, and sensory attributes of the hand wash are highlighted. Additionally, different evaluation methods including antimicrobial activity testing, physical stability assessment, and consumer acceptability studies are reviewed. The integration of these natural ingredients into a hand wash formulation offers a promising alternative to synthetic antibacterial agents, catering to the growing consumer preference for herbal-based personal care products.[1]

Keywords: herbal hand wash, Tulsi, Neem, Reetha, Glycerin, Aloe vera

I. INTRODUCTION

Skin is the essential organ in the body that covers a tremendous degree of the body that makes a difference in regulating the body temperature, tactile reactions and contain numerous microbes and micro-organisms. Those microbes utilize these emissions of the body and turn them into metabolites that surrender a characteristic body scent. Cleanliness of the hand is an essential prerequisite to anticipate and in controlling infections.[2]

In recent years, there has been a growing awareness and preference for herbal products due to their perceived safety, efficacy, and environmental friendliness. Among various herbal formulations, herbal hand washes have gained significant attention, especially considering the increasing concern over microbial infections and the need for effective hand hygiene practices. Tulsi (Ocimum sanctum), Neem (Azadirachta indica), Reetha (Sapindus mukorossi), Glycerin, and Aloe Vera are well-known botanical ingredients recognized for their antimicrobial, soothing, and skin-nourishing properties. Combining these natural ingredients into a hand wash formulation presents a promising avenue for developing a potent antibacterial product with minimal adverse effects. Tulsi, commonly referred to as Holy Basil, possesses strong antimicrobial properties due to its rich content of essential oils such as eugenol, thymol, and camphor. Neem, known as the "village pharmacy" in India, is renowned for its broad-spectrum antimicrobial activity attributed to

compounds like nimbin, nimbidin, and azadirachtin. Reetha, or Soapnut, contains saponins that exhibit natural cleansing and foaming properties, making it an ideal ingredient for hand wash formulations. Moreover, Glycerin acts as a humectant, attracting moisture to the skin, thereby preventing dryness and maintaining skin hydration. Aloe Vera is valued for its soothing and healing properties, making it beneficial for skin irritation and inflammation. The synergistic combination of these herbal ingredients in a hand wash formulation not only provides effective antibacterial action but also ensures gentle cleansing and nourishment for the skin. Furthermore, the use of herbal ingredients aligns with the growing consumer preference for natural and eco-friendly products, contributing to sustainable practices in personal care. This review aims to explore the formulation and evaluation aspects of antibacterial herbal hand washes incorporating Tulsi, Neem, Reetha, Glycerin, and Aloe Vera. By examining the efficacy, safety, sensory attributes, and stability of such formulations, valuable insights can be gained to optimize their performance and meet consumer expectations in terms of efficacy and user experience.

In the present review anti herbal hand wash containing bioactive constituents such as Ocimumtenuiflorum, Sapindusmukorossi, Azadirachtaindica and Aloe vera was formulated and its anti-bacterial efficacy was evaluated in various methods.[3-4]

II. HERBAL INGREDIENTS

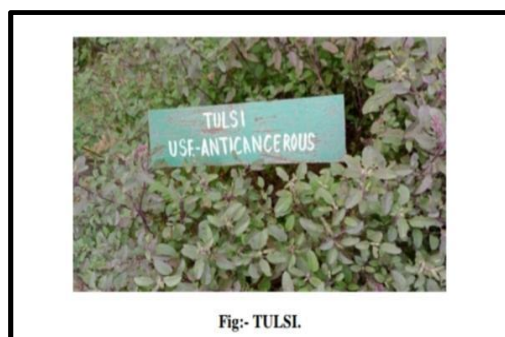
2.1. Tulsi:

Synonyms: Holy basil, Ocimum sanctum

Biological Source: Tulsi leaves

Family: Lamiaceae

Information: Tulsi has antimicrobial properties and is commonly used in herbal formulations for its antibacterial effects.[5-6]



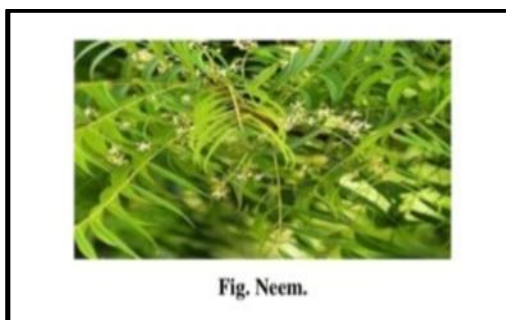
2.2. Neem:

Synonyms: Azadirachtaindica

Biological Source: Neem tree leaves and seeds

Family: Meliaceae

Information: Neem is known for its antibacterial and antifungal properties, making it a valuable ingredient in herbal hand wash formulations.[7-9]



2.3.Reetha:

Synonyms: Soapnut, Sapindusmukorossi

Biological Source: Soapnut tree fruit

Family: Sapindaceae

Information: Reetha contains saponins, which have natural cleansing properties and can help in removing dirt and bacteria from the hands.[10-11]

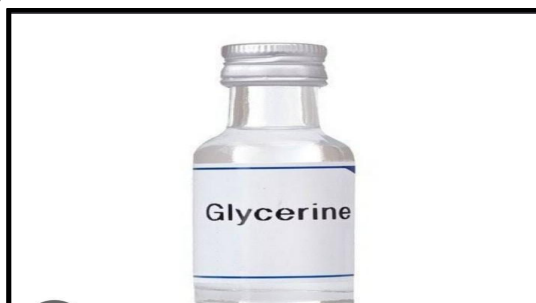


2.4.Glycerin:

Synonyms: Glycerol

Biological Source: Typically derived from plant or animal fats

Information: Glycerin is a humectant that helps to retain moisture in the skin, making it an important ingredient in hand wash formulations to prevent dryness.



2.5 Aloe vera:

Synonyms: Aloe barbadensis

Biological Source: Aloe vera plant leaves

Family: Asphodelaceae

Information: Aloe vera has soothing and moisturizing properties, and it also possesses antibacterial and antifungal effects, making it beneficial for skin health in hand wash formulations.



2.6.Methanol:

Synonyms: Methyl alcohol

Biological Source: Synthetic or can be derived from biomass

Information: Methanol is commonly used as a solvent or as an antimicrobial agent in hand wash formulations. However, it should be used with caution due to its toxicity.

2.7 Purified water:

Synonyms: Aqua, distilled water

Biological Source: Processed to remove impurities

Information: Purified water serves as a solvent and diluent in hand wash formulations, ensuring the proper mixing of ingredients and providing a base for the product.

III. METHOD OF PREPARATION

3.1. Gather the Ingredients:

Collect the required ingredients: Tulsi, Neem, Reetha, Glycerine, Aloe Vera gel, and water.

3.2 Prepare the Herbal Infusion:

1. Take ½ cup of Tulsi and ½ cup of Neem.
2. Remove any impurities or debris from the leaves.
3. In a pot, add 2 cups of water and bring it to a boil.
4. Add the Tulsi, Neem, and 5-6 Reetha pods to the boiling water.
5. Let it simmer for about 10-15 minutes on medium heat.

3.3 Cooling and Straining:

1. After simmering, turn off the heat and let the mixture cool down to room temperature.
2. Once cooled, strain the liquid using a fine sieve or cheesecloth to remove the solid residues.
3. Squeeze out as much liquid as possible from the leaves and pods.

3.4 Adding Glycerine and Aloe Vera:

1. Measure 2 tablespoons of glycerine and ¼ cup of Aloe Vera gel.
2. Add them to the strained herbal liquid

3.5 Mixing:

1. Stir the mixture well using a spoon or whisk to ensure that all the ingredients are thoroughly combined.
2. Continue stirring until the glycerine and Aloe Vera gel are fully incorporated into the herbal liquid.

3.6 Bottling

1. Carefully pour the prepared herbal hand wash into a clean, empty hand wash bottle or container.
2. Use a funnel if necessary to avoid spills.
3. Seal the bottle tightly with a cap or pump dispenser

3.7 Labeling and Storage:

1. Optionally, label the bottle with the name and date of preparation.
2. Store the herbal hand wash in a cool, dry place away from direct sunlight.
3. Shake well before each use to ensure even distribution of the ingredients.

IV. EVALUATION TEST

4.1 pH

Measures the acidity or alkalinity of the hand wash. The pH level is important as it can affect skin compatibility and the effectiveness of antibacterial agents.

4.2. Viscosity

Refers to the thickness or consistency of the hand wash. Proper viscosity ensures easy application and adherence to the skin, enhancing its effectiveness.

4.3 Grittiness

Evaluates the presence of any abrasive particles in the hand wash that may provide a scrubbing action for better cleaning. However, excessive grittiness can cause irritation to the skin.

4.4 Foam height

Indicates the ability of the hand wash to produce lather or foam. Foam height can contribute to the perception of cleansing efficacy and user satisfaction.

4.5 Irritancy

Assesses the potential for the hand wash formulation to cause irritation or adverse reactions on the skin. It's crucial to ensure that the product is gentle and safe for regular use.

4.6 Cleaning action

Evaluates how effectively the hand wash removes dirt, oil, and bacteria from the skin surface. A good cleaning action is essential for maintaining hand hygiene.

4.7 Stability

Determines the stability of the formulation over time, including factors like shelf life, consistency, and preservation of active ingredients.

V. CONCLUSION

Overall, the formulation and evaluation of this antibacterial herbal hand wash present a viable alternative to conventional chemical-laden products, offering a natural and effective solution for maintaining hand hygiene. Further research and development in this area could lead to the production of high-quality herbal hand washes, contributing to public health initiatives aimed at reducing the spread of infectious diseases

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