



## A REVIEW ON POLY HERBAL HAND WASH AND ITS ANTIMICROBIAL ACTIVITY

Karimela Chandrasekhar\*, Kavali Naveen Kumar, Balabhadrapatruni Sai Keerthana and Chandu Babu Rao

Priyadarshini Institute of pharmaceutical Education and Research, 5th Mile, Pulladigunta, Guntur -522017, Andhra Pradesh, India.

\*Corresponding Author

Kagita Usha Sri

DOI: <https://doi.org/10.47957/ijciar.v7i2.180>

Received: 27 May 2024 Revised: 28 May 2024 Accepted: 24 June 2024

### Abstract

Polyherbal Hand Wash is the focus of this review. The benefits of using herbal hand washes and the various ways to make polyherbal hand washes are covered in greater detail in this article. Microbes and infections are spread through the hands. People first learn the value of herbal remedies and hand hygiene during pandemics. By practicing good hand hygiene, we can lower the chance of infection transmission. There are a lot of synthetic hand wash formulations on the market, however some of them have negative side effects include irritation, dermatitis, itching, and increased antibiotic resistance in microbes. Various efforts have been undertaken to make a polyherbal hand wash in order to counteract the unpleasant effects and antibacterial activity of herbs. The herbal hand wash was evaluated after formulation using a variety of physical and chemical characteristics, including pH, color, odor, appearance, texture, spread ability, grittiness, skin irritancy, foam height, foam retention, cleaning action, stability, and other parameters. It was discovered that the revolt was within a normal range with little to no negative effects.

**Keywords:** Herbal hand wash, Herbal extract, Moringa Oliveira, Osmium Sanctum, Foam.

©2024 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.



### Introduction

The home-grown medication is otherwise called Phytomedicine or natural treatment. The utilization of Any plant's seeds, roots, leaves, bark, blossoms, or Elevated parts for therapeutic intentions is known as Home grown medication. Since the skin is the most uncovered Part of the body, it should be safeguarded from skin Microorganisms (1).

Home grown medication has been utilized to treat Furthermore, care for a large number home grown hand medical purposes. Microorganisms enter our bodies Through our hands, which are the essential source. Utilizing hand cleanser to clean up can stop somemicroscopicorganisms from getting in. Safeguarding one's hands is Similarly as significantas preventing microbes from getting (2).

#### Advantages of Herbal Hand wash:

- 1) No side effects. Bacteria on our hands can be minimized.
- 2) It also helps to clear antiseptic and fungal problems faced by the skin.
- 3) It also helps to remove dirt and oil effectively from the skin.
- 4) Easier access compared to using soap and water.
- 5) The easiest way to get rid of microorganisms.
- 6) Hand wash prevents germs from entering into our body (3).

#### Disadvantages

1. Prolonged skin harm.
2. Irritative contact dermatitis andeczema.

Assortment of plant material: (OR) collection of plant material:

The plants Neem [Azedarach indica] and Peppermint [Mentha piperita] leaves were gathered from Gurukurpa

Establishment of Drug store School Grounds, MA Jalgaon. To completely eliminate sand particles from the test, wash it with new water. The plant material dried under daylight for 4 to five days. Then, at that point, the dried plant material where Squashed, sieved to get almost fine nebulous powder. Powdered material was removed with a reasonable Solvent (4). Ritha powder, turmeric powder, Clove oil and Tulsi oil were gathered from the nearby market of Mazagaon. Soil separates were picked for antibacterial activity.

#### **Pharmacognos of Natural Plants:**

##### **1. Rose oil:**

- Kingdom – Plantae
- Division – Magnoliophyte
- Class – Magnoliopsida
- Order – Rosales
- Family – Rosaceae
- Genus – Rosa
- Species – Centifolia

Medicinal uses of rose:

Rose oil might be utilized actually to decrease uneasiness, stress, despondency and agony. It has mending property, Saturates the skin. It further develops complexion and Brightens, it assists with lessening flaws, skin inflammation scars and dull spot. (5)

##### **2. Aloe vera:**

- Kingdom: Plantae
- Order: Asparaguses
- Division: Spermatophyta
- Subdivision: Angiospermae
- Class: Monocotyledon Ea
- Family: Liliaceae

#### **1.ALOEVERA**



- Genus: Aloe
- Species: barbadense

Medicinal uses of Aloe vera

Aloe vera gel's calming properties assist wounds with recuperating quicker because of its antibacterial properties. Aloe gel represses *Streptococcus pyogenes* and *Streptococcus faecalis*, two sorts of microbes. It kills *Pseudomonas aeruginosa* by killing microbes. Aloe vera's fluid and leaf mash battle pathogenic Organisms in plants. Furthermore, the readiness of aloe gel represses *Candida albicans*.

##### **2.TULSI**

Family: Liliaceae

Genus: Osmium

Common name: Holy basil, Tulasi, antimere

Hindi name: Holy basil, pushPsara,  
Nandini.Marathi name: Tulasi. Sanskrit name:  
Vrinda.  
Synonyms: Gauri bahu Manjari (L.) Mer.



### **Medicinal uses of Tulasi:**

To deal with ring worm and other skin illnesses like leukoderma, a glue produced using Tulsi leaves is applied to the Impacted region. Saffron and Tulsi leaves are joined with chickenpox to research the condition. In instances of Ordinary glucose, the ethanolic concentration of Tulsi leaves brings about a huge drop in glucose. As expectorant, analgesic, anticancer Anti asthmatic. antiemetic, diaphoretic, antidiabetic, Antifertility, hepatoprotective, hypotensive, Hypolipemic and antistress specialists. (6)

### **3. RITHA**

Family:

Sapindaceous

Genus: Sapindas

Common name: Soapberry, soapsuds, washout, Aritha, Doden, andDodane.Hindi name: soap nut, Aritha

Marathi name: soap nut tree,

RithaSanskrit name:Arishtah.

Synonym: soapberry, soapnut, washouts, Aritha, Doden, and Indian soap berry.

### **RITHA**



### **4. NEEM**

- Kingdom: Plantae
- Subkingdom: Trophobionts
- Division: Magnoliophyte
- Class: Eudicot
- Subclass: Rosedale
- Order: Sapindales
- Family: Meliaceae
- Genus: Azadirachta

- Species: *A. indica*

NEE



#### **Medicinal uses of Neem:**

*Azadirachta indica* is an individual from the meliaceae group of plants. Neem is its generally expected name. It is a wellspring of numerous restorative specialists in conventional Medication. It is realized that the leaves of neem have antimicrobial and antifungal properties against various pathogenic microorganisms, including *E. coli*, *Staphylococcus aureus*, and *Pseudomonas aeruginosa*.

Turmeric

- Kingdom: Plantae
- Subkingdom: Tracheobionta
- Superdivision : Spermatophyt
- Division: Magnoliophyta
- Subclass: Zingiberidae
- Order: Zingiberales
- Family: Zingiberaceae
- Genus: *Curcuma*
- Species: *longa*
- Scientific name: *Curcuma longa*

#### **5. TURMERIC**



Medicinal use of turmeric –

It is strongly associated with Indian social customs and is regarded as an effective medicine for wound healing. Only turmeric powder is used to heal Wounds that occur as part of rituals. Numerous skin conditions may benefit from the anti-parasitic properties of fresh turmeric juice. In cases of prurigo and eczema, turmeric powder containing cow's urine is also taken internally. To prevent skin eruptions, turmeric mixed with gingili oil is applied to the Body. ( 7 )

: Preparation of Herbal Hand wash

Extraction technique for Tulsi: -

- 1) Example of Tulsi leaves were isolated and washed with water and dried appropriately driedleaves were isolated.
- 2) Methanolic separate was ready from the Tulsi powder. An all out 20gm of finely powder ofTulsi was weakened with 80ml of methanol for 4 to 6 days. The alcoholic decoction was exposed to filtration to get an unmistakable filtrate. (8)

**Procedure:**

- 1) Methanolic concentrate of Tulsi leaves is blended in with 4ml citrus neem juice in20ml.of water. (9)
- 2) Then, at that point, add aloe vera two times and add concentrate of sodium Lauryl sulfatetodeliver adequate frothing limit.
- 3) Then add the wanted amount of glycerin and rose oil with moderate mixing.
- 4) Toward the end add additive in adequate amount. (10)
- 5) The arrangement is blended, made homogeneous under room and further used for screeningactivity.

Evaluation test for herbal hand wash

**1. Foam Height:**

One gram of test of hand wash gel was taken and scattered in 50ml refined water.Scatteringwas moved to 500ml estimating chamber. Volume

It was made up to 100ml of water. 25 strokes were given and kept it to the side. The frothlevelover the fluid volume was noted. (11)

**2. PH test:**

In 100 milliliters of refined water, 1 gm of gel-based home-grown hand wash was blended. ThepH of the combination was inspected utilizing a formerly normalized Computerized pH meter.

**3. Stability Test:**

4. The Strength reads up were completed for Polyherbal Hand wash Gel plan by putting away at various temperature conditions like 40°C, 25°C, and 37°C For multi week. During the strength concentrates on no adjustment of variety and no stage partition were seen in the planned.

5. **Grittiness:** 1ml of Gel was taken on fingertips and scoured between two fingertips, then, at that point, the definition Was evaluated. (12)

6. **Skin Irritation Test:** Skin Bothering Test was assessed by applying Polyherbal Hand washGel on skin and left for 30 min, following 30 minutes of washing notice any tingling, rashes, or redness on skin by tactile and Visual examination.

7. **Viscosity:** The viscosity of hand wash was determined by using digital Brookfield viscometer. Measured quantity of herbal hand wash was taken into a beaker and the tip of viscometer was immersed into the hand wash gel and the viscosity was measured in triplicate.

**8. Irritancy Test:**

During irritancy checks, there is no redness, edema, aggravation, or distress in the planning. These things are Totally protected to use on the skin

**The Anti Microbial Activity:**

The antimicrobial activity of the six Hand wash formulations was tested using the agarPlate method against Staphylococcus aureus and Escherichia coli. From their study it was Concludedthat all different formulations of herbal Hand was had significant antibacterial action, According to the zone of inhibition results. In the Culture plates, the activity of polyherbal handwash Formulation revealed significant inhibition of Bacterial growth. The formulation was non-irritant On skin. (13)

TABLE 1 :Antimicrobial activity of polyherbal hand wash formulations

ORGANISM	ZONE OF INHIBITION IN Cms		
	Std. Drug	F-1	F-2
BACILUS SUBTILUS	1.4	3.4	3.8
STAPHYLOCOCCUS AUREUS	2.7	3.8	4.3
PSEUDOMONAS AERUGINOSA	2.7	3.6	4.2
ESCHERICHIA COLI	1.8	3.3	3.8

The Anti-microbial efficacy of the formulations of Polyhedral Hand Wash was tested on Staphylococcus aureus, Psuedomonas aeruginosa, Bacillus subtilis and Escherichia coli by agarplate technique. The results of zone of Inhibition showed that the hand wash prepared from methanol extract of the combined plant materials shown Significant antimicrobial activity. The hand wash prepared with lemon juice showed little higher activity than The formulation prepared without lemon juice. (14)

#### **Conclusion**

It was reasoned that, in comparison to engineering hand washes that are made from manufactured compounds, natural hand washes, made from locally grown ingredients, have less adverse effects. A different boundary was used to evaluate the set-up natural hand wash, and it was determined to be suitable for use. Hand washing is extremely important in preventing the spread of numerous infectious illnesses. Hand washing protects the skin from harmful microbes. Nowadays, it is observed that, in contrast to designed definitions, natural remedies are more effective, affordable, and safe.

#### **Author contributions**

All authors are contributed equally.

#### **Financial support**

None

#### **Declaration of Competing Interest**

The authors have no conflicts of interest to declare.

#### **Acknowledgements**

None

#### **Reference**

1. Bhagwan BA, Nakhate ST, Hingane LD. Formulation and Evaluation of herbal hand wash by using natural ingredients by simple method. International Journal of Creative Research Thoughts. 2021;9(12):627-42.
2. Hwisa NT, Chandu BR, Katakam P, Peraman R. Pharmacognostical studies on Rivea ornata (Roxb.) leaves. Journal of Chemical and Pharmaceutical Research. 2013 Jul 31;5(2):342-4.
3. Shah MA, Natarajan SB, Gousuddin M. Formulation, evaluation, and antibacterial efficiency of herbal hand wash Gel. Int. J. Pharm. Sci. 2014 Mar;25(2):120-4.
4. Baburao C, Ganpaty S, Ramalingam P, Varun D, Prabhakaran C, Sridhar S. Synthesis and antimicrobial evaluation of some Schiff bases of 4-oxo-quinolino (2, 3-c) pyridines. ACTA CIENCIA INDICA CHEMISTRY. 2006;32(4):363.
5. Powar PV, Bhandari NR, Arya Ashwini SP. Formulation and Evaluation of Poly Herbal Anti-Bacterial Gel Based Hand Wash. Int. J. Pharm. Sci. Rev. Res. 2015;33(1):79-82. <https://globalresearchonline.net/journalcontents/v33-1/16.pdf>
6. Abbiw DK. Useful plants of Ghana: West African uses of wild and cultivated plants. <https://academic.oup.com/forestry/article-pdf/64/2/213/6745177/64-2-213a.pdf>
7. Hwisa NT, Chandu BR, Katakam P, Nama S. Pharmacognostical studies on the leaves of Ficus altissima blume. Journal of Applied Pharmaceutical Science. 2013 May 12;3(4):S56-8. [https://www.japsonline.com/admin/php/uploads/880\\_pdf.pdf](https://www.japsonline.com/admin/php/uploads/880_pdf.pdf)
8. Chindarkar PV. Formulation and Evaluation of Herbal Handwash Gel from Hyptis suaveolens flowering-tops. American Journal of PharmTech Research. 2020;10(2):350-3. [http://ajptr.com/assets/upload/publish\\_article/AJPTR-102026\\_111.pdf](http://ajptr.com/assets/upload/publish_article/AJPTR-102026_111.pdf)
9. Ganguly D, Banerjee M, Chakraborty A, Das H, Sekh A, Sarfaraj MA, Arif ST, Ghos R, Ghosh S, Sahoo DK. Preparation and Evaluation of Polyherbal Handwash of Different Herbal Sources. Neuroquantology. 2022;20(11):8113.
10. Singh DM, Singh DS. Formulation and Antimicrobial Analysis of polyherbal Wash in Ambikapur Surgujia Chattisgarh. International Journal of Research Publication and Reviews. 2022 May;3(5):2689-94.
11. Ansari SA, Sattar SA, Springthorpe VS, Wells GA, Tostowaryk W. In vivo protocol for testing efficacy of hand-washing agents against viruses and bacteria: experiments with rotavirus and Escherichia coli. Applied and environmental microbiology. 1989 Dec;55(12):3113-8.
12. Ayliffe GA, Babb JR, Davies JG, Lilly HA. Hand disinfection: a comparison of various agents in laboratory and ward studies. Journal of Hospital Infection. 1988 Apr 1;11(3):226-43.
13. Shah MA, Natarajan SB, Gousuddin M. Formulation, evaluation, and antibacterial efficiency of herbal hand wash Gel. Int. J. Pharm. Sci. 2014 Mar;25(2):120-4. <https://ijcrt.org/papers/IJCRT2005404.pdf>
14. Hwisa NT, Chandu BR, Katakam P, Nama S. Pharmacognostical studies on the leaves of Ficus altissima blume. Journal of Applied Pharmaceutical Science. 2013 May 12;3(4):S56-8. [https://www.japsonline.com/admin/php/uploads/880\\_pdf.pdf](https://www.japsonline.com/admin/php/uploads/880_pdf.pdf)