



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

“Formulation And Evaluation Of Polyherbal Handwash”

Krushana Navghare, Ghodke.P.L.,and Dr.PrachiUdapurkar *Kishori College of Pharmacy,Beed*
Dr.BabasahebAmbedkar Technological University,Lonere

Abstract—The aim of the present study is to formulate and evaluate herbal hand wash gel by Using extracts of *Azadirachta indica* (neem powder), *Osmium tenuiflorum* (Tulasi powder), *Mentha* (mint powder), *Syzygium aromaticum* (clove oil), *Sapindus mukorossi* (rithapowder), carbopol 940 (gelling agent), methyl Paraben (preservative), Glycerin (softening agent), distilled water, (vehicle), Turmeric (colorant), Rose oil (perfume), Saponin Extract. To select the plant materials. To extract powders from plants by air drying method to get particle free extract. To prepare herbal hand wash gel by using suitable agents. To evaluate herbal hand wash gel. Like cosmetics and cosmeceuticals (a cosmetic that has claimed medicinal properties) are typically applied but they have ingredients that influences the biological actions of skin. The WHO estimates that most of the population of Asian country presently use herbal medicine for the purpose of hand hygiene includes preparation of hand wash. the present study was carried out to formulate polyherbal hand wash gel containing herbal extract which is used not only for the purpose of cleaning hands but also for the prevention of bacterial growth. Its composition was prepared according to skin delicateness so that it cannot cause any type of irritation. Hence it can be concluded that polyherbal hand wash gel are much better than the plain soaps or existing marketed hand wash due to their ingredient's and effectiveness on our skin of hands as well a suitable for all type of skin.

INTRODUCTION

Hands are the major route of microbe and illness transfer; hand cleanliness is the most efficient way to prevent the spread of hazardous germs and diseases. In healthcare, hand cleanliness is the best and most effective, simplest, and affordable technique to prevent nosocomial infections. Contaminated hands can function as vectors for the spread of germs. Outbreaks are conveyed from one human to another when a foodhandler contaminates his or her hands and then transfers these bacteria to customers via hand contact with food or drinks. The user is exposed after ingesting these germs, which might cause gastrointestinal disease. Microorganisms infiltrate the food supply when people handle ready-to-eat foods. The hands of healthcare providers are the main cause of the spread of multidrug-resistant bacteria and sickness to patients. As an outcome, it presents the issue of hygienic hand cleansing. Various antimicrobial compounds are now accessible as alcohol-based hand

wash, detergent, and other items on the market. These soaps or solutions aid in the prevention of health-care-associated microbiological contamination, although they come with certain disadvantages or adverse reactions. Their usage on a regular basis might promote skin irritation and infection resistance. Earlier in India liquid hand wash was not popular. Though people wash hands but they do not prefer liquid hand wash. The importance of personal care and hygiene brings us to our product which we have chosen for our liquid hand wash project. Hand wash pertains to the hygiene practices related to minimize or prevent disease and the spreading of disease. The main purpose of washing hands is to cleanse the hands of bacteria or virus and chemicals which can cause personal harm or disease. Hand wash or hand hygiene is the act of cleaning one's hands with or without the usage of water or another liquid for the use of liquid handwash.

History

Hand washing with soap and water has been taken part of personal hygiene for hundreds of years and has been usually embedded in spiritual and cultural behavior. Although, the link among hand washing and the spread of disease changed into set up simplest two centuries in the past, despite the fact that this can be considered as extraordinarily early with admire to the discoveries of Pasteur and Lister that passed off decades later. In the middle of 19th century, Ignaz Semmelweis in Vienna (Austria), and Oliver Wendell Holmes in Boston (USA), revealed that the hands of health care workers spread nosocomial infection. In 1847, observations of Semmelweis concluded that after performing autopsies by physician on their hands had a disagreeable odor despite hand washing with soap and water before entering the clinic. He hypothesized therefore that "cadaverous particles" were transmitted via the hands and caused the childbed fever. After a theory of disease offering developed by Pasteur, Semmelweis's findings got worldwide acceptance after his death, when Pasteur developed the scientific theory of disease offering a theoretical explanation for Semmelweis's findings. In 1980s remarkable evolution made in concepts of hand hygiene in health care. Simultaneously in the same

year first national hand hygiene guidelines were published, furthermore several other countries also published the new guidelines in this array.

INGREDIENTS :

NEEM :

Azadirachta indica, commonly known as neem, nintree or Indian lilac, is a tree in the mahogany family Meliaceae. It is one of two species in the genus *Azadirachta*, and is native to the Indian subcontinent and most of the countries in Africa. It is typically grown in tropical and semi-tropical regions. Neem trees also grow on islands in southern Iran. Its fruits and seeds are the source of neem oil.



Figure 1. Neem (*azadirachta indica*)

DESCRIPTION:

Neem is a fast-growing tree that can reach a height of 15–20 metres (49–66 ft), and rarely 35–40 m (115–131 ft). It is deciduous, shedding many of its leaves during the dry winter months. The branches are wide and spreading. The fairly dense crown is roundish and may reach a diameter of 20–25 m (66–82 ft). The neem tree is similar. The fruit is a smooth (glabrous), olive-like drupe which varies in shape from elongate oval to nearly roundish, and when ripe is 14–28 mm (1/2–1 1/8 in) by 10–15 mm (3/8–5/8 in). The fruit skin (exocarp) is thin and the bitter-sweet pulp (mesocarp) is yellowish-white and very fibrous. The mesocarp is 3–5 mm (1/8–1/4 in) thick. The white, hard inner shell (endocarp) of the fruit encloses one, rarely two, or three, elongated seeds (kernels) having a brown seed coat.

PHYTOCHEMICALS:

Neem fruit, seeds, leaves, stems, and bark contain diverse phytochemicals, some of which were first discovered in *Azadirachta* seed extracts, such as azadirachtin established in the 1960s as an insect

antifeedant, growth disruptor, and insecticide. The yield of azadirachtin from crushing 2 kg of seeds is about 5 g.

In addition to azadirachtin and related limonoids, the seed oil contains glycerides, diverse polyphenols, nimbolide, triterpenes, and beta-sitosterol. The yellow, bitter oil has a garlic-like odor and contains about 2% of limonoids compounds. The leaves contain quercetin, catechins, carotenes, and vitamin C.

USES:

Neem leaves are dried in India and placed in cupboards to prevent insects eating the clothes, and also in tins where rice is stored. The flowers are also used in many Indian festivals like Ugadi.

TULSI :

Ocimum tenuiflorum, commonly known as holy basil, tulsi or tulasi, is an aromatic perennial plant in the family Lamiaceae. It is native to the Indian subcontinent and widespread as a cultivated plant throughout the Southeast Asian tropics. Tulsi is cultivated for religious and traditional medicine purposes, and also for its essential oil. It is widely used as herbal tea, commonly used in Ayurveda, and has a place within the Vaishnava tradition of Hinduism, in which devotees perform worship involving holy basil plants or leaves.

The variety of *Ocimum tenuiflorum* used in Thai cuisine is referred to as Thai holy basil.

MORPHOLOGY:

Holy basil is an erect, many-branched subshrub, 30–60 cm (12–24 in) tall with hairy stems. Leaves are green or purple; they are simple, petiole, with an ovate blade up to 5 cm (2 in) long, which usually has a slightly toothed margin; they are strongly scented and have a decussate phyllotaxy.

The purplish flowers are placed in close whorls on elongated racemes. The three main morphotypes cultivated in India and Nepal are Ram tulsi (the most common type, with broad bright green leaves that are slightly sweet), the less common purplish green-leaved (Krishna or Shyam tulsi) and the common wild vana tulsi (e.g., *Ocimum gratissimum*).



Figure 2. Tulsi (*Ocimum tenuiflorum*)

CHEMICAL COMPOSITION:

Some of the phytochemical constituents of tulsi are oleanolic acid, ursolic acid, rosmarinic acid, eugenol, carvacrol, linalool, and β-caryophyllene (about 8%). Tulsi essential oil consists mostly of eugenol (~70%), β-elemene (~11.0%), β-caryophyllene (~8%), and germacrene (~2%), with the balance being made up of various trace compounds, mostly terpenes.

USES:

Tulsi (Sanskrit: Surasa) has been used in Ayurveda and Siddha practices for its supposed treatment of disease.

RITHA : *Sapindus mukorossi*, commonly known as Indian soapberry, washnut, or ritha, is a species of tree in the family Sapindaceae. It is a deciduous tree that grows in the lower foothills and midhills of the Himalayas at altitudes of up to 1,200 metres (4,000 ft). It is also native to western coastal Karnataka, Maharashtra, and Goa in India. It is tolerant to reasonably poor soil, can be planted around farmers' home, and one tree can produce 30 to 35 kilograms (66 to 77 lb) of fruit per year.

CLOVE OIL

Cloves are the aromatic flower buds of a tree in the family Myrtaceae, *Syzygium aromaticum*. They are native to the Maluku Islands (or Moluccas) in Indonesia, and are commonly used as a spice, flavouring or fragrance in consumer products, such as toothpaste, soaps, or cosmetics. Cloves are available throughout the year owing to different harvest seasons across various countries.

BOTANICAL FEATURES:

The clove tree is an evergreen that grows up to 8–12 metres (26–39 ft) tall, with large leaves and crimson flowers grouped in terminal clusters. The flower buds initially have a pale hue, gradually turn green, then transition to a bright red when ready for harvest. Cloves are harvested at 1.5–2 centimetres (0.59–0.79 in) long, and consist of a long calyx that terminates in four spreading sepals, and four unopened petals that form a small central ball.



Figure 4.Clove

USES:

Cloves are used in the cuisine of Asian, African, Mediterranean, and the near and Middle East countries, lending flavour to meats, curries, and marinades, as well as fruit (such as apples, pears, and rhubarb). Cloves may be used to give aromatic and flavour qualities to hot beverages, often combined with other ingredients such as lemon and sugar. They are a common element in spice blends, including pumpkin pie spice and specula as spices.

ROSE OIL:

Rose oil (rose Otto, attar of rose, attar of roses or rose essence) is the essential oil extracted from the petals of various types of rose. Rose Otto's are extracted through steam distillation, while rose absolutes are obtained through solvent extraction, the absolute being used more commonly in perfumery. The production technique originated in Persia. Even with their high price and the advent of organic synthesis, rose oils are still perhaps the most widely used essential oil in perfumery.

Method of Preparation :

- 1) Polyherbal Hand wash Gel was prepared using gum acacia as Gelling agent which is soaked in 30 ml distilled water overnight.
- 2)Neem and Peppermint extracts, Ritha Powder along with Tulsi and Clove oil were measured accurately and dissolved by gentle heating.
- 3)After heating, keep the solution aside for sometimes.
- 4) The required quantity of Sodium lauryl Sulphate dissolved in 10ml distilled water along with Glycerine were mixed in above aqueous phase with continuous stirring.
- 5)The methyl paraben was dissolved in remaining quantity of purified water and dispersed into the extract.
- 6) The swelled polymer was stirred using a mechanical stirrer to ensure the uniform dispersion of polymer and finally added into the above mixture to form a Homogenous Gel and then the required quantity of Jasmine oil was added for Fragrance.
- 7) Lastly, it was stored in well closed container and labelled suitably for further analysis.

Ingredients	Quantity (gm/ml)	Use
Neem	10	Antimicrobial Agent
Tulsi	10	Purifying Agent
Ritha	5	Foaming Agent
Clove Oil	0.50	Antimicrobial Agent
SLS	3	Foaming Agent
Gum Acacia	20	Gilling Agent
Glycerin & Rose Oil	0.25	Softening Agent
Methyl Paraben	0.50	preservative
Distill Water	Up to 100 ml	vehicle

Future Scope

Many of the chemical Hand washes are now available in the market as alcohol based sanitizers consisting of other synthetic detergents. Alcohols and Detergents do reduce health care related transmission of harmful diseases but they do also have some short comings and adverse effects on human tissues and environment. Frequent use of such synthetic chemical based formulations can lead to skin irritation and also resistant among pathogens. Production cost of such synthetic formulations are also high, due to addition of synthetic chemicals & alcohols. To overcome these. problems it's necessary to replace synthetic chemicals with natural ingredients.

Result & Discussion:

Literature reveals that leaves of Neem (*Azadirachta indica*) possess Antimicrobial property, leaves of Pudina possess Antibacterial activity, and extract of clove possess Antibacterial activity. Hence the present study was designed to formulate polyherbal hand wash having Antimicrobial and antibacterial properties the poly herbal hand wash was found to be light green colour non greasy smooth in texture and easily washable with a good PH near to normal skin PH range .No skin irritation wash observed while using it for few days .From all the studies we can finally state that polyherbal hand wash has shown cleansing action with no skin irritation and easy to use as it is polyherbal hand wash ,so decreases the chances of side effects

CONCLUSION :

Like Cosmetics, Cosmeceuticals (A cosmetic that has or is claimed to have medicinal properties) are topically applied but they contain ingredients that influence the biological functions of skin. The WHO estimates that 80% of the population of Asian country presently use herbal medicine proof primary aspect of primary health care and for the purpose hand hygiene includes preparation of Hand wash. The present study was carried out to formulate Polyherbal Handwash Gel containing herbal extract which is used not only for the purpose of cleaning hands but also for the prevention of bacterial growth. Its composition was prepared according to delicateness of skin so that it cannot cause any type of irritation. Hence, it can be concluded that the Polyherbal Hand wash.

REFERENCE:

1. https://en.m.wikipedia.org/wiki/Azadirachta_indica
2. https://en.m.wikipedia.org/wiki/Ocimum_tenuiflorum
3. <https://en.m.wikipedia.org/wiki/Turmeric>
4. https://en.m.wikipedia.org/wiki/Rita_rita
5. Shaloo, Shayna Shafi, Simran Singh, Shashi Verma, Ritesh Kumar Tiwari and Devika Tripathi, Formulation and Development of Mint containing Herbal Hand Sanitizer, European Journal of Pharmaceutical and Medical Research, 2017 [11], 454 - 457.
6. Powar P. V., Bhandari N. R., Arya Ashwini, Sharma P. H., Formulation and Evaluation of Poly Herbal Anti - Bacterial Gel Based Hand Wash, International Journal of Pharmaceutical Sciences Review and Research, 2015; 33[1], 79 - 82.
7. Nandkishor S. Wani, Ashish K. Bhalerao, Vikram P. Ranawre, Rahul Zanje, Formulation and Evaluation of Herbal Sanitizer, 2013 [5], 40-44
8. Mounika, Vijayanand P, V. Jyoti, Formulation and Evaluation of Polyherbal Hand wash Gel containing essential oils, International Journal of Pharmacy and Analytical Research, 2017, 6[4], 645 - 653.
9. Zeeshan Afsar, Salma Khanam, Formulation and Evaluation of Polyherbal Soap and Hand Sanitizer, International Research Journal of Pharmacy, 2016, 7 [8], 54-57
10. Andeep DS, Narayana Charyulu R, Prashant Nayak, Aliss Maharjan, Indira Ghalan, Formulation of Antimicrobial Polyherbal Hand Wash, Research J. Pharm and Tech., 2016, 9[7], 864 - 866
11. Megha Bahuguna and Shilpi Kashyap, Formulation and

Evaluation of Hand Wash, World Journal of Pharmaceutical Research.2011, 5[7], 1559 –

12. AGRI FARMING, "Tulsi Oil Extraction Process, Benefits, Uses" [Online]. Available: <https://www.agrifarming.in/tulsi-oil-extraction-process-benefits-uses>

13. Rina Maskare, Nitin Indurwade, Abhishek Purohit, Veena Atraha, of Polyherbal Formulation and Evaluation Hand Sanitizer, International Journal of Pharmacy and Biological Science, 2019, 449 – 454

14. Hany. M. Yenia, Methanolic Extract of Neem [Azadirachta Indica] and its Antibacterial Activity against Foodborne and Contaminated Bacteria Sodiumdodecyl Sulphate Polyacrylamide gel Electrophoresis [SDS PAGE]

15. American Eurasian J. Agricultural and Environmental Science,2016, 16 [3]: 598 - 604,

16. Mashood Ahmad Shah, Sathesh Babu, Hatarjan, Mohd. Goushuddin, Formulation, Evaluation and Antibacterial Efficiency of Herbal Hand Wash Gel, Research article 2014,25[2 23], 120 – 124

