



Formulation And Evaluation Of Herbal Handwash By Using Ginger(Rhizome) And Neem

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Abstract:

The handwash sold in local markets is primarily made up of different chemical compounds that could be harmful to our skin in multiple ways. According to this theory, research has focused on finding organic substitute ingredients for handwash preparation. People are always searching for cosmetics made of natural ingredients in order to avoid the negative effects of synthetic hand wash preparations such as irritation, dermatitis, dryness, and itching. They also want to avoid allergic reactions and any other unfavorable effects. The main aim to do these formulation to avoid the side effects by using the natural ingredients like ginger, neem, reetha. Hand washing is a daily ritual that is extremely important. In this study, a blend of natural extracts with established antimicrobial qualities was used to formulate a herbal handwash. The hand wash formulation was found to be effective in terms of physical parameters and to effectively clean hands. Thus, it raises the issue of using antiseptics for hand washing. The Prepared handwash was assessed using several parameters, including color, smell, pH, viscosity, and stability. Following formulation, the herbal hand wash was assessed using a range of physical and chemical characteristics, including pH, color, smell, appearance, texture, spreadability, grittiness, skin irritancy, foam height, foam retention, cleaning action, stability, and other factors. It was discovered that the revolt was within a normal range with little to no side effect

Keywords: Anti-Microbial properties, Allergen Sensitivity, Rhizome, Impurities, herbal handwash formulation, Ginger Extract.

Introduction:

The skin, which covers the interior of the body and protects it from viruses, is the first line of defense for humans. Washing hands is therefore an essential preventative measure to shield the skin from dangerous bacteria and to halt the spread of numerous infectious illnesses. The most common way for illnesses and germs to spread is through hands. Therefore, it is essential to practice good hand hygiene if you want to prevent infections among healthcare workers and stop the spread of dangerous pathogens. Hand hygiene is the easiest and least expensive way to prevent infections. Plant extracts and their derivatives have long been used in traditional medicine, functional foods, cosmetics, natural dyes, detergents, and medical treatments. Herbal handwash, which is frequently made from plant-based ingredients like essential oils, herbs, and extracts, is a healthy substitute for conventional hand soaps. It has a reputation for having mild

cleaning qualities and occasionally contains antimicrobial herbs like lavender or tea tree oil. People looking for a more skin- and eco-friendly option prefer herbal handwashes. Presenting our latest herbal hand wash, enhanced with the energizing power of ginger extract. This handwash uses ginger's inherent antibacterial qualities to provide a revitalizing cleanse that leaves your hands feeling soft and renewed. Say goodbye to harsh chemicals and hello to the soothing power of nature with our ginger-infused herbal handwash. Before and after certain activities, the World Health Organization (WHO) advises washing hands for at least 20 seconds. These include the five crucial moments of the day when hand washing with soap reduces the risk of fecal-oral disease transmission: following toilet use (for urination, defecation, and menstrual hygiene); following diaper changes; before feeding a child; before eating ;before/after food preparation or handling raw meat, fish, or poultry.

Steps to Handwash :

- (1) To stop the spread of illness, the US Centers for Disease Control and Prevention (CDC) advises taking the following actions after washing your hands.
- (2) Wet hands under running water, either warm or cold. Running water is advised because standing basins could be contaminated. Although experts say warm, tepid water may be better, water does not seem to matter much in terms of temperature. Apply plenty of soap to your hands and rub them all over, including the backs, in between your fingers, and under your nails to create lather. Studies reveal that people tend to wash their hands more thoroughly with soap than with water alone because soap removes pathogens from the skin.
- (3) Spend a minimum of 20 seconds cleaning. Friction produced by scrubbing aids in the removal of pathogens from skin, and longer scrubbing sessions eliminate more pathogens.
- (4) Thoroughly rinse under flowing water. Hand rinsing in a basin may cause recontamination. Use a fresh towel to pat dry or let it air dry. Hands that are damp and wet are easier to recontaminate.
- (5) The thumb, wrist, spaces between fingers, and under fingernails are the most often overlooked regions. Microorganisms may be present in chipped nail polish and artificial nails.

Advantages of herbal Handwash :

- (a) Natural Ingredients: Natural antibacterial ingredients without harsh chemicals, such as neem, tulsi, or reetha, are frequently found in herbal handwashes.
- (b) Gentle on Skin: Herbal handwashes, in contrast to some chemical-based ones, typically have a mild formula that allows for frequent use without irritating or drying out the skin.
- (c) Effective Antibacterial Action: The natural antibacterial qualities of many herbs aid in the destruction of germs and the halting of the spread of infections, all without encouraging the development of antibiotic resistance.
- (d) Benefits of Aromatherapy: Natural scents found in herbal handwashes are often soothing and uplifting, offering benefits of aromatherapy while you wash your hands.
- (e) Environmentally Friendly: Compared to some synthetic alternatives, herbal handwashes are a more sustainable option because they are frequently biodegradable and environmentally friendly.

Materials and Methodology: -

Materials:

1.Ginger (Rhizome) :

BOTANICAL CLASSIFICATION :

Botanical Name- Zingiber officinale

Family Name - Zingiberaceae

Kingdom - Plantae

Division - Tracheophyta- Vascular plant

Class - Magnoliopsida

Order - Zingiberales

Family - Zingiberaceae

Genus - Zingiber Mill.-ginger

Species - Zingiber officinale Roscoe- garden ginger

ORGANOLEPTIC PROPERTIES -

Colour - Yellowish green

Odour - Aromatic

Taste - Spicy, pungent, bitter

Height - Upto 1m



The plant of ginger grow upto 1m height.

Its leaves are the 6-12 inches long.

The flowers of ginger is green purple color of it's terminal spikes.

The rhizomes of ginger is buff colored

Uses : Ginger can be a great addition to herbal handwash due to its antibacterial and antiviral properties. It can help cleanse and purify the skin while adding a refreshing scent. Additionally, ginger may provide soothing benefits for the skin, making it suitable for those with sensitive skin.

2.Neem :

Kingdom: Plantae

Division: Magnoliophyte

Class: Magnoliopsida

Order: Sapindales

Family: Meliaceae

Genus: Azadirachta

Species: indica

Scientific name: *Azadirachta indica*

Solubility : Not highly soluble in water, soluble in alcohol



Microscopical Characteristics

The transverse section showed outer dark reddish brown rhytidoma consisting of 10 to 15 rows of outer most dark brown colored cells of cork, and a narrow band of stone cells lying underneath this followed by outer few rows of parenchyma and inner wide 20 to 25 rows of dark orange brown colored phloem tissue; very narrow band of phelloderm with tangentially running tannin cells and very wide phloem with discontinuous groups of crystal fibers alternating with medullary rays. Prismatic crystals of calcium oxalate traversed throughout the parenchymatous cells.

Uses :

Neem is commonly used in herbal handwash for its potent antibacterial, antifungal, and antiviral properties. It helps cleanse the skin thoroughly, removing dirt, bacteria, and impurities. Neem also has soothing properties, making it suitable for sensitive skin. Additionally, it can help prevent skin infections and promote overall skin health.

3.Reetha :

Kingdom: Plantae

Sub kingdom: Tracheobiota

Division: Magnoliphyta

Super division: Spermatop

Class: Magnolipside

Sub class: Rosidae

Family: Sapindaceae

Genus: Sapindus

Species: *S. trifoliatu*s

Parts used: Fruits, soap nut shells

Habitat: Grows wild in south India

Solubility : Soluble in water and not soluble in alcohol



Uses :

Reetha, also known as soapnut, can be used in herbal handwash for its natural cleansing properties. It's gentle on the skin and effective in removing dirt and grime. Additionally, it has antimicrobial properties, making it a suitable ingredient for handwash formulations aimed at promoting cleanliness and hygiene.

Formulation Table

Ingredient	Quantity	Action
Ginger extract	20 ml	Anti-microbial, Anti-oxidant
Neem extract	20 ml	Anti-bacterial
Reetha extract	15 ml	Foaming agent, Cleansing agent
Rose water	10 ml	Perfume
Glycerin	10ml	Moisturising agent
Methyl paraben	0.5gm	Preservative
Aloevera	5ml	Anti-bacterial agent
Honey	5ml	Anti-septic agent
Water	q.s	Vehicle

Procedure :

1. Sample of ginger, neem ,reetha were collected during process.
2. Dry the above mentioned ingredients and make powder.
3. Make extract :
Ginger : Grate ginger, soak in water,boil and strain.
Neem : Soak neem leaves in ethanol for 3 days and strain.
Reetha : Boil reetha pods in water and strain.
4. Mix extracts Ginger(20ml), Neem (20ml), Reetha (15ml) and stir.
5. Add rose water to the mixture as perfuming agent.
6. Glycerine, Honey and Aloe vera was added simultaneously to the mixture.
7. Methyl paraben was added while stirring.
8. Transfer the handwash into suitable container and seal it properly.
9. Label the container with the product name.

Evaluation test :

1. Colour
2. Odour
3. Foaming test
4. Irritancy
5. Stability
6. pH

1.Colour-The colour of the prepared formulation discovered visually

2.Odour-We tested the handwash by putting it on our hands and inhaling the formulation.

3.Foaming test - A one-gram sample of the herbal handwash was taken and mixed with fifty milliliters of distilled water before being put into a measuring cylinder. Water was added to bring the volume up to 100 ml. This solution was divided into ten test tubes, one for each of the following portions: 1, 2, 3,.10 ml. The remaining volume was filled in with ten milliliters of water. The test tube was then shaken for fifteen seconds. After allowing the test tube to stand for 15 minutes, the foam's height was determined.

4.Irritancy - The hands were rubbed with the herbal hand wash until completely absorbed. For one hour, the skin was checked for any indications of irritation, redness, itching, discomfort, etc. For the marketed formulation, the same procedure was carried out again.

5.Stability – The herbal hand wash was kept at room temperature for seven days.

6.pH – The pH was determined using digital pH meter and the pH of herbal handwash was found to be 5.0.

Conclusion

Ginger extract has inherent antibacterial qualities and a light aroma, so adding it to herbal handwash can increase its ability to destroy germs while also making the user feel good.

The findings of the current study allow for the deduction of the following conclusion. When compared to synthetic hand wash, this polyherbal solution has fewer negative effects and serves an important role in preserving hand hygiene and preventing the spread of microorganisms.

Result

Evaluation parameter	Result obtained
Colour	Greenish brown
Odour	Aromatic
Stability	Stable
Washability	Easily washable
pH	5.0
Irritancy	Non irritant on the skin

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