Formulation And Evaluation of Herbal Hand Wash

1Prof. Girhe Suraj Ashok, 2Ms. Satpute Pooja Tukaram, 3Ms. Katkade Prachi Shrinivas

1Assistant Professor, 2,3F.Y.B.Pharm student
Loknete Appasaheb Rajale college of Pharmacy

Abstract- The hands are the primary roots of the transmission of the infection to the patient hence it bring up the use antiseptic for hand washing purpose the main aim to present the work for formula and the evaluate the polyhed herbal and wash by the using the aloe vera lemon juice introduce to the make the formulation has been less side effect and the better cleaning hand of hand the formula and wash was found to be good in the physical parameter with the good cleaning

Keywords: Herbal hand wash, Tulsi, vitamin C, Aleo-vera , citrus Limon, essential Oil.

INTRODUCTION:
The herbal medicine is also known as the botanical treatment or the path medicine refersto use of any plant seeds routes leaves bar follower and aerial part of the medicinal purpose herbal medicines have the treatment and care of the numerals disease to different the skin for harmful microorganism to avoid the spreading disease and wash is extremely significant precautions and watch is main purpose of clinic and wash with the removing the soil pathogenic microorganism and avoid the transmitting micro organism the concept highlight the need of the maintaining hygiene and reservation of the disease herbal drug treatment gives the healthy life. In healthcare hand cleanliness is best and most effective , simplest and affordable technique to prevent nosocomial infection.

HOW TO USE

Fig No. 1
Advantages of Hand Wash
1) No side effects.
2) Bacteria on our hands can be minimized.
3) It also helps to clear antiseptic antifungal problem faced by the skin.
4) It also helps to remove dirt and oil effectively from the skin.
5) Hand wash prevent germs from entering into our body.
6) Herbs are readily available in both urban and rural settings, making it simple for everyone to them
7) Affordable: herbal plants are less expensive than the chemical components found in synthetic hand wipes.
8) Enhanced effectiveness: Herbal hand soaps work better to encourage good hand hygiene
9) Less adverse effect: Compared to other hand washes, herbal hand washes have fewer side effects.

AIM & OBJECTIVE
The aim of this study was to formulate an herbal handwash containing extract of Reetha and Tulsi
The objective of the study:
- To prepare ethanolic extract from Reetha
- To prepare ethanolic extract from Tulsi
- To prepare Aloe vera gel
- To prepare lemon juice
- To formulate the herbal hand wash
- To perform Physical characteristics, Stability study And antimicrobial activities against various bacteria and fungi.
- To perform the evaluation test of herbal handwash.

PLAN OF WORK
PHASE I
1. COLLECTION AND AUTHENTICATION OF THE PLANT
2. EXTRACTION OF Reetha
3. EXTRACTION OF Tulsi

PHASE II
FORMULATION AND OPTIMIZATION OF HERBAL HANDWASH

PHASE III
EVALUATION OF HERBAL HANDWASH:
1. Physical evaluation
   i) Appearance
   ii) pH
   iii) Colour
   iv) Odour
2. Stability study
3. Foam height.
4. Foam retention
5. Washability

PLANT PROFILE:
1) Tulsi

Fig No. 2
Scientific classification of Tulsi: - Synonyms: Sacred basil, Holy basil
Kingdom: plantae
Division: magnoliophyte
Class: Magnoliopsida
Order: Lameness
Genus: Ocimum
Species: O.tonuiflorum
Bionomical name: ocimum tenuiflorum/Ocimum sanctum

**Biological Source**
Tulsi consists of fresh and dried leaves of Ocimum sanctum Linn., belonging to family Labiatae.

**Geographical Source**
It is a herbaceous, much branched annual plant found throughout India, it is considered as sacred by Hindus. The plant is commonly cultivated in gardens and also grown near temples. It is propagated by seeds. Tulsi, nowadays, is cultivated commercially for its volatile oil.

**Chemical constituents**
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.

**Use:**
Expectorant, febrifuge, immune-modulator, antimicrobial agent.

2) **Reetha**

![Fig No. 3](image)

Scientific classification of Reetha: - Synonyms: Aristha, Dodan, Dodani
Kingdom: plantae
Clade: Angiosperms
Order: sapindales
Family: sapindaceae
Subfamily: sapindoideae
Genus: sapindus

**Biological Source**
It consists of dried fruit of Sapindus Trifoliatus (S.I), Sapindus Mukorassi (N.I)

**Geographical Source**
Sub Himalayan region, S.I & N.I

**Chemical constituents**
Fruit contains saponin(10-11.5%), sugure(10%) and mucilage. Sppindus saponin is a mixture of sapindosides A,B,C,D & Mukorozi Saponin (E1,Y1) like dioscin, protodiscindiosgenin gitogenin Chlorogenin& rusogenin

Seed contain fatty acid B-sitosterol, starch, sugars(10%), mucilage Protein Pericrap contain 2 new tritepenoid saponin emerginatoside-B&C

**Use:**
Mucolytic agent, emetic, contraceptive, tmt of excessive salivation, epilepsy, treat chlorosis.
- Anti-inflammatory, antimicrobial activity, insecticidal activity
- Cosmetic, as a hair tonic
- Foaming agent

3) **Aloe vera**

![Aloe vera plant](image)

**Synonyms:** Aloe, Musabhar
**Kingdom:** plantae
**Order:** Aspargels

**Family:** Xanthorrhoeaceae
**Genus:** Aloe
**Bionomical name:** Aloe vera

**Biological Source**
Aloe is obtained from the dried juice of the leaves of
- Aloe barbadensis Miller, known as Curacao aloes, (Aloe Vera)
- Aloe perryi Baker, known as Socotrine aloes
- Aloe ferox Miller and hybrids of this species with Aloe africana Miller and Aloe spicata Baker, known as Cape aloes, belonging to family Liliaceae.

**Geographical Source**
- Alos is the indiegeneous to eastern and southern Africa and grown in cape colony Zanzibar and islands of Socotra. it is also cultivated in Caribbean islands, Europe and many parts of India, including North West Himalayan region.

**Chemical Constituents**
- Anthracene glycosides (11 to 40%).
- Barbaloin or Aloin , a C glycoside (not easily hydrolysable with dil).

Acids and linkage between the sugar and the aglycone is through C-C)
- Isobarbaloin, aloem-edomin and aloesone
- Aloinosides A and B (only in Cape aloes)
- Resins (resinotannol+cinnamic acid or coumaric acid).
- Also contains Aloetic acid, homonataloin etc.

**Use:**
- Aloe vera gel is used as an ingredients in commercially available lotion, yogurt, beverages and some desserts.
- It is used to heal skin wounds, burn and helps in speedings recovery timeafter surgery
- It helps to fight frostbite and shingles, reduce psoriasis, reduce rosacea, reduce warts and reduce ageing, reduce wrinkles and also it reduce the eczema.
- It improves joint flexibility and helps in the regeneration of body cells
- Healing agent

4) Lemon

Sciintific classification of lemon:-Synonyms: Fructus Limonis Kingdom : plantae
Family : RutaceaOrder : sapindalesGenus : citrus Species : lemon

Biological Source
Lemon peel is obtained from the fresh ripe fruit of Citrus lemon (L.) Burm. f. (Cmedico var. lemon Linn.), belonging to family Rutaceae.

Geographical Source
It is cultivated in California. West Indies, Italy, Spain, Sicily, Portugal, Florida, California, Jamaica, and Australia; grown all over India, particularly in home gardensand small-sized orchards.

Chemical Constituents
-Lemon peel contains volatile oil (2.5%), vitamin C, hesperidin and other flavone glycosides, mucilage, pectin and calcium oxalate. The important constituents of the volatile oil are limonene (90%), citronellal, geranyl acetate, α-pinene, camphene, linalool, terpineol, methyl heptenone, octyl and nonyl aldehydes, γ-terpinene, β-pinene,neral, and geranial.
-The peels also contain flavonoids eriocitrin, epigenin, luteolin, chrysoeriol, quercetin, isorhamnetin, limocitrin, limocitrol, isolimocitrol, hesperidin; coumarins scopoletin and umbelliferone; sinapic acid and β-coumaric acid

Uses
Lemon peel is used as a flavouring agent, perfumery, stomachic, and carminative. The oil, externally, is a strong rubefacient and if taken internally in small doses has stimulating and carminative properties, Antiseptic.

Material & Method
Material
Ingredients of Formulation

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Name of ingredients</th>
<th>Role of ingredients</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tulsi extract</td>
<td>Antimicrobial agent</td>
</tr>
<tr>
<td>Sr. No</td>
<td>Ingredients</td>
<td>Quantity</td>
</tr>
<tr>
<td>--------</td>
<td>----------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>1</td>
<td>Tulsi extract</td>
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</tr>
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<td>2</td>
<td>Citrus lemon/juice</td>
<td>4 ml</td>
</tr>
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<td>3</td>
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<td>6 ml</td>
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<td>4</td>
<td>Reetha extract</td>
<td>7 ml</td>
</tr>
<tr>
<td>5</td>
<td>Eucalyptus oil</td>
<td>0.5 ml</td>
</tr>
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<td>6</td>
<td>Glycerin</td>
<td>12 ml</td>
</tr>
<tr>
<td>7</td>
<td>Methyl paraben</td>
<td>0.3 ml</td>
</tr>
<tr>
<td>8</td>
<td>Rose water</td>
<td>q. s</td>
</tr>
<tr>
<td>9</td>
<td>water</td>
<td>q. s</td>
</tr>
</tbody>
</table>

Table No. 2

**Ingredients of formulation:**

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<td>q. s</td>
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</table>
METHODS:

Procurement of plant material
The fresh leaves of tulsi were collected from medicinal plant of S.P.C.O. Pharmacy pachegaon District-Ahmednagar and the fruit of Reetha were collected from the local market of pachegaon. The fruit of lemon were collected from the local market of pachegaon,. The Aloe vera were collected from the medicinal garden of S.P.C.O.P. Pachegaon.

Extraction procedure:

![Image of extraction setup](image)

Fig No. 7

- Weight accurately the quantity of Tulsi and Reetha powder
- Place each powder in the separate chamber of the soxhlet apparatus.
- This soxhlet extractor placed into RBF containing the extraction solvent i.e. ethanol (80 ml)
- Take the extraction solvent i.e. ethanol (80 ml) and 

pass at least the three cycles from thimble containing the drug.
- Place the reflux condenser on top of the soxhlet apparatus which closed with cotton plug from the top and allow to pass water from top to the bottom of the condenser.
- Then switch ON the assembly and pass the 5-6 cycles into the apparatus.
- After complete, the extraction removes the soxhlet apparatus and collect the extract from RBF.
- After collecting the extract it allows to evaporate on the water bath to get the concentrated extract.
METHOD OF PREPARATION:
1) Ethonolic extract of tulsi leaves is mixed with 4ml citrus Limon juice in 20ml.of water.
2) Then add aloe-vera twice and add extract of sapindus mukorosis to produce sufficient foaming capacity.
3) Then add desired quantity of glycerine and eucalyptus oil with moderate stirring.
4) At the end add preservative in sufficient quantity.
5) The solution is mixed, made homogeneous under room and further utilized for screening of the activity.

EVALUATION OF HAND WASH

A) Physical evaluation:-
i) Appearance:-
It was determined visually.

ii) Colour:-
It was determined visually.

iii) Odour :-
It was determined manually.

iv) pH :-
The pH was determined using digital pH meter and the pH of herbal wash was found to be 5.2

B) Stability studies:-
The stability of herbal hand wash gel was carried out by storing measured amount of gel at different temperature i.e., 25°C, 37°C, 40°C for one week during stability studies no change in colour and no phase separation were observed in the formulated hand wash.

C) Foam height:-
1) 1ml of sample of herbal hand wash taken and dispersed in 50ml distilled water.
2) then transferred it into 500ml stoppers measuring cylinder, volume make upto 100ml with water.
3) 25 stroke was given and stand till aqueous volume measured upto 100ml and measured the foam height.
D) **Foam Retention:**
50ml of herbal hand wash was taken into a 250ml graduated cylinder and shaken ten times. The volume of foam at 1 minute interval for minute was recorded foam Retention should be stable at least 5 min.

**RESULT & DISCUSSION**

<table>
<thead>
<tr>
<th>Evaluation parameters</th>
<th>Result obtained</th>
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<tbody>
<tr>
<td>Colour</td>
<td>Brown orange</td>
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<tr>
<td>Odour</td>
<td>Aromatic</td>
</tr>
<tr>
<td>pH</td>
<td>5.2</td>
</tr>
<tr>
<td>Stability</td>
<td>Stable</td>
</tr>
<tr>
<td>Washability</td>
<td>Easily washable</td>
</tr>
<tr>
<td>Foam Retension</td>
<td>Stable</td>
</tr>
<tr>
<td>Foam height</td>
<td>3 cm</td>
</tr>
</tbody>
</table>

Table No. 3
CONCLUSION:
Hands are the primary source of disease related to skin, respiration, gastrointestinal tract etc. due to various disease and germs, the bar soap get contaminated which may lead to spread of germs. In this sophisticated world liquid hand washes are used much more frequently than the bar soap, the additional advantage is the soap in the liquid hand wash is untouched leading uncontaminated. Hand wash with every new pump in the market, there are various types of hand washes are available, claiming that they kill the harmful germs at considerable rate at minimum time. To determine this, it is necessary to determine the efficiency of hand wash. Average percentage reduction and log reduction of the organisms determined for hand wash performing viable count.

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