

# Formulation, Evaluation and Development of Herbal Handwash by Using Hingan Extract for Antimicrobial Activity (*Balanite Aegyptiaca*)

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**Abstract:-** Bacterial infections are maximum not unusual among human beings, requiring full-size interest for treatment also preserving for wholesome pores and skin. a few herbal vegetation extract and their oil had been located to have antibacterial and antimicrobial pastime the purpose and goal of present examine are to formulate antimicrobial herbal hand wash the usage of *Balanites aegyptiaca*.

The antimicrobial interest and the organized method become tested the use of agar nicely diffusion method (streak plate method) against organism *E. coli* and that they showcase appropriate antimicrobial activity. The prepared components became evaluated for numerous physicochemical parameters for which right traits have been found. The easy availability of plant and their effectiveness allows manufacturer with value effective benefits and with less or no facet results.

## I. INTRODUCTION

- *Balanite Aegyptiaca* (L.) Del. Belongs to own family *Balanitaceae*.
- It's miles multi branched ,ever green tree allotted thru out the drier a part of the India.
- It is extensively grown within the sudano-Sahilian region, the middle east and south Asia.
- It's miles recognized with the aid of diverse names e.g. – Arabic name- heglig lalon fruit.
- Trade call- zaccone, desert date dried fruit. In India Hindi call is hingot.

### ➤ Aim

Formulation and evaluation of herbal handwash using extract of *Balanite aegyptiaca*

### ➤ Objective

- To development of the herbal handwash.
- To Evaluate antimicrobial activity with herbal hand wash.

### ➤ Authentication

- The botanical name of the plant: *Balanite aegyptiaca* (L) Del.

- Old family: *Belanitaceae*
- New family: *Zygophyllaceae*



**Fig 1 Hingot Fruit**

- The fruits are ovoid, drupe, 2-5 cm lengthy, located on short thick, stalk and is faintly grooved.
- The ripe fruit is brown or faded brown with brittle coat enclosing a brown or brown green sticky pulp and a tough stone seed.
- Numerous components of this plant have their own medicinal belongings.
- This plant has been pronounced to be anthelmintic, purgative, and emetic and also cure different forms of illnesses like skin boil, malaria, and wounds, colds, liver and spleen disease and aches.
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skin boil, malaria, and wounds, colds, liver and spleen sickness and aches.

## II. ADVANTAGES OF NATURAL HAND WASH

- The perfume of the natural hand wash keeps the skin sparkling and gentle.
- The moderate foaming movement does no longer motive any inflammation at the same time as the use of natural hand wash.
- It additionally help to put off dirt and oil efficiently from the skin.
- Herbal hand wash is primarily used as it is free from chemical unlike the normal hand wash
- The ingredient used in herbal hand wash are natural and safe.

## III. INGREDIENT

Following are the ingredients used in herbal hand wash:

- NaCl (sodium chloride)
- Sodium lauryl Sulphate (SLS)
- Glycerin
- Orange oil
- Lemon oil
- *Sodium Chloride:*
  - Sodium chloride is multifunctional factor utilized in cosmetics and pores and skin care merchandise as a binder , oral care agent , mild abrasive , thickening agent and preservative .
  - Sodium chloride is effective as preservative due to its ability reduce the water interest of foods. The water interest of a food is the quantity of unbound water to be had for increase of bacteria.
- *Glycerin:*
  - Glycerin glycerol, is derived from plant-primarily based oils. It additionally happens clearly in fermented goods, such as beer, wine and bread.
  - People have used glycerin to create soap and herbal hand wash.
  - Glycerin cleaning soap is all herbal. It doesn't comprise alcohol, fragrances, or other chemical-based totally ingredients that might worsen your skin.
  - It is used in hand wash due to it maintain the moisture on the hand and does not feels rough after use
- *Orange Oil:*
  - Orange critical oil is astringent and antiseptic in nature; it acts as a herbal purifier to deeply, purify and detoxify the skin. for this reason, it's miles advocated for pimples susceptible pores and skin.
  - Enriched with diet C, it also helps to boost collagen inside the pores and skin.
- *Sodium Lauryl Sulphate:*
  - Sodium lauryl sulphate additionally referred to as sodium dodecyl sulphate. SLS is white or cream-colored

powder. It is an anionic surfactant used in many cleansing and hygiene products.

- SLS functions in herbal hand wash as a emulsifying or solubilizing, oil or dirt, dust soil so that they rinse away, it has foaming property.
- *Lemon Oil :*
  - Based on both scientific research anecdotal account, lemon oil may have antibacterial activity and used as fragrance.
- *Extraction process:*
  - A. Maceration-
    - After crushing of inner part of fruit and dried at room temp.
    - Then added into conical flask and also in that added ethanol 500ml with 75% Concentration. (375 ethanol and 125 ml water)
    - Then close the conical flask with cotton swab and aluminum foil, stir every day for well dissolve of constituent from the fruit inner layer.
    - After one day add 2ml of chloroform as preservative protection from fungus growth.
  - *Distillation:*
    - Then filter maceration, it places for simple distillation for separating ethanol from mixture.
    - Build the simple distillation apparatus for distillation and macerated mixture. In that distillation for 8 hrs. per day for 2days.
    - After the separation of ethanol, remaining thick extract used for next procedure.
  - *Soxhlet Method :*
    - After maceration and distillation sample passed through vacuum filter for filtration , after filtration remaining residue is separated and set for Soxhlet process.
    - Procedure:
      - Region the thimble into important chamber of Soxhlet extractor.
      - Add the selected solvent to round bottom flask and region into heating mantle.
      - Connect the Soxhlet extractor above the round backside flask.
      - Join the 4 reflux condenser above the extractor with cold water getting into at the lowest.
  - *Procedure for Hand Wash:*
    - Take 5 gm of NaCl , add into the water (75ml q.s.) and mix well till NaCl crystals dissolve completely .
    - Then add glycerin 7ml in separate beaker.
    - In that add 9ml of lemon oil into that beaker as fragrance.
    - Add orange oil 2ml as coloring agent.
    - Add SLS 2gm in the form of liquid in above mixture.
    - Both NaCl and another mixture solution mix well in the one beaker.
    - Then add extract (Balanites aegyptica) solution add into that mixture as major constituent.

- And make up the volume with water for 100ml preparation.

#### IV. EVALUATION TEST FOR HERBAL HAND WASH

- *Determination of Organoleptic Characteristics-*  
Readability and colour checked with the aid of naked eyes towards the history and odour become smelled

- *Foam Index*

0.5 gm of sample was taken and dispersed on hand with water or add into test tube and shake, checked foam height. Foam height is 1-2cm

- *Anti-Microbial Test*

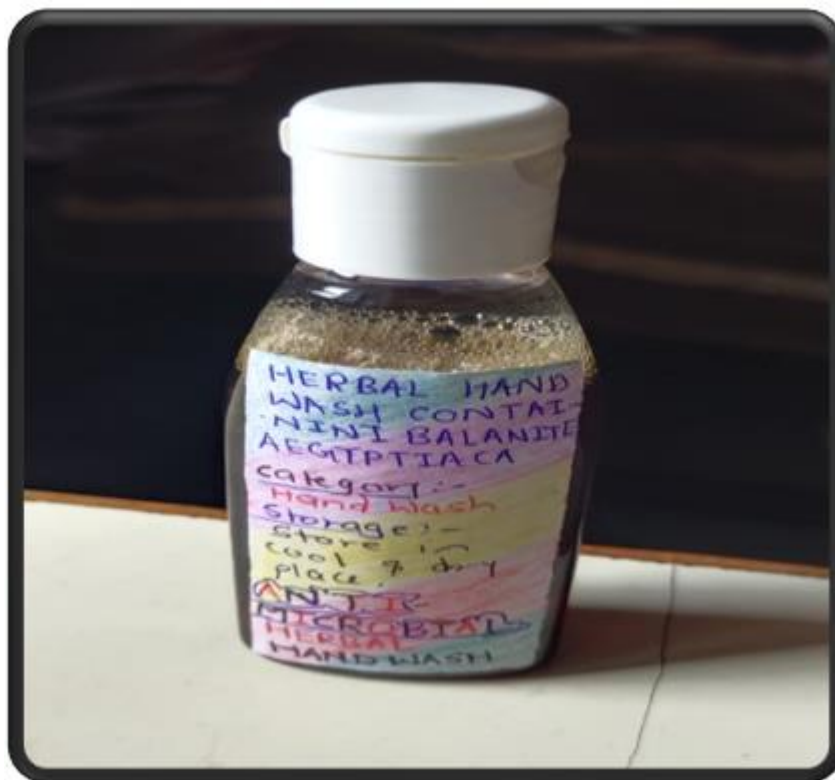
The organized hand wash turned into subjected to antimicrobial screening by the agar properly diffusion fashionable streak plate approach the usage of soil subculture.



Fig 2 Zone of Inhibition for Soil Culture

Table 1 Identification Test

Sr no	Test	Observation	Inference
1	<b>Test for alkaloid</b> <b>Dragendroff's test:</b> 1ml of dragendroffs solution + 12 ml extract	No color change	Absence of alkaloids
2	<b>Test for protein :</b> <b>Biuret test :</b> 2 drops of 3% copper sulphate + few drops of NaOH+ 1 ml extract	Violet color produce	Protein present
3	<b>Test for carbohydrates :</b> <b>Molisch test :</b> few drops of alpha-naphthol + 2ml extract + conc. H <sub>2</sub> SO <sub>4</sub>	At the junction of two liquid violet ring produce	Carbohydrate present
4	<b>Test for saponin:</b> Drops of Na <sub>2</sub> CO <sub>3</sub> + 5ml extract. Shake 5 min	Foam formation	Saponin present
5	<b>Test for tri-terpenoids :</b> 2 ml tri-chloro acetic acid + 1 ml extract	Red precipitation	Tri-terpenoids absent



**Fig 3 Prepared Product (Herbal Handwash)**

## V. RESULT

The Herbal Hand Wash By Using Hingan Extract For Antimicrobial Activity (Balantes Aegyptiaca) Formulated, Evaluated, Developed and Submitted with neat labelled.

## VI. SUMMARY AND CONCLUSION

The present study on the formulation, evaluation and development of herbal handwash from belanite aegyptiaca fruits suggest that the fruit of this plant in which inner part (pulp) contain saponin glycoside (7.25%). Thus it can be a good source of raw material for many products (soap, shampoo, handwash). The handwash is formulated from extract of pulp (fruit) and has good property. It is applicable for hand wash and in cosmetic industry.

## REFERENCES

- [1]. Anti bacterial activity of an effective essential oil formulated in liquid soap against skin bacteria by watcharee khunkitti, Kno Kaen University. Page no.78.
- [2]. Formulation of polyherbal hand wash with antimicrobial activity by katakam revati shushma, pedrala bhavya shree, shaikh aziruddin. Page no. 02
- [3]. Formulation and evolution of alcohol free herbal hand wash containing ocimum sanctum by Mali Kamlesh D. Choudhari Himashu p. Page no.2.
- [4]. Evolution of phytoconstituent of belanite aegyptiaca L. del leaves and fruit-mesocarp extracts by Daniel mhya Hassan, department of med biochemistry, Abu Bakar Tafawa Balewa, university Bauchi, Nigeria.

- [5]. Belanite aegyptiaca L. Del (hingot): A review of its traditional uses, phytochemistry and pharmacological properties by J.P. Yadav, Manju Panghal, department of genetics, M.D. University, Rohtak, Haryana.
- [6]. Chemotherapeutic potential of the steam bark of belanite aegyptiaca L.: An antiangiogenic, antitumor and antioxidant agent by Ahmad Hassan, Sultan Ayesha Mohammed Saghir.
- [7]. Formulation and evaluation of antimicrobial herbal soap by Dr. A. Seetha devi, D. V. Shivani, D. Anusha, G. Saratha, Hindu college of Pharmacy, Gunthur, A.P.
- [8]. Nivethetha M, (2009), in this article showed the study was designed to scientifically evaluate the effects of Muntingia calabura L. (M. calabura), a medicinal plant, on isoproterenol myocardial infarction (MI) in rat models.