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Formulation & Evaluation of Herbal Soap

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Abstract: *Our study's objectives included creating a polyherbal hygienic soap using the cold process technique and assessing its antimicrobial potential using the agar well diffusion method. Coconut oil, , neem shikakai, ritha, rose petals extract, and NaOH (lye) were used to make soap, and the various extracts were added to the fundamental saponification reaction. Following the preparation of the herbal mixture, the using various concentrations of soap solution in comparison to the standard, analyse pH, Moisture content, foaming index, foam retention time, saponification, TFM measurement, ethanol soluble matter, and antimicrobial activity. The findings showed that the herbal soap had the following properties: pH 6.5-7, moisture content 3.5%, foam index 16.5, foam holding time 10.0 minutes, saponification value 161.287 mg/ml, 72% TFM, and ethanol soluble matter 63.80%. Additionally, the evaluation experiments revealed that the herbal soap performs satisfactorily against microbes when compared to conventional antibiotics. Additionally, oils are used both everyday and to treat a variety of skin infections*

Keywords: Neem, Tulsi, Ritha, Shikakai, KOH, Perfume, coconut Oil, PLP ethenol

I. INTRODUCTION

Herbal soap preparation is a medicine or drugs it contain Antibacterial & antifungal agents which e mainly uses of part of plants such as like leaves, stem, roots & fruits to treatment for a injury or disease or to achieve good health This preparation possess antimicrobial property are administered topically and available to apply in various forms likecreams ,lotion ,gel ,soap, solvent extract or ointment. the variety of creams & soap properties have been used to treat various skin disorders Mostly skin infection are caused by fungi, staphylococcus aureus and streptococcus speciesEthnomedically, juice& extract from leaves of the plants are topically applied as antimicrobial and anti-inflammatory agents in treatment of skin disease including eczemas, ringworm and pruritus. The succulent gel form is used to disorders of psoriasis. Crude preparation of soapy plant are able to soften the skin epidermis enhance greater penetration and cleaning acne and also promote healing and resolution in quickly in time. In this review article herbal soap conataining neem, tulsi, shikekai and reetha as natural plant ingredients and this content gives or shows antibacterial antifungal & anti-inflammatory activity. In this soap, neem is main compound, and shows medicinal properties.

AIM AND OBJECTIVE

Aim :-

To study the formulation development and evaluation of herbal soap.

Objectives:

The ultimate aim of this study is to formulate and evaluate the herbal soap using extracts of plant having ethnic and dermatological importance in Ayurveda,namely,Neem Azadirachta indica, and Tulsi Ocimum tenuiflorumShikakai Acacia concinna

RITHA Sapindus mukorossiPart

- The primary goal of making herbal soap maintain the tonicity of skin.
- To balancing skin pH.
- It also help to tightening skin pore (anti-aging).
- Relieving irritation.

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• It is used to stimulate blood circulation.
• The herbal cosmetics is non-toxic in nature, reduce allergic condition.
• It give no side effect as compared to chemical toners.
To study the evaluative parameters such as :-
1) pH
2) Foam retention
3) Foam height
4) Moisture Content
5) Cleansing Ability
6) Skin Irritation

MATERIALS & METHOD NEEM
Monograph :-
Common Name – Neem.
Scientific Name- AzadirachataIndica.
Biological Source- Almost all part of plant AzadirachataIndica.
Family- Meliaceae, the mahogany family
Kingdom- plant.

Fig.1 Neem

NEEM ;
Neem Leaf Botanical name: AzadiractaindicaPart typically used: Leaves Colour: Green
Description:- Compound alternate, rachis15-25cm long, .1cm thick, leaflet with oblique, serrate, 7-8.5 cm long and 1-1.7 cmwide slightly yellowish green in color.
Constituents: Flavonoids, Alkaloids, Azadirone, Nimbin, Nimbidin, Terpenoids, Steroids, Margosicacid, Vanilic acid, Glycosides, B-sitosterol, Nimbectin, Kaempeerol, Quercursertin are present in

Importance of NEEM :-
• Some of its health restoring benefits Effective in skin infection, rahes & pimples.
• Immunity booster, Anti obesity, Blood purifier for beautiful & healthy skin, Anti diabetic, Anti viral, Dispels intestinal worms and parasites, Malaria, Piles, Hair disorder& Oral disorders.
• Neem is rich in fatty acids, including oleic, stearic, palmitic, and linoleic acids.

• Neem is used to treat psoriasis and eczema.

• neem has been used to treat acne, reduce blemishes, and improve skin elasticity neem

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• leaf extract accelerates wound healing through an increased inflammatory response and the formation of new blood vessels.

Constituents:-
a) Flavonoids,
b) Alkaloids,
c) Azadirone,
d) Nimbin,
e) Nimbidin,
f) Terpenoids
g) Steroids,
h) Margosicacid,
i) Vanilic acid,
j) Glycosides,
k) B-sitosterol,
l) Nimbectin,
m) Kaempeerol,
n) Quercurserti

RITHA
Biological name:- Sapindus mukorossiPart Typical used:- Seeds
Colour:- Brown
Uses:- Detergent , Surfactant
Description:- The fruit is a small leathery skinneddrup 1 to 2 cm in diameter, yellow ripening blackish , containing 1 to 3 seeds

Fig.2 Reetha

Benefits of Reetha Promotes skin health
The essence of saponins in reetha works well as an excellent cleanser and is used as an alternative for soap and face wash. It is suitable for all types of skin, blending reetha with besan flour improves the skin sustenance and glow. The potent moisturizing property of the soapnut keeps the skin well hydrated, prevents drying of the skin and making the skin look radiant and supple. Furthermore, the powerful antibacterial and anti-inflammatory properties treat skin disorders like acne, eczema and psoriasis.

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TULSI
Biological name :- Ocimum tenuiflorum
Common name:- Holy basil
Chemical Constituents:- eugenol , germacrene ,terpenes
Part Typical used:- Leaves
Colour:- Green

Fig.3 Tulsi

Importance of TULSI :-
Owing to its healing, antibacterial, antifungal anti-inflammatory properties
Tulsi benefits the skin by preventing blackheads, acne and relieves skin infections, to name a few. Rich in vitamin K and antioxidants
Tulsi benefits hair by stimulating blood circulation and promoting hair growth amongst others. .
Tulsi has skin and hair benefits. It contains camphene which works as a natural toner to remove excess oil in the skin.
Tulsi neutralizes free radicals and rejuvenates the skin, reviving the youthful glow.

Chemical Constituents Of Tulsi Are:
1) Oleanolic acid
2) Ursolic acid
3) Rosmarinic acid
4) Eugenol,
5) Carvacrol
6) Linalool
7) β-caryophyllene
8) vitamin A

Tulsi :-
Tulsi is well known for its myriad medicinal properties — antibacterial, antifungal, antipyretic, antioxidant, antiseptic and anticancer. Helps beat stress. Tulsi is a natural herb with anti-stress qualities Tulsi is rich in Vitamin C and zinc , Rich in vitamin K and antioxidants.
Tulsi benefits the skin by preventing blackheads, acne and relieves skin infections.
It contains camphene which works as a natural toner to remove excess oil in the skin. Tulsi neutralizes free radicals and rejuvenates the skin, reviving the youthful glow.
SHIKEKAI
Biological name:- Acacia concinna
Common name:- shikekai
Chemical Constituents:- Spinasterone, Acacic acid
Part Typical used:- Fruits podsColour:

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Fig.4 Shikakai

Uses:- Antidandruff detergent May help with wound healing
May have anti-hair fall potential May be anti-inflammatory
May have potential antifungal activity May have antibacterial activity
May be potentially a good anti-oxidant

EXPERIMENTAL MATERIAL AND METHODS
Chemicals:
These include stearic acid, soft paraffin, ethanol, orange oil.
Collection, identification and processing of plant The leaves of Azadiracta indica, Ocimum tenuiflorum, and seeds of Sapindus mukorossi and pods of Acacia concinna were collected from different matured plant. The leaves were dried in hot air oven, pulverized and stored in airtight bottles for the studies
Extraction:
The Azadiricta indica, Ocimum
tenuiflorum, Sapindus concinna powder was extracted by granding .
PROCEDURE ;
Adding soap Base ingradingts coconut oil 100 gm heat oil for 5 min in water bath
add NaOH 20 gm + 100 ml water stir continusly 8 min add SLS solution of 10 ml for 2 min continusly stir add 10 ml Glycerine stir 2-3 min continusly
adding herbal drugs
add steric acid 1 gm or hardening add 5 ml ethanol as a solvent
add soft paraffin 0.7 gm continus stir for 5-8 min
add 10 ml tri ethanol amine stir continusly to form thick peste add rose water (QS) as a perfume
solution with continus agition for 30 min until moltel mix become homogeneous semisolid mix was poured in to mould and allow to solidefy

FORMULA:-
The formula shown in Table 3 is best suited for the preparation of herbal soaps:

Sr.no	Ingredients	Quantity (%)	Use
1	Stearic Acid	1 gm	Hardening
2	Soft Paraffin	0.70	Hardening
3	Ethanol	5ml	Solvent
4	Neem Powder	4gm	Antibacterial
5	Reetha	3gm	Surfactant
6	Shikekai	2gm	Cleanser

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7	Tulsi	1gm	Antiviral
8	Orange oil	q.s	Perfume

Formulation and Evaluation of Herbal Soap :-

Table1

Chemicals	Source
Ethanol	Laboratory reagent
Stearic acid	Laboratory reagent
Soft paraffin	Laboratory reagent
Orange oil	Laboratory reagent

Table2

Herbal plant	Source
Neem	Plant
Shikekai	Plant
Reetha	Plant
Tulsi	Plant

METHODS FOR EVALUATION OF VARIOUS PHYSICAL PARAMETERS OF HERBAL SOAP

Evaluation of five batches of herbal soap are given below.

1. Physical evaluation

In this test colour, odour and state of five formulations were checked.

2. pH

The pH of herabal face toner was determined by using a pH meter. The most accurate common means of measuring pH is through a lab device called Probe and meter or simply a pH meter. The probe consist of a glass electrode through which a small voltage is passed. The meter, voltmeter measures the electronic impedance in the glass electrode and pH unit instead of volt. A pH meter typically has to be calibrated before each use with two standard liquid solutions of Known pH. Measurement is made by submerging the probe in the herbal soap until a reading is registered in pH meter

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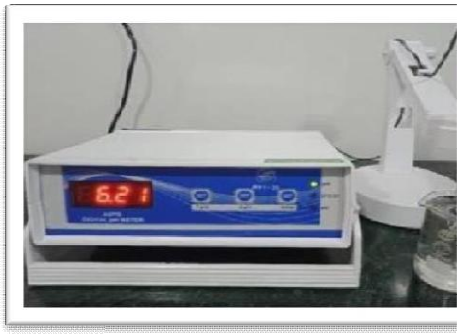

Fig.5 pH Meter

3. Skin irritation-

Skin irritation test was performed by herbal soapon different hands in a 1 cm box and exposed to sunlight for 5 mins to check for any irritation on skin.

After applying herbal soap on skin and exposed to sunlight no any variety of redness occurred of any one batches of two batches .

4. Stickiness-

The stickiness test was perform by spray face toner on hand and check stickiness of all batches.

5. Temperature variations-

The formulation was exposed to different temperatures at 45o C and -10 o C for 1 months to check the stability.

A Herbal soap should have the following characteristics:

It should remove dirt and sweat from your body .

It should leave your skin feeling clean and refreshed . It should nourish and soften your skin .

It should purify and protect skin from environmental damage It should moisturize your skin .

It should have a pleasant odourPlant Materials :-

EVALUATION

a. Physical Characteristics

Appearance: Color, uniformity, texture, shape. Fragrance: Strength, pleasantness, and natural aroma. Foaming Ability: Amount and stability of lather.

Hardness: Resistance to pressure (too soft may dissolve quickly). pH Level: Ideal range is 5.5 to 7 for skin-friendliness.

b. Chemical Analysis

pH Test: Using pH strips or a meter.

Moisture Content: Should be within acceptable limits to prevent microbial growth. Saponification Value: Indicates the amount of alkali required to saponify the fat/oil. Free Alkali Test: Ensures no excess caustic substances are present.

c. Microbial Tests

Antimicrobial Activity: Test against bacteria (e.g., E. coli, Staphylococcus aureus).

Stability Test: Check for spoilage or microbial growth over time.

d. User-Based Evaluation

Skin Reaction Test: Patch test on volunteers for irritation or allergies.

Moisturizing Effect: Subjective/user-reported feedback.

Cleansing Efficiency: Ability to remove dirt/oil.

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RESULT :-

• Among all the formulations the formulation f2 in both table 1 and 2 exhibited good result .

• The physicochemical parameters such as color, odor, appearance, and pH were tested. The pH of the soap was found to be 6.5 with pH strip . Remaining parameters such as foam height, foam retention moisture content, and were also determined .

• Foam Height was found to be:- 2.5 Foam Retention was found to be:- 5min Moisture Content in soap is:- 6.66%

Final Product :

II. CONCLUSION

The plant Azadiricta india, Ocimum tenuiflorum, Sapindus mukorossi and Acacia concinna were extracted using water and subjected to various evaluation test according to previous research the antimicrobial activity of Neem was studied. the preparedformulation when tested for different test gave good results.

It does not give any irritancy to skin it was determined byusing thesesoap by few volunteer hence it is proved that soap does not give any irritancy to skin. Furthermore the preparedsoap were standardized by evaluating various physico chemical properties such as pH appearance odour in which the exhibit satisfactory effect.

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