

Formulation and Evaluation of herbal soap

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ABSTRACT

The aim of our study to develop the herbal hygienic soap by using cold process method and having antimicrobial agent. Herbal soap was prepared using coconut oil, olive oil, neem oil, and NaOH (lye) and different extracts were included into basic saponification reaction. The Herbal formulation was prepared and evaluated for the analysis of pH, moisture content, foaming index, Foam retention time, saponification, TFM (total fatty matter) soluble matter, antimicrobial testing using Different concentration of soap solution comparing with standard. The herbal soap has satisfactory antimicrobial results as compared to antibiotic. Moreover, oils used are added to treat various skin Infection and for daily usage.

KEYWORD: Poly herbal soap, Evaluation, antimicrobial potential.

INTRODUCTION

There is very large market of various bath soaps having so many varieties including herbal soaps. Personal hygiene, getting clean is treated as a big business. However, various skins related issues are being experienced by soap users too. Persons having skin issues like dryness, itching, acne, contact dermatitis are referred by Dermatologist and advised to use specific skin care products including specific type of soap according to skin type and related issues of patient. Various skin types are normal, oily, dry, combination, or sensitive skin types. Factors like pH of soap and ingredients used as surfactants, high leather forming agents, colours, fragrances, can contribute skin related issues. The surface of the skin is slightly acidic, giving rise to the concept of the acid mantles. Studies have shown that potential of hydrogen (pH) of skin increases in proportion to the pH of cleanser used. Increase in pH causes an increase in dehydrative effect, irritability and Propionibacterium count. Changes in the pH are reported to play a role in the pathogenesis of some skin diseases. Therefore, the use of skin cleansing agents with a pH of about 5.5 may be of relevance in the prevention and treatment of those skin diseases. Unfortunately, pH is not mentioned in the labels of many products.

In view of above facts our team has focused to study the pH of soaps available in market by evaluating its parameters. Also, we have formulated preparation for herbal soap making and dealing with neutralization of pH during soap formulation. Further the report shall narrate and enlighten such aspects.

Different types of skins and skin related issues of soap :

Users

Different skin types cover as normal, oily, dry, combination, or sensitive skin types. Skin type depends on things such as:

- How much water is present in skin, which affects its comfort and elasticity
- How oily it is, which affects its softness
- How sensitive it is

Normal Skin Type

Not too dry and not too oily, normal skin has:

- No or few imperfections
- No severe sensitivity
- Barely visible pores
- A radiant complexion
- No severe sensitivity

Skin can be dry or normal in some areas and oily in others, such as the T-zone (nose, forehead, and chin). Many people have this type. It may need slightly different care in different areas.

Combination skin can have:

- Pores that look larger than normal, because they 're more open
- Blackheads
- Shiny skin
- Dry Skin

Many persons have:

- Almost invisible pores
- Dull, rough complexion
- Red patches
- Skin is less elastic
- More visible lines

A person 's skin can crack, peel, or become itchy, irritated, or inflamed. If it's very dry, it can become rough and scaly, especially on the backs of hands, arms, and legs.

Dry skin may be caused or made worse by:

- Persons 'genes, Aging or hormonal changes
- Weather such as wind, sun, or cold
- Ultraviolet (UV) radiation from tanning beds
- Indoor heating, Long, hot baths and showers
- Ingredients in soaps, cosmetics, or cleansers, Medications

Oily Skin Type

Such persons may have

- Enlarged pored
- Dull or shiny, thick complexion
- Blackheads, pimples, or other blemishes

Herbal soap:

Herbal soap preparation is a medicine it contains antibacterial, anti-ageing anti-oxidant, anti-septic properties Which mainly uses of part of plant like seeds, rhizomes, nuts and pulps to treatment for an injury or disease or to Achieve health. Herbal soap does not contain the artificial colours, flavors, fluorides etc., when compared to the Content of commercial soap. Herbs are the natural products mostly found in the treatment of almost all diseases and skin problems owing to their high medicinal value, cost effective ness, availability and compatibility.

Most common skin diseases are Eczema, Acne, Rashes, Psoriasis, Allergy, dry skin, urticaria etc the herbal remedies used for special skin problems.

SOAP:

Soap is common cleansing agent well known to everyone. Many authors defined soap indifferent ways. Warra, regarded it as any cleaning agent, manufactured in granules, bars, flakes, or liquid form obtained from by reacting Salt of sodium or potassium of various fatty acids that are of natural origin (salt of non-volatile fatty acids). Soap Can also be said to be any water-soluble salt of fatty acids containing eight or more carbon atoms. Soaps are Produced for varieties of purpose ranging from washing, bathing, medication etc. The cleansing action of the soap Is due to the negative ions on the hydrocarbon chain attached to the carboxylic group of the fatty acids. The Affinity of the hydrocarbon chain to oil and grease, while carboxylic group to water is the main reason soap is Being used mostly with water for cleaning purposes. In addition to basic raw materials, other substances are added to the composition in order to improve its application. For examples soap made for medicinal purposes other medicinal importance ingredients are added to it to produce medicated soaps. In addition to potassium and sodium salt, other metals such as calcium, Magnesium and chromium are also used to produce metallic insoluble soap that are not used as cleaning agents, but are used for other purposes. Other properties of the soap such as hardness are function of the metallic Element present in the salt. For example, soap made up of Sodium salts shows little hardness compare to Potassium salts soaps, provided the same fat or oil is used in both cases. These are characteristically different from soaps made from divalent metals such as magnesium, calcium, aluminum or iron which are not water Soluble, Soaps are used for laundry and cleaning purposes, though the used of calcium soap in the formulation of Animal feed have been reported. It is generally known that soap is produced by the saponification of a Triglyceride (fat or oil). In the process the triglyceride is reacted with a strong alkali such as; potassium or sodium Hydroxide to produce glycerol and fatty acid salts.



Content of soap:-

➤ **Neem**

Botanical name	: Azadiracta Indica
Plant typically used	: Leave
Colour	: Green
Chemical Constituents	: flavonoids, alkaloids, azadirone, nimbin, nimbidin, terpenoids, steroids, Margosicacid, vanillic acid, glycosides, B-sitosterol, nimbectin, kaempferol, quercursertin are Present in neem leaf.
Uses	: antimicrobial, antibacterial, antifungal, antiviral



About 80% of all neem oil in India is used in the process of making neem soap. Neem oil is Extracted from neem tree. It is sourced from the tropical neem plant which is also called the Indian Lilac. Neem oil thus acquired is a primary ingredient used in making neem soap for skin. Unlike Other essential oils like that of the tea tree or lavender, neem oil is not just an additive in soap, it Instead is the main product. It forms the base of the neem soap in India and elsewhere. It is Considered as the best antibacterial soap in India.

➤ **Coconut oil**

- Botanical name : Cocos nucifera
- Chemical constituents : fatty acids, Caprylic acid, Capric acid, Lauric acid, Myristic acid, Palmitic Acid, Stearic Acid, Oleic Acid, Linoleic Acid.
- Uses : Anti inflammatory



➤ **Olive oil**

- Botanical name : Olea Europa
- Chemical Constituents : Triacylglycerol, fatty acids, mono and di acyl glycerol's, and an array of lipids such as Hydrocarbons, sterols, aliphatic alcohols, tocopherols, and pigments. A plethora of phenolic and Volatile compounds are also present.
- Use : Moisturizer



Extraction of Neem:

50 gm of neem leaf powder was mixed with 500 ml of distilled water and boiled for about 30 min. The boiled solution was filtered using Whatman No. 1 filter paper and clear aqueous leaf extract was obtained.

Material and Method:**Formulation table:**

Sr. No	Ingredient	Quantity	Uses
1	Distilled water	32.92 gm	
2	Lye (Sodium Hydroxide)	14.72 gm	Surfactant
3	Olive Oil	70 gm	Moisturizer
4	Coconut Oil	25 gm	Anti-inflammatory
5	Neem Oil	5 gm	Antibacterial
6	Neem leaf	1	-
7	Green Colour	2-3 Drops	Colouring Agent
8	Jasmin Oil	1 ml	Perfume

Procedure:

- Weighted amount of coconut oil, olive oil, neem oil was poured in a beaker.
- In another beaker, prepare the basic saponification reaction by adding NaOH in distilled water.
- Add the oil mixture in the solution of lye and mixed well with the help of magnetic stirrer without heating involving the cold process of soap formation.
- Green colour added gradually with continue measurement of pH to achieve between 6 to 7.
- The soap mixture was then allowed to solidify and kept at room temperature.

Evaluation parameters:

The herbal soap formulated was evaluated for the following:

- Organoleptic evaluation
 - Colour: green
 - Oduor: Aromatic
 - Appearance: Good
- Physical evaluation:

The herbal soap formulated was evaluated for the following properties:

- pH: the pH was determined by using pH paper, the pH was found to be basic in nature
- Foam retention: 25ml of the one percent soap solution was taken into a 100ml graduated measuring cylinder the cylinder Was covered with hand and shaken 10 times. The volume of foam at 1 minute's interval for 4 minutes was recorded. It was Found to be 5 minutes.
- Foam height: 10cm
- Antimicrobial test: there was various study conducted on antimicrobial activity of neem and hence according to research Paper by antimicrobial activity of Azadiricta indica leaf, bark and seed extract.

Conclusion:

The plant Azadirachta Indica were extracted using water and subjected to various evaluation test according to previous research the antimicrobial activity of neem was studied.

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