

FORMULATION AND EVALUATION OF CAMPHOR ALOE SOAP

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1] ABSTRACT

An herbal soap and hand sanitizer was formulated using the prevention and treatment of various skin problems. Aloe derived from Arabic words 'Aloe' means 'shining bitter substance' and 'Vera' means 'True. It belongs to the family of 'Alliaceae. Ayurveda cosmetic are also known as herbal cosmetic the natural content in the herb does have any side effect on the human body^[1] most herbal supplement are based on the several botanical ingredient with long history of traditional or folk medicine usage. Among the numerous botanical ingredient available in the market today.^[2] Numerous chemical toxins microorganism present in the atmosphere may cause chemical infection and damage to skin cosmetic alone are not sufficient to take care of the skin and body. Aloe Vera is also known as 'Ghrit kumari' and many people which is use for wellness of health and medicine purpose. Its involves the health

benefits of wound healing, treating burns, minimizing front bite damage, protect skin damage from X-rays, lung cancer, reduce blood sugar in diabetes improves immune system. Reetha act as detergent and having cleaning and foaming activity and tulsi show antiviral activity.^[3]

KEYWORDS: Herbal soap, formulation, Evaluation.

2] INTRODUCTION

Soap are using for staying fresh and for hygienic purpose but after effect of using chemical soap is dry skin, skin damage and skin allergic. Soap are from chemical lead to many skin infection and disease. They clog the pores of skin and hinder cell of breathing by delaying the natural renewal process of the skin and it make the skin age faster. Moreover, the use of chemical leads to severe damage to the environment also and being the largest sense

organ of the human body, the skin not only an first line protection but also as prevent damage of the body by protecting the pores. Chemical like SLS, DEA, BHT, triclosan, Isopropyl alcohol, various smell perfume, and color dye can even lead to cancer in individual Herbal soap having are usually handmade and have 100% organic ingredient which impart only goodness to the skin and are safe to environment too.

Some herbs work well to naturally the color the product. Some herbs are wonderful for relaxing and stress release. Some other herbs additives will provide benefits to the skin, such as reducing acne or smoothing irritation. Thus there are herbs that contain a variety of healthy minerals and vitamin that are very beneficial.

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 an injury or disease or to achieve good health. This preparation possess antimicrobial property are administered topically and available to apply in various forms like cream, lotion, gel, soap are solvent extract or ointment. The varieties of creams & soap properties have been used to treat various skin disorders. Mostly skin infections are caused by fungi, staphylococcus aureus and streptococcus species. Ethno medically, juice & extract from leaves of the plants are topically applied as antimicrobial and anti-inflammatory agents in treatment of skin disease including eczemas (patches of skin), ringworm and pruritus (itchy skin). 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 article herbal soap honey, agar-agar, 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. Neem leaf and its extract exhibit immunomodulatory anti-inflammatory, antiulcer antimalarial, antifungal, antibacterial, and antioxidant and anticarcinogenic property. Tulsi has got the greatest medicinal value. Tulsi to be effective for diabetes they reducing blood glucose level tulsi also used in severe acute respiratory syndrome. Juice of its leaves gives relief in cold fever bronchitis and cough. Tulsi reduce stress, enhance stamina, relief inflammation and also shows antifungal activity so tulsi is also used as main compound in this herbal soap. The main antifungal activity of Tulsi serves to be beneficial in soap formulation.^[4]

3] REVIEW OF LITERATURE

1] **Gana Manjusha et.al. (2019)** worked on the ultimate aim of this study is to ultimate and evaluates the herbal bath soap using ethanolic extract of the three plants having ethanolic and dermatological importance in Ayurveda, namely, *Hemidesmus indicus*, *Cyperus rotundus*, and *Saussurea lappa*.^[24]

2] **Natcha wongthongdee et.al. (2013)** worked on the suitability of using turmeric powder in natural soap was assessed by evaluation by its stability and antioxidant activity in model and actual soap. Proper storage condition should be considered prior to use because 63% of curcumin was lost after 3 months of storage of room temperature. Among physical properties influencing soap, pH exerts the most detrimental effect on curcumin stability. Only 8% of curcumin remained 7 days after its addition into liquid soap of pH 9.32, whereas it was degraded completely after 21 days of the soap bar curing process, in which pHs varied from 13 to 10. Vanillin was detected as a major by-product of degradation and might curcumin still valuable as antioxidant soap. However, the antioxidant activities of turmeric extract treated in the model system for soap indicated that the contribution of vanillin to antioxidant activity was not significant since its occurrence was too low compared to the loss of mg of curcumin.^[25]

3] **Karnataka. Blessy Jacob et.al. (2019)** worked on Most of the commercial soap and detergent contain chemical that can be harmful to the skin. Using a natural herb soap and detergent can be a good alternative. They provide relaxation, healing from stress also. In this research work soap was formulated using herbal ingredient and evaluated for various physiochemical features. Hence, owing to good effect on skin and acceptable parameters, this formulation can be investigated further for curing infection and nourishing skin.^[26]

4] **G.sucharita et.al. (2020)** worked on bacterial skin infection are most common amongst people, requiring significant attention for treatment and also to maintain healthy skin some herbal plant extract have the antibacterial activity the aim and objectives of the present to study the formulate anti-bacterial polyherbal bath soap using *curcuma longa* [turmeric], *azadirachta indica* [Neem oil], the antibacterial soap prepared against the organism *staphylococcus aureus* by using the cold process method. The prepared formulations were evaluated for various physiochemical parameters for good characteristics were observed. The easy availability of plant and their effectiveness help manufacturing with cost-effective benefits and with less or no side effects.^[27]

5] **Ajay upadhyay et.al. (2021)** worked on Aloe Vera is a natural product which is used in prevention and treatment of the various skin problems. Aloe Vera is derived from the Arabic words 'aaloe' means 'shining bitter substance' and 'Vera' means 'true'. It belongs to the family of 'Alliaceae'. Aloe Vera is also known as 'Ghrit kumari' and many peoples which is used as wellness for health and medicinal purpose. It's involve the health benefits of wound healing, treating, minimizing front bite damage, protect skin damage from X-rays, lung cancer, reduce blood sugar in diabetes and improve immune system. Aloe Vera soap as contain various medicinal properties like antiseptic, anti-bacterial, anti-viral, anti-oxidant, and anti-fungal.^[28]

6] **Ashlesha ghanwat et.al. (2020)** worked on an herbal soap and hand sanitizer was formulated using the leaf and bark extract of azadirachta indica, ocimum tenuiflorum, sapindus mucorussi, and acacia concinna powder. Ayurvedic cosmetic is also known as herbal cosmetic the natural content in the herbs does not have any side effect on the human body. Most herbal supplement is based on the several botanical ingredient with long histories of traditional or folk medicine usage. Among the numerous ingredient available in the market today. Numerous chemical toxins microorganism present in the atmosphere may cause chemical infection and damage to skin cosmetic alone are not sufficient to take care of skin and body parts.^[29]

4] NEED AND OBJECTIVE OF STUDY

Herbal products are extremely beneficial to humans because they are used by the majority of people, and we have chosen to focus on herbal soap. Aloe vera, tulsi, and other herbal ingredients are required for this project. Similarly, we must extract aloe vera using a Soxhlet apparatus and choose the best, as well as the simplest and time-consuming, process for the formulation of aloe camphor soap.

1] Need for Skin

Lotion and cream containing camphor can be used to relative skin irritation and itchiness. It also helps to improve the overall appearance of skin. It has antibacterial and antifungal properties that make it useful in healing infection.

2] For Heal Burns

Camphor balms and cream can be used for to heal burns wound. In 2018 animal study found that an ointment coGrade or containing camphor, sesame oil, and honey decrease the

healing time for second degree burns wound and was found to be more beneficial than using Vaseline.

3] For Treats Arthritis

Camphor product such as icy hot and bio freeze. It may be effective in relieving pain Inflammation, and swelling due to arthritis.

4] For Treat Toenail Fungus

The antifungal properties of camphor make it beneficial in treating toenail fungus. In 2011 the researchers was found that using Vicks vaporub which contain camphor as well as menthol and eucalyptus oil and was effective in treating toenail fungus.

OBJECTIVE OF STUDY

- Probiotic Technology
- Triple Pressed Soap
- Grade or Soap noodle
- No synthetic Color
- With Pure Natural Ingredient.
- Promote The Hair Growth
- Wash Your Hair With Aloe Camphor Soap
- To Clean The Pores And Stretchiness the Superficial of The Dermis
- Good For Face
- Aloe is Thick Pointed and Fleshy Green Leave
- The objective of this work would to be formulation and evaluation of aloecamphor soap by using extraction process with the help of Soxhlet apparatus.
- Formulation and evaluation of freshly prepared aloe camphor soap.

5] PLAN OF WORK

5.1 Literature review

5.2 Selection of drug and excipients

5.3 Characterization of drug

- Color
- Odor
- Appearance etc.

5.4 Preparation of Reetha by using Soxhlet apparatus

5.5 Characterization of soap

5.6 Evaluation parameter of formulation

- pH
- Appearance
- Percentage free alkali content
- Foam height
- Moisture content
- Foam retention
- Determination of clarity, color, and odor

6] DRUG AND EXCIPIENT PROFILE

(1) CAMPHOR



Fig. No: 1: - Camphor.

Biological Name: Cinnamomum Camphor.^[9]

Synonyms: Karpoora, Alcanfor, Camphora, Camphre, Formosa Camphor, Gum Camphor.^[10]

Biological Source: Camphor, an isoprenoid compound classified as a terpenoid ketone, is used in incense and certain medicinal compounds. It is a natural substance obtained from the camphor laurel (*Cinnamomum camphora*), a species of evergreen.^[10]

Chemical name: 1, 7, 7 -Trimethylbicyclo [2.2.1] heptan-2-one.

Chemical Formula: C₁₀H₁₆O **Molecular Weight:** 152.23 **Melting point:** 175°C.

Chemical constituents: D-camphor (51.3%), 1,8-cineole (4.3%), and α -terpineol (3.8%), while D-camphor (28.1%), linalool (22.9%), and 1,8-cineole (5.3%) were the main constituents of its fruits. The essential oils of the *C. camphora* all showed fumigant and contact toxicity. Other compounds exhibited various levels of bioactivities.^[12]

Description: Camphor appears as a colorless or white colored crystalline powder.

Compound in Camphor: Terpene ketone. Camphor is an aromatic, volatile, terpene ketone derived from the wood of *Cinnamomum camphora* or synthesized from turpentine.

Camphor oil is separated into four distinct fractions: white, brown, yellow, and blue camphor.^[13]

Used: This soap soothes the skin and increases blood circulation. It also cleanses and protects the skin against harmful bacteria, rashes and allergies, leaving a cooling sensation & pleasant Odor. Camphor (topical) suggested uses include treating pain, warts, cold sores, hemorrhoids, osteoarthritis, anti-itch, to increase local blood flow, and as a counterirritant. Camphor is an FDA-approved topical antitussive (anti-cough). Camphor is an FDA-approved topical analgesic and anesthetic used to relieve pain.^[14]

(2) Aloe Vera



Fig. No. 2:- Aloe Vera.

Biological Name:- Aloe Barbadensis miller.

Synonyms: Aloe ferox, aloe vera, genus aloe, burn plant, cape aloe.

Biological source: It is collected from dried latex of leaf.

Family: Lilaceae **Morphology of Aloe vera:** **Height** - 60 to 100 cm **Width** – 10 cm

Leaves - Thick and fleshy.

Color - Green to grey green.^[15]

Method of preparation: Gel extraction process from Aloe Vera pulp

The gel extraction from Aloe Vera leaves had been carried out by removing of its exudates and its mucilage was scraped out with blunt edged knife. This mucilage was stirred vigorously in a blender to make it uniform. This solution was strained through a muslin cloth and filtered. This uniform solution was extracted.^[16]

Biologically active chemical constituents of Aloe Vera leaves

The gel contains 98.5% water having pH of 4.5 and also contains many polysaccharides such as Glucomannan, Acemannan etc. in active form in the leaves of Aloe Vera. Glucomannan is a good moisturizer and mainly used in many cosmetics products whereas Acemannan, the major carbohydrate fraction in the gel, is a water-soluble long chain mannose polymer which accelerates wound healing, modulates immune function and antiviral effects.^[17]

Uses

- a. It is used to cure skin wounds.
- b. It's boiled juice to treat hair falls.
- c. Aloe Vera gel is used to protect radiation burn in skin.
- d. It can be outstanding skin moisturizer.

(3) REETHA



Fig. No. 3:- Reetha.

Biological name: - *Sapindus mukorossi*.

Synonyms: Indian soapberry, washnut,

Biological source: *Sapindus mukorossi*, commonly known as Indian soapberry, washnut, orritha, is a species of tree in the family Sapindaceae.^[18]

Part Typical used: - Seeds

Color: - Brown

Uses: - Detergent, Surfactant

Description: - The fruit is a small leathery skinned drup 1 to 2 cm in diameter.^[19]

(4) HONEY



Fig.No.4:-Honey.

Synonyms: Madhu, madh.

Biological source: flowers by the hive-bee *apis mellifica* and bees of other honeyare thesaccharine liquid prepared from the nectar of the species.^[20]

Description

Color: Pale yellow to reddish brown viscid fluid.

Odor: Pleasant and Characteristics.

Taste: Sweet

Standards

Melting Point: in between 40 –50°C

Specific Gravity: 1.38-1.45

Chemical constituents: A mixture of sugars and other carbohydrates, honey is mainly fructose (about 38%) and glucose (about 32%), with remaining sugars including maltose, sucrose, and other complex carbohydrates. Its glycemic index ranges from 31 to 78, depending on the variety.^[21]

Uses: Honey has moisturizing qualities that make it helpful in the beauty department. For instance, you can use it to. Honey is naturally microbial, which is why it literally lasts forever. After washing the area, simply dab on some honey straight from the jar (using a clean implement) and cover with a Band-Aid. It's a natural antibiotic ointment.

Treat acne. This one's easy! As mentioned, honey has natural anti-microbial resorts, which make it a great treatment for the occasional pimple. Simply dab some honey on the pimple and let it sit for 30 minutes. Rinse off and repeat the next day.

7] INSTRUMENT

INSTRUMENT FOR EXTRACTION PROCESS

- 1] Round bottom flask (RBF)
- 2] Siphon tube
- 3] Distillation bath
- 4] Expansion adapter
- 5] Heat source
- 6] Thimble
- 7] Heating metal
- 8] Water bath

8] EXPERIMENTAL

8.1 Characterization of drug and Soap

8.1.1 Color and Appearance

Color and appearance were observed b visual eyes.

8.2 Method for Preparation of Reetha

A Soxhlet extractor is a piece of laboratory apparatus designed in 1879 by Franz von Soxhlet. The construction of the Soxhlet extractor is shown in fig.

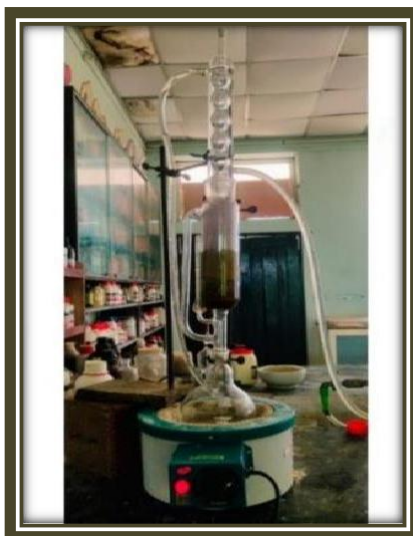


Fig.no: 5:- SOXHLET METHOD.

The Soxhlet extractor setup consists of a round bottom flask, siphon tube, distillation path, expansion adapter, condenser, cooling water inlet, cooling water outlet, heat source and thimble. In this method, powdered sample is enclosed in a porous bag or “thimble” made from a strong filter paper or cellulose, which is placed in the thimble chamber of the Soxhlet apparatus. Extraction solvent is taken in the round bottom flask and heated by using a heating source like a heating mantle. The heating temperature is based on the solvent employed for extraction. Due to heat, the solvent in the bottom flask vaporizes into the condenser and then drips back to the sample thimble.

When liquid content reaches the siphon arm, the liquid contents are emptied into the bottom flask again and the process is repeated. The end of the process is indicated by the clear solution in the siphon tube. The benefit of this system is that instead of many portions of warm solvent being passed through the sample, just one batch of solvent is recycled.

This method is not suitable for thermally labile compounds as extended heating may lead to degradation.

This method maintains a relatively high extraction temperature with heat from the distillation flask. No filtration of the extract is required and the displacement of transfer equilibrium by frequently carrying fresh solvent into contact with the solid matrix.^[21]

Uses: The mix of soapsuds and compounds chickpea is applied on the skin instead of soap, gives gentle effects on the skin. It makes your skin soft and tender thus good for skin.

health. It is also used in curing eczema, psoriasis, and removing pimples, blackheads.

8.3 Method of Preparation of Aloe and Camphor soap

10ml coconut oil and 3M sodium hydroxide (NaOH) solution then 100ml beaker was placed on low flame of burner and heats the mix to a gentle boil. Sodium lauryl sulphate has been added and stirred continuously (up to 20min until all water content gets evaporated). Then as it is stay for cooling process, after the cooling 15ml of distilled water added and stirred.

25ml of saturated sodium chloride (NaCl) was heated and added to the soap mixture. Added 1 gm of camphor, 1ml of aloe Vera gel, rose water, coconut oil, honey, glycerin and kept in dark place for 1 week.

8.4 Formulation of herbal soap

We developed three formulation of different composition of herbal soap. Firstly we have been taken about 2gm of honey, 2gm of Glycerin, 2gm of coconut oil, 5 drops of Rose water, 2gm of camphor, 5 gm of agar-agar was added beaker. After that the extraction of Reetha about 5 gm had been added in beaker and stirred continuously up to 20 min. Then cool the beaker at room temperature. Whole blended formulation we have added 25 ml of distilled to make sufficient quantity and continuously stirred. The beaker was kept in dark place and finally we have been observed the soap.

8.5 Formulation batches of Aloe Camphor Soap

Ingredients	F1	F2	F3
Reetha	Extraction 3gm	Extraction 2gm	Extraction 5gm
Honey	2gm	2gm	2gm
Glycerin	2gm	2gm	2gm
Coconut oil	2gm	2gm	2gm
Rose water	5 drops	5 drops	5 drops
Aloe vera	2gm	2gm	2gm
Camphor	4gm	5gm	2gm
Water	25ml	25ml	25ml
Agar-Agar	5gm	5gm	5gm

8.6 Evaluation Parameter

- pH
- Appearance
- Percentage free alkali content

- Foam height
- Moisture content
- Foam retention
- Determination of clarity, color, and odor



Fig. No.:-6 Aloe and Camphor soap.

9] RESULT

Color, odor, appearance, and pH were among the physicochemical properties evaluated. With a pH strip and a pH meter, the pH of the soap was confirmed to be 8 and 9. The findings of the other parameters, including foam height, foam retention, % free alkali, TFM, moisture content, and alcohol insoluble matter, were summarized in Table 1.

In addition, a thumb impression test was performed to determine the efficacy of the designed soap when compared to a commercial soap. Color was determined using conventional color charts, odor was determined through smelling, and the remaining attributes were determined using standard methods. The prepared soap is also compared with the marketed formulation.

Color	Dark brown
Odour	Fragrance
Appearance	Dark
pH	8
Moisture content	5.3
Foam height	9
Foam retention	7.5
% free alkali	0.25

9.1 EVALUATION PARAMETER

- 1] pH
- 2] Appearance
- 3] Percentage free alkali content
- 4] Foam height
- 5] Moisture content
- 6] Foam retention
- 7] Determination of clarity, color, and odor

1] Physiochemical Evaluation

Clarity, color, and odour's are all determined. Against a white background, clarity and colour were examined with naked eyes. It was also possible to detect an odour.^[25]

2] pH

Using a Digital pH meter and pH paper, the pH of each of the created formulations was determined.

3] Determination of Percentage Free Alkali

A conical flask was filled with around 5 gm of sample and 50 ml of neutralized alcohol. It was boiled for 30 minutes on a water bath under reflux, and then cooled. After that, 1 mL of phenolphthalein solution is added. It was then immediately titrated with 0.1 N hydrochloric acid.^[26]

4] Foam Height

A sample of 0.5 gm soap was distributed in 25 mL distilled water. Then it was placed into a 100 mL measuring cylinder; the volume was given, and the foam height was measured above the aqueous volume.^[27]

5] Foam Retention

In a 100 ml graduated measuring cylinder, 25 ml of the 1% soap solution was placed. Hands were placed over the cylinder and shaken ten times. For 4 minutes, the volume of foam was measured at 1-minute intervals.^[28]

10] CONCLUSION

In this study, we developed formulations for F1, F2, and F3 herbal Aloe camphor soaps. In all three formulations we had been comparison to each other. From that, F3 formulation

was best as compared to F1 and F2. The prepared soap is also compared with the marketed formulation.

This formulation is primarily used to treat a variety of skin problems as well as to boost human health. Aloe Vera soap is most commonly used for skin irritation, acne, sun protection, face wash, and moisturizer.

Individual soaps, such as aloe soap and camphor soap, are available on the market. So we have prepared combination soap and evaluated it. The aloe Vera and camphor soap are blended and manufactured in this research endeavor.

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