

FORMULATION AND EVALUATION OF HERBAL SOAP

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Abstract- The herbal soap made with turmeric and aloe Vera in the current study was created and evaluated for its ability to leave skin glowing. Additionally, gives the face hydration, which enhances skin health and helps it look more vibrant. It contains turmeric extract and all over, which have anti-inflammatory and antioxidant properties that guard against free radicals and sunburn. Aloe vera and turmeric are natural ingredients found in soap. Hexane and methanol were used to create the turmeric extract. Fresh leaves were used to obtain the juice from the aloe plant. The made soap was assessed using a number of criteria, including an organoleptic evaluation, pH, irritancy, and a foam retention test. Results showed that the formulation is stable and safe to use. Conclusion: it hydrates skin while also giving it a natural glow.

Keywords: Anti-inflammatory, anti-oxidant, chemical constituents, soxhlation, evaluation parameters.

INTRODUCTION:

Ayurvedic cosmetics are also referred to as herbal cosmetics. Most herbal supplements are based on a number of plant substances that have a long history of use in traditional or folk medicine and do not have any negative effects on the human body. Of the many botanical components readily available on the market right now. Cosmetics by themselves are insufficient to care for skin and other body parts because several chemical pollutants and microorganisms found in the atmosphere can infect and harm skin.

Due to its wide range of medicinal properties, turmeric (*curcuma longa*) has gained prominence on a global scale. It has been used extensively in ayurvedic medicine for centuries because it is nontoxic and has a number of therapeutic properties, including antioxidant, analgesic, anti-inflammatory, antiseptic, anticarcinogenic, chemo preventive, chemotherapeutic, anti-tumor, antiviral, antibacterial, antifungal, and antiplatelet activity.

Aloe vera is derived from "aleah," which is Arabic for "shining bitter ingredients," and "vera," which is latin for "truth." numerous pharmacological and cosmetic uses have been made of the colorless, mucilaginous gel extracted from aloe vera leaves. Historically, this medicinal plant has been used to cure skin conditions (burn, wounds, and anti-inflammatory processes). Additionally, aloe vera has demonstrated therapeutic qualities against cancer, as well as antioxidant, anti-diabetic, and antihyperlipidemic effects.

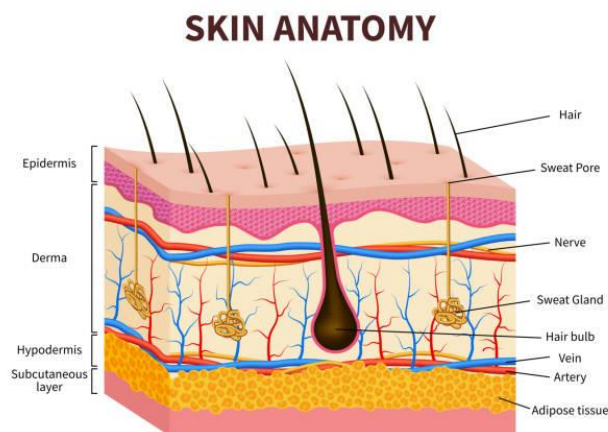


Fig No.1 :Structure Human Skin

The skin is primarily made up of three layers. The upper layer is the epidermis, the layer below the epidermis is the dermis, and the third and deepest layer is the subcutaneous tissue. The epidermis, the outermost layer of skin, provides a waterproof barrier and contributes to skin tone. Herbal soaps are organic products made from natural herbs and ingredients that are beneficial and healthier for skin.

Benefits and uses of soap on skin:

Soap gets rid of bacteria and virus's, while also cleansing the skin. They are made up of a fatty substance mixed with an alkaline agent. The physical form of the soap (solid, liquid or paste) depends on the fats/oils and alkaline agents used to create it.

One of the major benefits of soap, especially in this current climate, is its ability to prevent and remove the growth of bacteria

General Information:-

1. **TURMERIC**

BOTANICAL NAME: *curcuma longa*

SYNONYMS: Indian saffron, curcuma, haridra, haldi.

BIOLOGICAL SOURCE: Turmeric consists of dried, as well as, fresh rhizomes of the plant known as *Curcuma longa* Linn. (c. domestica), belonging to family zingiberaceae. it contains not less than 1.5 per cent of curcumin

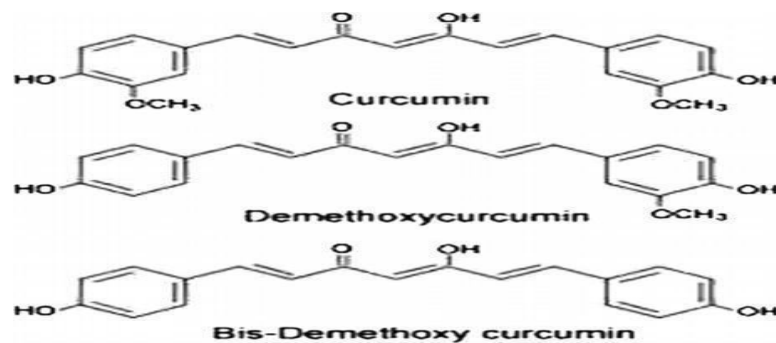


Fig No.2 Turmeric rhizomes

CHEMICAL CONSTITUENTS:

Turmeric contains about 5 per cent of volatile oil, resin, abundant zingiberaceous starch grains and yellow coloring substances known as **curcuminoids**. The chief component of curcuminoids known as curcumin (50-60 per cent). Chemically, *Curcuma* species contain volatile oil, starch and curcumin, Demethoxy curcumin and BisDemethoxy curcumin

Volatile oil content ranges from 1-6.5 per cent and is composed of mono and sesquiterpene such as α and β pinene, α -phellandrene, camphor, camphene, DL-ar-turmerone zingiberene and α , β curcumenes. Species like *C. angustifolia* and *C. Caulina* have high starch content and are used as a substitute arrow root.



Effect of curcumin on skin:

It protects skin by quenching free radicals and reducing inflammation through nuclear factor-KB inhibition. Curcumin treatment also reduced wound-healing time, improved collagen deposition and increased fibroblast and vascular density in wounds thereby enhancing both normal and impaired wound-healing.

2. **ALOE-VERA**

BOTANICAL NAME: *Aloe barbadensis miller*

SYNONYMS: Gwar Patha or Ghrith Kumari

BIOLOGICAL SOURCE: The botanical name of Aloe Vera is *Aloe barbadensis miller*. It belongs to Asphodelaceae (Liliaceae) family, and is a shrubby or arborescent, perennial, xerophytic, succulent, pea-green color plant.



Fig No.3 Aloe-vera Plant

CHEMICAL CONSTITUENTS:

Aloe Vera contains 75 potentially active constituents: vitamins, enzymes, minerals, sugars, lignin, saponin, salicylic acids, amino acids, Anthraquinones and Fatty acids.

Effect of Aloe on skin:

Aloe Vera Gel has been reported to have a protective effect against radiation damage to the skin. Exact role is not known, but following the administration of aloe Vera gel, an antioxidant protein, metallothionein, is generated in the skin, which scavenges hydroxyl radicals and prevents suppression of superoxide dismutase and glutathione peroxidase in the skin. It reduces the production and release of skin keratinocyte-derived immunosuppressive cytokines such as interleukin-10 (IL-10) and hence prevents UV-induced suppression of delayed type hypersensitivity.

3. GLYCERIN :-

Botanical Name: Glycerol, Glycerin,

SYNONYMS: Glycerol, Glycerin

BIOLOGICAL SOURCE : Glycerin is produced from the hydrolysis of fats and oils, and it is a by-product of biodiesel production. It can be obtained either from animal fats or botanical sources such as palm, coconut, or soybean oil.

CHEMICAL CONSTITUENT: It is found in lipids like triglycerides and is obtained from animal and plant sources. It is water-soluble due to three hydroxyl groups.

USES: Glycerol is used in medical, pharmaceutical and personal care preparations, often as a means of improving smoothness, providing lubrication, and as a humectant.

Applying glycerine to the skin retains moisture in the skin and gives it a safe, youthful glow. Glycerine helps to reduce the emergence of wrinkles by attracting moisture to the top layer of skin and leaves the skin looking soft and smooth. Additionally, glycerine increases skin function to delay ageing.

4. SANDAL WOOD OIL :-

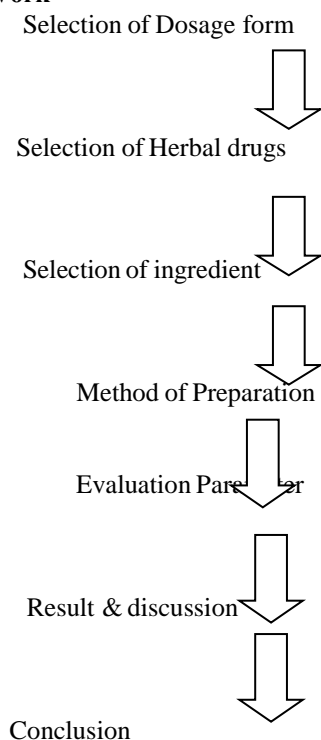
BOTANICAL NAME: Santalum album,

SYNONYMS: Indian Sandalwood

BIOLOGICAL SOURCE: Sandalwood album oil (SAO), also known as East Indian sandalwood oil (EISO), is an essential oil distilled from the Santalum album tree and has demonstrated biological activity as an anti-inflammatory, anti-microbial, and anti-proliferative agent.

CHEMICAL CONSTITUENT: - α -Santalol and β -santalol and santenone are main constituents of the sandalwood oil

USES: sandalwood oil contains antioxidants that help maintain the buoyancy and structure of the skin cells. It also reduces dryness and replenishes the moisture in skin, increasing elasticity. "Due to the rich antioxidant component, sandalwood can help prevent wrinkles by fighting free radical formation,"

Plan of Work**Methodology: -****Chemicals**

Included in this list are acetone, liquid paraffin, hexanol and ethanol, and glycerin.

Collection and processing of plant

In addition to the succulent leaves, the dried turmeric rhizome was gathered. The juice from the aloe vera plant was removed with the use of a blender, and the dried turmeric was subsequently ground into a fine powder.

Extraction:

Soxhlet Apparatus Soxhlet Extraction :-

Soxhlet extraction is also known as the hot continuous extraction process the main advantage of this method is complete extraction in minimum amount of solvent.

Principle of soxhlet extraction: -

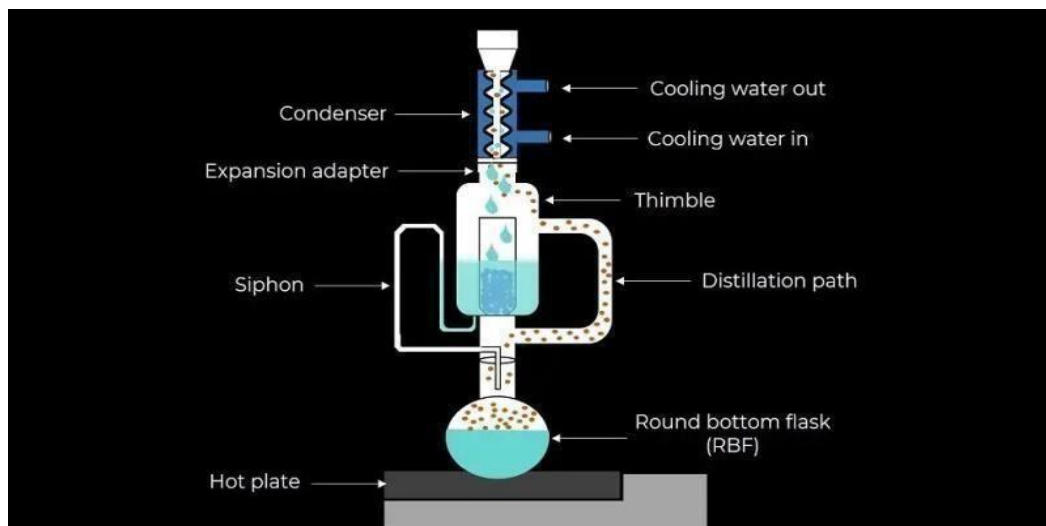


Fig No.4 Soxhlet Assembly

Soxhlet extractor extracts the components using the condensed vapors of the solvent. The condensed vapors come in contact with the sample powder and the soluble part in the powder gets mixed with the solvent.

Procedure:

By use of the soxhlation technique, turmeric powder was extracted from hexanol and methanol. A 75-gram batch of turmeric thimble was prepared and extracted (solvent) with hexanol and methanol for 6 to 7 hours. The solvent was boiled in a water bath and added to the extracted material in a beaker. After the solvent vaporized, curcuminoid crystals were created. With acetone's assistance, recrystallization was accomplished.



Fig No 5: - Extraction process by Soxhlet Apparatus



Fig.no.6: - Recrystallization of Curcuminoids

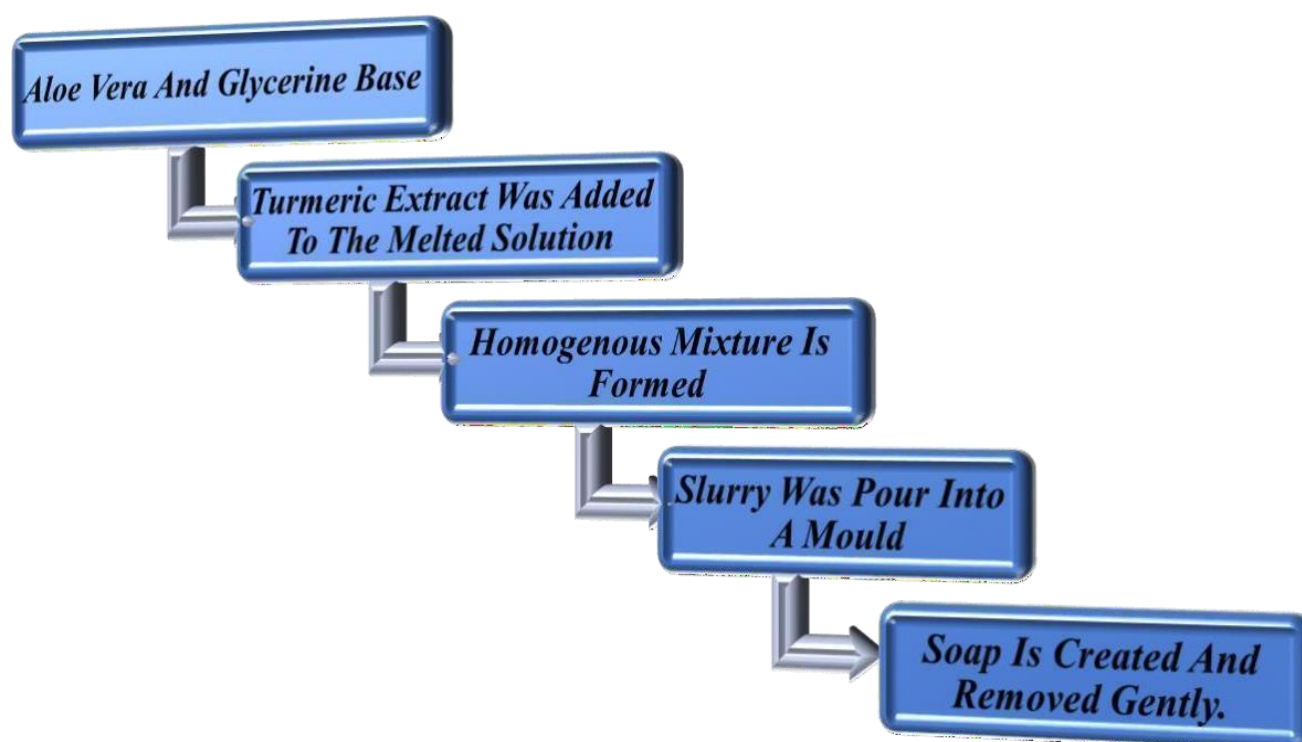
FORMULATION OF HERBAL SOAP

Aloe vera and glycerin base were heated in a water bath. The turmeric extract was added to the melted solution and stirred continuously for 30 minutes to make the mixture homogenous. The partially solid slurry was put into a mold and given time to set. Before applying the semisolid mixture, liquid paraffin is applied to the mold for lubrication.

FORMULA

The formula shown in table is best suited for the preparation of herbal soap.

SR. No	INGREDIENTS	QUANTITY (%)	USE
1	Glycerin base	85 %	Hardening,surfactant
2	Aloe Vera juice	14 %	Antioxidant
3	Turmeric extract	0.5 %	Anti-inflammatory
4	Sandalwood oil	4-5 drops	Perfume



Heated continuously until its melts
 Stirred continuously for 30 min

Apply paraffin oil to Mould

Set for 2 hours

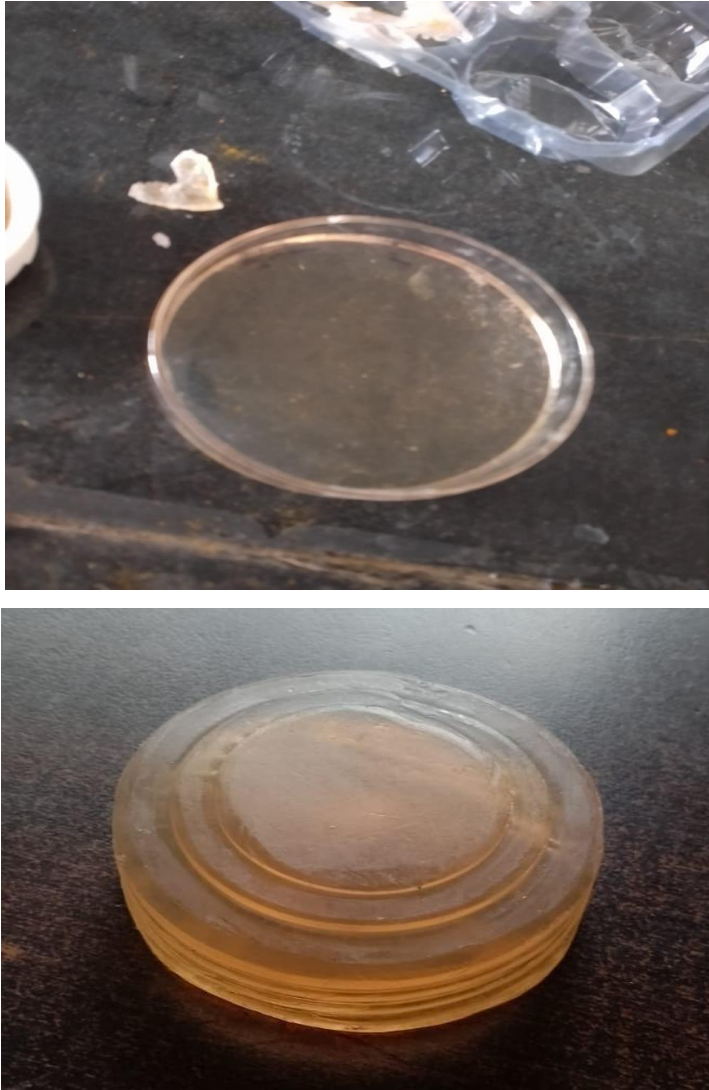


Fig No.8: Formulated Soap

EVALUATION

The following aspects of the herbal soap formulation were assessed: -

- 1. Organoleptic evaluation: -**
 - a. **Color:** - Brownish Orange
 - b. **Odor:** - Sandal Wood
 - c. **Appearance:** - Good

2. Physical evaluation

The following characteristics of the developed herbal soap were assessed:

- a. **pH:** - Using pH paper, the pH was determined. the pH was found to be 9-basic composition.
- b. **FOAM RETENTION:** - A 100 ml graduated measuring cylinder was filled with 25 ml of the one percent soap solution, then the cylinder was covered with a hand and shook ten times for 4 minutes, the volume of foam was measured at 1-minute intervals. it was discovered to be 5 minute.

Volume of foam was measured to be 12 ml after 4 minutes and remained constant.

FOAM HEIGHT: 12 cm

Time(min)	Foam Volume(ml)
0	14.5
1	13.5
2	13
3	12.5
4	12
5	12

RESULTS: -

Sr. No.	Parameter	Result
1	Color	Brownish orange
2	Odor	Sandal Wood
3	State	Solid
4	Wash ability	Easily washable
5	pH	Basic(8-9)
6	Irritancy	Non-irritant
7	Greasiness	Non-greasy

CONCLUSION: The soap was formulated and evaluated by using various physical parameters such as organoleptic and physical properties and was found as per standards. The soap provide moisture to the skin and give radiant glow on the face which can be use for acneprone skin

DISCUSSION: -

The present work the preparation and evaluation of herbal soap. The prepared soap was found to be as per expectations and gave satisfactory results.

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