



# Formulation & Evaluation of Poly Herbal Soap

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## ABSTRACT:

Polyherbal soap was prepared by using sandal wood and Orange peel extract and evaluated by using various evaluation parameters such as organoleptic characteristics, pH, foam height and retention, skin irritation and high temperature stability. Prepared Polyherbal soap having good appearance better cleansing and foaming effect and doesn't have any side effects.

**KEYWORDS:** Polyherbal soap, cleansing, foaming.

## INTRODUCTION:

Herbal cosmetics are prepared by the association of bioactive ingredients and pharmaceutical products. The presence of number of photochemical and botanicals in the herbal products have dual significance, one that they are used as cosmetics for body care and another that photochemical improve the biological functions of human body naturally results in healthy skin. As the realization said that the chemical medicines are not always work as magic bullets and they may have side effects. The current trend moves toward the herbalism and use of natural products. Indian herbs are the richest source to be used in cosmetic industries. Herbal cosmetics were gaining tremendous demand in the world market. There is a wide range of herbal cosmetic products used as beauty regime to satisfy the purpose of beautification. Soap is sodium or potassium salt of fatty acid produced by saponification reaction using sodium or potassium hydroxide. Based on its chemical properties as an anionic surface active agent (surfactant), soap is used to clean and wash skin and clothing. The soap that are being used in our day to day life have a history going back for about six thousand years. The ancient Babylonians discovered that mixing animal fats with wood ash and water created a cleansing substance which was latterly known as "soap". In today's world more and more people are looking for natural solutions to some of the products they are using, especially when it comes to their bodies. Just as doctors are promoting a healthier lifestyle by choosing natural foods to put in our body, others are becoming more aware of things they are using on the outside of their bodies. As people begin to look toward natural products, as an alternative to commercial soaps with all their additives, more and more they are turning to natural soaps. People who are suffer There are basically four different types of methods that are used to make soaps are

## AIM:

To formulate a polyherbal soap using a combination of natural plant extracts and evaluate its efficacy and acceptability.

## OBJECTIVES:

### 1. FORMULATION DEVELOPMENT:

- Identify and select suitable herbal extracts based on their traditional uses and scientific literature.
- Develop a formulation that includes a blend of selected herbal extracts, ensuring compatibility and stability.

### 2. PHYSICOCHEMICAL EVALUATION:

- Evaluate the pH, color, odor, and physical appearance of the formulated soap.
- Determine the foamability and cleansing ability of the soap formulation compared to standard commercial soaps.

**3. ANTIMICROBIAL ACTIVITY ASSESSMENT:**

- Assess the antimicrobial properties of the polyherbal soap against common skin pathogens such as *Staphylococcus aureus* and *Escherichia coli*.

**4. SKIN COMPATIBILITY TESTING:**

- Conduct patch testing or similar methods to evaluate the skin compatibility and irritation potential of the formulated soap.

**5. SENSORY EVALUATION:**

- Conduct sensory evaluation trials to assess the fragrance, texture, and overall acceptability of the polyherbal soap among potential users.

**6. STABILITY STUDIES:**

- Perform stability studies to evaluate the shelf-life and storage conditions required to maintain the efficacy and quality of the polyherbal soap formulation.

**7. COMPARATIVE ANALYSIS:**

- Compare the performance and efficacy of the polyherbal soap with existing commercial herbal or synthetic soaps available in the market.

**8. DOCUMENTATION AND REPORTING:**

- Compile the findings into a comprehensive report detailing the formulation process, experimental results, and conclusions drawn from the study.

**The melt and pour process:**

In this process simply a glycerin base is used, there is not usage of lye. Its easy, not dangerous you may add essential oils or fragrance to your mixture, as well as some coloring.

**Cold process soap:**

These processes involve addition of lye or sodium hydroxide and water.

**Hot process soap:**

Hot process of soap making simply involves using heat, in order to burn off excess liquid. The basic soap bases

**1. Glycerin soap base:**

Glycerin soap bases can come in clear, white or vegetable. This soap bases is more often used in melt and pour soaps, than in other kind of soap,

**2. Lard:**

Lard is another soap base. It's also known as one of the most popular bases, as it produces a thick creamy lather, has conditioning properties.

**3. Soap chips:**

These are a common base used for liquid soap.

**Saponification:**

Saponification is a process that involves conversion of fat or oil into soap and alcohol by the action of heat in the presence of aqueous alkali (e.g. NaOH). Soaps are salts of fatty acids whereas fatty acids are saturated monocarboxylic acids that have long carbon chains (at least 10) e.g.  $\text{CH}_3(\text{CH}_2)_{14}\text{COOH}$ . Vegetable oils and animal fats are the traditional materials that are saponified. These greasy materials, triesters called triglycerides, are mixtures derived from diverse fatty acids. Triglycerides can be converted to soap in either a one- or a two-step process. In the traditional one-step process, the triglyceride is treated with a strong base (e.g. lye), which cleaves to the ester bond, releasing fatty acid salts (soaps) and glycerol. This process is also the main industrial method for producing glycerol. In some soap-making, the glycerol is left in the soap. If necessary, soaps may be precipitated by salting it out with sodium chloride. Skeletal formula of stearin, a triglyceride that is converted by saponification with sodium hydroxide into glycerol and soap. Fat in a corpse converts into adipocere, often called "grave wax". This process is more common where the amount of fatty tissue is high and the agents of decomposition are absent or only minutely present.

**MATERIAL USED:**

**1. Orange peel powder**



**Fig. No.1 Orange peel powder**

**Synonym:**

Orange zest

**Biological source:**

It consists of dried fruits of *Citrus sinensis* belonging to family *Rutaceae*.

**Description:**

Colour- Dark orange red

Odor- Aromatic

Taste- Bitter

**Chief Chemical Constituents:**

Terpenes, Carotenoids, Flavonoids

**Uses:**

Reduce skin marks, skin spots

Help to skin whitening

Treat pimples and acne

**2. Sandalwood powder:**



**Fig. No.2 Sandalwood powder**

**Synonym:**

Sandalwood tree

**Biological source:**

It consists of dried bark of *Santalum album* belonging to family *Santalaceae*.

**Description:**

Colour- Brown

Odour- Aromatic

Taste- Unpleasant

**Chief chemical constituents:**

Santalol, Cedrol, Esters, Aldehydes, phytosterols

**Uses:**

Soothe sunburn

Remove suntan

Reduce signs of aging skin

### 3. Honey:



Fig. No.3 Honey

#### Synonym:

Shahad

#### Biological source:

It consists of saccharine liquid prepared from the nectar of the flowers by the hive-bee *Apis mellifica* belonging to family *Apidae*.

#### Description:

Colour- Yellow brown coloured liquid

Odour- Sweet

Taste- Sweet

#### Chief chemical constituents:

Dextrose and laevulose (70-80%), Dextrin (0.06-1.25%), Proteins

#### Uses:

Good for wrinkles and aging

Remove dirt from pores

### 4. Lemon oil:



Fig no.6 lemon oil

#### Synonym:

Grass oil

#### Biological source:

It is a volatile oil obtained by steam distillation from the leaves and aerial parts of plants *Cymbopogon fleuous* belong to family *Graminae*.

#### Description:

Colour- yellowish- brown liquid

Odour – resembling to lemon oil

Taste- similar to lemon oil

#### Chief chemical constituents:

Volatile oil, Hesperidine, Pectin

#### Uses:

Perfuming agent

Flavouring agent

#### 4. Olive oil:



Fig.no.5 Olive oil

##### **Synonym:**

Oleum olivae

##### **Biological source:**

It is the fixed oil expressed from the ripe fruit of *Olea europaea* belonging to family *Oleaceae*.

##### **Chief chemical constituent:**

Olein, Palmitin, Linolein

##### **Description:**

Colour- pale yellow

Odour- characteristics

Taste- faintly acrid

##### **Uses:**

Emollient

Soothing agent

Soften the skin

#### 6. Coconut oil



Fig. no.6 Coconut oil

##### **Synonym:**

copra oil

##### **Biological source:**

It is an edible oil extracted from the kernel or meat of mature coconuts harvested from *Cocos nucifera* belong to family *Arecaceae*.

##### **Description:**

Colour- yellowish

Odour- odourless

Taste- delicious

##### **Chief chemical constituent:**

Caproic acid, Caprylic acid

##### **Uses:**

Protect skin

Moisturize skin

## 7. Palm oil



**Fig. No.7 Palm oil**

### Synonym:

palm nut

### Biological source:

It is an edible vegetable oil derived from the mesocarp (reddish pulp) of the fruit of the oil palms, primarily the African oil palm *Elaeis guineensis* belong to family *Arecaceae*.

### Description:

Colour – golden yellow

Odour- unpleasant

Taste- harsh flavor

### Chief chemical constituent:

Palmitate, Myristate, Stearate

### Uses:

Moisturizer

promotes smoother skin

## SUMMARY OF PLANTS USED IN PREPARATION

Sr.no.	Crude drug	Diagram	Uses
1	Orange peel powder		Reduce skin marks skin spot, Help to skin whitening, Treat pimples, acne.
2	Sandalwood powder		Soothe sunburn, Remove suntan Reduce signs of aging skin.
3	Honey		Good for wrinkles and aging, Prevent acne Remove dirt from pores.
4	Lemon oil		Perfuming agent, Flavouring agent.
5	Olive oil		Emollient, Soothing agent, Soften the skin.
6	Coconut oil		Protect skin, Moisturize skin, Relieve Skin Irritation
7	Palm oil		Moisturize, promotes smoother skin.

## METHOD OF COLLECTION OF CRUED DRUG

### 1. Orange peel powder extract:

Fresh oranges were collected Orange from college botany garden. The oranges were washed well with tap water. The peel was separated and cut into the small pieces. Then it was dried in shade for period of 3-4 days. The dried samples were grinded properly into the grinder. To obtain the fine powder it was passed through sieve no.60 and then from muslin cloth. Then this powder was soak in water for 1 hr. then used.

### 2. Sandal wood powder extract:

Marketed powder of sandal wood were soak into the water for 1 hr. and then used.

### 3. Honey:

Marketed sample of honey were used.

4. Other ingredients like Olive oil, coconut Oil, Palm Oil, Lemon Oil purchased from local market.

**FORMULATION TABLE OF POLYHERBAL SOAP****Table No. 2 Formulation table of Polyherbal Soap**

Sr. No.	Ingredients	Quantity	Uses
1	Olive oil	157.95ml	Emollient Soothing agent Softens the skin
2	Coconut oil	102.45ml	Protect skin Moisturize skin Relieve Skin Irritation
3	Palm oil	76.84ml	Moisturizer Promotes smoother skin
4	Lye (sodium hydroxide)	47.473gm	For saponification reaction
5	Water	115.26ml	Solvent
6	Sandal wood extract	0.25%	Soothe sunburn Remove suntan Reduce signs of aging skin
7	Orange peel extract	5%	Reduce skin marks Help to skin whitening Treat pimples, acne
8	Honey	q.s	Good for wrinkles Prevent acne Remove dirt from pores
9	Lemon oil	q.s.	Perfuming agent, Flavoring agent.

**PROCEDURE**

1. The required quantity of oils were weighed and mix together and heated until it get melt and mix properly
2. Simultaneously the required quantity of lye is dissolved in water.
3. Then the solution of lye were added into the mixture of oils slowly with vigorous stirring until the saponification reaction takes place.
4. After the formation of thick homogenous mixture the remaining amount of ingredients like orange peel powder extract, sandalwood powder extract, one tablespoon of honey and lemon oil were added to the mixture and stirred the mixture for some time.
5. Then this mixture was poured into the molds and covered with aluminium foil kept for 24 hrs in refrigerator.

**EVALUATION TEST****1. Determination of clarity, colour and odour:**

Clarity and colour was checked by naked eyes against white background, the odor was smelled.

**2. pH:**

The pH of all the prepared formulations was determined by using Digital pH Meter.

**3. Foam Height:**

0.5gm of sample of soap was taken dispersed in 25 ml distilled water. Then, transferred it into 100 ml measuring cylinder; volume was made up to 50 ml with water. 25 strokes were given and stand till aqueous volume measured upto 50 ml and measured the foam height, above the aqueous volume.

**4. Foam Retention:**

25 ml of the 1% soap solution was taken in a 100ml graduated measuring cylinder. The cylinder was covered with hand and shaken 10 times. The volume of foam at 1 minute an interval for 4 minutes was recorded.

**5. Primary skin irritation test:**

For this three volunteers were selected and the prepared soap were given to them and checked for irritation.

**6. High temperature stability:**

The soap was allowed to stand at temperature above 500 C.

**RESULTS:**

**Table no.3 results of evaluation parameters**

**CONCLUSION:**

The Polyherbal soap was prepared by using crude drug powder extract and then evaluated by various parameters. The prepared Soap have good appearance better cleansing and foaming effect and does not have side effects.

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