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Formulation and Evaluation of Poyherbal Soap

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Abstract: *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.*

Keywords: *herbal cosmetics*

I. 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.

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 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.

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

LITERATURE REVIEW:
1. SONVANE KOMALARUN,ET.AL (2023) ALL HERBAL SUBSTANCES CAN BE FOUND IN THE NEARBY HERBAL MARKET WITH EASE.
THE PLANT USED TO MAKE SOAP HAS THE ABILITY TO SOFTEN THE SKIN'S EPIDERMIS, PROVIDE GREATER PENETRATION, ERADICATE
ACNE, AND SPEED UP HEALING AND RESOLUTION.

2. BLESSY JACOB, ET.AL, (2019) MANY OF THESE SOAP INGREDIENTS ARE ALSO HAVING HEALING POWER SUCH AS ALOE VERA,
TURMERIC, AND TULSI. THEY ARE RICH IN NATURAL ANTIOXIDANT, ANTISEPTIC AND ANTIMICROBIAL PROPERTIES. THE PREPARED
FORMULATION WAS EVALUATED FOR VARIOUS PHYSICOCHEMICAL PROPERTIES AND SATISFACTORY RESULTS WERE OBTAINED.

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3. JAGRUTI PRAVINSING RAJPUT, ET.AL (2023) ,IN THIS REVIEW HERBAL SOAP CAN BE FORMULATED USING COLD PROCESS
SYSTEM,TAKING DIFFERENT PARAMETERS IN CONSIDERATION AS THAT OF SKIN CONDITION AND AS THAT OF HERBAL CAPABILITIES
AND ITS EXERTION.

4. MAHESH D. SHINDE, ET.AL(2023) , THE STUDY TAKES A COMPREHENSIVE APPROACH, EXPLORING THE EFFECTS OF VARIOUS
NEEM LEAF EXTRACTS. THE HERBAL SOAP IS METICULOUSLY CRAFTED, INCORPORATING NEEM AND TULSI, DEMONSTRATING
SPECIFIC EFFICACY AGAINST DERMATOPHYTES, WHILE TULSI SHOWCASES REMARKABLE ANTIVIRAL PROPERTIES

5. LATIF AHMED, ET.AL, (2021)THE ULTIMATE AIM OF THIS STUDY IS TO FORMULATE AND EVALUATE THE AYURVEDIC BATH SOAP
USING METHANOLIC EXTRACTS OF THREE PLANTS HAVING ETHNIC AND DERMATOLOGICAL IMPORTANCE IN AYURVEDA, NAMELY,
ALOEVERA, NEEM AND PALM OIL. THE SOAP ALSO EXHIBITED GOOD CLEANING EFFICIENCY IN REMOVING MICROBES ON HANDS.
HENCE, BASED ON THE ANTIMICROBIAL EFFECTS AND PARAMETERS, THE FORMULATED SOAP CAN FURTHER BE STANDARDIZED AND
AN ALTERNATIVE TO COMMERCIAL MEDICINAL AND SKIN WHITENING SOAPS.

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. CH3(CH2)14COOH.
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

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Synonym:
Orange zest
Biological source: It consists of dried fruits of Citrus sinesis
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

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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 Apadae.
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, Hespiridine, Pectin
Uses:
Perfuming agent Flavouring
Kishori College of Pharmacy ,Beed agent

4. Olive oil:

Fig.no.5 Olive oil

Synonym:

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Oleum olivae
Biological source:
It is the fixed oil expressed from the ripe fruit of Olea europoea 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 primarily the African oil palm Elaeis guineensis belong to family Arecaceae.

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palms,

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		Moisturizer, promotes smoother skin.

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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 for1 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 Soften 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	reaction For saponification
5	Water	115.26ml	Solvent
6	Sandal wood extract	0.25%	Soothe sunburn Remove suntan Reduce signs of aging skin Reduce skin
7	Orange peel extract	5%	marks Help to skin whitening Treat pimples, acne
8	Honey	q.s	Good for wrinkles Prevent acne Remove dirt from pores Perfuming agent,
9	Lemon oil	q.s.	Flavoring agent.

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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
5. mTixhteunre t hfoisr smoimxteu rteim wea. s poured into the molds and covered with aluminiu
24 hrs in refrigerator.

Fig. No. 8 Soap

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 in25 ml distilled water. Then, transferred it into 100 ml measuring cylinder; volume was make up to 50 ml with water. 25 strokes were given and stand till aqueous volume measured upto50 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 allow stand at temperature abo0ve 50 C.

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RESULTS:

Table no.3 results of evaluation parameters

TEST	OBSERVATION
Colour	Light brown
Odour	Fragrant
Foam height	11
Foam retention	4.5 5.5 4.9 5.3
High temperaturestability	It temp re stand eratu above o 50C
Skin irritation test	No irritation to the skin

II. 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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