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FORMULATION AND EVALUATION OF HERBAL SOAP BY USING MORINGA OLEIFERA AS MAIN ACTIVE CONSTITUENTS

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ABSTRACT:

Herbal cosmetics are another name for Ayurvedic cosmetics. The natural elements in herbs have no negative effects on human health .The majority of herbal products are made from a variety of botanical ingredients that have been used for many years in traditional or folk medicine. Among the many botanical compounds that are currently on the market. Cosmetics by themselves are insufficient to take care of skin and body parts; a variety of chemical toxins and microorganisms found in the atmosphere can cause chemical infection and damage to skin. Herbal products serve two purposes: they are used as body care cosmetics and, due to the photochemical and botanical content, promote naturally healthy skin.

Therefore, we made herbal soap in this study using the cold process method.Sodium hydroxide (lye), coconut oil, glycerin, *curcuma longa* (turmeric), *triphala*, *Sapindusmukorosissi*powder (reetha), and *Moringaoleifera* extract were used to manufacture the herbal soap. The different extracts were then blended into the main saponification procedure.The pH, moisture content, foaming index, foam retention time, and stability at high temperatures were all measured when the herbal formulation was finished. Many studies have revealed that these herbal plant extracts have anti-inflammatory, anti-bacterial, and anti-fungal properties, among others.According to the research, made herbal soap is not irritating to the skin, produces a pleasant foam when applied, and is reasonably priced.

INTRODUCTION:

The skin is the largest organ in the body, and because of its exposure to the elements, it can develop a variety of skin problems, including hives, eczema, psoriasis, warts, and acne. The

largest organ in the body and one that is continually exposed to the elements, the skin, needs to be kept clean and clear of any germs that might be outdoors in order to prevent skin issues.

Herbal skincare formulas that treat bacteria, fungi, and germs can be formulated using any number of plant parts, such as the stem, leaves, roots, bark, flowers, and fruits. Staphylococcus aureus and Streptococcus species are the main causes behind skin infections [1]. Traditionally, plant juice and extract are topically administered as antibacterial and anti-inflammatory medicines in the treatment of various skin conditions such as ringworm, pruritus, and eczema [2]. The soft gel form is used to treat psoriasis diseases. Unprocessed soapy plant preparations have the power to penetrate the skin more deeply, soften the epidermis, clear up acne, and hasten its resolution.

There are no artificial chemicals or additives, such as fluoride, artificial flavors or scents, in herbal soaps [3].Herbs are a beautiful part of nature that have been used for centuries to cure a wide range of skin conditions, from mild to severe. Ayurvedic, Siddha, and Unani medical systems are just a few of the traditional medical systems that have studied the use of different herbal medications to treat skin problems. According to data from the World Health Organization, 80% of people worldwide receive their primary care from traditional medicine.

Benefits of Herbal Soap:

1. Very Few Adverse Reactions
2. Increase efficacy and safety
3. Easily available
4. Better compatibility with other ingredients
5. Note healing outcome
6. Better tolerance for skin tones of all kinds

Ingredient of soap base formulation & its role/uses:

The following is a list of substances used in the formulation of the soap base:

Table no.1 Preparation of soap base (Formula):

SR.NO	INGREDIENTS	ROLE/USE
1.	Sodium hydroxide	Lye
2.	Coconut oil	Anti-aging, calm skin, Enhanced moisture content
3.	Distilled water	Aqueous vehicle

Table no.2

SR.NO	INGREDIENTS	QUANTITY
1.	Sodium hydroxide	75 ml
2.	Coconut oil	13.20 ml
3.	Distilled water	24 ml

Procedure:

1. To make the soap base, fill a 500 ml beaker with 75 ml of coconut oil.
2. Place the coconut oil in the water bath and stir-boil it at a temperature of 40 to 45 °C until a strong consistency appears.
3. Next, take another beaker and correctly mix 13.20 grams of sodium hydroxide dissolved in 24 milliliters of distilled water.
4. This solution was prepared and then gradually added to the coconut oil mixture while being constantly stirred.
5. The combination was used as a soap basis after it was boiled at 40 to 45 °C to achieve a base consistency.

Images:

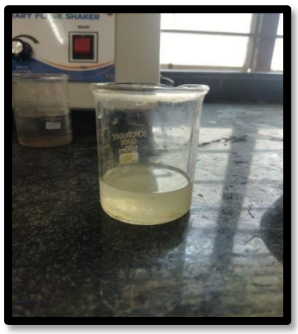

Fig.no.1

Fig.no.2

Fig.no.3

Ingredients of herbal soap formulation& its role/ uses:

The following is a list of substances used in the formulation of herbal soap:

Table no.3

Sr.no.	Material/Ingredients	Role/uses
1	Soap base	creation of cakes
2	*Moringaoleifera* leaves extract	Anti-inflammatory, anti-aging, and rich in vitamins A and C.
3	*Curcuma longa*(Turmeric)	Increase glow, Fade skin scars
4	Triphala powder extract	Treatment for acne
5	*Sapindusmukorosissi* powder(Reetha)	Exfoliating quality and all-natural body wash
6	Glycerine	solvent and moisturizing agent

Applications of Ingredients:

1) Soap base:[4]

Cake formation is done with it. It creates soap's smoothness.

2) *Moringaoleifera* leaves extract:

Common Name: Drumstick tree

Chemical Constituents: Fattyacid, beta-sitosterol

Colour: Green

Part used: Leaves

Family: Moringaceae

Fig.no.4

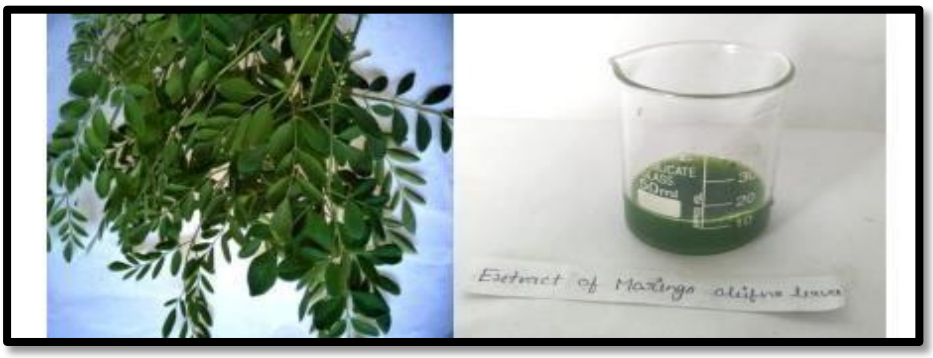

Fig.no.5 **Fig.no.6**

Application:

1) It has antioxidant, anti-inflammatory, and antibacterial properties.
2) Ithasantibacterial qualities as well.
3) Vitamin C and A are both included in moringa, which aid in the healing of damaged skin cells.
4) Moringa oil could also help to improve the look of your skin.
5) Unwanted marks and scars on your face may result from dark spots, acne, and other skin conditions. Moringa could assist in reducing these traits and giving you a more radiant, balanced appearance.

Triphala powder extract:

Chemical constituents: Tannins, Gallic acid, Ellagic acid

Colour: Brownish yellow

Part used: Whole fruit

Fig.no.7

Application

1. Triphala, when applied regularly, can help minimize wrinkles, fine lines, dryness, and other indications of sun damage and premature aging.
2. Triphala not only makes skin glow, but it also has anti-inflammatory properties.

Turmeric:

Biological Name: *Curcuma longa*, Haldi **Chemical Constituents**: Curcumin **Colour**: Yellow

Part Used: Whole fruit

Fig.no.8

Application:[5]

6) It helps lessen acne and pigmentation.
7) It is utilized as an antioxidant and skin-lightening agent.
8) It's utilized to create a delicate, smooth complexion.

Reetha:[6]

Biological Name: *Sapindusmukorosissi* powder, Indian soapberry **Chemical Constituents**: Alkaloids,Phenols,Flavonoids,Saponins **Colour**: Brown

Fig.no.9

Application:

9) "Reetha acts as a natural cleanser for the body and has exfoliating properties."

10) It's applied on smooth, clean skin.

11) It helps to lessen pimples and acne

Glycerin:

Application:

12) Glycerin functions as a humectant in soap and serves as a moisturizing agent

13) Put another way, glycerin works to ensure that your skin retains its natural moisture content and shields it from the damaging effects of drying out.

14) Humectants, like glycerin, allow your skin to breathe without creating a barrier. It can also be used as a solvent.

Fig.no.10

Extraction of moringaoleifera leaves:

Method of extraction:[7]

1) Gather the branches of Moringa oleifera first from the Nandurbar neighborhood. Then, wash the leaves apart from the branches.
2) Pour the leaves into the grinder, and then add enough distilled water to ground them.
3) Following grinding, the extract of Moringa oleifera is filtered via filter paper.
4) After that, gather and store the Moringa oleifera extract in an appropriate container.

Fig no.11

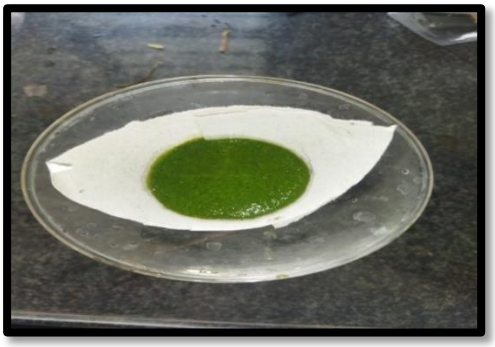

Fig.no.12

Fig.no.13

Extraction of Triphala powder: Extraction method:

1) Gather the triphala powder first from the Nandurbar local market.
2) Weigh the triphala powder and add enough distilled water to a beaker. Place the beaker on the heating mantle at 40 °C for 15 minutes, or until the mixture boils.

3) Use filter paper to filter the mixture once it has boiled.
4) Gather and store the triphala powder extract in an appropriate container.

Fig.no.14

Fig.no.15

Preparation of Curcuma longa powder:

Preparation of powder:

1) Curcuma longa fruit was harvested whole from the Nandurbar local market, ground, and filtered using a sieve.
2) A suitable container was used to collect and store the powder.

Formula for Herbal Soap:

Table no.4

Sr.no.	Ingredients	Quantity
1.	Soap Base	60 gm
2.	*Moringaoleifera* leaves extract	10 ml
3.	*Curcuma longa*	2 gm
4.	Triphala powder extract	1 ml
5.	*Sapindusmukorosissipowder*	0.50 gm
6.	Glycerine	10 ml
7.	Essential oil	Q.S

Procedure:

1. Place a beaker with 60 ml of soap base in a water bath set at 45 °C.
2. After that, gradually whisk in all of the ingredients (glycerine, M. oleifera leaf extract, Curcuma longa powder, Triphala powder extract, S. mukorosissi powder, and powder) into the soap base.
3. Prepare the soap mixture by heating it to 45°C on a water bath.
4. After filling the molds with the prepared soap mixture, the molds are refrigerated for

fifteen minutes. Use a cutter or blade to cut the soap mold once it has solidified.

5. After that, I got herbal soap.

Image of Prepared Herbal Soap:

Fig.no.16

Evaluation of Herbal Soap:

Herbal soap was evaluated to make sure that production standards are fulfilled and that customers will finally be happy.The physicochemical properties of color, fragrance, pH, clarity, foam height, foam stability, skin irritation, saponification value, and other properties were examined. The conventional methods were employed to test the formulation of the herbal soap.

Colour

In order to determine the color and the clarity of the formulation, the herbal soap was shown on a white background.

Odour/Aroma

We employed two distinct techniques to evaluate the formulation's odor. The sample was heated on a hot plate in the first approach. The second technique has five to six individuals—males and females—inhale a direct sample.

Shape

It was determined through sensory and visual evaluation of the organoleptic qualities, such as shape and clarity.

pH-

1. Apply water to the soap bar's surface.

2. Apply water to the soap and rub until it lathers.
3. Soak the pH strip in the bubbling solution.
4. Compare the pH strip to the accompanying chart.

Foam forming ability-[8]

To determine the foaming ability, the Cylinder Shake Method was applied.We started by adding 50 ml of a 1% sample solution to a 100 ml measuring cylinder and giving it a good shake ten times. We measured the total volume of foam and measured the height of the foam after one minute of shaking.

Foam stability-

Foaming ability was verified using the Cylinder Shake Method. Initially, 50 milliliters of a 1% sample solution were placed in a 100 milliliter measuring bulb. We used our hands to cover the cylindrical container and gave it a good ten violent shakes. Following 10 minutes, the foam's volume was computed.

Moisture content-

In a hot air oven, 10 grams of the material were cooked for one hour at 100 to 105 degrees Celsius. Afterwards, the actual weight of the tarred china dish was subtracted from the sample and dish's total weight. The sample was weighed, and the following formula illustrates how to get the percentage of moisture content in the sample.

Moisture content = (Difference in weight/initial weight) x100

Skin Irritation test-

Use the soap sample on clean skin to check for irritation symptoms including redness, burning, or itching. The condition was observed for 24 hours to determine the irritancy test.

RESULTS OF EVALUATION PARAMETER

Table no.5

Sr.no.	**Parameters**	**Result**
1.	Colour	Yellow
2.	Odour/Aroma	Characteristics
3.	Shape	Round/Circular
4.	pH	Basic
5.	Foam forming ability	7.2 cm
6.	Foam stability (after 10 min.)	2 cm
7.	Moisture content	4.5 %
8.	Skin irritation test	No

CONCLUSION:

This study used the cold process approach to attempt making and assessing herbal soap.It eases skin and treats a variety of skin conditions. It also has the required medical qualities. To manufacture herbal soap, various natural and herbal substances were utilized, including S. *mukorosis*si, *M. oleifera, curcuma longa*, and *triphala* powder extract.Excellent physical qualities are present in the produced formulation.

The formulation offers excellent foaming, pH, moisturizing, and other qualities, according to the findings of many testing. There are no negative effects from the manufactured herbal soaps. The leaves and bark of *M. oleifera* naturally contain strong antimicrobial, antifungal, and anti- inflammatory properties. They have also been used to treat acne, dark spots, and other skin issues. The safety and harmlessness of other ingredients, such as *curcuma longa*, *triphala* powder extract, and coconut oil, have been established. These substances have been shown to have some benefits for skin, such as moisturizing and cleansing properties. Therefore, further research into the produced soaps' potential for treating skin infections is possible.

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