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UNLOCKING THE POWER OF ORGANIC SOAPS AS A TRENDY, ECO-FRIENDLY SOLUTIONS FOR ACHIEVING RADIANT AND HEALTHY SKIN.

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ABSTRACT

Organic bathing soaps provide a gentle way to cleanse the skin, nourishing it with vitamins and offering enhanced moisturizing benefits. These soaps help repair skin affected by daily pollutants. Organic soaps are defined by their lack of harmful ingredients, such as sodium laurethsulfate (SLES), sodium lauryl sulfate (SLS), and parabens. Skin issues affect approximately 30% to 70% of the global population. The process of making organic soap is simpler than conventional soap production. Glycerine bars serve as the foundation for organic soap, which is enriched with plant-based ingredients, essential oils, milk, and fruit extracts. These soaps not only promote skin health but are also non-toxic and environmentally sustainable, benefiting both individual users and the planet.

KEYWORDS

Organic, Essential oil, Nourishing, Cleaning agent, Potassium, Sodium, Mediterranean

1. INTRODUCTION:

The history of soap dates back over 5,000 years, originating with the Sumerians in Mesopotamia. Soap acts as a cleaning agent, effectively removing dirt and grease. Traditional soaps, mass-produced by large companies, often contain synthetic chemicals like parabens, which can damage the skin over time. In contrast, organic soaps, typically made by small-scale local producers, offer a more natural alternative. These soaps nourish the skin, helping it regain its vitality and glow naturally. Increasingly popular in today's market, organic soaps appeal to those seeking healthy, radiant skin. They are suitable for both sensitive and normal skin types. Additionally, supporting locally produced organic soaps contributes to economic growth.

2. TYPES OF SOAPS:

- **SOLID SOAPS:**

Solid soaps are valued for their solubility and longevity, as people often prefer them over liquid soaps due to their extended usage. Their hardness and elasticity are determined by ingredients such as potassium, sodium, starch from higher fatty acids, and water. Solid soaps are also environmentally friendly, as they do not require plastic packaging.

- **LIQUID SOAPS:**

Liquid soaps have dominated the market for decades, but they tend to have a shorter lifespan compared to solid soaps. Additionally, liquid soaps are often less eco-friendly due to the presence of additives and preservatives that may be harmful to both the skin and the environment.

- **SULPHUR SOAPS:**

Sulphur soaps are used to treat itching and skin inflammation. Their formulation is based on traditional remedies using plant extracts. These soaps are effective in combating skin conditions like eczema and dermatitis, helping to improve the skin's appearance.

- **MARSEILLE SOAPS:**

Marseille soaps originated in the city of Marseille, France. These traditional soaps are made by combining sea water from the Mediterranean with vegetable oils, without the use of animal fats. They are considered very safe, making them ideal for children and individuals with sensitive skin.

- **CLAY SOAPS:**

There are over 2,000 types of clay soaps available worldwide. Some well-known varieties include kaolin and bentonite clay, which are particularly beneficial for dry and sensitive skin. Clay soaps help regulate excess sebum, making them ideal for balancing oily skin.

- **ALEPPO SOAPS:**

Originating from the city of Aleppo in Syria, Aleppo soaps were first produced in the 12th century during the time of the Crusades. They are made through the hot saponification process, using unique ingredients such as bay leaf oil, vegetable soda, and olive oil. These components give the soap rich moisturizing properties, making it excellent for cleansing the skin and even helping to reduce stretch marks.

3. METHODS OF SOAP MAKING

- **MELTING AND MOLDING TECHNIQUE:**

Technically, all handmade soaps are glycerin-based. In commercial soap production, excess glycerin is often removed during the cold process, but in homemade soaps, the glycerin content is retained. This allows homemade soaps to contain a higher amount of glycerin, which helps the skin retain moisture. The melt and pour method is simple: a pre-made soap base is melted, colored, scented, and poured into molds of various shapes. This method is a fun and creative way to make soap. Although you can make organic soap from scratch using this method, it includes aspects of the cold process, such as adding alcohol for clarity and mixing in glycerin and sugar. However, due to the risks of alcohol vapors, caution and safety measures are necessary during the process.

- **SAPONIFICATION PROCESS:**

The cold process involves combining fatty acids, typically found in oils like olive oil or coconut oil, with sodium hydroxide (lye). This mixture undergoes a chemical reaction known as "saponification," where the oil and lye combine to form soap. The process takes around 42 days for the soap to fully cure. Cold process soapmaking requires careful handling of lye and protective gear such as gloves and goggles. The resulting soap is hard and long-lasting. Depending on the type of oil used, the soap may have different properties, such as producing abundant suds (coconut oil), being gentle on the skin (olive oil), or offering extra moisturizing effects.

- **HOT PROCESS:**

In the hot process method, oils are combined with sodium hydroxide (lye) and the mixture is heated in a slow cooker or crockpot, which speeds up the saponification process. During heating, the oils are converted into soap. Initially, hot process soap remains soft and takes 8 to 12 weeks to fully harden. This method is considered a fun variation of the cold process. The ingredients are mixed in a pot, which is then placed in a warm environment, such as an oven, and stirred until the soap reaches the desired consistency. Excess water evaporates, and the soap is then cooled and ready for use.

- **RE-BATCHING SOAPS:**

Re-batching, also known as French milling or triple milling, is a variation of the cold process. This involves grating or scraping pre-made soap, melting it down with a small amount of liquid (water works well), and stirring it into a paste. Additional fragrances, colorants, or essential oils can be added at this stage. This method is useful for preserving the fragrance of soap or enhancing the properties of certain essential oils.

4. DRUG PROFILE

Goat Milk

- Name: Goat Milk
- Synonym: Capra aegagrus hircus Milk
- Source: Milk from the goat species Capra hircus, which is part of the Bovidae family.
- Uses: Skin lightening, enhancing skin immunity, purifying, treating sunburn, and alleviating irritation.

INGREDIENTS:

1. **Sodium Hydroxide**
   - Molecular Formula: NaOH
   - Molecular Weight: 40 g/mol
   - Function: Acts as lye in the soap-making process.
2. **Ethanol**
   - Molecular Formula: C_2H_5OH
   - Molecular Weight: 46.07 g/mol
   - Function: Used as a hardening agent for soap.
3. **Coconut Oil**
   - Molecular Formula: $C_{33}H_{62}O_6$
   - Molecular Weight: 554.8 g/mol
   - Function: Moisturizer and lather booster.
4. **Propylene Glycol**
   - Molecular Formula: C_3H_8O
   - Molecular Weight: 76.09 g/mol
   - Function: Serves as a humectant.
5. **Sorbitol**
   - Molecular Formula: $C_6H_{14}O_6$
   - Molecular Weight: 182.17 g/mol
   - Function: Helps prevent moisture loss.
6. **Glycerin**
   - Molecular Formula: $C_3H_8O_3$
   - Molecular Weight: 92.09 g/mol
   - Function: Acts as a solvent.
7. **Goat Milk**
   - Function: Used as a solvent.
8. **Water**
   - Molecular Formula: H_2O
   - Molecular Weight: 18.01 g/mol
   - Function: Serves as a solvent.

5. COMPONENTS AND PROCEDURES

S.NO	Name of the redients	Availability
1	Goat milk	Nearby Rural areas
2	Propylene glycol	Local Commerce Areas
3	coconut oil	Local Commerce Areas
4	NaOH	Local Commerce Areas
5	Glycerine	Local Commerce Areas
6	Rose oil	Local Commerce Areas
7	Ethanol	Local Commerce Areas
8	Sorbitol	Local Commerce Areas
9	Water	Pharmaceutics Laboratory

Table no: 1 Name of Ingredient

5.1 PREPARATION METHOD

- **COLLECTION OF GOAT MILK**

Fresh, creamy milk from Capra aegagrus hircus is obtained from a local farm in a nearby village.

- **FREEZING THE MILK**

The collected milk is stored in deep freezers, where it is frozen into milk cubes for use in soap production.

- **PREPARATION OF SOAP BASE**

Water and glycerin are combined in a beaker. Sodium hydroxide (caustic soda) is gradually added to the mixture while stirring continuously. Coconut oil is then incorporated into the solution and set aside for 15 minutes. Next, propylene glycol and a 70% sorbitol solution are added, followed by ethanol. Finally, rose oil is included as a fragrance. The mixture is then poured into molds and allowed to set into soap

S.NO	Name of the ingredients	F1	F2	F3	F4	USES
1	Goat milk	55ml	50ml	45ml	40ml	Active ingredient
2	Propylene glycol	30ml	30ml	30ml	30ml	Humectant
3	Coconut oil	50ml	50ml	50ml	50ml	Lather enhancer
4	NaOH	20gm	20gm	20gm	20gm	Lye
5	Glycerine	20ml	20ml	20ml	20ml	Solvent
6	Rose oil	2ml	2ml	2ml	2ml	Perfume
7	Ethanol	20ml	20ml	20ml	20ml	Hardener Of Soap Cake
8	Sorbitol	25ml	25ml	25ml	25ml	To Prevent Moisture Loss
9	Distilled Water	20ml	20ml	20ml	20ml	Solvent

Table no. 2 Papaya_Soap Composition: Formulation Details

5.2 PROCEDURE:

The base solution was prepared in four separate batches following the procedure outlined and the quantities specified in Table 2. The solid base was melted for incorporation into the solution. Each batch was heated in a water bath, and goat milk was added in the following amounts: 55 ml, 50 ml, 45 ml, and 40 ml, respectively. The mixture was stirred continuously to ensure thorough blending. To impart a rose fragrance, a few drops of rose oil were added. Molds were lubricated with glycerin (or white petroleum jelly as an alternative). The prepared solution was poured into the molds and placed in a refrigerator (deep freezer) for 7 hours. Once solidified, the soaps were removed from the molds.

6. EVALUATION TESTS FOR SOAP:

PHYSICAL PARAMETERS:

- Consistency: The consistency of soap formulations F1, F2, F3, and F4 was visually assessed.
- Color: The color of soap formulations F1, F2, F3, and F4 was visually evaluated.

DETERMINING THE PH OF SOAP:

The pH of the soap was measured using a pH meter.

FOAM FORMATION:

The foaming ability of the soap was determined using the cylinder shake method. A 250 ml graduated measuring cylinder was filled with the soap solution and shaken 10 times. The total volume of foam was recorded after 60 seconds of shaking.

STABILITY TEST:

The optimized formulation was evaluated for stability by observing its properties at room temperature over a 7-day period. Parameters such as pH, irritancy, foam formation, skin reaction, and organoleptic properties were assessed.

7. RESULTS AND DISCUSSION:

- **Collection of Raw Materials:**

Fresh milk from Capra aegagrus hircus was collected from rural areas near the city.

- **Storing the Milk:**

An accurately measured 250 ml of milk was refrigerated. The milk was then filtered using muslin cloth and used in the soap formulation process.

- **Evaluation of Prepared Goat Milk Soap:**

The objective was to create soap using goat milk as an active ingredient. The prepared soap was evaluated based on pH, foam formation, physical appearance, and stability.

- **Physical Appearance/Visual Inspection:**

The formulations (F1 – F4) exhibited colors ranging from yellow to yellowish-brown.

- **Determination of pH:**

Soap typically has a slightly alkaline pH. The pH values for all formulations (F1-F4) were measured and compared to the standard range for soap.

Foam Formation:

The foaming ability of each soap formulation was assessed using the cylinder shake method.

Sr.	**Sr. no**	Par Parameters	FF	**F1**	F2	**F2**	F3	**F3**	F4	**F4**
111 1	**1**	***Foam Formation***	15 3.5	5 ±	15 3.5	7 ±	16 3.5	2 ±	171 3.5	±
2	2	***Ph pH***	7.2 0.1	±	7.4 0.1	±	7.4	± 0.1	7.2 0.1	±

Table no. 3 Soap Formulation : Cylinder Shake Method

8. CONCLUSION

In conclusion, goat milk soap provides a valuable alternative to conventional soaps, offering numerous benefits due to its unique composition and natural properties. The use of goat milk, a sustainable and renewable resource, aligns with eco-friendly practices, and the relatively low environmental impact of small-scale goat dairy farming enhances its appeal as a green choice. The soap formulation was developed based on traditional knowledge, with a focus on creating a stable and effective product.

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11. ABBREVIATIONS

F1- Formulation 1 , **F2**- Formulation 2 , **F3**- Formulation 3 ,**F4**- Formulation 4
ml- Milliliter
Qty-Quantity
mm-Millimeter
µm- Micrometer
cm- Centimeter
g- Gram

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