

## “Formulation and Evaluation of transparent skin brightening Coffee soap.”

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### ABSTRACT:-

Coffee soap was prepared by using coffee powder and transparent soap base and evaluated by using various evaluation parameters such as organoleptic characteristics, pH, foam height retention, skin irritation and high temperature stability. We enlisted type of soap, various methods of soap making and benefits of coffee soap. Prepared coffee soap having good appearance, better cleansing and foaming effect and doesn't have any side effects and have many face skin benefits including Skin Brightening. and Evaluation of transparent skin brightening coffee soap. “

**KEYWORDS:** Coffee soap, transparent soap base, evaluation test, cleansing, foaming., skin brightening.

### I. INTRODUCTION :-

Soap is a daily product which have a lot of purposes. More diversity of personal needs and customer preferences, soap products are now very varied, such as opaque soap, liquid soap and transparent soap. Opaque soap is kind of regular soap which is solid and not transparent, liquid soap is soap formed in liquid, while the transparent soap is kind of soap which usually use for face and for showers that can produce a softer foam to the skin and lustrous appearance when compared with other soap. Transparent soap is relatively more expensive compared to other soaps which also usually consumed by the upper middle class. Soaps which have good quality, are affected by the raw material used. The main raw material for making soap is fat or oils obtained from plant and animal. Oil used in this research was coconut oil. Coconut oil is easily specified. The most predominant fatty acid in coconut oil is lauric acid. Lauric acid is indispensable for making soap caused by saturated fatty acid contained on lauric acid which is capable of providing excellent foaming properties for soap

products. Lauric acid as a raw material will produce soaps with high solubility and good foam characteristics.<sup>[1]</sup>

Now we are discussing about coffee soaps and what goodness it does for the skin. As its name suggests coffee soap is made of coffee. To enhance its benefits producers normally add other natural ingredients such as palm oil, coconut oil or even olive oil.

People have used soap for centuries and it continues to be widely used as a cleansing agent, mild antiseptic and ingestible antidote to some forms of poisoning. Soap can be produced by a simple process called saponification that takes place when a fatty acid comes in contact with an alkali. When fats or oils, which contain fatty acids, are combined with a strong alkali, the alkali first splits the fats or oils into fatty acids and glycerin. After that, the sodium or potassium part of the alkali joins with the fatty acid part of the fat or oils. This mixture is called soap or the potassium or sodium salt of the fatty acid. So, soap is a cleansing agent created by the combination of fats and oils with an alkaline base.

In terms of chemistry, soap is a sodium or potassium salt, which is formed via the chemical reaction between an acid and a base. This reaction is commonly known as neutralization. The oils or fats used in the soap-making process combine with sodium hydroxide, or lye, in a process known as saponification. The fats are hydrolysed by the lye, yielding fatty acids and glycerol.

The fats and oils used to make soap are made up of triglycerides. A triglyceride is a molecule that contains three fatty acid molecules, which are attached to one molecule of glycerine. The other major component of soap, lye, is an alkali; or a base (the opposite of an acid, on the pH scale).<sup>[2]</sup>

Types of Soaps Based on Usage

- Toilet Soaps
- Non-Toilet Soaps
- Glycerine Soaps
- Transparent Soaps
- Liquid soaps

➤ **Soap production processes :-**

✓ **The Kettle Process :-**

- Boiling
- Salting
- Strong change
- Pitching

**The Continuous Process :-**

✓ **Continuous soap making—the hydrolyzer process :-**

- Splitting
- Mixing
- Cooling and finishing
- Milling

➤ **Method of soap making :-**

- Melt-and-Pour Soap
- Cold Process Soap

➤ **Benefits of Coffee Soap :-**

- Lifts Dead Skin Cells
- Reduces Dark Spots, Dirt plus Acne Scars
- Eliminates Body Odour
- Promotes Healthy, Bright, Moist as well as Soft Skin
- Helps Reducing Eye Bags
- Reduces Cellulite and Stretch Marks
- Shields the Skin from UVA and UVB
- Brightens skin
- Cleansing properties
- Dark circles on the face
- It is a natural exfoliant <sup>[6]</sup>

➤ **Transparent Soap :-**

Transparent soap is clear soap with a high glycerin content. Often referred to as “glycerin soap,” Glycerin is a humectant, which means that it attracts moisture. This property of glycerin soap is what makes it more moisturizing than opaque soaps that contain less glycerin. Transparent soap is so gentle that it is often recommended for people with very sensitive skin, such as babies, small children, and people with allergies or dermatitis. Soap with a high glycerin content rinses more

easily from the skin and doesn't leave a film that could cause irritation. Additionally, Glycerin soap is generally less expensive than other moisturizing or anti-aging beauty bars.

❖ **The Ideal Properties of Soap :-**

When it comes to making a good bar of soap there are five qualities that most soap makers formulate their soap recipe for: Bubbly, Cleansing, Hardness, Conditioning and Creamy.

- Bubbly – this gives the soaps ability to lather.
- Cleansing – the ability of the soap to trap the dirt on the skin and wash it away.
- Hardness – the firmness of the soap bar.
- Conditioning – the amount of moisture that is left on the skin.
- Creamy – this measures the stability and creaminess of the soap lather.

**The idea range of good soap bar are given in below chart :-**

Hardness	29 to 54
Cleansing	12 to 22
Condition	44 to 69
Bubbly lather	14 to 46
Creamy lather	16 to 48

❖ **Advantages of soap :-**

• **Cleans the skin**

Cleaning the skin is the major function of bathing soaps. Soap contains emulsifying agents which help in the removal of dirt and oil from the skin. Every person wants a clean and healthy skin.

• **Washing off corrosive acids**

Corrosive acids are those acids which deteriorate and damage everything with which they come in contact with. High excessive pollution content in the environment leads these corrosive acids to settle on your skin. These acids can damage your skin cells and introduce skin diseases.

• **Removes oil and dirt**

A bathing soap removes the oil on your face and helps to make your skin oil free. Soap contains emulsifying agents that help in removing the oil from your skin. Bathing with a soap will prevent the fear or problem of acne related problems.

We go through very rough and tough situations in a whole day. Our skin faces a lot of dirt, oil, chemicals and weather problems. Bathing soap performs the function of removing the dirt from

your skin effectively. Dirt causes a lot of skin problems like pimples, acne etc.

- **Prevent acne and pimples**

Bathing soap prevents your skin from acne and pimples by cleaning the dirt and oil from the skin. Soap keeps the skin dry by removing the oil. Use the best quality soap to have more clean and beautiful skin.

- **Removal of impurities**

Taking a bath with a good quality soap removes all the impurities from your body. Different chemicals acquire the skin pores and start damaging the skin. Bathing soap helps you to protect yourself these impurities.

- ❖ **Disadvantages of soap :-**

The over use of soap cause following disadvantages,

- **Damages The Skin.**

Soap is infused with harsh chemicals that can be harmful to the skin. Since the skin on the face is soft and sensitive, there are chances for the skin to get damaged easier. Regular use of soap also rips off the natural oils of the skin thus making it dull and dry.

- **Leads To Dry Skin.**

Using soap on your face can definitely help in cleaning the skin but also have sideeffects. The caustic acid in soap removes the natural oil produced on the skin. It makes your skin look thin and eventually, it begins to peel off. Moreover, regular use can lead to wrinkles on your skin.

- **Affects The Health Of The Skin.**

Frequent use of bar soaps will wash off the natural lipids on the skin. These natural lipids protect the skin from infections. Loss of these lipids will invite bacteria and viral infections on the skin. This will affect the immunity of the skin.

- **Disturbs The pH Balance Of The Skin.**

Some soaps disturb the pH balance of the surface of the skin, thus making it more alkaline. The pH balance of the skin is very important as it helps in keeping away from bacteria and any kind of infections. It also helps in protecting the skin from becoming dry and flaky. Compared to bar soaps, liquid cleansers are more acidic in nature

and are less likely to change the pH balance of the skin.

- **Destroys Good Microbes.**

Bacteria are of two types good and bad. Good bacteria are those present on the surface of the skin that helps to fight various skin infections. The absence of good bacteria can also bring other skin problems like acne and breakouts. If used frequently on the skin, soap will kill all the good bacteria.

Now that you know the side effects of using soap on the face, we hope you will think again before using them on the face.

## II. LITERATURE REVIEW

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- This reference gives, we understand about Aleovera, Aleovera biological source characteristics, geographical location, it's benefits. This all reference help in research of coffee soap and Coffee soap was prepared by using coffee powder and transparent soap base and evaluated by using various evaluation parameters such as organoleptic characteristics, pH, foam height retention, skin irritation and high temperature stability. We enlisted type of soap, various methods of soap making and benefits of coffee soap.

❖ **Need, objective and plan of work. :-**

➤ **Need of study :-**

Soap is a daily product which have a lot of purposes. More diversity of personal needs and customer preferences, soap products are now very varied, such as opaque soap, liquid soap and transparent soap. Opaque soap is kind of regular soap which is solid and not transparent, liquid soap is soap formed in liquid, while the transparent soap is kind of soap which usually use for face and for showers that can produce a softer foam to the skin and lustrous appearance when compared with other soap. Transparent soap is relatively more expensive compared to other soaps which also usually consumed by the upper middle class. Soaps which have good quality, are affected by the raw material used.

➤ **Objective :-**

The objective of this study was to develop transparent coffee soap having good skin brightening and having good appearance, and no irritation to skin.

➤ **Plan of work ?**

✓ **Selection of drug and excipients**

✓ **Identification and evaluation of soap**

- Organoleptic evaluation
- physical evaluation
- irritation test

In the plan of work, we selected the excipients which is most important in the formulation any preparations and we study about

the evaluations parameters of which is help in determination of quantity and qualitative aspects of formulation. It's also help analysis of side effects or helpful effect of Formulation. evaluations parameters, organoleptic evaluation include Appearance, odour, colour etc. And in physical evaluation include PH, stability, foaming properties etc.

❖ **Excipients profile :-**

➤ **transparent soap base :-**

Transparent soaps have an opaque and shiny texture that is very soft and smooth on the skin. The look and appearance of the Transparent soap make it look luxurious and rich, unlike other ordinary soaps. Transparent glycerin soaps are versatile and easily customizable as you can use different fragrances, coloured pigments, essential oils, etc.

Transparent soap is simply hot process soap that uses solvents (sugar, glycerin and alcohol) to dissolve the soap crystals that form allowing light to pass, therefore creating transparency. When creating a transparent soap recipe, choose at least 75% hard oils (coconut oil, palm oil, tallow, lard, stearic acid).

- Transparent Soap ingredients:-
- Coconut Oil – 150 grams (30%)
- Tallow – 150 grams (30%)
- Stearic Acid – 60 grams (12%)
- Avocado Oil – 40 grams (8%)
- Lye Solution
- Lye – 76 grams (0% superfat to reduce cloudiness)
- Distilled Water – 152 grams (double lye amount)
- Solvents (equal to 100% of oils) [17]
- Glycerin – 125 grams (25% of oils)
- Denatured Alcohol – 250 grams (50% of oils)
- Sugar – 125 grams (25% of oils)
- Water – 83 grams (to create sugar solution)



➤ **Coffee power:-**

- **Synonyms :** Coffee bean, coffee seed, Arabica coffee, Arabian coffee, Abyssinian coffee, Brazilian coffee.
- **Biological source:** It is the dried ripe seeds of *Coffea arabica* Linn, belonging to family Rubiaceae.
- **Geographical source:** It is indigenous to Ethiopia, Brazil, India, Vietnam, Mexico, Guatemala, Indonesia and Sri Lanka.
- **Chemical constituents:** The main constituents of coffee are caffeine, tannin, fixed oil and proteins. It contains 2–3% caffeine, 3–5% tannins, 13% proteins, 10–15% fixed oils. In the seeds, caffeine is present as a salt of chlorogenic acid. Also it contains oil and wax.
- **Use :** The coffee grounds provide gentle exfoliation to remove dead skin cells, revealing softer, smoother skin. For a radiant and glowing complexion, you can try a coffee mask. Take half cup of coffee and mix it with few spoons of milk for thick consistency. Use this mixture as a face pack for 10-15 minutes and wash it off with lukewarm water. This face mask will help to get rid of dead skin cells, leaving behind a glowing skin.<sup>[13]</sup>

• **Benefits of coffee on face :-**

- i. It's a rich source of antioxidants.
- ii. It protects against harsh sun rays.
- iii. It makes skin smooth and bright.
- iv. It enhances circulation.
- v. Skin brightener.

➤ **Aleovera:-**

- **Synonym:** Aloe
- **Biological source:** Aloe is the dried latex of leaves of various species of Aloes, namely: aloe barbadensis miller (or curacao aloe); aloe ferox miller (or cape aloe); aloe perryi baker (or socotrine aloe); aloe africana miller and aloe spicata baker (or cape aloe).  
all these species belong to the family liliaceae.
- **Geographical source :** Curacao, Barbados, Aruba : Curacao Aloes or Barbados Aloes and Bonaire (West Indian Islands) Cape Town (South Africa) : Cape Aloes Socotra and Zanzibar Islands : Socotrine or Zanzibar Aloes  
It is also cultivated in Europe and the North West Himalayan region in India.
- **USE:** It soothes the skin. One of the most used benefits of Aloe Vera is its cooling soothing function. Aloe Vera is a natural antiseptic, which soothes any kind of inflammation or irritation of the skin. That way it can be applied perfectly in our soaps to soothe and cleanse irritated facial skin parts.<sup>[16]</sup>



- **Benefits of Aloe vera on face :-**
  - i. Helps soothe sunburn.
  - ii. Helps to moisturize the skin.
  - iii. Boosts healing of wounds.
  - iv. Fights skin-ageing.
  - v. Reduces infection and acne.
  - vi. Lightens blemishes on the face.
  - vii. It can help combat acne.
  - viii. It can help fade dark spots and acne scars.
  - ix. It reduces puffiness and dark circles.
  - x. It may slow signs of aging.
  - xi. It's good for most people with sensitive skin.

➤ **Sodium hydroxide :-**

- **Iupac name** : Sodium hydroxide
- **Systematic Iupac name** : Sodium oxidanide
- **Other names** : caustic soda ,lye , caustic.
- **Chemical formula** : NaOH
- **Molecular weight** : 39.997g/mol
- **Appearance** : White, waxy, opaque crystals.
- **Odour** : Odour less
- **Melting point** : 318°C
- **Boiling point** : 1,388°C
- **Solubility**: Soluble in glycerol negligible in ammonia, Insoluble in ether slowly soluble in propylene glycol.
- **Uses of sodium hydroxide:** Sodium hydroxide was historically used in the formulation of soaps, but is currently seen in a variety of formulas, including bath products, cleansing products, fragrances, foot powders, hair dyes and colours, makeup, nail products, personal cleanliness products, shampoos, shaving products, depilatories, skin care products. e aging and irritation.



➤ **Coconut oil :-**

- **Biological name:** Cocos nucifera
- **Kingdom:** Plantae
- **Order:** Arecales
- **Family:** Arecaceae
- **Sub- family:** Arecoideae
- **Genus:** Cocos L.
- **Species:** Nucifera
- **Uses of coconut oil:** Skin Condition left behind, helping them fade more quickly while keeping skin moisturized to allow quicker healing. Sunburn Relief Coconut oil can help soothe inflamed skin, reduce redness and rehydrate skin. Coconut oil contains a series of fatty acids that nourish and immunize your skin.



• **Benefits of Coconut Oil on Skin :-**

- i. It hydrates.

- ii. It helps to protect skin.
- iii. It smooth's skin.
- iv. It minimizes the look of fine lines and wrinkles.
- v. It calms temporary redness.
- vi. It provides antioxidants.
- vii. It absorbs easily.
- viii. It soothes irritated skin.
- ix. Reducing inflammation.
- x. Stopping the damage caused by free radicals.
- xi. Helping to prevent infection .

➤ **Stearic acid :-**

- **The Iupac name** : octadecanoic acid.
- **Other names**: Stearic acid
- **Chemical formula** :C<sub>17</sub>H<sub>35</sub>CO<sub>2</sub>H.
- **Appearance**: White solid
- **Odour**:- pungent, oily
- **Density**: 0.9408 g/cm<sup>3</sup> (20 °C) ,0.847 g/cm<sup>3</sup> (70 °C)
- **Melting point** : 69.3 °C (156.7 °F; 342.4 K
- **Boiling point** : 361 °C
- **Solubility**:- Soluble in alkyl acetates, alcohols, HCOOCH<sub>3</sub>, phenyls, CS<sub>2</sub>, CCl<sub>4</sub>.
- **Use of steric acid** : Soaps are not made directly from stearic acid, but indirectly by saponification of triglycerides consisting of stearic acid esters. Esters of stearic acid with ethylene glycol (glycol stearate and glycol distearate) are used to produce a pearly effect in shampoos, soaps, and other cosmetic products. They are added to the product in molten form and allowed to crystallize under controlled conditions. Lubricants, softening and release agents.<sup>[12]</sup>



➤ **Glycerol :-**

- **Glycerol**, also called glycerine in British English and glycerin in American English, is a simple polyol compound. It is a colorless, odorless, viscous liquid that is sweet-tasting and non-toxic. The glycerol backbone is found in lipids known as glycerides.
- **Formula**: C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>
- **Molar mass**: 92.09382 g/mol
- **density**: 1.26 g/cm<sup>3</sup>
- **Iupac name**: propane-1,2,3-triol
- **Boiling point**: 290 °C
- **Classification**: Alcohol, Polyol
- **Use of glycerine** : Glycerin is great for the skin because it acts as a humectant, which is a substance that allows the skin to retain moisture. It can increase skin hydration, relieve dryness, and refresh the skin's surface. It's also an emollient, which means it can soften skin. Your skin's natural oils are often stripped during the bathing process, whether from hot water or harsh products. Glycerin can help lock in your skin's natural moisture and prevent over-drying. Glycerin is used as a humectant in soap products. In other words, glycerin helps to ensure that your skin will maintain its own moisture in order to protect it from damage caused by dryness. Instead of creating a barrier, humectants such as glycerin still allow your skin to breathe.<sup>[18]</sup>



➤ **Propylene glycol :-**

- Propylene glycol is a viscous, colorless liquid, which is nearly odorless but possesses a faintly sweet taste. Its chemical formula is  $\text{CH}_3\text{CHCH}_2\text{OH}$ . Containing two alcohol groups, it is classed as a diol. It is miscible with a broad range of solvents, including water, acetone, and chloroform.
- **Density:** 1.04 g/cm<sup>3</sup>
- **Formula:** C<sub>3</sub>H<sub>8</sub>O<sub>2</sub>
- **Boiling point:** 188.2 °C
- **Molar mass:** 76.09 g/mol
- **Iupac name:** propane-1,2-diol
- **Melting point:** -59 °C
- **Use of propylene glycol:-** At low levels, glycol is often used to improve moisturizing benefits of a skin care product, as it has a high affinity for water,” Zeichner says. Humectants pull water into the skin and help keep it there for more supple, hydrated skin. That's why propylene glycol is often used in moisturizing formulations. Propylene Glycol prevents dryness and damage due to external factors by restoring hydration onto the skin's outer layer. Therefore, it is highly preferred as a humectant in skin care products. Face Cleansers: When used in the right concentration, propylene glycol can work as a gentle cleanser for your face.

➤ **Denatured alcohol :-**

**USE OF DENATURED ALCOHOL:-**

One of the most common uses of denatured alcohol is as a cleaning agent. Denatured alcohol can remove dirt, grease, glue, wax, and other types of grime from a variety of hard surfaces, such as

wood, glass, and plastic. Denatured alcohol can be utilized to fuel small camping stoves and oil heaters.<sup>[30]</sup>

➤ **Sugar:-**

Sugars are chemicals that consist of carbon (C), oxygen (O), and hydrogen (H) atoms, and can be classified broadly as a carbohydrate. When a soap maker makes the suggestion “add sugar for extra lather,” they are most often referring to the disaccharide sucrose, more commonly known as table sugar.

During the saponification process, the addition of sugar will accelerate the rate of trace, which is really a visible sign that an emulsification has formed. The accelerated rate of emulsification leads to an accelerated reaction rate, which requires less time for our recipe to saponify and produces an even more exothermic reaction. Sugar also makes soap molecules more attractive to water after production, which increases the rate at which soap is dissolved during use. By increasing the solubility of soap, it decreases the amount of work energy and rubbing necessary to create lather. Different oils give different amounts and different types of lathers, so many soap makers turn to sugar to increase the suds. Adding a bit of sugar to a soap recipe can help make a light, bubbly lather with large bubbles when the oils you're using do not lather up as much as you'd like.

➤ **Coffee oil:**

Coffee Oil is a favourite in the aromatherapy arena. Its health benefits when added with other essential oil / carrier oil blends include lending a hand in maintaining healthy skin by helping to control excess oil and improve the appearance of dark spots. The fatty acids in the oil are known to have cleansing properties that remove excess sebum from the skin. Its high antioxidant content helps in retaining moisture in the skin. Due to its benefits for the skin and mood, Coffee Oil is used largely in diffusers, body butters, body scrubs, under-eye lotions, and body lotions, and many other cosmetic products.

In perfumery, the scent of Coffee is adaptable and tends to pair well with a variety of strong aromatic essences such as resins, woods, spices, tobacco, and leather. It often features in men's fragrances, which makes it particularly suitable for men's care products. Because Coffee is often used as an olfactory cleanser, Coffee Oil (Roasted) is also a great ingredient to use in a blend meant to help mask other odors. This is beneficial for anyone who is regularly exposed to strong



odours as part of their work or hobbies and does not want them lingering on the skin.

#### Coffee oil – roasted

- i. Is known to
- ii. Is rich in antioxidants.
- iii. Has a delicious Coffee aroma.
- iv. Contains lecithin and Vitamin E for rich hydrating properties.
- v. Soothes and softens skin for protection from constant wetting and drying.
- vi. Helps mask undesirable odors.
- vii. Is suitable for use in massage, body lotions and creams, balms and bar soaps, sun protection. products, hair masks, pomades and hair conditioners.

#### ➤ Distilled water :-

Distilled water is water that is created through the process of distillation. Distillation is a procedure that involves the removal of contaminants found in freshwater sources, including river, lake, rain, well water, and tap water. The contaminants include inorganic materials, minerals, metals, and more. Although your tap water may be safe to drink and use for bathing purposes, it can include contaminants that are not beneficial for soap making. Water that contains these types of contaminants is often called hard water.

Using distilled water is consistent. By using distilled water in your soap making, you know that you aren't add anything that could possibly cause any problems with your batch of soap. Soap made with distilled (or rain) water can be marketed as "pure." This may be a significant difference to your clients.

#### Experimental :-

##### 1. Material and method :-

##### ➤ Raw Materials

- Soap requires two major raw materials: fat and alkali. The alkali most commonly used today is sodium hydroxide.
- Many vegetable fats, including olive oil, palm kernel oil, and coconut oil, are also used in soap making.
- Additives are used to enhance the colour, texture, and scent of soap. Fragrances and perfumes are added to the soap mixture .

##### ➤ Equipment :-

Do not use any equipment made of copper, aluminum, cast iron, or zinc – the lye mixture will

react with them. Use only glass, stainless steel, plastic, stoneware, or enameled cookware.

- Rubber or latex dishwashing gloves.
- Safety goggles.
- Apron.
- Long-sleeved shirt, long pants, and shoes.
- Large stainless steel mixing bowl, large enough to accommodate all of the ingredients without overflow or splatter.
- Two large plastic pitchers, one for lye and one for water. These should be labeled clearly, and utilized only when making soap.
- Two sturdy plastic spoons (preferably slotted), for stirring.
- Large heat-resistant container, to mix the lye and water. This container should be clearly labeled and utilized only when making soap.
- A large glass bowl or plastic pitcher, to hold the base oils after measuring, and before they are added to the lye mixture. Measuring cups or spoons, to measure essential oils and other additives.
- Ladle, for taking a bit of the soap mixture to blend with the additives.
- Miscellaneous bowls and spoons, to hold additives after they are measured, and before they are added to mixture.
- Tablecloth, newspaper or trash bags to cover your work area, and make it easier to clean up spills.
- Stainless steel or enameled pot for heating the base oils.
- Two glass or stainless steel thermometers – one for the lye and water mixture, and one for the oils. Candy or meat thermometers work well.
- Vinegar, to neutralize lye spills.
- Soap molds – can be almost anything you like.
- Pot holders/oven mitts.
- Plastic spatulas.
- Digital scale, accurate to 1 gram, or 0.1 ounces. The accuracy of the scale is important, because it will be used to measure all of your ingredients, including liquids.
- Old blankets/towels, for insulating the molds during cooling.
- Wax paper, or butcher's paper, for lining molds.
- Stick blender – optional, but makes stirring faster and easier.
- Paper towels or rags to clean up spills.

##### ➤ Chemicals :-

Coconut oil, steric acid, sodium hydroxide, distilled water, glycerine, denatured alcohol, propylene glycol, sugar solution.

➤ **Collection, identification and processing**

:-

The biological source of coffee is its dried ripe seed.

- The botanical name of coffee is Coffee Arabica Linn.
- It belongs to the rubiaceae family.
- It is deprived of most of the seed coat.
- It is also known as coffee bean and coffee seed. Berries are dried in sun; in some humid areas, artificial heat is used. Depulping after picking is increasingly practiced.

- 1) Take the coffee beans and crush as small as possible
- 2) After crushing collect the powder form of coffee.

**2. Method for Coffee soap:-**

“Melt and Pour Soap” is the name given to soap bases that have already undergone the usual soap-making process – in which particular oils are combined with an alkaline solution to create a reaction known as saponification. Melt and Pour soaps are ready to use; simply melt the base, then pour into a mold, and allow it to set. In other words, Melt and Pour soap is pre-saponified soap that can be used with or without further chemical processing or customization.

**Step 1-** Weigh the oils and glycerin into your crock pot and melt.

**Step 2 -**Weigh the lye and distilled water into two separate containers. Add the lye to the water while stirring to create a solution.

**Step 3-** Pour the lye solution into your melted oils/glycerin.

**Step 4 –** Weigh out the stearic acid and Melt using a double boiler on the stove.

**Step 5 –** Blend It will get quite thick because of the stearic acid.

**Step 6 –** Weigh out the denatured alcohol and add to mixture. Stir quickly, breaking up the soap.

**Step 7 –** Let the soap cook for 10 min.

**Step 8 –** test your soap for clarity. I cooked for 5 more minutes and tested again.

**Step 9 –** Create your sugar solution by combing sugar and water into a pot and heating.

**Step 10–** Add the sugar solution to the crock pot and mix. You can check the clearness again if you want.

**Step 11-**Once you declare it done, it is time to scent, colour and mold.

**Step 12 –** Pour into molds. Spray with alcohol to reduce bubbles on the surface. And sprinkle coffee powder.

**Step 13 –** After 24 hours un-mold. You can un-mold it as soon as it hardens, which is usually less than 24 hours.

➤ **Formulation chemicals sources :-**

Chemicals	Sources
Stearic acid	Laboratory reagents
Sodium hydroxide	Laboratory reagents
Glycerine	Laboratory reagents
Denatured alcohol	Laboratory reagents
Propylene glycol	Laboratory reagents
Coffee powder	Coffee plant seeds

➤ **Formula :-**

Sr. no	Ingredients	Quantity %	Use
1	Coconut oil	7.6 ml	Cleaning properties
2	Stearic acid	3 gm	Harden products
3	Sodium hydroxide	1.71 gm	Foaming agent
4	Distilled water	q.s. to 100	Saponification
5	Glycerine	6.57 ml	Humectant
6	Denatured alcohol	8.87 ml	Popping bubbles

• **Prepared coffee soap images :-**



❖ **Evaluations**

The coffee soap formulated was evaluated for the following<sup>[29]</sup>

1. organoleptic evaluation:-

- Colour :-brown
- Odour :-orange
- Appearance :-Good

2. Physical evaluation. The coffee soap formulated was evaluated for the following properties:

- pH :- the pH was determined by using pH paper .the pH was found to be basic in nature.
- Foam retention:- 25 ml of the one percent soap solution was taken into 100 ml graduate measuring cylinder the cylinder was covered with hand and shaken 10 times . the volume of foam at 1 minutes interval for 4minutes was recorded . it was found to be 5 minutes .
- Foam height : 10 cm
- Irritation test :-
- Took a ± 0.1 grams of soap that has been soaked in water. Then applied to the skin, allowed for ± 1 hour, observed the symptoms caused after applied. Irritation test assessment sheet of transparent soap with the addition of coffee can be seen in Appendix.
- High temperature stability:
- The soap was allow stand at temperature above 50 C.

### III. RESULT

Test	Observation
Colour	Light brown
Odour	Fragrant
Foam height	10 cm
Foam retention	4.5 min 5.5 min 4.9 min 5.0 min
High temperature stability	It with stand temperature above 50 c
Skin imitation test	No irritation to the skin

### IV. SUMMARY AND CONCLUSION :-

The transparent coffee soap was prepared by using coffee powder and then evaluated by various parameters likes pH ,irritation test, foaming test, etc. And have various skin benefits which is removed dark spots, skin brightening effect, natural exfoliating, remove dark circles, cleaning properties etc. The result of evaluations parameters prove that prepared Soap have good appearance better cleansing and foaming effect and does not have side effects. In this Soap research we study formulation and Evaluation of transparent skin brightening coffee soap. In this study we little bit

understand the type of soap. Soap making process and methods, benefits of coffee soap.

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