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## “FORMULATION AND EVALUATION OF SYNDET BAR”

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### Abstract:

Syndet is a mild cleaning solution that doesn't require soap and is ideal for regular use. It efficiently cleanses the skin of debris, oil, and pollutants without leaving any trace. The future of soap-free cleaning will be in solid shapes, such as bars and cubes, which are more convenient, eco-friendly, and have longer shelf lives. Find out more about Syncopal and how solid-format cleansers, shampoos, and conditioners may help your brand take over global marketplaces.

**Key Words:** Washability Test, Foam Volume Test, Foam Stability Test, pH Level.

### Introduction:

The word “syndet” is derived from “synthetic” combined with “detergent”. Technically it refers to the binding between different detergents, also called surfactants or tension-active agents. These detergents, which have an affinity for oils and repel water, surround dirt with small structures that are then removed by water. <sup>(1)</sup>

From a technical viewpoint, syndets have other advantages over soap, such as the fact that they admit the possibility of using additives (colorants and fragrances) that are not suitable for soaps due to the high pH environment. Syndets are recommended for cleansing sensitive skin and even baby skin, as they are far gentler and skin-friendly than traditional soaps. But remember that the anionic surfactants contained in syndets may cause sensitization problems in reactive skins. Nonetheless, even though syndets might prove to be a source of irritation for a small segment of the population, they are undoubtedly much more recommendable than traditional soaps. Syndet bars are made using blends of synthetic surfactants and formulated and produced differently than traditional vegetable soap bars. <sup>(1,2)</sup>

Syndet surfactants are derived from oils, fats, or petroleum products that are processed in a wide range of chemical processes other than traditional saponification. The production of syndet bars is known to be a complex process requiring special equipment, however, with a ground-breaking innovative Syncopal base, the processing and production are simplified.

Syndet bars are typically pH-balanced, which means they have a neutral or slightly acidic pH that is closer to the natural pH of the skin. This makes them gentler and less likely to disrupt the skin's natural protective barrier compared to soap, which tends to be more alkaline. <sup>(1,3)</sup>

Syndet bars are also known for their ability to produce a rich and creamy lather, even in hard water. They can effectively cleanse the skin by removing dirt, oil, and impurities without stripping away too much natural moisture. Syndet bars are often formulated with moisturizing ingredients to help keep the skin hydrated and prevent dryness.

Soap bars are soap-free cleansing bars that are designed to clean the skin without the use of harsh surfactants. They are often used as a gentle alternative to traditional soap bars, especially for people with sensitive skin. Evaluation of syndet bars depends on several factors, including the specific formulation skin type, and individual preferences. However, some general aspects that are commonly evaluated include: Due to their mildness and gentle cleansing properties, syndet bars are often recommended for individuals with sensitive skin or those who prefer a milder cleansing option. They are commonly used as facial cleansers, body washes, or even shampoo bars.

Syndet bars that use mild surfactants do not have a high Ph and if they do it can be reduced. The main ingredients to avoid are sulfates SLS (Sodium lauryl sulfate) as these often irritate your scalp. The other side effect of sulfates may be that they strip the color from colored hair.

We prefer to avoid silicones. Silicones coat your hair and commercial advertising says this is a good thing. Unfortunately, they do not tell you that it coats your hair so that it cannot receive any nutrients from your shampoo. So, your hair feels flat with less luster with every shampoo and the customer feels that more product is required to get the same clean hair.

## **AIM AND OBJECTIVE:**

### **Aim:**

The present work aims to prepare and evaluate a syndet bar that is health-beneficial for users and also makes it cost-effective.

### **Objective:**

Syndets can help improve beauty by providing gentle but effective cleansing that promotes healthy, radiant skin. Here 'show syndets can improve your skincare regimen:

Syndets provide mild and gentle cleansing that effectively removes dirt, oil, and impurities from the skin's surface without depleting its natural oils. This gentle cleansing action helps to keep the skin's moisture balance

and prevents dryness, irritation, and sensitivity, leaving it feeling clean, soft, and rejuvenated.

## LITERATURE SURVEY:

1. "A Comparative study of the effects on the skin of a classical bar soap"
2. "Soap and syndet bars evolution and skin benefits"
3. "The word “syndet” is derived from “synthetic” combined with “detergent”"
4. "Soap is manufactured by three types of processes namely are as Semi- boiled, Cold Process, Full- boiled Process, and Continuous saponification" <sup>(4)</sup>

## Background:

Aging has a degenerative effect on the skin, leaving it more vulnerable to damage. Hygiene and emollient interventions may help maintain skin integrity in older people in hospital and residential care settings; however, at present, most care is based on "tried and tested" practice, rather than on evidence.

## Objectives:

To assess the effects of hygiene and emollient interventions for maintaining skin integrity in older people in hospital and residential care settings.

## Search methods:

The authors searched the Cochrane Skin Specialized Register, CENTRAL, MEDLINE, Embase, and CINAHL, up to January 2019. They also searched five trial registers.

## BENEFITS AND USES:

Syndets, solid natural surfactants, are a type of cleansing agent that has become increasingly popular in recent years due to their many benefits. Here are a few points as to why their popularity continues to increase. Gentle on the skin: Syndet is formulated to have a pH level that is close to that of the skin, making it less likely to cause irritation or dryness. This makes It a great option for people with sensitive skin or those who have conditions such as eczema or psoriasis. <sup>(4)</sup>

## Effective cleansing:

Syndet is an effective cleanser that removes dirt, oil, and impurities from the skin without stripping away its natural oils. It lathers well and rinses off easily, leaving the skin feeling clean and refreshed.

## Suitable for all skin types:

Syndet is suitable for all skin types, including dry, oily, and combination skin. It can be used on the face, body, and hair and is available in various formulations to meet different application needs.

**Environmentally friendly:**

Syndet contains less water and can be packaged without plastic. Because Syndet has a high natural percentage, it is also biodegradable, which means it breaks down naturally without harming the environment.

Syndets help to preserve the skin's natural moisture barrier by balancing its pH and preventing moisture loss while cleansing. This is critical for protecting the skin from external aggressors, maintaining hydration, and promoting overall skin health, resulting in a stronger, more resilient barrier that can better defend against environmental stressors.

Syndets are appropriate for any skin type, including dry, sensitive, oily, combination, and acne-prone skin. Their mild formulation makes them ideal for people with sensitive or reactive skin, as they provide effective cleansing without causing irritation or allergic reactions. Whether you have dry patches, oily skin, or sensitivity issues, syndets can help balance and nourish your skin.

Syndets improve hydration and radiance by balancing the skin's moisture levels and preventing dryness. This results in a more luminous complexion that looks healthy, plump, and hydrated. With regular use, syndets can help rejuvenate dull, tired-looking skin and promote a youthful, radiant glow. Syndets can help reduce sensitivity and irritation by gently cleansing while preserving the skin's natural barrier function. If harsh cleansers cause redness, inflammation, or discomfort, switching to a synthetic cleanser can help soothe and calm your skin, restoring comfort and balance. Using a gentle cleansing method that does not remove moisture or leave behind residue, syndets optimize the skin's ability to absorb and penetrate skincare products. As a result, the active ingredients in serums, moisturizers, and treatments can be delivered more effectively, optimizing their advantages and raising their general efficacy. <sup>(5)</sup>

**IDEAL PROPERTIES OF SYNDET BAR: <sup>(6)</sup>****pH Level:**

Syndet bars are formulated to have a lower pH, typically closer to the skin's natural pH level, which helps maintain the skin's acid mantle and reduces the risk of dryness or irritation

**Cleansing Properties:**

Syndet bars are engineered to provide effective cleansing while being gentle on the skin. They can remove dirt, oil, and impurities without stripping the skin of its natural oils.

**Skin Sensitivity:**

Syndet bars are often preferred by individuals with sensitive or dry skin due to their milder formula and pH balance.

**Moisturizing Properties:**

Syndet bars often contain moisturizing agents like glycerin or natural oils to help maintain skin hydration during and after cleansing.

**Environmental Impact:**

The production of syndet bars involves synthetic ingredients, which may have a different environmental impact compared to natural soap ingredients.

**Lathering and Feel:**

Syndet bars can provide a rich and creamy lather that feels smooth on the skin.

**Use in Cosmetics:**

Syndet bars are commonly used in cosmetic products, especially those marketed for sensitive or delicate skin.

**ADVANTAGES AND DISADVANTAGES OF HERBAL SOAP:****Advantage of syndets:** <sup>(6)</sup>

- Syndets are preferable over soap since they are more effective at cleaning.
- They are a wide range of uses.
- These syndets can be used also in hard water since they react less with terminals in water and do not leave any residue.
- They can be used in saline or acidic water.
- They are more easily soluble in water than soap.
- Syndets improve the barrier function of your skin, as well as help lock in the

**Disadvantages of syndets:** <sup>(6)</sup>

- These are costlier than the soaps.
- They lack lubricity more slippery, and easily become slimy.

**FORMULATION OF SYNDET BAR:****Ingredients:**

- Surfactants (e.g., Sodium Lauryl Sulphate)
- Fatty alcohols (e.g., Cetyl Alcohol)
- Moisturizers (e.g., Glycerine)
- pH adjusters (e.g., Sodium Hydroxide)
- Perfume (Rose Water)
- Preservatives (optional)

**The formulation for a Syndet bar:**

- Surfactants (40%): Sodium Lauryl Sulphate.
- Fatty alcohols (30%): Cetyl Alcohol.
- Moisturizers (15%): Glycerine.
- pH adjusters (5%): Sodium Hydroxide
- Perfume (5%): As desired
- Preservatives: As desired

**Formulation Table for Syndet Bar (100 gm)**

INGREDIENTS	% QUANTITY	QUANTITY
Sodium Lauryl Sulphate	40 %	40 gm
Cetyl Alcohol	30%	30 gm
Glycerine	15%	15 gm
Sodium Hydroxide	5%	5 gm
Perfume	5 %	5 gm
Preservatives	Q.S.	Q.S.

**Formulation Procedure: <sup>(7)</sup>**

1. Weigh and mix the surfactants, fatty alcohols, and moisturizers in a specific ratio.
2. Heat the mixture to a temperature of around 70-80°C to create a homogeneous blend.
3. Mix the pH adjusters until the desired pH range (usually between 5.5 and 6.5) is achieved.
4. Add fragrances and mix well.
5. If desired, add preservatives and mix until evenly distributed.
6. Pour the mixture into a Mold and allow it to cool and harden.
7. Cut the Syndet bar into desired shape and size.
8. Package and label the product.

**EVALUATION OF SYNDET BAR: <sup>(7)</sup>****Evaluation parameters for syndet bars include:**

1. **Cleansing Power:** Measured by the bar's ability to remove dirt, grime, and stains from skin.
2. **Foaming Ability:** The amount and stability of lather produced by the bar.
3. **Skin Irritation:** Assessing the bar's potential to cause skin irritation, redness, or allergic reactions.
4. **pH Level:** Ensuring the bar's pH is close to the skin's natural pH to minimize irritation.
5. **Moisturizing Properties:** Evaluating the bar's ability to moisturize and hydrate the skin.
6. **Rinse ability:** How easily the bar's residue is rinsed off the skin.
7. **Stability and Durability:** Assessing the bar's ability to withstand water, heat, and usage without degrading or breaking down.
8. **Environmental Impact:** Evaluating the bar's eco-friendliness, biodegradability, and packaging sustainability.
9. **User Acceptance:** Assessing the bar's overall user experience, including texture, smell, and appearance.
10. **Cost-Effectiveness:** Comparing the bar's price to its performance and value.

**Evaluation tests for syndet bars: <sup>(7,8)</sup>**

1. **Washability Test:** Assesses the bar's ability to remove dirt and stains from the skin.
2. **Foam Volume Test:** Measures the amount of lather produced by the bar.
3. **Foam Stability Test:** Evaluate the stability and duration of the lather.
4. **pH Test:** Measures the bar's pH level to ensure it's suitable for the skin.
5. **Irritation Test:** Assesses the bar's potential to cause skin irritation or allergic reactions.
6. **Moisturizing Test:** Evaluate the bar's ability to moisturize and hydrate the skin.
7. **Rinse ability Test:** Assesses how easily the bar's residue is rinsed off the skin.
8. **Stability Test:** Evaluate the bar's ability to withstand water, heat, and usage without degrading.
9. **Detergency Test:** Measures the bar's ability to remove tough stains and grime.
10. **User Acceptance Test:** Assesses the bar's overall user experience, including texture, smell, and appearance.
11. **Water Absorption Test:** Measures the bar's ability to absorb water and maintain its shape.
12. **Hardness Test:** Evaluate the bar's firmness and durability.



13. **Disintegration Test:** Assesses the bar's ability to break down and dissolve in water.
14. **Environmental Impact Test:** Evaluate the bar's biodegradability and eco-friendliness.

## RESULTS AND DISCUSSION:

### Determination of clarity, color, and Odour: <sup>(9)</sup>

Clarity and color were checked by naked eyes against a white background, Oduor was smelled and it was observed to be white and had a pleasant smell.

### Determination of pH: <sup>(10)</sup>

The formulation where dissolved in 100ml of distilled water and stored for 2 hours. The measurement of the formulation was done in a previously calibrated pH meter. It is within the skin pH range of 5.4-5.9.

## CONCLUSION:

Syndet is a soap-free and gentle cleansing agent that is perfect for daily use. It effectively removes dirt, oil, and impurities from the skin without leaving any residue behind. Solid formats like bars and cubes are the future of soap-free cleansing as they are convenient, environmentally friendly, and have a longer shelf life. Learn more about Syncopal and how your brand can disrupt markets worldwide with solid-format Cleansers, Shampoos & Conditioners.

### Conflicts of interest:

There are no conflicts of interest or disclosures regarding the manuscript.

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