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A Review on Herbal Tan Removal Soap

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Abstract: Herbal tan removal soap offers a natural and effective solution for skin brightening and rejuvenation. Formulated with botanical extracts such as turmeric, sandalwood, aloe vera, and lemon, it gently exfoliates dead skin cells, reduces melanin accumulation, and restores skin radiance. The antioxidant and anti-inflammatory properties of these ingredients help in soothing sun damage, preventing hyperpigmentation, and maintaining skin hydration. Unlike chemical-based alternatives, herbal tan removal soap minimizes the risk of irritation and enhances skin health through its bioactive compounds. Regular use can lead to an even skin tone and improved texture.

Keywords: Sandalwood, Alove Vera, Neem, Turmeric, etc.

I. INTRODUCTION

Ayurveda, a traditional system of medicine that originated in India thousands of years ago, has been known for its use of plant-based products for medicinal purposes. Despite the availability of synthetic chemicals in modern medicine, Ayurvedic products have maintained their popularity due to their perceived safety and efficacy. Many Ayurvedic products are used topically in the form of creams, soaps, oils, and ointments for treating various skin related ailments such as acne, wounds, eczemas, and ringworms. These products often contain active constituents derived from natural sources, such as herbs, roots, flowers, and fruits, which are believed to possess medicinal properties. One of the reasons why Ayurvedic products are considered safe is that they are typically made from natural ingredients and do not contain harmful chemicals or synthetic additives. Many consumers are becoming more conscious about the ingredients in their beauty and cosmetic products, and are actively seeking out natural alternatives. Natural soaps, in particular, have gained popularity as they are often prepared without the use of synthetic chemicals and instead contain functional ingredients derived from natural substances, such as essential oils or plant extracts. Natural soaps are typically made using traditional soap-making methods that involve combining oils or fats with an alkaline solution, such as lye. This process results in the formation of soap through a process called saponification.

Natural soaps are usually made with natural oils or fats, such as olive oil, coconut oil, shea butter, or cocoa butter, which are chosen for their beneficial properties for the skin. In addition to using natural oils or fats, natural soaps often incorporate functional ingredients from natural substances, such as essential oils or plant extracts. Essential oils are concentrated plant extracts that are known for their aromatic properties and potential skin benefits.

Herbal soaps are a natural and effective solution for treating various skin conditions while promoting overall skin health. Infused with medicinal plants like neem, turmeric, aloe vera, and sandalwood, these soaps offer antibacterial, antifungal, and anti-inflammatory benefits. They help manage common ailments such as acne, eczema, and psoriasis by reducing redness, soothing irritation, and preventing infections. Ingredients like sandalwood, licorice root, and calendula brighten skin tone, diminish scars, and promote wound healing.

Additionally, moisturizing components like shea butter, coconut oil, and honey alleviate dryness, leaving the skin hydrated and soft. Herbal soaps with antioxidants like green tea and ginseng also combat signs of aging, promoting collagen production and reducing wrinkles. For fungal issues and body odor, lemongrass and eucalyptus provide antifungal and deodorizing effects, keeping skin fresh and healthy.

Beyond treating specific skin concerns, herbal soaps offer holistic benefits. Their natural ingredients are gentle, chemical-free, and suitable for all skin types, including sensitive skin. Many herbal soaps double as aromatherapy tools, with calming essential oils like lavender and jasmine reducing stress and anxiety. They are eco-friendly, biodegradable, and free from harmful additives, making them safe for both the user and the environment. Whether it's protecting against sun damage with cucumber and aloe vera or improving scalp health with herbs like shikakai and hibiscus, herbal soaps are a versatile, sustainable choice for skin care. Regular use not only enhances the skin's natural glow but also ensures preventive care, fostering long-term skin health.

A. *Common Skin Diseases*

Eczema, acne, rashes, psoriasis, allergies, dry skin, and urticaria (hives) are some of the most common skin diseases that affect people of all ages. Let's take a brief look at each of these skin conditions

- Acne
- Dry skin
- Eczema urticaria
- urticaria
- Psoriasis

1) Acne

Acne is a common skin condition that occurs when hair follicles become clogged with oil (sebum) and dead skin cells. It primarily affects teenagers due to hormonal changes but can occur at any age. Acne often appears on the face, back, chest, and shoulders.

a) Types of Acne

Non-inflammatory Acne:

- Whiteheads: Closed clogged pores.
- Blackheads: Open clogged pores that appear dark due to oxidation.

Inflammatory Acne:

- Papules: Small red, raised bumps.
- Pustules: Pimples with pus at the tip.
- Nodules: Large, solid, and painful lumps beneath the skin.
- Cysts: Deep, pus-filled painful lesions.

b) Causes of Acne

Acne occurs due to a combination of factors:

- Excess Sebum Production: Overactive oil glands contribute to clogged pores.
- Clogged Hair Follicles: Accumulation of dead skin cells blocks the follicles.
- Bacterial Growth: *Propionibacterium acnes* (now called *Cutibacterium acnes*) bacteria multiply in clogged follicles, leading to inflammation.
- Hormonal Changes: Increased androgen levels during puberty or hormonal fluctuations during menstruation, pregnancy, or stress.

2) Rashes

A rash refers to a noticeable change in the texture or color of the skin, often involving redness, irritation, swelling, or bumps. Rashes can appear anywhere on the body and may be caused by various factors ranging from mild irritants to underlying medical conditions.

a) Common Symptoms

- Red, inflamed skin
- Itching or burning sensation
- Bumps, blisters, or pustules
- Dry or flaky patches
- Swelling or tenderness

b) Causes of Rashes

- Allergic Reactions
  - Common allergens include certain foods, medications, cosmetics, and plants (e.g., poison ivy).
  - Example: Allergic contact dermatitis.
- Irritants
  - Soaps, detergents, or harsh chemicals may irritate the skin.
  - Example: Irritant contact dermatitis.

3) Psoriasis

Psoriasis is a chronic autoimmune condition that primarily affects the skin. It speeds up the growth cycle of skin cells, causing them to build up on the surface of the skin, leading to thick, scaly patches. These patches are often red, itchy, and inflamed. Psoriasis is most commonly found on the scalp, elbows, knees, and lower back, but it can appear anywhere on the body.

a) Types of Psoriasis

- Plaque Psoriasis: The most common form, characterized by raised, red patches covered with silvery-white scales.
- Guttate Psoriasis: Small, drop-shaped spots on the skin, often triggered by infections like strep throat.
- Inverse Psoriasis: Red, shiny lesions that appear in skin folds, such as underarms, groin, or under the breasts.
- Pustular Psoriasis: White pustules (blisters of noninfectious pus) surrounded by red skin.
- Erythrodermic Psoriasis: A rare but severe form that causes widespread redness, peeling, and intense itching or burning.

b) Symptoms

- Red, inflamed patches of skin.
- Silvery-white scales on the surface of plaques.
- Itching, burning, or soreness in affected areas.
- Cracked, dry skin that may bleed.
- Thickened, ridged, or pitted nails (psoriatic nail disease).
- Joint pain and stiffness (psoriatic arthritis in some cases).

4) Allergy

An allergy is a hypersensitive immune response to substances (called allergens) that are usually harmless to most people. When someone with an allergy is exposed to an allergen, their immune system mistakenly identifies it as a harmful substance and reacts by releasing chemicals like histamine. This response can cause a variety of symptoms, ranging from mild to severe.

a) Common Allergens

- Pollen: Often causes seasonal allergic rhinitis (hay fever).
- Dust mites: Tiny insects that live in bedding, carpets, and upholstery.
- Mold: Fungal spores that can trigger allergic reactions.
- Animal dander: Proteins found in the skin flakes, saliva, and urine of furry pets like cats and dogs.
- Foods: Common food allergens include nuts, shellfish, eggs, milk, wheat, soy, and peanuts.

b) Symptoms of Allergies:

Symptoms can vary depending on the allergen and how the body reacts. They may include:

- Respiratory symptoms: Sneezing, coughing, runny or stuffy nose, itchy or watery eyes, asthma-like symptoms.
- Skin reactions: Hives, itching, eczema, or swelling.
- Gastrointestinal symptoms: Nausea, vomiting, diarrhea, or stomach cramps (especially with food allergies).

5) Dry Skin

Dry skin, also known as **xerosis**, is a common condition where the skin becomes rough, flaky, and often tight or itchy. It occurs when the skin loses moisture and can no longer retain enough hydration to maintain its smooth texture. Dry skin can happen at any age and is often exacerbated by environmental factors, such as cold weather, low humidity, or excessive hot showers. It can also be influenced by underlying health conditions, lifestyle choices, or the use of harsh skin care products.

a) Causes of Dry Skin

- Environmental Factors: Cold weather, wind, and indoor heating can strip moisture from the skin. Low humidity levels are particularly damaging during the winter months.
- Hot Showers and Bathing
- Skin Conditions: Conditions like eczema, psoriasis, and dermatitis can cause or worsen dry skin.
- Dehydration: Insufficient water intake can impact skin hydration.

b) Symptoms

- Tightness or discomfort, especially after washing the skin
- Rough, flaky, or scaly skin
- Redness or irritation
- Cracks or fissures, in severe cases

c) Treatment and Prevention

- Moisturizers
- Gentle Skincare
- Hydration
- Humidifier

6) Urticaria (Hives)

Urticaria, commonly known as hives, is a skin condition characterized by raised, red, itchy welts or bumps that can vary in size and shape. These welts often appear suddenly and can disappear and reappear in different locations on the body. Urticaria occurs when histamine and other chemicals are released into the skin, causing blood vessels to leak and the skin to swell.

a) Types of Urticaria

- Acute Urticaria: This type lasts for less than six weeks. It is often triggered by allergens such as foods, medications, infections, or insect stings. Common triggers include shellfish, nuts, eggs, antibiotics, and viral infections.
- Chronic Urticaria: This type lasts for more than six weeks and can persist for months or even years. The exact cause is often unknown, but it may be linked to autoimmune diseases, infections, or physical triggers. Chronic urticaria can sometimes be related to conditions like thyroid disorders, lupus, or other autoimmune diseases.
- Physical Urticaria: Triggered by physical factors like pressure, heat, cold, or exercise.

b) Subtypes Include

- Cold Urticaria: Triggered by cold temperatures, such as after swimming in cold water or exposure to cold air.
- Cholinergic Urticaria: Triggered by sweating, often after exercise or a hot shower.
- Dermatographism : A type of physical urticaria where hives form when the skin is scratched or pressed.

One of the advantages of using natural soap is that it is made from all-natural ingredients, without the use of harmful chemicals or artificial additives. This makes it gentle on the skin, suitable for all skin types, and less likely to cause irritation or allergies. The absence of harsh chemicals also means that natural soaps do not strip the skin of its natural oils, allowing it to retain its moisture and natural barrier function. In addition, natural soaps are known for their good detergency or cleansing power. They effectively remove dirt, oil, and impurities from the skin without leaving a residue, leaving the skin feeling clean and refreshed. The use of natural ingredients also adds moisturizing effects to the soap, keeping the skin hydrated and preventing dryness or flakiness [4-6].

B. Why use herbal soap ?

1) Skin-Friendly Ingredients

Natural soaps are made from high-quality, plant-based oils (like coconut, olive, or palm oil), butters (like shea or cocoa), and essential oils.

Benefit: These ingredients are gentle, nourishing, and less likely to cause irritation or dryness.

2) Chemical-Free

Unlike commercial soaps, natural soaps do not contain harsh chemicals, synthetic detergents, or artificial preservatives.

Benefit: Safer for sensitive skin and reduces the risk of skin allergies or rashes.

3) Rich in Glycerin

Glycerin is a natural by-product of soap making and is often removed from commercial soaps.

Benefit: Helps retain moisture, keeping skin hydrated and soft.

4) Eco-Friendly

Natural soaps are biodegradable and free of harmful pollutants like parabens and sulfates.

Benefit: Reduces environmental impact and promotes sustainable living.

5) Customizable and Variety

Natural soaps can be enriched with essential oils, herbs, and natural exfoliants (like oatmeal or coffee grounds).

Benefit: Tailored to specific skin types and needs (e.g., acne-prone, dry, or sensitive skin).

6) No Animal Testing

Most natural soap makers prioritize cruelty-free practices.

Benefit: Ethical and aligns with compassionate living.

7) Handmade and Artisanal

Natural soaps are often handcrafted in small batches using traditional methods.

Benefit: Supports small businesses and ensures better quality control.

8) Improves Skin Health

Natural soaps often contain additional nutrients and antioxidants from ingredients like honey, turmeric, aloe vera, or neem.

Benefit: Promotes skin healing, reduces inflammation, and boosts overall skin health.

II. MATERIAL AND METHODS

A. Sandalwood Powder

- Biological Source: Obtained form dried heart wood of *Santalum album* (Indian Sandalwood), *Santalum spicatum* (Australian Sandalwood)
- Family: Santalaceae

1) Extraction Method
- Steam distillation (most common for essential oil extraction)
- Solvent extraction (less common)

2) Chemical Constituents
- Santalol (α-santalol, β-santalol)
- Santalenes
- Santalic acid
- Xanthone
- Santalene

3) Uses
- Aromatherapy: For stress relief, calming effects, and relaxation.
- Cosmetics: Skin care, anti-aging, tan removal and moisturizing products.
- Perfume Industry: As a key note in fragrances.
- Antiseptic: Used in wound healing and skin infections.
- Anti-inflammatory: For topical applications to reduce swelling.

B. Neem Oil

- Biological Source: Obtain from seed of plant *Azadirachta indica* (Neem).
- Family: Meliaceae

1) Extraction Method
- Cold pressing (most common for neem oil extraction)
- Solvent extraction

2) Chemical Constituents
- Azadirachtin (primary active compound)
- Nimbin
- Nimbidin
- Salannin
- Quercetin
- Triterpenoids

3) Uses

- Antiseptic: For treating infections, wounds, and skin conditions.
- Anti-inflammatory: Reduces inflammation, especially in conditions like eczema and psoriasis.
- Antifungal: Treats fungal infections like athlete's foot or ringworm.
- Insect Repellent: Used in natural pesticides and insect repellents.
- Skin Care: Moisturizing, healing, and anti-aging properties.
- Hair Care: Promotes healthy hair and scalp, helps with dandruff and lice.

C. Multani Mitti

- Biological Source: *Fuller's Earth* (mainly Calcium bentonite or Magnesium bentonite)

1) Extraction Method

Mining (extracted from natural clay deposits)

Chemical Constituents

- Silica
- Aluminium oxide
- Magnesium oxide
- Iron oxide
- Calcium carbonate
- Sodium chloride
- Potassium oxide

2) Uses

- Skin Care: Used as a facial mask for cleansing, brightening, and oil absorption.
- Acne Treatment: Helps to remove excess oils and impurities, reducing acne breakouts.
- Anti-inflammatory: Soothes irritated skin and reduces inflammation.
- Exfoliant: Gently exfoliates dead skin cells.
- Hair Care: Used in hair packs for healthy hair, removes excess oil and dandruff.
- Detoxification: Known for its detoxifying properties in masks and skin treatments

D. Turmeric

- Biological Source: Obtain from the dried rhizome *Curcuma longa.*
- Family: Zingiberaceae

1) Extraction Method

- Steam distillation (for essential oil)
- Solvent extraction (for curcumin and other compounds)
- Drying and grinding (for powdered turmeric)

2) Chemical Constituents

- Curcumin (primary active compound)
- Demethoxycurcumin
- Bisdemethoxycurcumin
- Turmerone (α, β, and ar-turmerone)
- Cineole
- Zingiberene
- Tumerone

3) Uses

- Anti-inflammatory: Reduces inflammation, useful for arthritis and joint pain.
- Antioxidant: Protects against oxidative stress and free radicals.
- Antimicrobial: Fights bacterial, viral, and fungal infections.
- Wound Healing: Promotes healing of cuts, burns, and wounds.
- Digestive Health: Stimulates bile production, aids digestion, and reduces bloating.
- Skin Care: Reduces acne, scars, and brightens skin tone.
- Anti-cancer: Supports cancer prevention and treatment through curcumin's effec**5.**

E. Aloe Vera

- Biological Source: It is consisting of gel from the leaves of plant *Aloe vera.*
- Family: Asphodelaceae

1) Extraction Method

- Cold pressing (for gel extraction)
- Solvent extraction (for aloe vera juice and concentrate)
- Drying and grinding (for powder form)

2) *Chemical Constituents*

- Aloin (barbaloin)
- Acemannan (polysaccharides)
- Anthraquinones (e.g., emodin, aloin)
- Saponins
- Sterols (e.g., campesterol, β-sitosterol)
- Vitamins (A, C, E, B12)
- Minerals (Calcium, Magnesium, Zinc)

3) *Uses:*

- Skin Care: Moisturizes, soothes sunburn, and reduces skin irritation.
- Wound Healing: Speeds up the healing of cuts, burns, and minor wounds.
- Anti-inflammatory: Reduces inflammation, especially in conditions like psoriasis or eczema.
- Antioxidant: Protects against oxidative damage from free radicals.

III. MATERIAL AND METHODS

A. *Collection of Ingredient*

The neem leaves washed with distilled water and dried at room temperature, then grinded it. Measured grinded leaves 20 g soaked with 300 ml coconut oil and heated up to 120 degree C for 3hr then filtered it. Rose water, Multani mitti, Coconut oil, Essential oil, Turmeric, Sandalwood Powder, purchased local market.

S. No.	Name	Biological Source	Parts	Chemical Constituents	Uses
1	Sandalwood Powder	Santalum spp Family: Santalaceae	Wood	α-Santalol and β santalol	Remove suntan, glowing skin
2	Multani Mitti	Fuller's Earth	Clay	Magnesium chloride	Brighten the skin tone, Fighting acne
3	Turmeric	Curcuma longa Family: Zingiberaceae	Rhizomes	Curcumin	Anti-oxidant, anti-septic
4	Aloe Vera	Curcuma longa Family: Zingiberaceae	Pulp	Anthraquinone	Anti-aging
5	Neem	Azadirachta indica Family: Meliaceae	Leaves	Triterpenes	Antibacterial, anti-septic

B. *Formulation Of Soap*

Sr. No.	Ingredient	Quantity	Uses
1	Soap Base	55 g	Remove dirt
2	Sandal wood powder	2 g	Remove suntan, glowing skin
3	Turmeric Powder	0.15 g	Anti-oxidant, anti-septic
4	Aloe vera gel	4 g	Anti-aging
5	Multani mitti	1 g	Brighting skin tone
6	Neem oil	2 ml	Anti-bacterial
7	Rose water	1 ml	Smoothing the skin
8	Sandalwood oil	2 drops	Perfume

IV. FORMULATION PROCEDURE

A. Requirement

1) Ingredient

- Soap Base.
- Sandal wood powder.
- Turmeric Powder.
- Aloe vera gel .
- Multani mitti .
- Neem oil.
- Rose water.
- Sandalwood oil.

2) Equipment

- 500 ml beaker
- Stirrer
- Soap moulds
- Petri dish
- Water bath
- Freezer

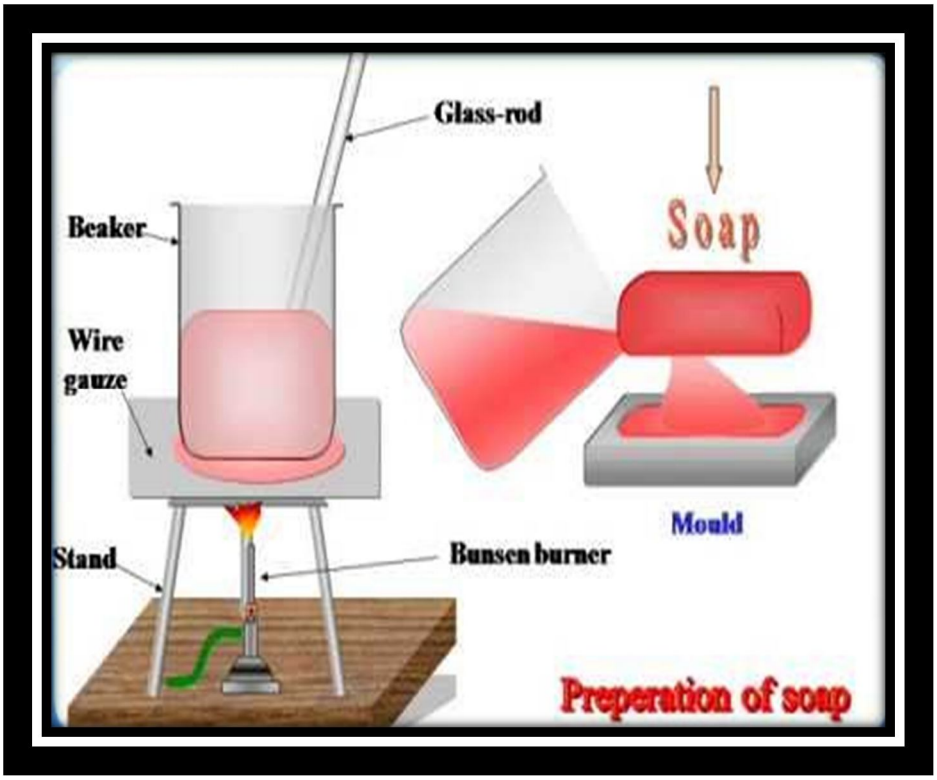
Beaker

Petri dish

Soap moulds

Freezer

Water bath



3) Procedure

- Measure the required volume of soap base and pour it into a 500 ml beaker.
- Place the beaker on a water bath and maintain the temperature at 45 °C to heat the soap base without stirring. This will cause the soap base to melt and convert into a liquid form.
- Once the soap base has melted completely, add all the other ingredients for your desired polyherbal soap blend into the beaker. use herbs, essential oils, and other additives according to your preference and formulation.
- Boil the mixture on the water bath at 45°C without stirring. This will allow the ingredients to blend properly without creating air bubbles.
- After boiling for a sufficient time, carefully pour the mixture into soap moulds.
- Place the soap moulds in the freezer and allow the soap to freeze for 2-3 hours.
- After 2-3 hours, remove the soap moulds from the freezer and let them sit for 5 minutes to allow the soap to solidify.
- Once the soap has solidified, gently remove it from the moulds.

4) Uses of Soap

- Remove suntan.
- Smoothen the skin.
- Moisturizing skin.

V. EVALUATION PARAMETERS

A. Texture

The texture of the soap was evaluated by rubbing the soap between fingers or palms to assess its smoothness, consistency, and feel.

B. Lather

The lather or foam generated by the soap when used with water was observed and evaluated for its quantity, stability, and creaminess.

C. Cleansing Ability

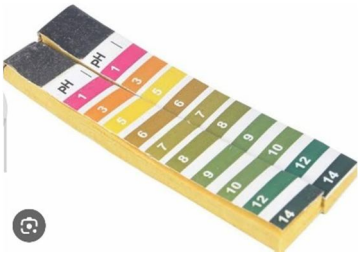
The ability of the soap to effectively cleanse the skin was assessed by using it to wash the skin and evaluating its ability to remove dirt, oil, and impurities.

D. Overall Sensory Evaluation

The overall sensory attributes of the soap, including color, shape, odour, texture, lather, cleansing ability, moisturization, and rinsability, were evaluated holistically by panellists using their senses to provide an overall assessment of the soap's quality and performance.

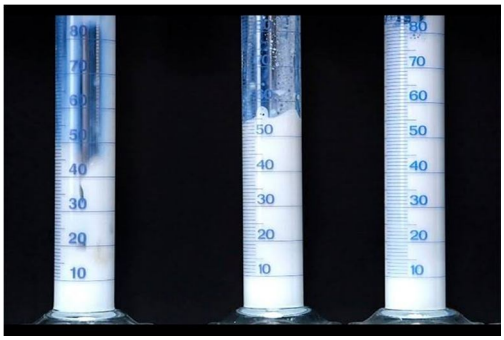
E. pH

The pH of the prepared soap was determined using two methods. Firstly, a pH strip was touched to the freshly formulated soap to obtain a pH reading. Secondly, 1 gram of soap was dissolved in 10 ml of water, and the pH of the resulting solution was measured using a digital pH meter .



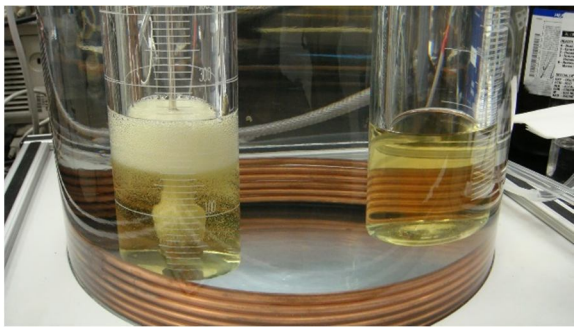
F. Foam Height

To assess foam height, 0.5 grams of the soap sample was dispersed in 25 ml of distilled water. The mixture was then transferred into a 100 ml ~ 107 ~ measuring cylinder, and the volume was made up to 50 ml with water. The solution was agitated with 25 strokes and allowed to stand until the aqueous volume measured up to 50 ml. The height of the foam above the aqueous volume was then measured.



G. Foam Retention Testing

25 ml of a 1% soap solution was taken in a 100 ml graduated measuring cylinder. The cylinder was covered with a hand and shaken 10 times. The volume of foam was recorded at 1-minute intervals for a total of 4 minutes.



H. Irritation Testing

Was carried out by applying the soap on the skin for 10 minutes. If no irritation occurred, the soap was considered non-irritant based on the absence of any adverse skin reactions.

V. CONCLUSION

These tan removal soaps can be used with ease and without fear of harming the skin to lighten and remove sun tan. These soaps are fortified with traditional preparations for skin rejuvenation and contain aloe, turmeric, neem, sandalwood and other plant ingredients. They are usually free from strong chemicals and thus do not irritate sensitive skin. However, results of herbal tan removal soaps vary with the skin type of the individual and the extent of the tan. In addition, these are not instant results, but with continued application and avoiding sun damage a more uniform and less pigmented skin may be achieved eventually. Be sure to patch-test any new product before use.

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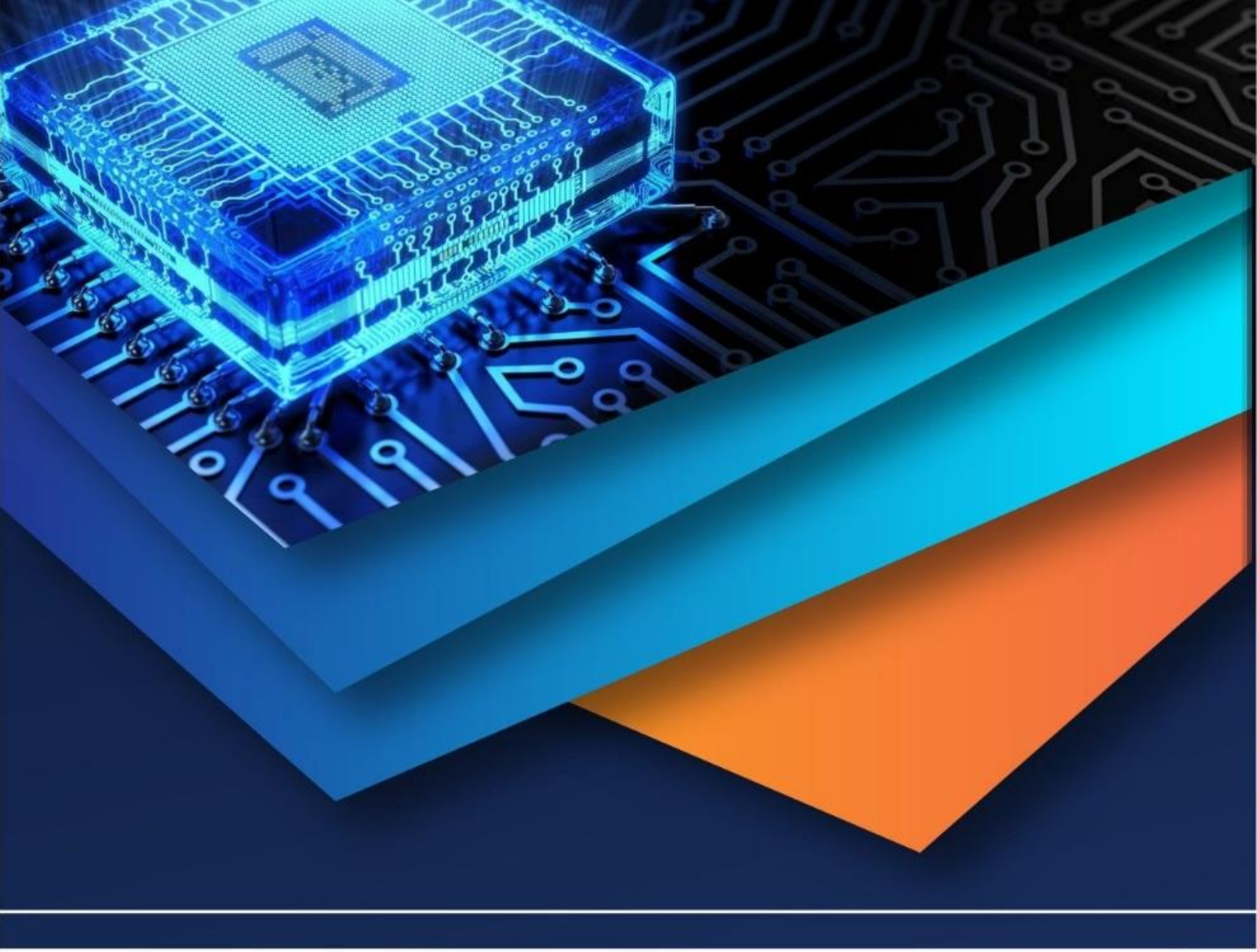

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