

# Formulation and Evaluation of Polyherbal Ubtan Soap: A Natural Skincare Solution

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**Abstract:** Ayurvedic herbs with therapeutic qualities, such as ashwagandha, mulethi, brahmi, manjishta, aloe vera, neem, and tulsi, are used to make the natural skincare product Polyherbal Ubtan Soap. For generations, people have utilized these plants to treat skin conditions and encourage the growth of healthy skin. This herbal soap provides an antibacterial treatment that helps treat skin issues like bacterial infections and tans, in contrast to commercial soaps that frequently include dangerous chemicals. Because of its skin-rejuvenating and antioxidant qualities, it is a safe, affordable, and efficient substitute for natural skincare products that promote healthier skin.

**Keywords:** Polyherbal Ubtan Soap, Skincare, Ayurveda, Antioxidant, Antibacterial.

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## I. INTRODUCTION

Ubtan, a traditional herbal formulation used in South Asia for centuries, has gained attention for its natural skin benefits, including cleansing, exfoliating, and nourishing properties. As demand for organic and chemical-free skincare products rises globally, Polyherbal Ubtan Soaps have emerged as a modern solution, combining the traditional ubtan with the advantages of contemporary soap-making techniques.<sup>[1]</sup> These soaps are crafted from a blend of herbs, oils, and natural extracts, offering antimicrobial, anti-inflammatory, and antioxidant properties. The synergistic effects of these ingredients help cleanse, rejuvenate, and protect the skin, making them an ideal choice for those seeking holistic skincare solutions. This research explores the formulation, benefits, and potential applications of Polyherbal Ubtan Soaps, examining the properties of the individual herbs used and their role in enhancing the overall effectiveness of the product. The goal is to demonstrate the advantages of combining multiple herbal ingredients into a single product and to evaluate Polyherbal Ubtan Soaps as a sustainable alternative to synthetic skincare products.<sup>[2]</sup>

➤ *Advantages of Polyherbal Ubtan Soap:*

- **Natural Ingredients:** Polyherbal Ubtan Soap is made from natural herbs and oils, making it a chemical-free alternative to commercial soaps, which may contain harmful chemicals.
- **Skin Benefits:** The blend of herbs like neem, aloe vera, tulsi, and ashwagandha offers multiple skin benefits,

including antimicrobial, anti-inflammatory, antioxidant, and skin rejuvenating properties.

- **Cleanses and Exfoliates:** Ubtan soap helps in removing dead skin cells and deeply cleanses the skin, improving texture and promoting a healthy glow.
- **Suitable for All Skin Types:** It can be used for all skin types, including sensitive skin, since it's made from gentle, natural ingredients.<sup>[3]</sup>

➤ *Disadvantages of Polyherbal Ubtan Soap:*

- **Allergic Reactions:** Though rare, some individuals may be allergic to certain herbs or oils used in the soap, leading to irritation or allergic reactions.
- **Availability:** Polyherbal Ubtan Soap may not be as readily available in mainstream stores as regular soaps, making it harder for some consumers to access.
- **Scent Variations:** The scent of herbal soaps can differ from person to person, and some people may not prefer the natural, earthy smell of the herbs compared to synthetic fragrances used in commercial soaps.
- **Effectiveness Over Time:** While the soap may provide immediate benefits, it may take longer for more significant results, especially for skin conditions like severe acne or pigmentation.
- **Price:** Polyherbal Ubtan Soap, due to its natural ingredients and manufacturing process, can be more expensive than commercial soaps, making it less affordable for some users.<sup>[4]</sup>

## II. MATERIALS AND METHOD

### A. Drug Profile

#### ➤ Ashwagandha Powder

- Botanical Name: *Withania somnifera*
- Color: Light brown to tan
- Constituents: Withanolides, alkaloids, steroidal lactones
- Uses: Rejuvenates skin, reduces stress-related damage, and enhances skin elasticity.<sup>[5]</sup>



Fig 1 Ashwagandha Powder

#### ➤ Brahmi Powder

- Botanical Name: *Bacopa monnieri*
- Color: Greenish-brown
- Constituents: Bacosides, saponins, flavonoids
- Uses: Heals damaged skin, reduces irritation and improves Complexation.



Fig 2 Brahmi Powder

#### ➤ Manjishta Powder

- Botanical Name: *Rubia cordifolia*
- Color: Reddish-brown
- Constituents: Anthraquinones, glycosides, tannins
- Uses: Brightens complexion, detoxifies, and reduces pigmentation.



Fig 3 Manjishta Powder

#### ➤ Mulethi Powder (Licorice)

- Botanical Name: *Glycyrrhiza glabra*
- Color: Pale yellow to beige
- Constituents: Glycyrrhizin, flavonoids, saponins
- Uses: Soothes skin, lightens dark spots, and reduces inflammation.



Fig 4 Mulethi Powder (Licorice)

#### ➤ Beetroot Powder

- Botanical Name: *Beta vulgaris*
- Color: Deep red to magenta
- Constituents: Betalains, vitamins (A, C, K), folate
- Uses: Provides a natural glow, hydrates, and revitalizes the skin.



Fig 5 Beetroot Powder

➤ *Neem Powder*

- Botanical Name: *Azadirachta indica*
- Color: Green
- Constituents: Azadirachtin, nimbin, flavonoids
- Uses: Antibacterial, controls acne, and purifies skin<sup>[6]</sup>



Fig 6 Neem Powder

➤ *Chandan Powder (Sandalwood)*

- Botanical Name: *Santalum album*
- Color: Pale beige
- Constituents: Santalols, sesquiterpenes
- Uses: Calms skin, reduces blemishes, and provides a cooling effect.



Fig 7 Chandan Powder (Sandalwood)

➤ *Tulsi Powder (Holy Basil)*

- Botanical Name: *Ocimum sanctum*
- Color: Green
- Constituents: Eugenol, ursolic acid, flavonoids
- Uses: Detoxifies, protects against environmental damage, and soothes skin.



Fig 8 Tulsi Powder (Holy Basil)

➤ *Haldi (Turmeric)*

- Botanical Name: *Curcuma longa*
- Color: Bright yellow
- Constituents: Curcuminoids, essential oils, polysaccharides
- Uses: Brightens skin, reduces inflammation, and fights acne.



Fig 9 Haldi (Turmeric)

➤ *Orange Peel Powder*

- Botanical Name: *Citrus sinensis*
- Color: Light orange
- Constituents: Flavonoids, limonene, vitamin C
- Uses: Tones skin, brightens complexion, and reduces acne marks.



Fig 10 Orange Peel Powder

➤ *Red Lentil Powder (Masoor Dal)*

- Botanical Name: *Lens culinaris*
- Color: Pinkish-red
- Constituents: Proteins, saponins, polyphenols
- Uses: Gently exfoliates and removes dead skin cells<sup>[7]</sup>



Fig 11 Red Lentil Powder (Masoor Dal)

➤ *Green Gram Powder (Moong Dal)*

- Botanical Name: *Vigna radiata*
- Color: Pale green
- Constituents: Proteins, flavonoids, phenolic acids
- Uses: Cleanses deeply and smoothens skin.



Fig 12 Green Gram Powder (Moong Dal)

➤ *Besan (Gram Flour)*

- Botanical Name: *Cicer arietinum*
- Color: Yellowish-beige
- Constituents: Proteins, carbohydrates, saponins
- Uses: Tightens skin, controls oil, and improves skin tone.



Fig 13 Besan (Gram Flour)

➤ *Rice Flour*

- Botanical Name: *Oryza sativa*
- Color: White
- Constituents: Starch, ferulic acid, phytic acid
- Uses: Polishes skin, brightens, and exfoliates gently



Fig 14 Rice Flour

➤ *Rose Water*

- Botanical Name: *Rosa damascene*
- Color: Clear to pale pink
- Constituents: Phenolics, flavonoids, volatile oils
- Uses: Hydrates, refreshes, and soothes skin<sup>[8]</sup>



Fig 15 Rose Water

➤ *Jasmine Essential Oil*

- Botanical Name: *Jasminum officinale*
- Color: Pale yellow
- Constituents: Benzyl acetate, linalool, phytosterols
- Uses: Calms and nourishes the skin while imparting fragrance.



Fig 16 Jasmine Essential Oil

➤ *Vitamin E Oil*

- Source: Natural tocopherols from vegetable oils
- Color: Clear to pale yellow
- Constituents: Tocopherols, tocotrienols
- Uses: Moisturizes, prevents skin damage, and improves elasticity.



Fig 17 Vitamin E Oil

➤ *Almond Oil*

- Botanical Name: *Prunus amygdalus var. dulcis*
- Color: Pale yellow
- Constituents: Oleic acid, linoleic acid, vitamin E
- Uses: Deeply moisturizes, nourishes, and improves skin texture.



Fig 18 Almond Oil

➤ *Glycerine*

- Source: Derived from vegetable oils
- Color: Clear
- Constituents: Polyols
- Uses: Retains moisture, softens skin, and prevents dryness.



Fig 19 Glycerine

➤ *Soap Base*

- Source: Glycerine or shea butter
- Color: White or translucent
- Constituents: Fatty acids, glycerol
- Uses: Acts as the base for the soap, gently cleanses skin.<sup>[9,10]</sup>



Fig 20 Soap Base

➤ *Formulation Table*

Table 1 Formulation Table

Sr. No.	Name of Ingredient	Quantity
1	Ashwagandha Powder	2.5 g
2	Manjistha Powder	2.5 g
3	Brahmi Powder	2.5 g
4	Mulethi Powder	2.5 g
5	Chandan (Sandalwood) Powder	2.5 g
6	Neem Powder	2.5 g
7	Haldi (Turmeric) Powder	2.5 g
8	Beetroot Powder	2.5 g
9	Tulsi Powder	2.5 g
10	Red Lentil Powder	2.5 g
11	Besan (Gram Flour)	2.5 g
12	Green Gram Powder	2.5 g
13	Orange Peel Powder	2.5 g
14	Rice Flour	2.5 g
15	Glycerine Soap Base	50 g
16	Rose Water	10 ml
17	Vitamin E Oil	4-5 drops
18	Almond Oil	4-5 drops
19	Jasmine Essential Oil (Fragrance)	1-2 drops
20	Glycerine	2 ml

### III. METHOD OF PREPARATION

#### ➤ Step 1: Selection and Preparation of Ingredients

Collect all herbal powders and other ingredients, such as ashwagandha, neem, and turmeric. Ensure all powders are finely ground and free from lumps or impurities. Sieve them if necessary to maintain a smooth texture. Measure precise quantities of each herbal powder and liquid ingredient (rose water, oils, etc.) as per the formulation requirements to ensure consistent quality.



Fig 21 Selection and Preparation of Ingredients

#### ➤ Step 2: Melting the Soap Base

Use a glycerin soap base or shea butter soap base as the foundation. Cut the soap base into small chunks for even melting. Place the soap base in a double boiler (or a heatproof bowl over simmering water). Stir gently as it melts to prevent overheating. Alternatively, melt the soap base in a microwave, heating it in 15-second intervals to avoid burning.



Fig 22 Melting the Soap Base

#### ➤ Step 3: Blending Herbal Powders

Once the soap base is fully melted, gradually add the herbal powders (e.g., turmeric, neem powder, gram flour) one by one. Stir continuously with a spatula or whisk to prevent clumps and ensure uniform distribution. Maintain a temperature of around 50–60°C to ensure the soap base remains liquid but does not degrade.<sup>[11,12]</sup>



Fig 23 Blending Herbal Powders

#### ➤ Step 4: Adding Liquid and Essential Ingredients

Add liquid components such as rose water, glycerin, or any hydrosols for additional hydration. Mix well to maintain consistency. Incorporate essential oils (e.g., jasmine essential oil) and nourishing oils (e.g., almond oil and Vitamin E oil). These should be added last to preserve their beneficial properties, as they are sensitive to high temperatures. Mix thoroughly for about 5–10 minutes to ensure uniform blending.

#### ➤ Step 5: Pouring into Moulds

Prepare soap molds in advance, ensuring they are clean and dry. Silicone molds are ideal as they allow for easy removal of the soap. Pour the prepared soap mixture slowly into the molds, filling them to the top. Tap the molds gently on a flat surface to remove air bubbles trapped in the mixture.



Fig 24 Pouring into Moulds

#### ➤ Step 6: Cooling and Hardening

Allow the molds to cool at room temperature for 4–6 hours or until the soap hardens completely. For quicker results, place the molds in the refrigerator for about 1–2 hours. Avoid freezing as it may affect the soap's texture.

#### ➤ Step 7: Demolding the Soap

Once the soap is fully hardened, gently remove it from the molds. If the soap sticks, press the sides of the silicone molds carefully or use a butter knife to loosen the edges.



Fig 25 Demolding the Soap

➤ *Step 8: Curing the Soap*

Place the demolded soaps on a clean surface or tray lined with parchment paper. Leave them to cure for 24–48 hours in a cool, dry, and dust-free environment. Curing helps improve the soap's hardness, texture, and durability, making it suitable for regular use.<sup>[13,14,15]</sup>

➤ *Step 9: Storage and Packaging*

Wrap each soap individually in wax paper or store them in an airtight container to protect against moisture and contamination. Label the soaps with details such as ingredients, manufacturing date, and expiry date if they are for commercial use.<sup>[16]</sup>

#### IV. EVALUATION TEST

➤ *Skin Sensitivity Test (Patch Test)*

• *Method:*

Apply a small amount of soap on a patch of skin (preferably on the inner elbow or wrist) and leave it for 24 hours. If there is no irritation, redness, or itching, the soap is safe for general use.

➤ *pH Level Test*

• *Method:*

Use pH test strips or a digital pH meter to measure the soap's pH. A pH level between 4.5 and 7 is ideal for herbal soaps. If the soap's pH is too high or low, it may irritate the skin.

➤ *Foam and Lather Test*

• *Method:*

Wet the soap and rub it between your hands. A good herbal soap should produce a rich, creamy lather that cleans effectively without excessive dryness. If the soap produces insufficient lather, it may need adjustments to the ingredients or process.<sup>[17]</sup>



Fig 26 Foam and Lather Test

➤ *Stability Test (Storage Test).*

• *Method:*

Store the soap in various conditions (e.g., in a humid environment or direct sunlight) for 1–2 months. Monitor for any degradation such as changes in texture, scent, or color. A well-made herbal soap should retain its properties without becoming too soft or losing its fragrance.<sup>[18,19]</sup>



Fig 27 Stability Test (Storage Test)

➤ *Moisturization Test*

• *Method:*

Wash your hands or skin with the soap and check if your skin feels moisturized or dry after use. Herbal soaps should provide moisture and not strip the skin of natural oils. If the skin feels tight or dry, the soap may need more moisturizing ingredients.



Fig 28 Moisturization Test

➤ *Herbal Efficacy Test*

• *Method:*

After regular use (1–2 weeks), check for improvements in skin conditions such as acne, dryness, or irritation, depending on the herbs used. The soap should show visible benefits based on its herbal ingredients. If the soap does not show improvement in the skin condition, its efficacy may need to be reassessed.<sup>[20]</sup>

## V. RESULTS

### ➤ Appearance:

The soap exhibited a **dark brown color**, which is attributed to the mixture of Ayurvedic herbs. It had a smooth and even texture, with slight graininess if coarse powders were added.

### ➤ Texture:

The soap had a **smooth and nourishing texture**, with gentle exfoliating properties due to the presence of herbal powders such as gram flour and rice flour.

### ➤ Fragrance:

A mild, floral, and earthy scent was observed due to the essential oils (jasmine oil) and herbal powders, making it pleasant for regular use.

### ➤ Cleansing Properties:

The soap effectively cleansed the skin, removing dirt, oil, and impurities without stripping away natural moisture.

### ➤ Lather Formation:

A rich and creamy lather was formed during use, ensuring effective cleansing and user satisfaction.

### ➤ pH Level:

The pH of the soap was found to be between **5.5 and 6**, which is skin-friendly and ensures compatibility with most skin types.

### ➤ Moisturization:

After use, the skin felt hydrated and soft, with no signs of dryness or tightness. This can be attributed to the presence of almond oil, glycerine, and Vitamin E oil.

### ➤ Herbal Efficacy:

Regular use over 1–2 weeks resulted in visible improvements, such as brighter complexion, reduced pigmentation, and fewer breakouts, validating the benefits of herbs like turmeric, neem, and manjishtha.

### ➤ Stability:

The soap remained stable during the storage period of 1–2 months under varying conditions. No significant changes were observed in texture, scent, or color.

## VI. CONCLUSION

The Polyherbal Ubtan Soap combines natural ingredients like turmeric, neem, manjishtha, and ashwagandha with moisturizing agents such as glycerine, almond oil, and Vitamin E to provide skincare benefits like cleansing, exfoliation, hydration, and brightening. Its pH is skin-friendly, making it suitable for all skin types, including sensitive skin. The soap offers antibacterial, anti-inflammatory, and skin-brightening properties, effectively addressing issues like acne, pigmentation, and dullness. Stability tests confirm its durability, retaining quality under different conditions. This product blends Ayurvedic knowledge with modern formulation techniques, offering a

chemical-free and eco-friendly skincare solution. Future research could explore more herbal ingredients and long-term effects, potentially expanding its reach in the market.

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