



Development and Evaluation of Dosha-based Handmade Herbal Soaps using a Melt-and-pour Glycerin Base

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ABSTRACT

The present study aimed to develop and evaluate handmade herbal soaps based on Ayurvedic dosha principles using melt-and-pour soap bases and natural ingredients. A structured feedback survey was carried out with 30 respondents to evaluate the usage pattern, immediate effects, long-term results and overall acceptability of the soaps. Basic physicochemical parameters such as pH, appearance, colour, texture and odour were evaluated. Four soap variants were prepared: Goat milk, Rice potato, Rosy tomato and Multani chandan. According to Ayurvedic classification, Goat milk soap was considered suitable for Vata skin due to its moisturizing properties, while Rice potato soap was considered suitable for Kapha skin because of its oil-controlling nature. The survey results showed that 93% of respondents were willing to purchase the soap again and all participants were ready to recommend it to others. Improved hydration (28%), brighter skin tone (25%) and reduced tanning (16%) were reported after regular use. The study indicates that dosha-based handmade organic soaps may be a useful approach for personalized skincare. However, further research with a larger sample size is required for more detailed evaluation.

INTRODUCTION

Synthetic face washes and soaps dominate the skincare market but often contain sulfates, parabens, and artificial fragrances, which can strip natural oils, cause dryness, or trigger acne [6]. In contrast, herbal skincare products are rising in popularity due to their perceived safety, gentleness and eco-friendliness [7]. Herbal skincare products offer several benefits such as retaining natural bioactive compounds from herbs, clays and oils; being gentler and safer for sensitive skin, children and the elderly; and supporting long-term skin nourishment without toxic side effects while promoting environmental sustainability. According to Husain [8], natural ingredients such as goat milk, honey and rose water improve skin softness, glow and youthfulness. Loughran [9] emphasized

that skincare should be tailored according to Ayurvedic dosha types (Vata, Pitta, Kapha), as each skin type requires different care.

- Vata skin is typically dry, thin, and sensitive, requiring intense hydration and nourishment.
- Kapha skin is oily, thick and acne-prone, requiring detoxification, oil control, and cleansing.

OBJECTIVES

To formulate handmade herbal soaps specific for Vata (dry) and Kapha (oily) skin types using Ayurvedic principles.

To evaluate selected physicochemical parameters such as pH, appearance and odour.

To analyze consumer feedback regarding immediate effects, long-term benefits, and overall acceptability of the soaps.

MATERIALS AND METHODS

Soap variants prepared

Four handmade herbal soap formulations were prepared:

1. **Goat Milk Soap:** Goat milk base, almond oil, honey, rose water, aloe vera and lavender oil.
2. **Rice Potato Soap:** Glycerin base, rice powder, potato juice, vitamin E, rose water, aloe vera and coconut oil.
3. **Rosy Tomato Soap:** Rose powder, tomato juice, vitamin E, rose water, aloe vera and coconut oil.
4. **Multani Chandan Soap:** Multani mitti, sandalwood powder, and sandalwood oil.

Dosha-Based Classification

- Goat milk soap was selected as the vata formulation due to its hydrating and nourishing properties.
- Rice potato soap was selected as the Kapha formulation due to its oil-controlling and clarifying effects.
- Rosy tomato and Multani chandan soaps were considered secondary formulations and included in the consumer feedback study.

Method of Preparation

The soaps were prepared using the melt-and-pour method, which is one of the safest and simplest techniques for handmade soap formulation. This method allows the incorporation of natural ingredients without exposing them to harsh chemical reactions, thereby preserving their bioactive properties [?].

PROCEDURE

- Cut the required amount of soap base (Goat milk or Glycerin) into small cubes.
- Melt the base slowly at 70–75°C using a double boiler method, stirring continuously to avoid overheating.
- Once melted, add natural ingredients as per each formulation:

Soap Variant	Ingredients added
Goat milk soap	Almond oil, honey, rose water, aloe vera, lavender oil
Rice potato soap	Glycerin base, rice powder, potato juice, vitamin E, rose water, aloe vera, coconut oil
Multani chandan soap	Multani mitti, sandalwood powder, sandalwood oil

Vasanthan et al. [4] also found that the formulated soap does not cause any irritation to the skin. The prepared

soaps were further standardised by evaluating various physicochemical properties such as pH, appearance and odour, and exhibited satisfactory results.

- Stir continuously until the mixture becomes uniform and well blended.
- Pour the prepared mixture into silicone moulds of desired shape.
- Allow the soap to cool and solidify at room temperature for 24 hours.
- After solidification, remove the soaps from the moulds, label them and store in airtight containers for evaluation and feedback.

RESULTS AND DISCUSSION

Table 1. Background Information of Respondents

Occupation	No. of respondents	% of respondents
House wife	10	33%
Working ladies	8	27%
Students	11	37%
Other	1	3%

Out of 30 respondents, 37% were students, 33% housewives, 27% were working women, and 3% comprised other respondents.

Table 2. Skin Type of Respondents

Skin type	No. of respondents	% of respondents
Dry	3	10%
Oily	4	13%
Combination	9	30%
Sensitive	6	20%
Normal	8	27%
Acne-prone	-	-

Combination skin was reported by 30% of respondents, followed by normal skin (27%), sensitive skin (20%), oily skin (13%) and dry skin (10%). No respondent reported acne-prone skin.

Table 3. Common Skin Concerns of Respondents

Skin concerns	No. of respondents	% of respondents
Pimples	7	14%
Tanning	11	22%
Pigmentation	12	24%
Dryness	5	10%
Dull skin	10	20%
Itching	5	10%

Pigmentation was observed in 24% of respondents, tanning

in 22%, dull skin in 20%, pimples in 14% and dryness, itching in 10% each.

Table 4. Distribution of Soaps Currently Used by Respondents

SS soap variants	No. of respondents	% of respondents
Goat milk	15	44%
Multani chandan	5	15%
Rosy tomato	6	18%
Rice potato	8	23%

Among the four soap variants, goat milk soap was the most preferred, used by 44% of respondents, followed by rice potato soap (23%), rosy tomato soap (18%) and multani chandan soap (15%). This indicates a higher preference for formulations suitable for Vata and Kapha skin types.

Table 5. Duration Since Respondents Started Using Soap

Start using SS soap	No. of respondents	% of respondents
Less than week	4	14%
1-2 weeks ago	10	33%
3-4 weeks ago	6	20%
More than month	10	33%

Nearly one-third (33%) of the respondents said they used SS soap about one to two weeks ago, while 14% mentioned using it in the past week.

Table 6. Usual Applications of Soap Reported by Respondents

Usually use on	No. of respondents	% of respondents
On face only	12	40%
On body only	-	-
On both face & body	18	60%

Approximately 60% of respondents reported using SS soap on both the face and body, while 40% used it only on the face.

Table 7. Frequency of Soap Usage per Day

Times in a day	No. of respondents	% of respondents
Once a day	10	33%
Twice a day	18	60%
Any other	2	7%

Around 33% of respondents reported using SS soap once a day, while 60% used it twice daily.

Table 8. Immediate Effects Experienced After Using SS Soap

Immediate effect	No. of responses	% of responses
Fresh	20	33%

Smooth skin	17	28%
Soft & moisture	21	34%
Itching	1	2%
No change	2	3%

About 34% of respondents felt their skin became soft and moisturized after using the soap, 33% experienced a feeling of freshness and 28% reported smoother skin.

Table 9. Changes Observed After Regular Use

Changes noticed	No. of responses	% of responses
Reduced acne	3	5%
Brighter skin tone	14	25%
Even skin texture	11	19%
Less tanning	9	16%
Improved hydration	16	28%
No visible change	3	5%
Any other	1	2%

Improved hydration was reported by 28% of respondents, a brighter skin tone by 25%, even skin texture by 19% and reduced tanning by 16%. Hingane [10] also found that the formulated herbal hand wash performed well on physical parameters, including colour, odour, pH, viscosity and stability, with good cleaning efficiency. Rajan et al. [11] also observed that evaluation tests revealed the herbal soap performed satisfactorily against microbes when compared to conventional antibacterial agents. The soap also exhibited good cleaning efficiency in removing microbes on skin.

Table 10. Willingness to Purchase the Soap

Will purchase	No. of respondents	% of respondents
Yes	28	93%
No	2	7%

The majority of respondents (93%) expressed their willingness to purchase the soap again.

Table 11. Reasons for Choosing SS Organic Soap

Reason	No. of respondents	% of respondents
Natural & organic	23	30%
Paraben free	12	16%
Unique combination	9	12%
Skin benefit	15	20%
Affordable	-	-
Handmade with love	12	16%
Referred by someone	5	6%

About 30% of respondents chose SS soap for its natural and organic qualities, 20% selected it due to skin benefits and

6% reported using it based on recommendations.

Table 12. Use of Other Products After Using SS Soap		
Still using other product	No. of respondents	% of respondents
Yes	4	13%
No	26	87%

The majority of respondents (87%) reported not using any other products after adopting SS soap, while 13% continued to use additional products.

Table 13. Intention to Recommend SS Soap to Others		
Recommend to others	No. of respondents	% of respondents
Yes	30	100%
No	0	0%

All respondents (100%) expressed that they would recommend SS soap to others.

CONCLUSION

The study demonstrated the development and evaluation of dosha-based handmade herbal soaps using the melt-and-pour method. Goat milk soap was found effective for Vata skin by improving hydration and smoothness, while rice potato soap helped in controlling oiliness and reducing tanning in Kapha skin. Consumer feedback indicated high acceptability and satisfaction with the formulations. However, further studies with a larger sample size are needed for more detailed evaluation.

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Figure 1.
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