https://doi.org/ 10.33472/AFJBS.6.10.2024.4622-4630

African Journal of Biological Sciences

Journal homepage: http://www.afjbs.com

Research Paper Open Access

Comparative Analysis of Medicinal Plant Soap (Marigold vs. Mogra)

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Article History

Volume 6,Issue 10, 2024

Received:29 Apr 2024

Accepted : 27 May 2024

doi: 10.33472/AFJBS.6.10.2024.4622-4630

Abstract:

This study explores the formulation and preference analysis of herbal soaps using Marigold (Tagetes erecta L.) and Mogra (Jasminum sambac) extracts. Herbal soaps are gaining popularity due to their natural ingredients and perceived medicinal benefits. The methodology involves the selection of samples from Ayodhya district, Uttar Pradesh, with a total sample size of 120 respondents. Variables such as soap base, herbal extract, oil, color, fragrance agent, and optimization process are considered in the soap production. The prepared soaps are then assessed by the respondents based on various features like usage rate, availability, fragrance, and foaming, moisturizing, and medicinal benefits. Statistical analysis reveals preferences for different features in Marigold and Mogra soaps. Additionally, the study examines respondents' soap preferences and sources of awareness regarding herbal soaps

Introduction

A fatty acid salt called soap is utilized in many cosmetic, lubricating, and cleaning goods. Soaps are surfactants that are often used in the home for cleaning, bathing, and other household tasks. Soaps are employed in industrial settings as lubricants, thickeners, and cleaning agents. When cleaning soap is applied, the dirt becomes dissolved and is removed from the object being cleaned. Microorganisms are killed by soaps by denaturing their proteins and rupturing their lipid bilayer membranes. Additionally, it emulsifies oils, making it possible for flowing water to carry them away.

Marigold (Tagetes erecta L.), a member of the family Asteraceae or Compositae, is a potential commercial flower that is gaining popularity on account of its easy culture, wide adaptability, and increasing demand in the Indian subcontinent **(Asif, 2008).** Marigold is very important ornamental plant cultivated in the gardens as winter annual plant. It is one of the most valuable medicinal plants and the pigment of flowers is used in food colorings.

Soaps play an essential role in doing away with and killing bacteria. **Riaz *et al*. (2022).** Medicinal cleaning soap are a easy version of the everyday soaps the place artificial or herbal bioactive elements are brought into the fundamental cleaning soap medium to provide a giant range of organic things to do to the last product.

Skin is one of the most exposed part of the body requires protection from the pathogens. To protect the skin from harmful micro organisms and to prevent spreading of many contagious diseases hand washing is absolutely an important precaution. **Handa (1991) and Gupta (2000).**

Several plants, including turmeric, tulsi (holy basil), neem (bark and leaves), lotus petals, and sandalwood paste, were also frequently used to skincare creams in the skincare regimens of the ancient Indians. Natural soaps derived from plant materials are called herbal soaps. Ingredients including vitamins, minerals, essential oils, and other natural substances are frequently used to make them. Because they are manufactured with natural, skin-beneficial substances, they also offer a boost to skin nourishment. Because its components are safe, natural, and non-toxic, herbal soaps are growing in popularity. Herbal soap is an excellent option for regular use because it also provides aromatherapy advantages. Herbal soap is a type of medicinal soap that primarily uses plant parts—leaves, stems, roots, and fruits—as an agent to promote health. Herbal soap is a kind of soap manufactured with natural ingredients sourced from a variety of herbs and plants, according to **Majumdar *et al.* (2023).** Herbal soap is frequently made with herbs including chamomile, lavender, mint, and rosemary. These herbs have a wealth of vitamins, minerals, and essential oils that are medicinal for the skin. People with sensitive or dry skin often choose herbal soap because of its well-known calming, revitalizing, and healing qualities.

Methodology:

1. Locale of sample: The present study will be carried out in Ayodhya districts of State Uttar Pradesh because. The area of study is selected on the basis of availability of respondents and reach.

2. Selection of Sample Size: The total sample size of **120** will be selected by purposive for the present study.

3.Variables for standardization of soap: Soap base, herbal extract, Vitamin E, color, fragrance agent, and oil will be the variables used in the soap producing process, with the soap base, herbal extract, and oil being optimized and the other factors remaining constant. The variable will be finalized based on statistical data analysis and soap assessment. The soap will be developed utilizing an optimized process.

4. Selection of medicinal plants:

- Marigold
- Mogra

5. **Preparation of herbal extract:** Collect fresh leaves of Marigold and Mogra plant. Extract the Marigold and Mogra juice from leaves using mixer or mortar and pestle.

S.No	Ingredient for soap	Amount
1.	Soap base (in gm).	150gm
2.	Plant extract (in ml).	75ml
3.	Oil (in ml)	2.5ml

6. Optimization &Preparation of herbal soap.

Preparation of soap:

- **Method:** Melt the soap base using gas stove or any medium mix the extracted juice ten to fifteen minutes. With the soap base evenly and add desired color and essential oil for better appearance and fragrance. After mixing all the materials, pour the mixture into mould for setting. Demould the soap after proper setting.

7. Assessment of Prepared herbal soap. The assessment of developed soap will be done by the selected respondents.

8. Product Development using best selected method.

- The final product will be developed using the best optimal approach, and the product will be priced using the standard way.

Statistical Analysis of data: The data will be tabulated and analyzed with the help of descriptive (frequency, percentage).

Natural plant products have been used throughout human history for various purposes. Many of these natural products have biological activity that can involve in drug discovery and drug design. The Indian system of medicine known as “Ayurveda” uses mainly plant-based drugs or formulations to treat various ailments, including cancer. Herbal drugs have great growth potential in the global market. Research work on the chemistry of natural products, pharmacognosy, pharmaceutics, pharmacology and clinical therapeutics have been carried out on herbal drugs and most of the leading Pharmaceutical corporations have revised their strategies in favour of natural products. Many herbal remedies individually or

in combination have been recommended in various medical treatises for the cure of different diseases. The therapeutic value of Tagetes erecta, commonly known as Marigold, has been recognized in different systems of traditional medicine for the treatment of different human ailments (Dixit et al., 2013). Natural plant products have been used throughout human history for various purposes. Many of these natural products have biological activity that can involve in drug discovery and drug design. The Indian system of medicine known as "Ayurveda" uses mainly plant-based drugs or formulations to treat various ailments, including cancer. Herbal drugs have great growth potential in the global market. Research work on the chemistry of natural products, pharmacognosy, pharmaceutics, pharmacology and clinical therapeutics have been carried out on herbal drugs and most of the leading Pharmaceutical corporations have revised their strategies in favour of natural products. Many herbal remedies individually or in combination have been recommended in various medical treatises for the cure of different diseases. The therapeutic value of Tagetes erecta, commonly known as Marigold, has been recognized in different systems of traditional medicine for the treatment of different human ailments (Dixit et al., 2013)

Distribution of respondents according to their preference of features in Marigold soap: Treatment –A

S. No	Features	Frequency (%)					
		Usage rate	**Availability**	**Fragrance**	**Foamy**	**Moisturizer**	**Medicinal benefits**
1.	**Excellent**	51 (42.5%)	51 (42.5%)	49 (40.8%)	57 (47.5%)	61 (50.8%)	83 (69.1%)
2.	**Very Good**	57 (47.5%)	54 (47%)	49 (40.8%)	34 (28.3%)	33 (27.5%)	22 (18.3%)
3.	**Good**	12 (10%)	15 (12.5%)	22 (18.3%)	19 (15.8%)	26 (21.6%)	15 (12.5%)
4.	**Average**	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
5.	**Poor**	0 (0%	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

Usage rate: 42.5% of respondents find the soap's usage rate to be excellent followed by 47.5%, 10% very good and good respectively.

Availability: 42.5% of respondents rate the soap as having excellent availability followed by 47%, 12.5% very good and good respectively.

Fragrance: 40.8% of respondents consider the fragrance of the soap to be excellent followed by 40.8%, 18.3% very good and good respectively.

Foamy: 47.5% of respondents find the soap to be excellent in producing foam followed by 28.3%, 15.8% very good and good respectively.

Moisturizer: 50.8% of respondents rate the soap as excellent in moisturizing the skin followed by 27.5%, 21.6% very good and good respectively. While **Saurav et al. (2022)** in study revealed that moisturizer in soap help the skin to become soft.

Medicinal benefits: 69.1% of respondents perceive the soap as having excellent medicinal benefits followed by 18.3%, 12.5% very good and good respectively.

Distribution of respondents according to their preference of features in Mogra soap: Treatment –A

S. No	Features	Frequency (%)					
		Usage rate	**Availability**	**Fragrance**	**Foamy**	**Moisturizer**	**Medicinal benefits**
1.	**Excellent**	68 (56.6%)	67 (55.8%)	65 (54.1%)	64 (53.3%)	66 (55%)	96 (80%)
2.	**Very Good**	37 (30.8%)	38 (31.6%)	48 (40%)	38 (31.6%)	34 (28.3%)	13 (10.8%)
3.	**Good**	15 (12.5%)	15 (12.5%)	12 (10%)	18 (15%)	17 (14.1%)	11 (9.1%)
4.	**Average**	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3 (2.5%	0 (0%)
5.	**Poor**	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

Usage rate: 56.6 % of respondents find the soap's usage rate to be excellent followed by 30.8%, 12.5% very good, good respectively.

Availability: 55.8% of respondents rate the soap as having excellent availability followed by 31.6%, 12.5% very good, good respectively.

Fragrance: 54.1% of respondents consider the fragrance of the soap to be excellent followed by 40%, 10% very good, good respectively.

Foamy: 53.3% of respondents find the soap to be excellent in producing foam followed by 31.6%, 15% very good, good respectively.

Moisturizer: 55% of respondents rate the soap as excellent in moisturizing the skin followed by 28.3%, 14.1% and 2.5% very good, good and average respectively. While **Saurav *et al.* (2022)** in study revealed that moisturizer in soap help the skin to become soft.

Medicinal benefits: 80% of respondents perceive the soap as having excellent medicinal benefits followed by 10.8%, 9.1% very good, good respectively.

Distribution of respondents according to type of soap they prefer (N=120):

The data present in table shows that majority 39.1% of respondents prefer herbal soap, out of which 36.6% girls and 41.6% boys followed by 37.5% of respondents prefer medicated soap, out of which 40% girls and 35% boys. Homeopathic soap is preferred by 14.1% of respondents, with a slightly higher preference among girls (16.6%) compared to boys (11.6%). Only 11.6% boys prefer other types of soap. Overall, the data highlighting herbal soap as the most favored option, followed by medicated and homeopathic soap.

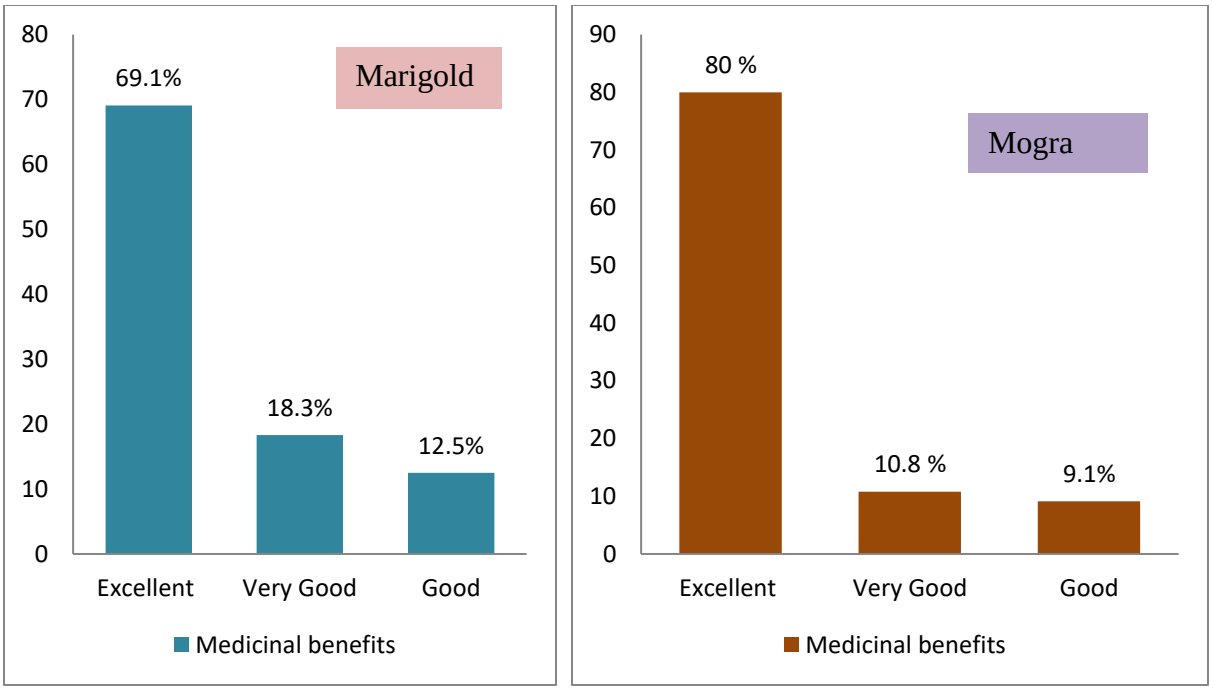
Soap preference	**Total**
	f (%)
Herbal	47 (39.1%)
Medicated	45 (37.5%)
Homeopathic	17 (14.1%)
Other	7 (9.1%)

Distribution of respondents according to source of awareness of herbal soap:

The data from Table illustrates that the more than fifty percent (56.6%) respondents are aware about herbal soap through advertisement followed by 40.8% through family and friends and only 2.5% are through recommendations by users. Overall, the data underscores that awareness of herbal soap is prevalent among both girls and boys, primarily through advertisements and personal networks.

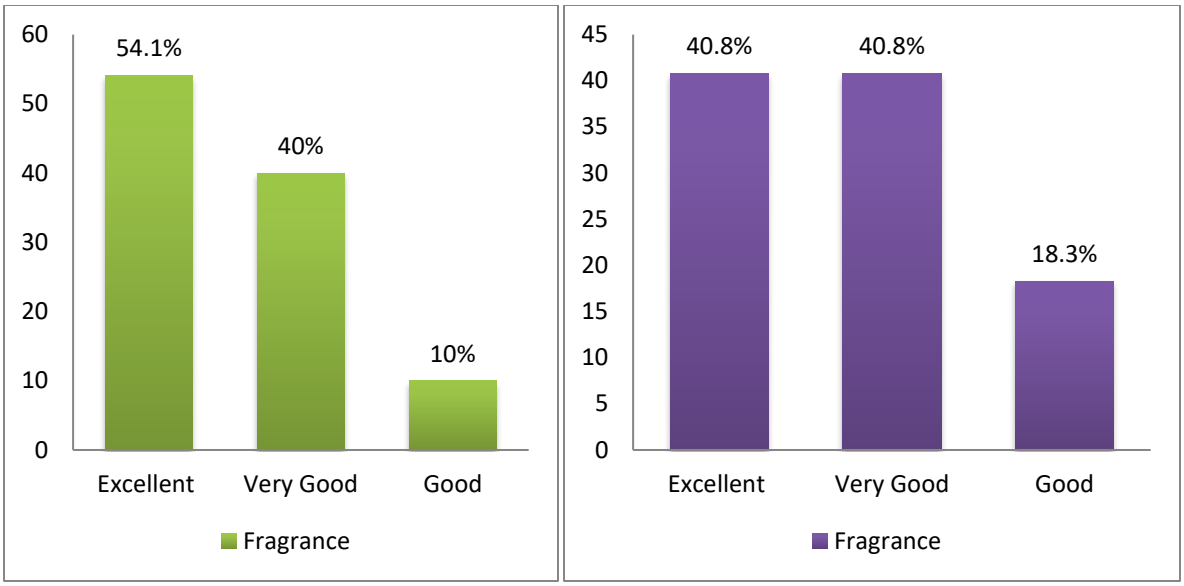
Awareness of herbal soap	**f (%)**
Advertisement	68 (56.6%)
Family & friends	49 (40.8%)
Others (recommendations by users)	3 (2.5%)

Comparison of Medicinal benefit between Marigold and Mogra soap



When comparing the medicinal benefits of Marigold and Mogra. Mogra boasts an impressive 80% score for its excellent medicinal benefits, surpassing Marigold's still notable 69.1%. Additionally, Mogra maintains a very good rating of 10.8%, while Marigold's very good rating is slightly lower at 18.3%. While both plants are commendable for their medicinal properties, Mogra appears to have a more comprehensive range of benefits, as reflected in its higher ratings across the board. The specific ailments or conditions targeted by each plant may vary.

Comparison of fragrance between Marigold and Mogra soap



When comparing the fragrance between marigold and Mogra soap, Mogra soap has a higher percentage of respondents (54.1%) rating its fragrance as excellent compared to Marigold soap (40.8%).Both Mogra and Marigold soaps have similar ratings for very good fragrance, with Mogra soap at 40% and Marigold soap at 40.8%.Marigold soap has a higher percentage of respondents (18.3%) rating its fragrance as good compared to Mogra soap (10%).Overall, Mogra soap has a slightly higher percentage of respondents rating its fragrance as excellent compared to Marigold soap, while Marigold soap has a higher percentage of respondents rating its fragrance as good. However, both soaps have similar ratings for very good fragrance.

Summary & Conclusion:

The research highlights the increasing interest in herbal soaps, particularly those containing Marigold and Mogra extracts. Both plants exhibit significant medicinal benefits, with Mogra soap outperforming Marigold soap in terms of perceived efficacy. Mogra soap is favored for its excellent medicinal properties by 80% of respondents, while Marigold soap scores 69.1% in the same category. Fragrance comparison indicates similar preferences for Marigold and Mogra soaps. However, Mogra soap stands out with higher ratings across various attributes, suggesting a broader spectrum of benefits. The preference analysis also indicates herbal soap as the most favored option, followed by medicated and homeopathic soaps. Awareness of herbal soaps primarily stems from advertisements and personal networks. In the comparison of fragrance between Marigold and Mogra soaps reveals that Mogra soap tends to receive higher ratings for excellent fragrance, with 54.1% of respondents favoring it compared to Marigold soap's 40.8%. Both soaps have similar ratings for very good fragrance, with Mogra soap at 40% and Marigold soap at 40.8%. However, Marigold soap edges ahead in the category of good fragrance, with 18.3% of respondents rating it favorably compared to Mogra soap's 10%. Overall, while Mogra soap generally outperforms Marigold soap in terms of excellent fragrance, Marigold soap is

preferred by a slightly higher percentage of respondents for its good fragrance. Overall, the study underscores the growing demand for natural and medicinal skincare products, with herbal soaps emerging as a preferred choice among consumers.

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