



Research Article

DESIGN, FORMULATION AND EVALUATION OF A HERBAL FACE WASH TABLET ENRICHED WITH *TINOSPORA CORDIFOLIA*

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ABSTRACT

The present study focuses on the formulation and evaluation of a polyherbal face wash tablet developed using natural herbal ingredients to provide an effective, safe, and eco-friendly skin care solutions. The formulation incorporates *Tinospora cordifolia*, Neem leaves powder, Aloe vera powder, Lemon peel, Rita powder, Lemon grass oil, microcrystalline cellulose, Starch, SLS, Magnesium stearate which were selected for their cleansing, antimicrobial, anti-oxidant and skin -nourishing properties. Since ancient times, herbal preparation has been widely used for promoting healthy radiant skin. The concept of converting herbal face wash into a tablet dosage form offers several advantages such as enhanced stability, portability, cost-effectiveness, and elimination of synthetic preservatives. Neem acts as an antibacterial and purifying agent; Aloe vera soothes and moisturises skin; Lemon peel provide natural astringent and skin-brightening effects; Rita powder serves as a natural foaming agent; While microcrystalline cellulose and starch function as tablets binders and stabilisers. The prepared polyherbal face wash tablets were evaluated for parameters such as PH, hardness, friability, foaming ability, disintegration time, and skin irritation potential. The optimized batch exhibited excellent cleansing efficiencies, stable foaming characteristics, and good skin compatibility. Hence the developed poly herbal wash tablets represent a novel, natural, environmentally sustainable cosmetic formulation, providing a convenient preservative -free alternative to conventional facewash product.

Keywords: *Tinospora cordifolia*, Neem, *Aloe vera*, Lemon peel, Rita powder, Herbal cosmetics.

INTRODUCTION

Ingredients such as Neem powder, Aloe vera powder, Lemon peel powder, Rita (Soapnut) powder, and Lemon grass oil. *Tinospora cordifolia* is a large, climbing shrub of the Menispermaceae family, valued in traditional medicine systems like Ayurveda for its rejuvenating, restorative, and therapeutic properties. Its phytochemical constituents' alkaloids, diterpenoid lactones, glycosides, steroids, and polysaccharides confer antimicrobial, antioxidant, anti-inflammatory, immunomodulatory, and tissue-regenerative effects, making it ideal for skin care formulations. (Akeel A *et al.*, 2017). In the polyherbal tablet, Neem acts as an antibacterial and antifungal agent, preventing acne and purifying the skin; Aloe vera hydrates and soothes; Lemon peel provides antioxidant protection and brightening effects; Rita powder functions as a natural foaming agent;

and Lemongrass oil adds fragrance and antiseptic activity. Functional excipients such as microcrystalline cellulose, starch, magnesium stearate, and sodium laurylsulfate ensure proper tablet formation, disintegration, and foaming capacity. (Joshi L.S *et al.*, 2017).

MATERIALS AND METHODS

Formulation procedure

Wet Granulation Technique: Step-by-Step Procedure: Weighing: Accurately weigh all ingredients required for one tablet or a batch. Sieving: Pass sodium bicarbonate, citric acid, starch, and all herbal powders through #60 sieve to ensure uniform particle size. Dry Mixing: Mix sodium bicarbonate, citric acid, starch, neem powder, *Aloe vera*

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powder, *Tinospora cordifolia* powder, and soapnut powder uniformly in a mortar. Addition of Surfactant: Add SLS to the above powder mixture and mix gently to avoid excess foaming. Wet Massing: Add distilled water slowly to the mixture to form a damp, cohesive mass. Granulation: Pass the wet mass through #10 or #12 sieve to obtain wet granules. Drying: Dry the granules in a hot air oven at 40-

45°C until moisture is removed. Sizing: Pass dried granules through #22 sieve for uniform granule size. Addition of Essential Oil: Add essential oil to dried granules and mix gently. Compression: Compress the granules using a tablet compression machine to obtain 250 mg face wash. (Ingel A *et al.*, 2018).

Table No 1. Ingredients list.

S. No	Ingredients	Category	Quantity
1.	Sodium lauryl sulfate	Cleansing agent /surfactant	20 mg
2.	Sodium bicarbonate	Alkalisng / effervescent base	40 mg
3.	Citric acid	Acid / effervescent base	30 mg
4.	Starch	binder	50 mg
5.	Neem powder	antimicrobial	30 mg
6.	Aloevera powder	Soothing & moisturizing agent	25 mg
7.	<i>Tinospora cordifolia</i> powder	Anti-inflammatory& antioxidant	25 mg
8.	Soapnut powder	Natural surfactant/ foaming agent	25 mg
9.	Peppermint oil	fragrance	2 mg
10.	Distilled water	Granulating agent	Quantity sufficient



Figure 1. Herbal face wash tablet.

Evaluation tests

Physical evaluation: The formulated face wash tablets can be evaluated physically for the parameters such as colour and appearance. Colour: The colour of the herbal facewash tablet was analysed visually. Appearance: The appearance of the herbal facewash tablet was checked visually. Consistency: It was determined manually. Washability: The washability of the face wash tablet can be determined

by applying the formulation on the skin and washed with water and checked manually. Spreadability: The spreadability of the herbal face wash tablet was checked manually by applying the tablet on the skin with a gentle rub. Foaming ability by cylinder shake method: Take 50ml of water in a 250ml cylinder and drop the tablet in the cylinder and cover the cylinder with hand and shake it vigorously for few minutes. Measure the volume of the foam produced.

Table 2. Acceptance criteria.

IP/BP	LIMIT	USP
80 mg or less	+/-10%	130mg or less

80 - 250 mg	+/-7.5%	130-324mg less
>250mg	+/-5%	>324mg

pH

The pH of the facewash tablet was made to match with the skin so that the skin irritation is avoided. The pH of 5% aqueous solution of the formulation was measured by using a calibrated digital pH meter at room temperature, it can be done by making 1% aqueous solution of formulation and measure by using calibrated digital pH meter at constant temperature.

Hardness Test

The ability of a tablet to withstand for mechanical shocks is known as hardness. Pfizer hardness tester is the instrument which is used to determine the hardness of tablet. It is expressed in kg/cm². Take three tablets from each batch and hardness should be determined and the selection of tableted should be done randomly. Then the mean and standard deviation values should be determined.

Friability Test

Roche friabilator is the equipment which is used for the determination of friability. It is expressed in percentage. Note down the initial weight of the tablets individually (W initial). Tablets are placed in a plastic chamber which revolves at 25 rpm and they are subjected to fall from a height of 6 inches in the friabilator for about 100 revolutions. Then measure the weight of the tablet (W final) and observe any weight difference before tablet and after the friabilator processing. Limits: loss in weight less than 0.5 to 1% of the initial weight of the tablet should be

considered as acceptable limits. Percentage of friability is calculated. Formula: $\frac{(\text{Initial weight} - \text{Final weight})}{\text{Initial weight}} \times 100$

Weight Variation Test

20 tablets of each formulation were taken for the weight variation test. Each of the tablet are weighed individually using the electronic balance and average weight was calculated and the deviation was recorded by comparing with the average value. According to US Pharmacopeia small variations in the weight is negligible and can be accepted the weight can be accepted the weight variation limit should not exceed $\pm 7.50\%$. Formula: $\frac{\% \text{ of weight variation individual weight} - \text{average weight}}{\text{average weight}} \times 100$

Irritancy Test

Skin irritation test is an essential for formulating pharmaceuticals and cosmeceuticals. The formulation is applied on left hand dorsal skin surface of 1sq. cm and observe in time interval 5-10 minutes for irritancy, redness and edema.

Thickness

The Thickness of the tablets should be measured with the help of Vernier calliper. Thickness of the tablet should be in limit of 15. It is expressed as Kg/cm. (Chaturvedi H *et al.*, 2017).

Table 3. Evaluation test results.

S.No	Parameters	Observations
1.	Colour	Brown
2.	Washability	Excellent
3.	Foaming ability	Good foam
4.	pH	5.20
5.	Hardness	1.2kgf
6.	Friability	0.33%
7.	Weight variation	No variation
8.	Thickness	3mm



Figure 2. Evaluation tests.

The formulation and assessment of the herbal face wash tablet aimed to evaluate the effectiveness of natural ingredients in providing cleansing, antibacterial, and skin-nourishing properties. During the formulation process, various herbal components such as Aloe vera, Soapnut, Neem, *Tinospora cordifolia* were selected for their proven therapeutic actions they contribute to cleansing the skin, reducing acne, and preventing microbial growth. The tablet form was chosen to provide ease of handling, portability, and accurate dosage with minimal wastage compared to traditional liquid face washes. Overall, the assessment showed that the herbal face wash tablet effectively combines the advantages of herbal cosmetics and solid dosage formulations. The product is economical, eco-friendly, and free from synthetic chemicals, making it safe for long-term use on different skin types. The results indicate that such herbal formulations can be a promising alternative to conventional cosmetic preparations, aligning with the growing consumer demand for natural and sustainable skincare solutions.

CONCLUSION

The assessment of the formulation of the herbal face wash tablet reveals that natural ingredients possess excellent assisting properties such as cleansing, moisturizing, antibacterial, anti-oxidant, and soothing effects. These

properties help remove dirt, excess oil, and impurities while maintaining skin hydration and freshness. The use of herbal materials ensures safety, biocompatibility, and stability without harmful side effects. Overall, the formulated herbal facewash tablet is an effective, eco-friendly, and skin-friendly alternative to synthetic cosmetic products.

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CONFLICT OF INTERESTS

The authors declare no conflict of interest

ETHICS APPROVAL

Not applicable

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AI TOOL DECLARATION

The authors declares that no AI and related tools are used to write the scientific content of this manuscript.

DATA AVAILABILITY

Data will be available on request

REFERENCES

- Akeel, A., Mateen, R., Janardhan, A., & Gupta, K. (2017). Analysis of antibacterial and antioxidative activity of *Azadirachta indica* bark using various solvent extracts. *Saudi Journal of Biological Sciences*, 24(1), 11-14.
- Bijauliya, R. K., Alok, S., Kumar, M., Chanchal, D. K., & Yadav, S. (2017). A comprehensive review on herbal cosmetics. *International Journal of Pharmaceutical Sciences and Research*, 8(12), 4930-4949.
- Chaturvedi, H., Garg, A., & Singh, U. (2017). Post-compression evaluation parameters for tablets: An overview. *European Journal of Pharmaceutical and Medical Research*, 4(11), 526-530.
- Devaraji, S. (2021). Formulation and evaluation of consumer-friendly face wash tablets. *Research Journal of Pharmacy and Technology*, 14(2), 838-843. <https://doi.org/10.5958/0974-360X.2021.00148.7>.
- Emerald, M., et al. (2016). Perspective of natural products in skincare. *Pharmacy & Pharmacology International Journal*, 4(3), 339-341.
- Ferreira, B., de Almeida, L., & Williams, R. (2019). *National sandalwood report for Timor-Leste*. Sandalwood Regional Forum.
- Government of India. (2003). *The Ayurvedic pharmacopoeia of India* (Parts I & II). Ghaziabad, India: Government of India.
- Harari, M. (2012). Beauty is not only skin deep: The Dead Sea features and cosmetics. *Anales de Hidrología Médica*, 5, 75-76.
- Ingle, A., & Meshram, M. (2018). Formulation and evaluation of Ayurvedic face wash. *International Journal of Phytopharmacy*, 8(3), 26-30. <https://doi.org/10.7439/ijpp>
- Joshi, L. S., & Pawar, H. A. (2015). Herbal cosmetics and cosmeceuticals: An overview. *MedInfo Journal*, 3(1). <http://dx.doi.org/10.18035/emj.v3i1.261>.