JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

FORMULATION AND EVALUATION OF HERBAL FACEWASH TABLET

Amitha S (Associate Professor), Ahiya Maria Roy, Neethu Madhu, Robin Reji, Silpa G, Simi S Koshy

Dr Joseph Mar Thoma Institute Of Pharmaceutical Sciences And Research Kattanam

ABSTRACT

A novel herbal face wash tablet was developed and evaluated for its anti-acne, cleansing, and moisturizing properties, offering a gentle alternative to synthetic cosmetics with minimal side effects. Utilizing guava leaf powder and beetroot powder as primary ingredients, multiple formulations were created through a trial-and-error approach by varying constituent ratios. The formulations were assessed based on physical appearance, weight variation, hardness, friability, pH, foamability, skin irritation, washability, and wettability.

Keywords: Facewash Tablets, Beetroot powder, guava leaf powder, anti-acne.

INTRODUCTION

Cosmetics are products like creams, lotions, powders, sprays, or serums designed to cleanse, beautify, or enhance the appearance of your skin or body. In recent years, there's been a surge in using natural, plant-based extracts in cosmetics, driven by a growing demand for gentle, eco-friendly options in personal care. Herbal cosmetics, especially face washes, have become a favorite for their ability to cleanse without harsh chemicals. Made from plants, herbs, essential oils, and botanicals, herbal face washes remove dirt, oil, dead skin cells, and makeup while keeping skin hydrated and balanced. They're known for benefits like controlling oil production, fighting acne, reducing blemishes, and promoting a healthy, radiant complexion, all without the irritation often caused by synthetic ingredients.A standout innovation in this space is herbal face wash tablets. These compact, travel-friendly tablets dissolve in water to create a natural, nourishing cleansing paste. Unlike conventional face washes with artificial fragrances or preservatives, these tablets are free from harmful chemicals, cost-effective, and easy to carry, making them perfect for on-the-go skincare. They deliver the same skin-loving benefits—cleansing, soothing, and balancing—without the downsides of synthetic products, offering a sustainable and convenient way to care for your skin.One powerful ingredient in herbal face washes is Beta Vulgaris, commonly known as beetroot. This vibrant root, part of the Conditiva group, is rich in betalains, which give it

its deep red color. These compounds pack antioxidant and anti-inflammatory properties, helping to protect skin from damage, reduce redness, and promote a healthy glow. Beetroot's natural goodness makes it a fantastic addition to skincare, calming irritation and supporting overall skin health.Another star ingredient is Psidium Guajava, or guava leaves, from a tropical shrub in the Myrtaceae family. Guava leaves are celebrated for their anti-inflammatory properties, which soothe irritated or inflamed skin, making them ideal for sensitive or acne-prone complexions. Their antimicrobial qualities also help prevent infections in minor cuts, wounds, or blemishes, keeping skin clear and healthy. Together, these natural ingredients highlight why herbal face washes are so effective. Which cleanse gently while delivering targeted benefits for smoother, brighter skin.The rise of herbal cosmetics reflects a broader shift toward sustainable, skin-friendly products that prioritize health and the environment. Whether in liquid form or innovative tablets, herbal face washes offer a natural alternative to chemical-heavy options, helping you achieve a glowing complexion with the gentle power of plants.

Advantages of herbal facewash tablet

1. Compact, travel-friendly, and lightweight, ideal for on-the-go use.

2. No risk of leakage or spillage, unlike liquid cleansers.

3. Often packaged in biodegradable or recyclable materials, reducing plastic waste.

4. Minimal waste due to solid form, making it an environmentally sustainable choice.

5. Solid form extends shelf life, reducing the risk of contamination compared to liquid products.

MATERIALS AND METHOD

- Beta vulgaris powder
- Psidium guajava powder
- Sodium lauryl sulphate
- Starch powder
- Kaolin clay
- Sodium starch glycolate
- Citric acid

METHOD OF PREPARATION

- Weigh the required quantity of Beta vulgaris powder and Psidium guajava powder, SLS (Sodium lauryl sulphate), sodium starch glycolate, starch powder and citric acid in different concentrations as per the formulations.

- Add citric acid to the mortar and triturate till it is powdered well, gradually add all other ingredients and mix.
- 250gm of the homogenous mixture is weighed and taken for compression.
- Tablets are compressed using a direct compression method.
- The tablets are compressed by using 6mm punch
- Fine tablets with suitable hardness and weight are obtained by adjusting the level of the lower punch.

FORMULATION OF HERBAL FACE WASHTABLET

SI.NO	INGREDIENTS	FORMULATIONS (IN PERCENTAGE)				
		F1	F2	F3	F4	F5
1	Beta vulgaris powder	24	24	24	24	24
2	Psidium guajava powder	20	20	20	20	20
3	Sodium lauryl sulphate	12	15	13	11	14
4	Starch powder	14	11	13	15	12
5	Kaolin clay	16	16	16	16	16
6	Sodium starch glycolate	8	8	8	8	8
7	Citric acid	6	6	6	6	6

Table no: 1 Formulation of herbal face wash tablet

EVALUATION PARAMETERS

PREFORMULATION STUDIES

- DENSITY

For measurement of bulk density, the required amount of powders was poured into the graduated cylinder (100ml) using a glass funnel and its volume is recorded and then it is tapped for 3 and 100 times. The

parameters such as bulk density, Hausners ratio and compressibility index were performed and reported as per the following equations.

bulk density = mass/volume(untapped)

3 tapped density = mass/volume(tapped)

100 tapped density = mass/volume (tapped)

hausner's ratio = tapped density/ bulk density

compressibility index = $\frac{\text{tapped density- bulk density} \times 100}{\text{tapped density}}$

1.PHYSICAL EVALUATION

Figure no: 1 Physical evaluation of herbal face wash tablet

SL NO.	PHYSICAL PARAMETER	FORMULATION				
		F1	F2	F3	F4	F5
1	Colour	Pinkish brown	Pinkish brown	Pinkish brown	Pinkish brown	Pinkish brown
2	Odour	Characteristic	Characteristic	Characteristic	Characteristic	Characteristic
3	Shape	Disc	Disc	Disc	Disc	Disc

Table no: 2 Physical evaluation of herbal face wash tablet

2. WEIGHT VARIATION

Weight of 10 tablets were selected at random and its individual weight was noted and the mean weight was calculated. Percentage deviation of each tablet from the mean was also obtained. .

3. HARDNESS TEST

Randomly 3-5 tablets are taken from each batch and tested for hardness and the values are recorded. The average value of tablet hardness is 3- 8.

4. FRIABILITY TEST

The friabilator tests tablet friability by rotating 10 tablets per batch; weight loss after rotation should not exceed 0.5–1% of initial weight

5. DETERMINATION OF pH.

The pH of the facewash tablet was made to match with the skin so that the skin irritation is avoided. It was measured by making1% aqueous solution of formulation and measured by using calibrated digital pH meter at constant temperature.

Figure no: 2 determination of pH

6. FOAMABILITY

Take 20ml of water in a 250ml cylinder and drop the tablet in the cylinder and cover the cylinder with your hand and shake it vigorously for a few minutes. Measure the volume of the foam produced.

7. WASHABILITY TEST

The washability of the facewash tablet was determined by applying the formulation on the skin and washed with water and checked manually.

Figure no: 3 Washability test

8. ANTIMICROBIAL ACTIVITY

Petriplates containing 20ml Muller Hinton Agar Medium were seeded with bacterial culture of staphylococcus aureus (growth of culture adjusted according to McFarland Standard, 0.5%). Wells of approximately 10mm was bored using a well cutter and different concentrations of sample such as 250µg, 500µg and 1000µg were added. The plates were then incubated at 37°C for 24 hours. The antibacterial activity was assayed by measuring the diameter of the inhibition zone formed around the well (NCCLS, 1993). Streptomycin was used as a positive control.

Sample	Concentration(µg)	Zone of inhibition(mm)
Herbal facewash tablet	Streptomycin(100µg)	27
	250	Nil
	500	11
	1000	12

Table no: 4 Antimicrobial activity of herbal face wash tablet **Figure no: 4 Zone of inhibition**

RESULT AND DISCUSSION

PARAMETERS	F1	F2	F3	F4	F5
PHYSICAL APPEARANCE	GOOD	GOOD	GOOD	GOOD	GOOD
WEIGHT VARIATION	247.75 ± 0.75	247.20 ± 0.3	246.70 ± 0.23	247.75 ± 0.90	246.60 ± 0.88
HARDNESS	3.18 ± 0.06	2.93 ± 0.02	3.15 ± 0.05	3.23 ± 0.07	2.97 ± 0.02
FRIABILITY	0.85 ± 0.05	0.90 ± 0.05	0.86 ± 0.02	0.84 ± 0.02	0.88 ± 0.01
pH	4.50 ± 0.02	4.52 ± 0.02	4.53 ± 0.04	4.53 ± 0.01	4.51 ± 0.02
FOAMABILITY	54 ± 1	61 ± 1.7	55 ± 1.7	52 ± 1	58 ± 1.7
WASHABILITY	VERY GOOD	VERY GOOD	VERY GOOD	VERY GOOD	VERY GOOD
ANTI-MICROBIAL	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT

Table no: 5 Evaluation of herbal face wash tablet

CONCLUSION

This study created and tested a face wash tablet using beetroot (Beta vulgaris) and guava leaf (Psidium guajava), known for their skin-brightening and antibacterial benefits. These natural ingredients were blended into single-use tablets via direct compression, making them safe, user-friendly, and perfect for travel. Five versions (F1–F5) were evaluated for qualities like appearance, foaming, cleansing ability, hardness, weight consistency, skin irritation, wettability, and pH. The top-performing batch, F4, excelled in producing good foam, cleansing effectively, and fighting bacteria, as shown through agar well diffusion tests. These tablets are convenient, reduce waste, and suit all skin types. They help control oil, prevent skin infections, maintain hygiene, and brighten the complexion, offering a natural, portable skincare solution with proven antimicrobial power.

REFERENCE

1. Jeremiah C. Review on transungual drug delivery system. Indo Am J Pharm Res, 2017; 7(08).

2. Samruddhi B, Poonam G, Sanjay G, Gaffar S. Review Article Comprehensive on FaceWash. International Research Journal of Modernization in Engineering Technology and Science. 2024 Mar 27;6(3).

3. Zahra Lotfollahi. The anatomy, physiology and function of all skin layers and the impact of ageing on the skin. Wound practice & research. 2024 Mar 1;32(1).

4. Boer M, Duchnik E, Maleszka R, Marchlewicz M. Structural and Biophysical Characteristics of Human Skin in Maintaining Proper Epidermal Barrier Function. Advances in Dermatology and Allergology. 2016;33(1):1–5.

5. Sehga A, Banyal M, Gupta J, Joshi S. Formulation and evaluation of anti-acne herbal facewash, 2023, Vol-9, Issue-2: ISSN(O)-2395-4396.

6. Tiware SA, Komal Khond Warghane, Priyanka Waghmare, Rumale NP. A Review on Herbal Face Wash. International Journal of Pharmaceutical Chemistry and Analysis. 2023 Dec 15;10(4):220–8.

7. Khare D, Maru A, More Y, Quraishi S. Formulation and evaluation of polyherbal facewash tablets. European Journal of Biomedical and Pharmaceutical Sciences, 2022 Jul 19;9(8).

8. Patkar KB. Herbal cosmetics in ancient India: Official Publication of the Association of Plastic Surgeons of India. 2008 Oct;41:S134.

9. Prajapati V, Maury S, Yadav P. A Review on Formulation and Evaluation of Herbal Face wash. International Journal of Pharmaceutical Research and Applications, 2023;8:518.

10. Guder S, Guder H. Investigation of the Chemical Content and User Comments on Facial Cleansing Products. 2023 May 7;15(5).