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Formulation and Evaluation of Herbal Facewash Containing Plantain

Rohan Balu Lambrud, K.P.Waghmare, Sanjey Garje, Gaffar Sayyad

SAJVPMCOPS and Research Center Kada

ABSTRACT:

This study presents the formulation and evaluation of a herbal face wash enriched with plantain extract, renowned for its medicinal properties. The formulation process involved the selection of appropriate surfactants, humectants, and other additives to ensure stability and efficacy. Plantain extract was incorporated due to its antioxidant, anti-inflammatory, and antimicrobial properties, which are beneficial for skincare. The face wash was subjected to various tests, including pH, viscosity, stability, and microbiological analysis, to ensure its quality and safety. The results demonstrated that the herbal face wash containing plantain extract exhibited suitable physicochemical properties, stability, and antimicrobial efficacy, making it a promising natural alternative for skincare routines. Further studies are warranted to explore its long-term efficacy and potential applications in skincare formulations.

Keywords: Plantain extract, Medicinal propertie, Antioxidant, Anti-inflammatory, Antimicrobial, Skincar.

Introduction

Introducing our herbal face wash infused with the natural power of plantain! Designed to gently cleanse and purify your skin, this nourishing formula harnesses the botanical properties of plantain to soothe, moisturize, and revitalize your complexion. Experience the gentle yet effective cleansing that nature has to offer, leaving your skin feeling fresh, balanced, and radiant.

Advantages

1.Natural Cleansing: Plantain contains compounds that can gently cleanse the skin without stripping away its natural oils, making it suitable for various skin types, including sensitive skin.

2. Anti-inflammatory Properties: Plantain has anti-inflammatory properties that can help soothe irritation and redness, making it beneficial for those with acne or sensitive skin conditions.

3. Antioxidant Benefits: The antioxidants present in plantain can help protect the skin from damage caused by free radicals, promoting healthier and more youthful-looking skin.

4. Moisturizing: Some plantain face wash products may contain moisturizing ingredients that can help hydrate the skin, leaving it feeling soft and smooth.

5. Natural Exfoliation: Plantain may also possess mild exfoliating properties, helping to remove dead skin cells and promote cell turnover for a brighter complexion.

Properties:

1. Nutritional Value: Plantains are rich in carbohydrates, fiber, vitamins (such as vitamin A, C, and B6), and minerals (including potassium and magnesium).

2. Starch Content: Compared to bananas, plantains have a higher starch content, making them suitable for cooking in various savory dishes.

3. Cooking Versatility: Plantains can be prepared in numerous ways, including frying, boiling, baking, or grilling. They are a staple food in many cuisines, especially in Latin America, Africa, and the Caribbean.

4. Health Benefits: Due to their high fiber content, plantains can aid in digestion and promote gut health. They also provide a good source of energy and can help regulate blood sugar levels.

5. Culinary Uses: Plantains can be used in both savory and sweet dishes. They are commonly fried to make chips or tostones, boiled and mashed as a side dish, or used as a main ingredient in stews and soups.

6. Cultural Significance: In many cultures, plantains hold cultural significance and are often included in traditional celebrations and ceremonies.

Types Of The Skin

1. Normal Skin:

Characteristics: Well-balanced, neither too oily nor too dry. Small pores, smooth texture, and few blemishes.

Needs: Regular cleansing, hydration, and sun protection to maintain skin health.

2. Oily Skin:

Characteristics: Overproduction of sebum (skin oil), resulting in a shiny or greasy appearance, especially in the T-zone (forehead, nose, and chin). Enlarged pores, acne-prone.

Needs: Oil-controlling cleansers, non-comedogenic moisturizers, and targeted treatments for acne.

3. Dry Skin:

Characteristics: Lacks moisture, feels tight or rough, prone to flakiness and sensitivity. Dull or ashy appearance.

Needs: Hydrating cleansers, rich moisturizers, and gentle exfoliation to remove dead skin cells.

4. Combination Skin:

Characteristics: Combination of oily and dry areas. Typically, the T-zone is oily, while the cheeks and other areas may be normal to dry.

Needs: Balancing cleansers, lightweight moisturizers for oily areas, and richer moisturizers for dry areas.

1.Plantain

Kingdom:Plantae

Clade:Tracheophytes

Clade:Angiosperms

Clade:Monocots

Clade:Commelinids

Order:Zingiberales

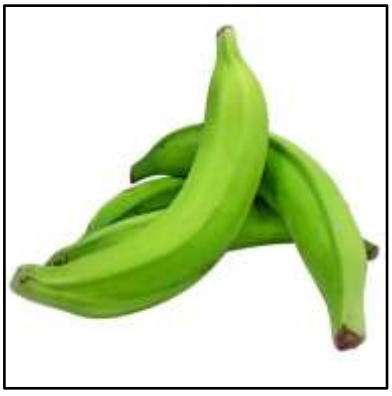
Family:Musaceae

Genus:Musa

Section:Musa sect. Musa

Species:M. × paradisiaca

Binomial name: Musa × paradisiaca L.



Uses

1.Plantain leaves can be used topically to soothe minor skin irritations, insect bite.

2.Plantain leaves are rich in vitamins A and C, as well as minerals like calcium and potassium.

2.Aloe Vera

Kingdom: Plantae

Clade: Tracheophytes

Clade: Angiosperms

Clade: Monocots

Order: Asparagales

Family: Asphodelaceae

Subfamily: Asphodeloideae

Genus: Aloe

Species: A. vera

Binomial name : Aloe vera(L.) Burm.f.

Synonyms : Aloe barbadensis Mill

Uses -:

Aloe vera can be applied topically to soothe skin irritations such as sunburns, insect bites.

It can also be used as a natural moisturizer to hydrate and nourish the skin.

3. Turmeric

Kingdom:Plantae

Clade:Tracheophytes

Clade:Angiosperms Clade:Monocots

Clade:Commelinids

Order:Zingiberales

Family:Zingiberaceae

Genus:Curcuma

Species:C. longa

Binomial name.Curcuma longaL.

Uses –

Turmeric powder is utilized for its anti-inflammatory and antioxidant properties.

It is used in traditional medicine and skincare products.

4. Lemon

Kingdom: Plantae

Clade: Tracheophytes

Clade: Angiosperms

Clade: Eudicots

Clade: Rosids

Order: Sapindales

Family: Rutaceae

Genus: Citrus

Species: C. × limon

Binomial name: Citrus × limon(L.) Osbeck

Synonyms : Citrus × aurantium subsp. bergamia (Risso & Poit.) Engl.

Citrus aurantium subsp. bergamia (Risso) Wight & Arn.

Uses -

It plays a crucial role in supporting the immune system.

It reduce the risk of infections such as the common cold and flu.

5. Orange Powder

Kingdom: Plantae

Clade: Tracheophytes

Clade: Angiosperms

Clade: Eudicots

Clade: Rosids

Order: Sapindales

Family: Rutaceae

Genus: Citrus

Species: C. Sinensis

Binomial name: Citrus × sinensis(L.) Osbeck, Sweet oranges

Synonyms : Citrus × sinenesis (L.) Osbeck

Uses -

Orange powder can be used as a natural food coloring or flavoring agent in culinary recipes.

PROCEDURE

1.Peel and chopp a ripe plantain into small piecesand Then, blend the plantain pieces with a cup of water until smooth.

2.Pour the mixture into a bowl and add a turmeric of lemon and a orange of aloe vera gel.

3.Mix well until all ingredients are combined and Next, add a few drops of rose oil for fragrance. Stir the mixture thoroughly.

4.The Required quantity of methyl paraben dissolve in distilled water by heating on water bath and glycerol was added.

5.Then the solution should be cooled and required amount of sodium lauryl sulphate

should be added .

6.Glycerine was added to the beaker and small quantity of glycerol was too added as it

acts as Humectants and gum tragacanth was added to it make it in gelling form.

Transfer the facewash into a clean, airtight container for storage.

Composition

s.no	**Name of ingredients**	**F1**	**Uses**
1	Aloe vera	2ml	Soothing agent & Anti-bacterial
2	Plantain	3gm	Anti-inflammatory
3	Turmeric	0.5gm	Anti-inflammatory
4	Lemon juice	1ml	Skin brightening

5	Orange powder	1.5gm	Anti-oxidant
6	Methyl paraben	1.5gm	Preservative
7	Glycerin	0.5ml	Humectant
8	Rose oil	2-3 drop	Fragrance
9	Sodium lauryl sulphate	2gm	Foaming agent,surfactant
10	Glycerol	0.6ml	Moisturizer
11	Distilled water	Q.S	Vehicle
12	Gum tragacanth	1.5gm	Gelling agent,Thickner

EVALUATION TEST OF HERBAL FACE WASH (containing plantain):

1. Rheological characteristic:

We were studied for some physical properties colour, clogging, viscosity change and sensation test.

2. Determination of pH:

The pH of formulations was determined using digital pH meter. One gram of face wash was dissolved in 100 ml of demineralised and stored for two hours. The measurements of pH of each formulation were done in triplicate. Instrument was calibrated before use with standard buffer solutions at pH 4.

3. Spread ability: Spread ability determination of formulations was determined by an apparatus suggested by Mortimer et al. which was fabricated in laboratory & used for study. The apparatus consists of a wooden block with a fixed glass slide with one end tied to weight pan rolled on the pulley which was in horizontal level with fixed slide. An excess of whitening face wash sample 1.5 gm was placed between two glass slide and a 1000 gm weight was placed on slide for 5 minutes to between compress the sample to uniform thickness weight (60gm) was added to the pan. It was calculated using the formula; S= ml /t Where, s= spread ability in gm.cm/sec m= weight tied to upper slide 1= length of glass slide t= time in seconds Length of glass slide was 11.2 cm and weight tied to upper slide was (60gm) throughout the experiment.

4. Wash ability: The product was applied on hand and was observed under running water.

5. Stability study: The instant whitening face wash were also subjected to the following condition of temperature and relative humidity during stability ages fit sediment temperature.

6. Grittiness: The product was checked for the presenceof any gritty particles by applying it on the skin.

K7. Physical evaluation test:

Colour : The colour of the formulation was checked out against white background and was pale white.

Odour: the odour of face wash was checked manually & was rose fragrance due to rose oil.

RESULT & DISCUSSION:

The prepared formulation was evaluated for the various evaluation parameter. The result of evaluation was Displayed in following Tables**…**

1.PHYSICAL PARAMETERS : The prepared acne face wash was evaluated for its colour, odour, consistency**.**

FORMULATION CODE	**ODOUR**	**COLOUR**	**CONSISTENCY**
Marketed Himalaya aloe Vera face wash	pleasant	brown	Semi solid
F1	pleasant	Dark brown	Semi solid
F2	pleasant	Dark brown	Semi solid

2. PH: The PH of formulation was found to be satisfactory, and in the range of 5.5 to 5.8 which is near to the skin PH, in turn indicates that the prepared formulation can be compactable with skin. Here comparing other formulations F3 formulation found to have better PH**.**

FORMULATION CODE	**PH**
Marketed	5.5
F1	5.3
F2	5.2

3. WASHABILITY:

Prepared formulations were easily washed with water.

FORMULATION CODE	**WASHABILITY**
Marketed	Good
F1	Good
F2	Good

4. SKIN IRRITABILITY TEST:

Small amount of the formulation was applied on the skin and kept for few minutes and found to show no redness, oedema, inflammation and irritation during the studies .This formulation is safe to use for skin.

FORMULATION CODE	**IRRITABILITY TEST**	**IRRITABILITY TEST**
	1hrs	3hrs
marketed		
F1	No	No
F2	No	No

SUMMARY AND CONCLUSION

The herbal facewash containing plantain is a natural and nourishing skincare solution. By blending ripe plantain with water, honey, aloe vera gel, and essential oils, you create a gentle yet effective cleanser. Plantain, rich in vitamins and minerals, offers soothing and moisturizing properties, while honey provides antibacterial benefits. Aloe vera gel helps to hydrate and calm the skin, promoting a healthy complexion. Essential oils add a pleasant aroma and may offer additional skincare benefits. Overall, this homemade facewash offers a holistic approach to skincare, free from harsh chemicals and artificial ingredients. Incorporating this herbal facewash into your daily routine can leave your skin feeling refreshed, revitalized, and radiant.

In conclusion, the F1 and F2 formulations of plantain facewash offer distinct advantages for skincare. F1, with its blend of ripe plantain, honey, aloe vera gel, and essential oils, provides a nourishing and refreshing cleansing experience. It effectively cleanses the skin while soothing and moisturizing, thanks to the natural properties of its ingredients. On the other hand, F2 formulation may incorporate additional herbal extracts or active ingredients tailored to specific skincare needs, such as acne-fighting or anti-aging properties. Both formulations harness the benefits of plantain while offering flexibility for customization based on individual preferences and skin types. Incorporating either F1 or F2 plantain facewash into your skincare routine can contribute to a healthier, more radiant complexion.

REFERENCE:

1. Singh, S. Anti-acne synergistic herbal face wash gel: Formulation, evaluation and stability studies. World J. Pharm. Res., 2015; 4(9): 1261-1273.

2. Mendhekar, S. Y., Thorat, P. B., Bodke, N. N., Jadhav, S. L. & Gaikwad, D. D. Formulation and Evaluation of Gel Containing Neem, Turmeric, Aloe Vera, Green Tea and Lemon Extract with Activated Charcoal. Eur. J. Pharm. Med. Res., 2017; 4(12):

439–443.

3. Sahu, P. K. et al. Therapeutic and Medicinal Uses of Aloe vera: A Review. Pharmacol. & Pharm,2013; 04: 599–610.

4. Kumar, N. S. & Sreeja, P. S. D. The surprising health benefits of papaya seeds: A review. J. Pharmacogn. Phytochem, 2017; 6(1): 424–429.

5. Aravind, G., Bhowmik, D., Duraivel, S. & Harish, G. Traditional and Medicinal Uses of Carica papaya. J. Med. Plants Stud, 2013; 1(1): 7–15.

6. Milind, P. &. P. Chickoo: a Wonderful Gift From Nature. Int. J. Res. Ayurveda Pharm. 2015; 6(4):544–550.

7. Wani, S. A. & Kumar, P. Fenugreek: A review on its nutraceutical properties and utilization in various food products. J. Saudi Soc. Agric. Sci., 2018; 17: 97–106.

8. Vankar, P. S. & Shukla, D. Natural dyeing with anthocyanins from Hibiscus rosa sinensis flowers. J. Appl. Polym. Sci., 2011; 122: 3361–3368.

9. Ingle, A. & Meshram, M. B. Formulation and evaluation of ayurvedic face wash. Int. J. Phytopharm, 2018; 8(3): 26–30.

10. Stieber, MA; Hegel, JK x. "Azelaic acid: Properties and mode of action". Skin pharmacology and physiology27 (Supplement 1) (2013): 9–17.

11. Simpson, Nicholas B.; Cunliffe, William J. (2004). "Disorders of the sebaceous glands". In Burns, Tony; Breathnach, Stephen; Cox, Neil; Griffiths, Christopher. Rook's textbook of dermatology (7th ed.). Malden, Mass.: Blackwell Science. pp. 43.1–75.

12. Holzmann R, Shakery K. "Postadolescent acne in females". Skin pharmacology anf physiology 27 (Supplement 1) (2013): 3–8.

13. Simonart T. "Newer approaches to the treatment of acne vulgaris". America Journal of Clinical Dermatology 13.6(2012): 357–64.

14. K. Yamini and T. Onesimus “Preparation and Evaluation of Herbal Anti-Acne Gel”. Int J Pharm Bio Sci ; 4.2 (2013): 956 – 960.

15. “Development and Evaluation of Herbal Anti-Acne Formulation”. Research Journal of Pharmaceutical, Biological and Chemical Sciences 3.3: 334-339

16. Shinkafi, S.A and Ndanusa, H. “Antibacterial Activity of Citrus Limonon Acne vulgaris (Pimples)”.International Journal of Science inventions Today, 2.5 (2013): 397-409

17. E.O. Erhirhie and NE. Ekene “Medicinal Values on Citrulluslanatus (Watermelon): Pharmacological Review”. International Journal of Research in Pharmaceutical and Biomedical Sciences.4.4 (2013): 1305-1312

18. “An Overview on Vetiveria Zizanioides”. Research Journal of Pharmaceutical, Biological and Chemical Sciences. 4.3(2013): 777-783.

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19. Sharma, J., Gairola, S., Sharma, Y. P., & Gaur, R. D. (2014). Ethnomedicinal plants used to treat skin diseases by Tharu community of district Udham Singh Nagar, Uttarakhand, India. Journal of ethnopharmacology, 158, 140-206.

20. Holetz, F. B., Ueda-Nakamura, T., Dias-Filho, B. P., Cortez, D.A.G., Mello, J. C. P., & Nakamura, C. V. (2002). Effect of plant extracts used in folk medicine on cell growth and differentiation of Herpetomonassamuelpessoai (Kinetoplastida, Trypanosomatidae) cultivated in ined medium.

21. Fouqiya Butool, C. Rekha, A. Gnaneswar Rao. Clinical Study on Serum Zinc Levelsin Patients with Acne Vulgari

22. Sowmya KV, Darsika CX, Grace F, Shanmuganathan S, “Formulation and Evaluation of Poly-herbal Face wash gel”, World Journal of Pharmacy and Pharmaceutical sciences. 2015; 4 (6): 585-588.

23. Singh HP, Samnhotra N, Gullaiya S, Kaur I, “Anti-acne synergistic Herbal face wash gel Formulation, Evaluation, and Stability study”, World Journal of Pharmaceutical Research. 2015; 4 (9): 1261-1273.

24. Kanlayavattanakul M, Lourith N, “Therapeutic agents and herbs in topical applications for acne treatment”, International Journal of cosmetic Science. 2011; 33: 289-297.25. Kubo I, Muroi H, Kubo A, “Naturally occurring anti-acne agents”, J Nat Prod. 1994; 57 (1): 9-17.

26. J. Insira Sarbeen. Preliminary phytochemical analysis of Peppermint Oil and Tulsi Oil. Research J. Pharm. and Tech. 2015; 8 (7): 929-931.

27. Pradnya H. Pawar, Sharmila R. Chaudhari. Size controlled Bio-directed synthesis of Ag Metal Nanoparticles using Tulsi (Ocimum tenuiflorum) leaves extract. Asian J. Research Chem. 2017; 10 (5): 646-650.

28. Kapoor VP, Joshi H, Chaubey M, “Applications of seed gums in pharmaceutical formulations”, J Med Arom Plant Sci. 2000, 22/4A and 23/1A, 42-44.

29. Dureja H, Kaushik D, Gupata M, Kumar V, Lather V, “Cosmeceuticals: An

Emerging Concept”, Indian Journal of Pharmacology. 2005; 37 (3): 155-159.30. A, Reddy G, Mohanalakshmi S, Kumar CK, “Formulation and Comparative evaluation of Poly-herbal anti-acne face wash gel”, Pharmaceutical Biology. 2011; 49 (8): 771-774.

31. Rashmi MS, “Topical Gel: A review”, Pharm Rev. 2008; 1-3.

32. Aburijat T, Natsheh FM, “Plants used in cosmetics”, Phytother Res. 2003; 17: 987-1000.

33. Ashawat MS, Banchhor M, “Herbal Cosmetics: Trends in skin care formulation” Pharmacognosy Rev. 2009; 3 (5): 82-89.

34. Yam T. S. Shah S., Hamilton Miller J. M.; Microbiological activity of whole and fractionated crude extracts of green tea (Camellia sinensis), and of tea components; FEMS Microbiol. Lett. Volume 152, 1997, Pageno. 169-174.

35. Kaur H.P., Kaur S., and Rana S.; "Antibacterial Activity and Phytochemical Profile of Green Tea, Black Tea and Divya Peya Herbal Tea";Int. J. of Pure and Applied Bioscience; Volume3(3), 2015, Page no. 117-123