

Formulation and Evaluation of Antiacne Facewash

Ms.shubhangi Suryakant Shete, Ms. Jyoti R. Dhakne ,Mr.Rahul S.Mohan Nandkumar

Shinde college of pharmacy vajjapur, Maharashtra:423701

1Abstract :

Natural remedies are viewed as more acceptable because they are believed to be safer and have fewer side effects compared to synthetic options. Herbal products are increasingly sought after in the global marketplace. This study focuses on the creation and assessment of a herbal anti-acne face wash that incorporates aqueous extracts of betel leaves (*Piper betel*), turmeric (*Curcuma longa*), and walnut (*Juglans regia*) The literature indicates that the plants exhibit strong anti-microbial, anti-oxidant, and anti-inflammatory properties. Different formulation batches, namely F1 to F3, were produced using honey at different concentrations. The prepared formulations (F1 to F3) were assessed for different parameter such as color, appearance, consistency, washability, pH, The optimized formulation batch was compared to the commercial product. Among all the formulation studies, batch F2 was identified as the best for all parameters. It was an excellent effort to create a herbal anti-acne face wash utilizing aqueous extracts of betel leaf, walnut, turmeric

Keywords :

Antiacne, herb herbal, betel leaf, walnut, honey, facewash.

Introduction:

Acne vulgaris is a very prevalent skin condition (pilosebaceous unit) that impacts nearly everyone at least one time in their lifetime. The occurrence of acne is highest during adolescence, but many individuals in their 20s and 30s, both men and women, are also impacted by this condition.¹ The development of acne is influenced by several physiological factors. These consist of follicular hyper-proliferation, heightened sebum production from elevated androgen levels, and the colonization of organisms such as *Propionibacterium acnes* and *Staphylococcus epidermidis*. (2) New concepts have arisen to enhance our understanding of its pathogenesis, including variations in target cell sensitivity, biological markers, and neuro-endocrine, genetic, and environmental factors. Many herbal and synthetic components are said to offer significant positive effects on acne vulgaris^(3,4) Herbal cosmetics: The use of herbal remedies has been noted since ancient times, including references in the Vedas and various old religious texts. It is likely the most ancient healthcare system globally. Herbal healing involves utilizing herbs, herbal extracts, or natural substances to improve health conditions. Currently, in Western countries, healthcare professionals predominantly prescribe medications that include plant extracts. Developed nations are also valuing this ancient and traditional form of medicine. Consequently, Indian herbal medicines are sought after and experiencing swift expansion in the international market. There has been a significant increase in the popularity and demand for herbal remedies, herbal skincare items, and even herbal cosmetics in recent years. Herbal products are often more favored due to the belief that they are safe, possess various therapeutic benefits, and have fewer or no side effects compared to modern chemical substances. The skin is the most exposed and primary part of our body to pathogens. Therefore, there is a need for safeguarding and avoiding skin ailments through the use of formulations with antibacterial, antioxidant, anti-inflammatory, and similar characteristics. During puberty, the imbalance of internal components and hormones can lead to various skin issues. (5) Acne is found as most common skin problem which is generally characterized by presence of inflammatory lesions, comedones, seborrhea etc. Acne may cause long lasting. Physical and detrimental psychosocial effect associated with depression. And anxiety without disease severity. Although these effects usually proved by treatment. Acne develop in presence of commensally bacteria *Propionibacterium acnes*.

Staphylococcus epidermis and Malassezia furfur in the follicles. Long term uses of antibiotics for the treatment develop resistance to the drugs. To overcome this problem, herbal alternative solution for the treatment has been studied

Skin care preparation for face:

1. Face pack and masks
2. Cleansing creams and lotion
3. Rouges
4. Face washes
5. Compact powder

Facewash

AI Translator

Simple

Paraphrase Text Upload File

129/300 Words

Paraphrase 5,000 Words, Upgrade Here

Paraphrased Text

Preventing acne requires a careful equilibrium of hydration and oil management, exfoliation and cellular renewal, and is essential in any skincare routine, whether for acne or not. Clean your face twice daily, once in the morning and once before bed. This helps eliminate debris, bacteria, and excess oil that obstruct pores and result in skin appearing dull or prone to breakouts. Facewash could assist you in eliminating pimples. Some are formulated to stop acne while minimizing lines and wrinkles, whereas others are meant just to cleanse the skin. Characteristics of face wash: It must remain stable and possess an attractive look. It should melt upon contact with the skin and glide effortlessly without pulling. It must not feel oily or greasy when applied

Need and objective

1. To Formulate herbal face wash for all age people who suffers from the face skin tanning.
2. To make particularly effective in soothing irritated or inflamed skin. Conditions, such as acne or redness.
3. To overcome application of harmful chemicals on face skin.
4. Bacteria Reduction: Acne is often caused or worsened by bacteria
5. Dead Skin Removal: Accumulation of dead skin cells can block pores and contribute to acne
6. Daily Hygiene: Regular cleansing helps remove dirt, sweat, and pollutants that contribute to acne.

Plan of work

.1)Market Research and Analysis

a)Research target demographic:

Age, skin type (oily, combination), severity of acne (mild to severe).

b)Identify common ingredients

Betel Leaves, walnut, Turmeric, Aloe vera, Honey, Rose water, coco glucoside

2) Formulation Development

a) Determine pH Level:

Ensure the product's pH is between 4.5-5.5 to match the skin's natural pH.

b) Test for Sensitivity:

Ensure that the formula is non-irritating and can be used by sensitive skin.

3) Formulation Development:

a) prepare several prototype batches varying the concentration of actives.

b) Maintain pH between 4.5 – 5.5 (skin-friendly).

c) Ensure the facewash is non-comedogenic and suitable for daily use.

4) Evaluation of Formulation:

a) Physical Evaluation:

Appearance, texture, color, odor

b) pH Measurement

Stability Testing:

Room temperature and accelerated stability.

5) packaging

Select appropriate packaging (tube or pump bottle).

Ensure material compatibility with formulation.

6) Labeling & Claims:

Acne-control, oil-free, dermatologist-tested, non-comedogenic.

Include directions, ingredients, and safety info.

7) Cost Analysis & Scalability:

Estimate production cost per unit.

Consider scale-up for commercial ph

Advantage of Antiacne Facewash

1. Prevents Breakouts -Helps reduce and prevent acne by keeping pores clean and controlling excess oil and bacteria.

2. Controls Sebum Production-Regulates oil levels on the skin, which helps reduce shine and clogged pores.

3. Reduces Inflammation and Redness -Often contains anti-inflammatory ingredients like salicylic acid or tea tree oil that soothe irritated skin.

4. Maintains Skin Hygiene- Regular use keeps skin free from dirt, sweat, and pollutants that can worsen acne.
5. Improves Skin Appearance-Clears blemishes over time, giving the skin a cleaner, healthier, and more even-toned look.

Disadvantages of antiacne facewash=

1. Temporary Side Effects-Initial purging (increased breakouts) may occur when starting a new anti-acne product.
2. Not a Complete Treatment-Face washes alone may not be effective for moderate to severe acne and often need to be combined with other treatments.
3. Allergic Reactions-Some ingredients (like fragrances, alcohol, or certain acids) may trigger allergic reactions or rashes in some users.
4. Overuse Can Damage Skin Barrier-Using anti-acne face wash too frequently or harshly can strip the skin of natural oils, leading to sensitivity and compromised skin health.

Literature survey

Sr	Author	Year publication	Title	Abstract
1	Sowmya K.V., Darsika C.X., Grace F., Shanmuganathan S.	2015	Formulation & Evaluation of Poly- herbal Face wash gel	Natural remedies are viewed as more acceptable because they are believed to be safer and have fewer side effects compared to synthetic option
2	Kapoor V.P., Joshi H., Chaubey M	2000	Applications of seed gums in pharmaceutical formulations”,	The prepared formulations (F1 to F3) were assessed for different parameter such as color, appearance, consistency, washability, pH,
3	Lavedrine, F, Zmirou, D., Ravel, A., Balducci, F., & Alary, J	1999	Blood cholesterol and walnut consumption:	Acne vulgaris is a very prevalent skin condition (pilosebaceous unit) that impacts nearly everyone at least one time in their lifetime.
4	India G. Ayurvedic Pharmacopoeia of India Part I & Part II.	2007	Formulation & evaluation of herbal anti acne face wash.	Skin ailments through the use of formulations with antibacterial, antioxidant, anti- inflammatory, and similar characteristics.

Material and Method

1. Betel leaves



Fig No:1 Betel Leaves

Common Name: piper betel

– Scientific Name: Piper siriboa L.

- Family: Piperaceae

Uses:

- 1)Fights acne: Kills acne-causing bacteria and reduces inflammation.
- 2)Controls oil: Helps balance sebum production, good for oily skin.
- 3)Soothes skin: Calms irritation and reduces redness.
- 4)Cleanses deeply: Helps remove dirt and unclog pores.

2) walnut



Fig No 2= walnut

Common Name: Akhroot

- Scientific Name: Juglandaceae hickory

- Family: Juglandaceae.

Uses: Fig No 3= Turmeric Fig No 3= Turmeric

1)Fights acne: Walnut has antimicrobial properties that reduce acne-causing bacteria.

2)Rich in antioxidants: Contains Vitamin E, which helps repair damaged skin and reduce acne scars.

3)Turmeric



Fig No 3= turmeric

Common Name: curcumin

-Scientific Name: curcuma longa

-Family: Zingiberaceae

Use=

1)Fights acne-causing bacteria: Curcumin, the active compound, kills Propionibacterium acnes.

2)Reduces inflammation: Helps calm redness, swelling, and irritation from active breakouts.

4)Aloe vera



Fig No 4=Aloe vera

Common Name: Aloe barbadensis Mill

- Scientific Name: Aloe perfoliata L

.- Family: Asphodelaceae

Use =

- 1)prevent ulcers and enhance the healing process of dermal injuries (e.g., burns, frostbite,
- 2) skin infections, surgical wounds, inflammation, herpes ulcers, diabetic foot ulcers, pressure sores,skin infection

5) Honey



Fig No 5= Honey

Common Name: .honey purified, mel, madhu.

Scientific Name: honey

Family: Apidae

Use=

It's naturally antibacterial.

It's anti-inflammatory. It's great for sensitive skin.

It can remove dirt without messing with your natural oil balance leaving your skin. (18

More hydrated than other face washes

6) Rose Water: -



Fig No 6= Rose water

Use =

1. Hydrating & Soothing: It helps maintain the skin's pH balance and provides light hydration.
2. Anti-inflammatory: Reduces redness and irritation, ideal for sensitive or acne-prone skin.

7) coco glucoside

Mainly used to build viscosity and increase the foaming capacity of liquid soap in hair and skincare products. Mostly use as a foaming agent.

Formulation tablet

Name of ingredient	F1	F2	F3
Betel leaf oil	5ml	2.5ml	2ml
Honey	5ml	2.5ml	5ml
Aloe vera gel	5ml	2.5ml	5ml
Turmeric powder	2gm	1gm	1gm
Rose water	3ml	1.5ml	1ml
Walnut	3gm	1.5gm	3gm
Coco glycoside	2gm	1gm	2gm

Preparation method of antiacne facewash

Betel's Leaves are collected and wash it with water to remove dirt Dried it naturally for 4-5 days, Extract oil using Soxhlet apparatus. Collect walnuts and Reduce size into powder form by using grinder Pass powder through sieve Add other ingredients like aloe Vera gel, Honey, termeric,cocoglucoiside Add foaming agent.

Development of formulation:

The desired concentration of Herbs is weighed a was weighed accurately and dispersed in betel leaf oil with moderate stirring. Desired quantity of aloe vera gel was dissolved in desired amount of honey by gentle stirring. Desired quantity of concentrated herbal extracts was added to the remaining amount of betel leaf oil and mixed with above honey mixture by gentle stirring. This was finally mixed with previously prepared formulation. Prepared formulations were filled in a suitable container and labeled accordingly.

Evaluation Test:**Physical evaluation**

Physical parameters such as color, appearance & consistency were checked visually.

1. Washability

Formulations were applied on the skin & then ease & extent of washing with water were checked manually.

2. pH

Ph of facewash formulation was done by using pH paper and result was found to be pH=6.5(20)

3 Spreadability:

Spreadability denotes the extent of area to which the gel readily spread on application to skin or the affected part. The bioavailability efficiency of a gel formulation also depends on its spreading value. The spreadability is expressed in terms of time in seconds taken by two slides to slip off from the gel, placed in between the slides, under certain load. Lesser the time taken for separation of two slides, better the spreadability. Two sets of glass slides of standard dimensions were taken. The herbal gel formulation was placed over one of the slides. The other slide was placed on the top of the gel, such that the gel was sandwich between the two slides in an area occupied by a distance of 6 cm along the slide. 100gm weight was placed upon the upper slide so that the gel between the two slides was pressed uniformly to form a thin layer. The weight was removed & the excess of the gel adhering to the slides was scrapped off. The two slides in position were fixed to stand without slightest disturbance & in such a way that only the upper slide to slip off freely by the force of weight tied to it. A 20gm weight was tied to the upper slide carefully. The time taken for the upper slide to travel the distance

of 6 cm⁷ separated away from the lower slide under the influence of the weight was noted. The experiment was repeated three times both formulated gels & marketed gel & the meantime taken for calculation.

4. Stability test:-

Stability test was carried out at room temperature (25oC) and 45oC for two weeks. The samples were observed for sweating, and solution deformation phase separation. When the solution was out of shape or oil droplet could be seen on the surface of the facewash the system indicated stable and vice versa. Colour no change of the formulations were also observed

5. Foamability:-

In a beaker, a small amount of gel was added to water. The beaker was shaken ten times to record the final volume after the initial volume was recorded. The foam was either normal or present in sufficient amounts.

1	Colour	Orange	Orange	Orange
2	Consistency	Semi solid gel	Semi solid gel	Semi solid gel
3	Washability	Good	Good	Good
4	Ph	6.2	6.4	6.7
5	Spreadability	10.15	11.14	11.76
6	Skin irritation	No irritation	No irritation	No irritation

Result

Herbal plants used in the formulation of herbal scrub. these plant were Betel Leaves, turmeric, aloe vera gel, Rose water, coco glycoside, walnut . I have prepared F1, F2, F3 formulation. In all formulation F2 is better than F1, and F3, Because herbal F2 formulation give good effect having more glow after applying on face The prepare anti acne facewash was evaluated using various parameters like colour, odour, PH, Consistency, spread-ability, Wash ability, Grittiness, Irritation and found to be satisfactory to effect face.

Conclusion

Natural remedies are more acceptable in the belief that they are safer with fewer side effects than the synthetic ones. Herbal formulations have growing demand in the world market. It is a very good attempt to establish the herbal face wash containing betel leaf oil, turmeric powder, walnut . This study revealed that the developed herbal formulation of batch F2 was comparatively better than other formulations. Herbal face washes are used to refresh the muscles, keep the skin elastic, get rid of stuck-on grime, and enhance blood flow. Herbal-based cosmetics have the advantage of being nontoxic. It nourishes the skin on the face. The face wash gives the skin the necessary nutrition. It aids in the removal of scars, marks, and pimples. Skin is exfoliated by face washes, which also have a cooling, soothing, and soothing impact on the skin. They do so in the quickest possible

Reference

1. Sowmya K.V., Darsika C.X., Grace F., Shanmuganathan S., "Formulation & Evaluation of Poly-herbal Face wash gel", World Journal of Pharmacy & Pharmaceutical sciences, 2015; 4(6): 585-588.
2. Kapoor V.P., Joshi H., Chaubey M., "Applications of seed gums in pharmaceutical formulations", J Med Arom Plant Sci., 2000, 22/4A & 23/1A, 42-44.
3. Kanlayavattanakul M., Lourith N., "Therapeutic agents & herbs in topical applications for acne treatment", International Journal of cosmetic Science, 2011; 33: 289-297.

4. Aditya Singh., Mr. Chirag Singh., Dr. Tarkeshwar Prasad Shukla., "FORMULATION AND DEVELOPMENT OF ANTI-ACNE HERBAL FACE WASH GEL". ,International Research Journal of Modernization in Engineering Technology and Science,2023; 2582-5208.
5. of India G. Ayurvedic Pharmacopoeia of India Part I & Part II. Govt. Of India; Ghaziabad; 2007. P. 589. Koli DS, Mane AN, Kumbhar VB, Shaha KS. Formulation & evaluation of herbal anti acne face wash. World J. Pharm. Pharm. Sci. 2016 Apr 15;5(6):2001-200.
6. Lavedrine, F, Zmirou, D., Ravel, A., Balducci, F., & Alary, J. (1999). Blood cholesterol and walnut consumption: A cross-sectional survey in France. Preventive Medicine, 28(4), 333-339. Logan, A. C. (2004), Lipids in health and disease, 3, 25.
7. Chuneekar KC (2010) Editor Bhavpraakash Nighantu of Bhava Misra. Chaukhambha Bharti Academy, Varanasi: 110.
8. Versino, F.; López, O.V.; García, M.A. Green Biocomposites for Packaging Applications. In Biocomposite Materials Design and Mechanical Properties Characterization; Sultan, M.T.H., Majid, M.S.A., Azmi, M.R.M.J., Iskandar, A., Saba, N., Eds.; Springer Nature Singapore Pte Ltd.: Singapore, 2021; pp. 1-30. ISBN 9789813340916.
9. Hassali, M.A.; AL-Tamimi, S.K.; Dawood, O.T.; Verma, A.K.; Saleem, F. Malaysian cosmetic market: Current and future prospects. Pharm. Regul. Aff. 2015, 4, 155-157.
10. Subhashis Debnath, M. Niranjana Babu and G. Kusuma with review article on Formulation and Evaluation of Herbal Antimicrobial Deodorant Stick in Research Journal of Topical and Cosmetic Sciences. Published In – Volume -2, Issue-1, Year- 2011.
11. Kubo I., Muroi H., Kubo A., "Naturally occurring anti-acne agents", J Nat Prod, 1994; 57(1): 9-17.
12. Molan, P.C. and R.A. Cooper, 2000. Honey and sugar as a dressing for wounds and ulcers. Tropical Doctors, 30: 249-250.
13. Pandey GS (2002) Dravyaguna Vijnana (2nd edn), Krishnadas Academy, Varanasi, India 1: 737-746.
14. Surjushe A, Vasani R, Saple DG, Aloe Vera: A short review, Indian Journal of Dermatology, 53(4), 2008, 163-166.
15. Pandey GS (2002) Dravyaguna Vijnana (2nd edn), Krishnadas Academy, Varanasi, India 1: 737-746
16. Lavedrine, F, Zmirou, D., Ravel, A., Balducci, F., & Alary, J. (1999). Blood cholesterol and walnut consumption: A cross-sectional survey in France. Preventive Medicine, 28(4), 333-339. Logan, A. C. (2004), Lipids in health and disease, 3, 25.
17. Lavedrine, F, Zmirou, D., Ravel, A., Balducci, F., & Alary, J. (1999). Blood cholesterol and walnut consumption: A cross-sectional survey in France. Preventive Medicine, 28(4), 333-339. Logan, A. C. (2004), Lipids in health and disease, 3, 25.
18. Çağlarımak, N. (2003). Biochemical and physical properties of some walnut genotypes (*Juglans regia*, L.). Food/Nahrung, 47(1), 28–32.
19. (Kubo I., Muroi H., Kubo A., "Naturally occurring anti-acne agents", J Nat Prod, 1994; 57(1): 9-17
20. Varghese JV, Athira P, Sandra TS, Sruthi KB, Stella Jose. Research on formulation and evaluation of Polyherbal anti-acne face wash. Journal of Pharmaceutical Sciences and Research. 2022;10(4):123

21. Kubo I, Muroi H, Kubo A. Naturally occurring anti-acne Agents. *Journal of Natural Products*. 1994;57(1):9-17.
22. Pandey G, Madhuri S, Tripathi YB. Combined effect of Herbal drugs in liver disorders. *Pharmacologyonline*. 2008;3:1053-1058.
23. Surjushe A, Vasani R, Saple DG. Aloe vera: A short Review. *Indian Journal of Dermatology*. 2008;53(4):163-166
24. Bhashagratna KL. *An English Translation of the Sushruta Samhita Based on Original Sanskrit Text*. Calcutta; C1907.
25. Joshi LS, Pawar HA. Herbal cosmetics and Cosmeceuticals: An overview. *Natural Products Chemistry and Research*. 2015;3(2):170.
26. Srikantha Murthy KR. *Bhava Prakasha of Bhavamisra (Vol. 1 & 2)*. Chaukhambha Krishnadas Academy; C1998
27. Khan A. *Al-U Moor-al-Tabiyah*. Central Council for Research in Unani Medicine; c1983.11.
28. Rajaiah YH, Gajjar T, Patel N, Kumawat R. Clinical Study to assess efficacy and safety of Purifying Neem Face Wash in prevention and reduction of acne in healthy Adults. *Journal of Cosmetic Dermatology*. 2022;21(7):2849-2858



IJRTI