



Research Article

Formulation and Evaluation of Herbal Lipstick Using Natural Ingredients: A Safe and Eco-Friendly Cosmetic Approach

Varsha Bhardwaj¹, Tanishq Arya¹, Rohitash Kumar Sharma*², Laxman Prajapati³, Vishal Garg⁴

¹Scholars, Jaipur School of Pharmacy, Maharaj Vinayak Global University, Jaipur, Rajasthan, India

²Associate Professor, Jaipur School of Pharmacy, Maharaj Vinayak Global University, Jaipur, Rajasthan, India

³Assistant Professor, Jaipur School of Pharmacy, Maharaj Vinayak Global University, Jaipur, Rajasthan, India

⁴Principal, Jaipur School of Pharmacy, Maharaj Vinayak Global University, Jaipur, Rajasthan, India

The increasing consumer awareness regarding the adverse effects of synthetic cosmetic ingredients has accelerated the demand for herbal and environmentally sustainable cosmetic products. Herbal lipstick is an innovative cosmetic formulation prepared using natural waxes, vegetable oils, herbal extracts, antioxidants, and plant-derived pigments that not only enhance lip appearance but also provide therapeutic benefits such as moisturization, protection, and nourishment. The present study aimed to formulate and evaluate a herbal lipstick using natural ingredients including beeswax, carnauba wax, candelilla wax, castor oil, coconut oil, cocoa butter, shea butter, almond oil, beetroot powder, hibiscus powder, aloe vera gel, vitamin E, and rose oil. The formulation was prepared using the fusion method and evaluated for physicochemical characteristics such as colour, appearance, texture, melting point, pH, breaking strength, spreadability, stability, surface anomalies, skin irritation, and consumer acceptability. The prepared formulation exhibited smooth texture, uniform colour distribution, pleasant fragrance, satisfactory mechanical strength, appropriate melting point (61–64°C), pH compatibility (6.2–6.8), excellent spreadability, and good storage stability under different environmental conditions. No irritation or allergic reactions were observed during the skin compatibility study. The results indicate that herbal lipstick prepared from natural ingredients is a safe, effective, and eco-friendly alternative to conventional synthetic lipsticks. Furthermore, the incorporation of herbal ingredients enhances the functional value of the product by providing antioxidant, anti-inflammatory, and moisturizing properties. The developed formulation demonstrates significant potential for commercial application in the rapidly growing herbal cosmetic industry.

Keywords: Herbal lipstick, Herbal cosmetics, Natural pigments, Beetroot, Aloe vera, Cosmetic formulation, Evaluation.

INTRODUCTION

Cosmetics have been used for centuries to enhance appearance and protect the body, with lipstick being one of the most commonly used cosmetic products. However, conventional lipsticks often contain synthetic dyes, petroleum-based ingredients, preservatives, and heavy metals that may cause adverse health and environmental effects. Growing consumer awareness about safety, sustainability, and

natural products has increased the demand for herbal cosmetics. Herbal lipsticks are formulated using natural waxes, vegetable oils, herbal extracts, antioxidants, and plant-derived pigments, which provide both cosmetic and therapeutic benefits. Ingredients such as beeswax, castor oil, cocoa butter, aloe vera, hibiscus, and beetroot help moisturize, nourish, protect, and naturally color the lips while reducing the risk of irritation and toxicity. Lips are

particularly vulnerable to dryness and environmental damage due to their low oil content. Herbal lipsticks help restore moisture, improve elasticity, and protect against oxidative stress through the action of natural oils and antioxidants. In addition to enhancing appearance, herbal lipsticks offer benefits such as moisturization, antimicrobial activity, wound healing, and improved lip health. Nevertheless, challenges such as shorter shelf life and limited color stability require further research and formulation optimization. The present study aimed to formulate and evaluate a herbal lipstick using natural ingredients and assess its physicochemical properties, stability, spreadability, mechanical strength, skin compatibility, and consumer acceptability, with the goal of developing a safer and eco-friendly alternative to synthetic lipsticks.

MATERIALS AND METHODS

Study Design

The present study was designed to formulate and evaluate a herbal lipstick using natural ingredients possessing cosmetic as well as therapeutic properties. The formulation was developed using the fusion method, which is widely employed for the preparation of lipstick formulations due to its simplicity, reproducibility, and ability to produce a homogeneous product. Pharmaceutical-grade raw materials were selected to ensure product safety, stability, and quality.

MATERIALS

The formulation comprised natural waxes, vegetable oils, herbal extracts, natural pigments, antioxidants,

and fragrance. Beeswax, carnauba wax, and candelilla wax were used as structural agents to provide hardness and stability. Castor oil, coconut oil, almond oil, cocoa butter, and shea butter served as emollients and moisturizers, enhancing spreadability and lip hydration. Beetroot powder and hibiscus powder were incorporated as natural colouring agents, while aloe vera gel provided moisturizing and wound-healing properties. Vitamin E oil acted as a natural antioxidant to improve oxidative stability, and rose oil with vanilla essence imparted a pleasant fragrance.

Preparation of Herbal Lipstick

The herbal lipstick was prepared by the fusion (melting) method. Initially, beeswax, carnauba wax, and candelilla wax were accurately weighed and melted in a water bath maintained at **70–75°C** until a clear molten phase was obtained. In a separate vessel, castor oil, coconut oil, almond oil, cocoa butter, and shea butter were heated gently to prepare a homogeneous oil phase. Beetroot powder, hibiscus powder, aloe vera gel, and other herbal ingredients were gradually dispersed into the oil phase under continuous stirring to obtain uniform pigment distribution. Vitamin E oil was incorporated after slight cooling to preserve its antioxidant activity. The molten wax phase was then mixed thoroughly with the oil phase, and rose oil and vanilla flavour were added at approximately **45°C**. The homogeneous molten mass was poured into pre-lubricated lipstick moulds, cooled at room temperature, refrigerated for complete solidification, carefully removed from the moulds, polished, and packed in airtight lipstick containers.

Formulation Composition

Table 1. Composition of Herbal Lipstick Formulation

Ingredient	Quantity (%)	Function
Beeswax	20	Hardening agent
Carnauba wax	5	Improves melting point
Candelilla wax	5	Texture enhancer
Castor oil	25	Gloss and pigment dispersion
Coconut oil	10	Emollient
Cocoa butter	10	Moisturizer
Shea butter	8	Softening agent
Almond oil	5	Nourishing agent
Beetroot powder	5	Natural colourant
Hibiscus powder	2	Natural pigment
Aloe vera gel	2	Moisturizer

Vitamin E oil	1	Antioxidant
Rose oil	1	Fragrance
Vanilla flavour	1	Flavouring agent

Evaluation of the Formulation

The prepared herbal lipstick was evaluated for physicochemical and performance characteristics including physical appearance, colour uniformity, texture, melting point, pH, breaking strength, force of application, spreadability, surface anomalies, stability under different storage conditions (4°C, 25°C, and 40°C), skin irritation, and perfume stability using standard evaluation procedures. These parameters were assessed to determine the quality, stability, safety, and consumer acceptability of the developed formulation.

RESULTS AND DISCUSSION

The herbal lipstick was successfully formulated using natural waxes, vegetable oils, herbal extracts, and plant-derived pigments by the fusion method. The prepared formulation exhibited a smooth texture, glossy appearance, uniform colour distribution, and pleasant herbal fragrance. Evaluation of physicochemical parameters demonstrated that the formulation complied with acceptable quality standards for cosmetic lip products. The lipstick showed a melting point of **61–64°C**, indicating sufficient stability during storage while allowing smooth application at body temperature. The

measured pH ranged from **6.2 to 6.8**, confirming compatibility with the natural pH of the lips and minimizing the possibility of irritation. Furthermore, the formulation exhibited excellent spreadability, low force of application, and adequate breaking strength (32–35 g), indicating good mechanical stability during handling and use. Stability studies performed at refrigerated (4°C), room temperature (25°C), and elevated temperature (40°C) conditions revealed no significant changes in colour, odour, or texture throughout the study period, except for slight softening at higher temperature, which remained within acceptable limits. No sweating, crystal formation, fungal growth, or phase separation was observed, indicating good formulation stability. Skin irritation studies conducted on healthy volunteers showed no redness, itching, burning sensation, or allergic reactions, confirming the safety of the herbal ingredients. Consumer evaluation also demonstrated excellent acceptance with respect to colour, texture, fragrance, shine, and overall satisfaction. These findings suggest that the formulated herbal lipstick provides cosmetic appeal together with therapeutic benefits such as moisturization, antioxidant protection, and improved lip health, making it a promising alternative to conventional synthetic lipsticks.

Table 2. Evaluation Results of the Formulated Herbal Lipstick

Parameter	Observation/Result	Inference
Colour	Dark pink/red	Acceptable
Appearance	Smooth and glossy	Good
Texture	Soft and uniform	Good
Odour	Pleasant herbal fragrance	Acceptable
Melting point (°C)	61–64	Within acceptable range
pH	6.2–6.8	Compatible with lips
Breaking strength (g)	32–35	Adequate mechanical strength
Spreadability	Excellent	Smooth application
Force of application	Low	Easy to apply
Surface anomalies	None observed	Stable formulation
Stability study	Stable at 4°C and 25°C; slight softening at 40°C	Acceptable stability
Skin irritation	No redness, itching, or irritation	Safe for topical use
Consumer acceptability	Excellent	High user satisfaction

CONCLUSION

The present study successfully formulated and evaluated a herbal lipstick using natural waxes, vegetable oils, herbal extracts, and plant-based colorants. The optimized formulation exhibited satisfactory physicochemical characteristics, including a smooth and glossy appearance, uniform colour distribution, appropriate hardness, acceptable melting point (61–64°C), pH compatibility (6.2–6.8), excellent spreadability, and adequate mechanical strength. Stability studies demonstrated that the formulation remained stable under different storage conditions with only slight softening at elevated temperatures, while skin irritation studies confirmed its safety for topical application. The incorporation of natural ingredients such as beeswax, cocoa butter, coconut oil, castor oil, almond oil, aloe vera, beetroot, hibiscus, and vitamin E not only enhanced the cosmetic performance of the lipstick but also provided additional therapeutic benefits, including moisturization, antioxidant protection, and improved lip nourishment. The absence of synthetic dyes, heavy metals, and petroleum-derived ingredients further supports the safety profile of the developed formulation. The findings of this study indicate that herbal lipstick represents an effective, eco-friendly, and consumer-acceptable alternative to conventional synthetic lipsticks. The growing demand for herbal cosmetics, coupled with increasing awareness of natural products, provides excellent opportunities for the commercialization of herbal lipstick formulations. Future investigations should focus on improving pigment stability, extending shelf life using natural preservatives, and exploring advanced formulation technologies such as nano-herbal delivery systems to further enhance product quality and market potential.

REFERENCES

1. Agrawal SS, Paridhavi M. *Sharma's Herbal Drug Technology*. New Delhi: CBS Publishers & Distributors Pvt. Ltd.; 2017.
2. Harry RG. *Harry's Cosmeticology*. 8th ed. New York: Chemical Publishing Company; 2000.

3. Barel AO, Paye M, Maibach HI. *Handbook of Cosmetic Science and Technology*. 4th ed. Boca Raton: CRC Press; 2014.
4. Wilkinson JB, Moore RJ. *Harry's Cosmeticology*. 7th ed. New York: Chemical Publishing Company; 1982.
5. Evans WC. *Trease and Evans Pharmacognosy*. 16th ed. Edinburgh: Elsevier; 2009.
6. Kokate CK, Purohit AP, Gokhale SB. *Pharmacognosy*. 56th ed. Pune: Nirali Prakashan; 2021.
7. Indian Pharmacopoeia Commission. *Indian Pharmacopoeia*. Ghaziabad: IPC; 2022.
8. Anonymous. *Indian Herbal Pharmacopoeia*. Revised ed. Mumbai: Indian Drug Manufacturers' Association; 2002.
9. Dureja H, Kaushik D, Gupta M, Kumar V, Lather V. Cosmeceuticals: An emerging concept. *Indian J Pharmacol*. 2005;37(3):155–159.
10. Pandey S, Meshya N, Viral D. Herbs play an important role in the field of cosmetics. *Int J PharmTech Res*. 2010;2(1):632–639.
11. Saraf S, Kaur CD. Phytoconstituents as photoprotective novel cosmetic formulations. *Pharmacogn Rev*. 2010;4(7):1–11.
12. Chaudhari NP, Chaudhari NY, Premchandani LA, Dhankhar SS. Formulation and evaluation of herbal lipstick using natural pigments. *Int J Pharm Sci Rev Res*. 2018;50(1):30–34.
13. Kumar S, Singh R, Sharma V. Formulation and evaluation of herbal lipstick using natural colouring agents. *World J Pharm Pharm Sci*. 2017;6(9):1120–1128.
14. Mithal BM. *A Textbook of Cosmetics*. 2nd ed. New Delhi: Vallabh Prakashan; 2012.
15. National Institute of Industrial Research (NIIR). *The Complete Technology Book on Herbal Beauty Products*. New Delhi: NIIR Project Consultancy Services; 2010.
16. Kapoor VP. Herbal cosmetics for skin and hair care. *Nat Prod Radiance*. 2005;4(4):306–314.
17. Ali SM, Yosipovitch G. Skin pH: From basic science to basic skin care. *Acta Derm Venereol*. 2013;93(3):261–267.
18. Benson HAE, Watkinson AC. *Topical and Transdermal Drug Delivery: Principles and Practice*. Hoboken: John Wiley & Sons; 2012.

Cite: Varsha Bhardwaj, Tanishq Arya, Rohitash Kumar Sharma*, Laxman Prajapati, Vishal Garg, Formulation and Evaluation of Herbal Lipstick Using Natural Ingredients: A Safe and Eco-Friendly Cosmetic Approach, *Int. J. Med. Pharm. Sci.*, 2026, 2 (7), 452-456. <https://doi.org/10.5281/zenodo.21273197>