WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
Coden USA: WJPRAP Impact Factor 8.63
Volume 15, Issue 5, 1381-1391. Review Article ISSN 2277–7105

A REVIEW ON HERBAL LIPBALM USING NATURAL INGREDIENTS

Sneha Santosh Bade*, Prarthana Aware, Dhanashri Bhoir, Dr. Gita Mohire

India.

Article Received on 05 Feb. 2026,
Article Revised on 25 Feb. 2026,
Article Published on 05 March 2026

https://doi.org/10.5281/zenodo.18884007

***Corresponding Author**

Sneha Santosh Bade

India.

How to cite this Article: Sneha Santosh Bade*, Prarthana Aware, Dhanashri Bhoir, Dr. Gita Mohire (2026). A Review on herbal Lipbalm Using Natural Ingredients. World Journal of Pharmaceutical Research, 15(5), 1381–1391.

ABSTRACT

The project in hand covers the formulation and evaluation of a natural lip balm using lemongrass essential oil and the extract of the flowers of Clitoria ternatea as main herbal ingredients. The purpose of this study is to formulate a non-irritant, efficient, and environment-friendly lip balm that offers natural moisturization, protection, and nourishment to lips without the addition of synthetic additives generally used in commercial products.

It is formulated with beeswax, coconut oil, shea butter, vitamin E, and natural color from butterfly pea flowers, blended with refreshing fragrance and the antimicrobial activity of lemongrass essential oil. Butterfly pea flowers are rich in anthocyanins, natural color, and antioxidants, which assist in repairing damaged skin cells and impart a natural tint to the lip balm, while lemongrass provides antimicrobial, anti-inflammatory, and healing benefits.

The appearance, color, spreadability, pH, stability, and consumer acceptability were evaluated for the prepared lip balm. The results indicated that the formulation was smooth, with a pleasant aroma, an attractive natural hue, and good moisturizing without any irritation to the lip tissues.

Therefore, the lip balm of natural lemongrass and butterfly pea flower can represent a promising, cost-effective, and sustainable herbal formulation for meeting the increasing consumer demand for cosmetics with all-natural ingredients, completely chemical-free, and environmentally safe.

KEYWORDS: Natural lip balm, Lemongrass extract, Pea butterfly flower (Clitoria ternatea), Herbal formulation, Plant- based cosmetics, Antioxidant activity.

INTRODUCTION

During the past years, much attention has been given to the use of natural and herbal ingredients in cosmetic and pharmaceutical formulations due to the increasing awareness among consumers regarding the hazardous side effects of their synthetic chemical counterparts. In the case of cosmetics, lip balms are one of the most common products that have been used to protect and nourish lips, which are highly sensitive to dryness, cracking, and environmental conditions. The development of lip balms based on natural ingredients not only increases safety and biocompatibility but also makes the process more environmentally friendly.[1]

The herbs that will be used are lemongrass and Butterfly Pea Flower, which are known for their phytochemical profiles. Based on its active ingredients, such as essential oils like citral and geraniol, lemongrass possesses various characteristics, including antimicrobial and antioxidant properties, as well as being soothing. On the other hand, anthocyanins found in Butterfly Pea Flower also have been identified to have excellent properties, which are antioxidant and anti-inflammatory. Additionally, this flower is supposed to give a natural pigment that is blue-violet in color, suitable for cosmetic applications. Thus, the combination of these two natural active ingredients offers a very good opportunity to obtain a lip balm with not only protective and hydrating properties for the lips but also with additional antioxidant benefits and natural coloring.[2]

The main objective of this study is to formulate and evaluate a natural lip balm using active ingredients such as lemongrass extract and butterfly pea flower extract. This study will be concerned with the preparation process, physicochemical characterization, stability testing, and evaluation of the product for its organoleptic and functional properties. This project seeks to contribute to the advancement of safer and more sustainable alternatives in the area of cosmetic and pharmaceutical formulations by developing a herbal-based lip care formulation.[3]

Anatomy of the Lips

The highly specialized anatomic structure forming the anterior boundary of the oral cavity is the lips. The characteristic delicate architecture, thin epithelial covering, and absence of any

protective glands make the lips particularly susceptible to dehydration and environmental damage. Lip anatomy is very important in pharmaceutical sciences, for which the development of natural lip balm formulations succeeds, as this determines how ingredients interact with tissues of the lips to exert protection, hydration, and repair.[4]

1. Structural Overview

folds, the upper (labium superius) and lower (labium inferius), that surround the mouth opening and meet laterally at the oral commissures. The structural framework of the lips consists of skin, muscle, connective tissue, and mucous membrane.

They are differentiated into three regions with specific anatomic and physiologic features, including

a. Cutaneous (Outer) Zone

• Thinner, but composed of keratinized stratified squamous epithelium just like facial skin.

• Contains hair follicles, sebaceous glands, and sweat glands, mainly in the upper lip.

This layer acts as the first line of defense against environmental stressors such as UV radiation and dryness.

b. Vermilion Zone (Transitional Zone)

• The most anatomically and aesthetically relevant, visible part of the lips.

• Covered with thin, slightly keratinized epithelium without sweat and sebaceous glands.

• Richly supplied with capillary loops close to the surface giving lips their red appearance.

This area is more predisposed to dryness, cracking, and chapping because the natural moisturizing secretions are lacking and thus require lip salves and emollient formulations.

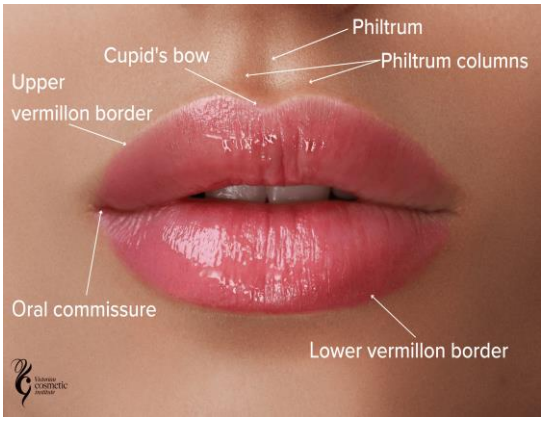
• This zone is of particular pharmaceutical interest since it presents higher permeability to lipophilic ingredients.[5]

2. Musculature

The orbicularis oris muscle provides the structural core for both lips.

It consists of skeletal muscle fibers arranged concentrically, allowing diverse movements such as puckering, smiling, and speech articulation.

This muscular layer further participates in the mechanical distribution of topically applied formulations.[4]



3. Histological Characteristics Relevant to Formulation Design

• The stratum corneum is thinner than normal skin, leading to a decrease in the barrier function.

• The absence of sebaceous and sweat glands in the vermilion zone gives rise to poor natural lubrication, hence the necessity for frequent external moisturizing agents.

The stratum corneum has a relatively low lipid content; therefore, it heavily relies on occlusive ingredients, such as natural ones including beeswax, shea butter, or cocoa butter, for hydration.

• High vascularization helps in the delivery of nutrition and healing if natural bioactive agents [such as aloe vera, coconut oil, vitamin E] are applied.

4. Pharmaceutical Significance for the Development of Natural Lip Balm

• The anatomical delicacy and lack of natural oil secretion make the lips a primary target for protective formulations.

• Natural lip balms should

o Restore lipid barrier integrity using plant-based oils and butters.

oPrevent transepidermal water loss with natural waxes, such as beeswax and candelilla wax.

o Provide antioxidant protection through ingredients such as vitamin E or green tea extract.

o Ensure biocompatibility and non-irritation, respecting the lip's sensitive mucocutaneous transition zone.[6]

➢ Application of lipbalm

- Apply a thin, even layer to clean lips.
- Reapply 2-3 times a day, or whenever lips feel dry.
- Use before exposure to sunlight, dry weather, or cold air for preventive protection.
- Application before bed aids in better overnight repair and hydration.[5]

➢ **Advantages of natural Lip Balm**

- Natural moisturizes and softens chapped lips.
- Provides antioxidant protection against free radicals.
- Soothes and heals chapped or irritated lips.
- Lemongrass provides mild antibacterial and antifungal effects.
- Gives natural lip color enhancement-butterfly pea flower pigment.
- Provides lips protection from environmental stresses, including UV and pollution.
- Improves lip texture and natural shine.
- Safe and chemical-free, can be used daily.[3]

➢ **Disadvantages of lip balm**

- Short shelf life due to natural ingredients and the absence of synthetic preservatives
- May cause allergic reactions in sensitive individuals.
- Can include artificial chemicals, parabens, or fragrances that might irritate sensitive lips.
- Overuse can cause dependency, whereby lips feel dry without application.
- Some formulations contain petroleum derivatives that block the absorption of moisture.[4]

MATERIAL AND METHODS

➢ **Ingredients**

1. Beeswax
2. Coconut oil
3. Shea butter
4. Lemongrass essential oil
5. Butterfly pea flower powder
6. Vitamin E

1. Beeswax (Cera alba)

Beeswax is a natural wax obtained from honeybees, and most lip balm formulations contain this ingredient. It thickens and binds the balm together, which imparts a firm texture to the balm and makes it retain its shape. Moreover, it creates a barrier on the lips, thereby locking in moisture and preventing dryness. Its melting point is at about 62–65 °C, and it blends well with oils and butters. In the lemongrass and butterfly pea flower lip balm, beeswax provides structure, smooth texture, and enhances stability of the natural ingredients.[7]

2. Shea butter (Butyrospermum parkii)

Shea butter is a natural fat that is derived from the nut of the shea tree. This rich emollient deeply moisturizes, softens, and protects the lips while infusing vitamins A and E to repair dry or damaged skin. The lemongrass and butterfly pea flower lip balm use shea butter to enhance creaminess, improve texture, and provide nourishing effects.[3]

3. Lemongrass essential oil: Cymbopogon citratus

This is an essential oil extracted from leaves and stalks of the lemongrass plant. It has a fresh, citrus aroma; it contributes properties for antibacterial, antifungal, and antioxidant actions. In the lemongrass and butterfly pea flower lip balm, this ingredient will impart a pleasant natural fragrance, preservation properties to the product, and lips comfort. 1

4. Butterfly pea flower powder (Clitoria ternatea)

Butterfly pea flower powder is a powder from dried and ground petals of the butterfly pea plant. It contains anthocyanins-natural antioxidants that help protect and nourish the lips. In this lemongrass-and-butterfly-pea-flower lip balm, it functions as a natural colorant, giving it a light blue to purple tint, and offers some anti-inflammatory and anti-aging advantages. 4. Vitamin E - Tocopherol: Vitamin E oil powder is a stabilized, powdered version of the antioxidant tocopherol derived from natural plant oils. This protects the oils and butters used in the lip balm from oxidation, which may cause rancidity or a short shelf life. Furthermore, it possesses moisturizing and healing properties that maintain soft lips and avoid cracking or dryness of lips. In the lemongrass and butterfly pea flower lip balm, it enhances lip nourishment and improves product stability.

➢ **Equipment**

i. Double boiler
ii. Stirring rod
iii. Small containers or lip balm tubes
iv. Measuring spoons
v. Strainer
vi. Dropper

➢ **Methods of preparation**

Step 1: Prepare Butterfly Pea Flower powder

1. Fresh butterfly pea flowers were obtained from healthy plants.
2. Flowers should be gently washed with clean water to remove dust or impurities.
3. Spread the cleaned flowers evenly on a clean tray or plate.

4. Dry them in the shade, never under direct sunlight, for 2 to 3 days until they become crispy and completely dehydrated.

5. Allow flowers to dry completely and then grind them in a mortar and pestle until they form a fine powder.

6. Pass the powder through a fine mesh sieve to ensure uniform particle size.[9]

Step 2: Melt the Base

1. In a double (2) boiler, add the beeswax, coconut oil, and shea/cocoa butter.

2. Heat gently until fully melted, stirring occasionally for uniform mixing.

Step 3: Add the Butterfly Pea Flower

1. Gradually add the cooled butterfly pea flower infusion or extract to the melted base while stirring continually.

2. Make sure it blends well and does not have lumps. (2)2. Make sure it blends well and does not have lumps. (2)

Step 4: Add the Essential Oils and Vitamin E

1. Remove the mixture from heat.

2. Add lemongrass essential oil (2–3 drops) and vitamin E oil.

3. Stir well for proper distribution.[10]

Step 5: Pour and Set

1. Pour the mixture immediately into lip balm containers or tubes.

2. Allow it to cool and solidify at room temperature for 1–2 hrs.

3. Seal and label the containers.[8]

Step 4: Add the Essential Oils and Vitamin E

1. Remove the mixture from heat.

2. Add lemongrass essential oil (2–3 drops) and vitamin E oil.

3. Stir well for proper distribution.[10]

Step 5: Pour and Set

1. Pour the mixture immediately into lip balm containers or tubes.

2. Allow it to cool and solidify at room temperature for 1–2 hrs.

3. Seal and label the containers.[8]

➢ CONCLUSION

The present study on the preparation of natural lip balm using lemongrass and the flower of a butterfly pea has proven that herbal ingredients, when put together, have the capacity to formulate a nontoxic, skin-friendly, and eco-friendly cosmetic product. The extract of lemongrass was responsible for the pleasant fragrance, besides its antibacterial and healing properties, while the extract of the Butterfly Pea flower provided antioxidant properties with a mild natural color. The lip balm thus formulated had good consistency, smooth texture, and moisturizing effects, hence proving to be suitable for regular application. As a whole, this study highlights the potential of natural resources in order to come up with an effective and ecofriendly alternative to commercially available synthetic lip care products.

This truly illustrates that herbal ingredients are assuredly effective in the development of safe, skin-friendly, and ecologically acceptable cosmetic products: natural lip balm with lemongrass and butterfly pea flower extracts. Moreover, lemongrass extract added freshness and a pleasant fragrance to this product while contributing antibacterial and wound-healing properties to improve the protective and healing characteristics of the lip balm. On the other hand, the butterfly pea flower extract contributed significantly to the antioxidant activity and mild natural color, thus showing aesthetic and functional properties without the addition of synthetic additives. The final formulation possessed desirable properties such as good consistency, smooth texture, and good moisturizing ability, which were adequate for regular everyday applications. In the study, the potential of naturally occurring flora was discussed in the formulation of high-quality, eco-friendly lip care products that could be used as alternatives to conventional synthetic formulations. Furthermore, this work also demonstrates the importance of traditional herbal materials toward modern cosmetic development and how they contribute toward sustainability, safety, and reduced environmental footprints. This shows clearly the crucial importance of legal tradition and the factors that influence it, affecting the way one nation's courts look at the courts of another.

➢ REFRENCES

1. Hamdan DF, Pasomba I. Formulation of Balm from Lemongrass Oil as Aromatherapy. SIGn J. Public Heal., 2023; 2(1): 1–12.
2. Ezquerro L, Coimbra R, Bauluz B, Núñez-Lahuerta C, Román-Berdiel T, Moreno-Azanza M. Large dinosaur egg accumulations and their significance for understanding nesting behaviour. Geosci Front. 2024 Sep. 1; 15(5).

3. Review on Formulation and evaluation of herbal Lemon lip balm _IJSCI- Fast paper publication in 4 Hr_ Low cost journal Rs.
4. Zhang W, Xu M, Feng Y, Mao Z, Yan Z. The Effect of Procrastination on Physical Exercise among College Students—The Chain Effect of Exercise Commitment and Action Control. Int J Ment Health Promot. 2024; 26(8): 611–22.
5. Bhosale S, Pawaskar DS, Sawant AA, Satardekar PS, Nikita JD, Ghadi LJ, et al. Review on Herbal Cosmetics. 2024; 9(2): 677–87.
6. Shahzad MF, Xu S, Lim WM, Yang X, Khan QR. Artificial intelligence and social media on academic performance and mental well-being: Student perceptions of positive impact in the age of smart learning. Heliyon. 2024 Apr 30; 10(8).
7. Vijayalakshmi K. Formulation And Evaluation Of Herbal Lip Balm By Using Prickly Pear Cactus Fruit (Opuntia Ficus-Indica Linn) To Lighten The Dark Lips. World J Pharm Life Sci [Internet]. 2024; 10(9): 107–16. Available from: www.wjpls.org
8. De Groot A, Schmidt E. Essential Oils, Part V: Peppermint Oil, Lavender Oil, and Lemongrass Oil. Dermatitis. 2016; 27(6): 325–32.
9. PharmacognRes-16-2-367.pdf.
10. Paul S, Choudhary S. International Journal of Sciences and Innovation Engineering Object Recognition Using Deep Learning. 2025; 2(6): 401–7. Available from: http://creativecommons.org/licenses/by/4.0/
11. 2009. Link: https://pubmed.ncbi.nlm.nih.gov/19367668/ (PubMed)
12. "Extraction methods of butterfly pea (Clitoria ternatea) flower and biological activities of its phytochemicals." PubMed, 2021. Link: https://pubmed.ncbi.nlm.nih.gov/33967304/ d Bobade Review." Int. J. Sci. Inno. Eng., May 2025; 2(5): 730-733. DOI:10.70849/IJSCI. Link: https://www.ijsci.com/index.php/home/article/view/147 (ijsci.com)
13. De Silva, B.C.J., Jung, W-G., Hossain, S. et al. "Antimicrobial property of lemongrass (Cymbopogon citratus) oil against pathogenic bacteria isolated from pet turtles." Lab Animal Research, 2017; 33(2): 84-91. DOI:10.5625/lar.2017.33.2.84. Link: https://labanimres.biomedcentral.com/articles/10.5625/lar.2017.33.2.84 (BioMed Central)
14. Widelska, G. et al. "Antioxidant activity of lemongrass essential oil and its constituents." Facta Universitatis – Physics, Chemistry and Technology, 2019. Link: https://casopisi.junis.ni.ac.rs/index.php/FUPhysChemTech/article/view/4104 (Facta Universitatis).
15. Aly, K.E. “An Overview of Lemongrass (Cymbopogon citratus) and its Essential Oil Extractions.” Med Aromat Plants (Los Angeles), 2021; 10: 390. Link:

https://www.longdom.org/open-access/an-overview-of-lemongrass emcymbopogoncitratusem-and-its-essential-oil-extractions-80623.html (Longdom)

16. Kusrini, E., Mawarni, D. P., Wulandari, D. A., Ayuningtyas, K., Usman, A. "Formulation and characterization of lip balm made from beeswax, almond oil, virgin coconut oil and honey." AIP Conference Proceedings, September 2020. Link: https://fos.ubd.edu.bn/publication/2020-kusrini-formulation/ (FOS UBD)
17. "Formulation and evaluation of herbal lip balm using natural ingredients." Int. J. Sci. Inno. Eng., 2025. (Same as #5) — but useful for your formulation section.