

# Formulation and Evaluation of Herbal Lipbalm

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**Abstract** – Cosmetic products have held significant demand since ancient times, with a growing shift towards natural formulations in recent years. Among them, lip balms are widely used for both aesthetic appeal and lip health. These products naturally enhance lip appearance and help retain moisture.

The increasing preference for herbal cosmetics stems from concerns over the adverse effects associated with synthetic compounds. Lip balms, in particular, serve dual roles—providing color and preventing dryness. In contrast to chemical-based products, natural ingredients offer a safer alternative.

Modern cosmetic lip products often rely on a wide range of chemical ingredients, many of which may cause adverse effects. Therefore, this study focuses on exploring natural alternatives for formulating lip balm. The proposed natural lip balm can be created using plant-based oils, extracts, natural colorants, and flavoring agents. These formulations can be evaluated based on their stability under temperature changes, appealing flavor, smooth application, good adherence, and ease of removal.

The parameters such as formulation, chemical stability, pH, melting point and irritation tests were carried out to obtain the best lip balm products and are suitable for use in the tropical regions. The lip balm formulation was tested by applying lip balm to a glass slide. The pH of lip balm of 7.2.

Based on the results of irritation test, the lip balm showed no reaction to erythema, papules, or edema, indicating that it is safe to skin of the lips. Finally, the natural ingredients in this study can be used for the formulation and composition of lip balms for tropic to cool regions. The primary purpose of lip balm is to provide an occlusive layer on the lip surface to seal moisture in lips and protect them from external exposure.

**Key words** - Beeswax, Beetroot, Natural lip balm

## INTRODUCTION

Lip balm is a product which is put on lips so they will not dry when a person is outdoors in the sun and wind. Lip balm is usually made from petrolatum. Some types of lip balm also include sunscreen to protect the lips from sunburn. Lip balm comes in

tubes and small pots with screw-on lids. Lip balm is often used during the winter, because the cold winter winds can dry out a person's lips so that they are cracked and hurting (this is called having "chapped" lips). Lip balm was first marketed in the 1880s by Charles Browne Fleet, though its origins may be traced to earwax. More than 40 years Prior to the commercial introduction of lip balm by Fleet, Lydia Maria Child recommended earwax as a treatment for cracked lips In her highly-popular book, *The American Beetroot*, scientifically known as *Beta vulgaris*, is also referred to as the common beet or garden beet. It is one of the four cultivated varieties of the *Beta vulgaris* species, which belongs to the Amaranthaceae family (amaranth family). This plant is primarily cultivated for its edible taproot and leafy greens.

Beetroots are versatile in culinary use—they are commonly boiled or roasted and served as a side dish. Additionally, they are often canned, either whole or sliced, and can be pickled, spiced, or prepared in sweet-and-sour sauces. The young leaves, when harvested early, can be consumed fresh in salads or cooked similarly to spinach.

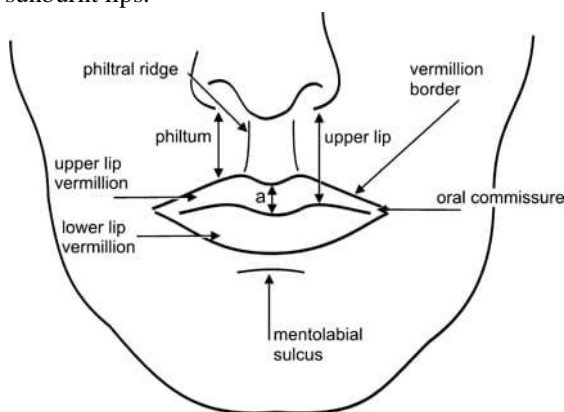
Nutritionally, beetroot is a rich source of riboflavin, folate, and manganese, and it contains the powerful antioxidant betaine, which supports overall health.

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Cosmeceuticals refer to ingredients that possess therapeutic properties, offering benefits when applied topically and helping protect the skin from degenerative conditions. This study utilizes such ingredients known for their minimal side effects. Unlike decorative lip products, lip balms are primarily designed to protect and nourish the lips.

Beeswax is a natural compound secreted by female bees that is often used in cosmetics, particularly lip balm. This substance is very moisturizing, can help protect the lips from the harmful rays of the sun, and has a pleasant smell. Beeswax acts as a natural emulsifier. Vitamin E is an antioxidant and a natural conditioner. Vitamin E helps to maintain the soft, youthful texture of the lips by reducing the signs of aging. Coconut oil penetrates deep into the skin tissue and its fatty acids help to moisturize the lips. The anti-inflammatory properties of coconut oil reduce redness and pain associated with chapped and sunburnt lips.



Lips:

The lips are the soft, flexible structures that form the boundaries of the mouth opening (oral aperture).

Centrally, the upper lip's upper edge aligns with the base of the nose, while the lower lip extends down to the mentolabial sulcus. On either side, the lips are limited by the alar sulci, and both lips meet at the oral commissures (corners of the mouth). The philtrum—a vertical groove flanked by ridges—is part of the upper lip's central structure.

The surface of the lips can be divided into four distinct zones:

1. Hairy skin
2. Vermilion border
3. Vermilion
4. Oral mucosa

The vermilion refers to the red-colored portion of the lips and is covered with specialized stratified squamous epithelium that continues seamlessly into the oral mucosa of the gingivolabial groove. Interestingly, the vermilion itself is commonly referred to as “the lips.”

The vermilion border is a pale line that marks the boundary between the red vermilion and the surrounding facial skin.

The Cupid's bow is the distinct contour seen on the upper lip. From a frontal view, it resembles an archer's bow, curving upward and inward from each oral commissure to two defined peaks at the base of the philtral columns (crista philtrae). Between these peaks lies a slight downward curve, enhancing the aesthetic appeal of the lips.

Lip shape and fullness can vary with age and are often influenced by genetic and ethnic factors.

Lips Disorder:-

Sun Damage:-

Sun damage may make the lips, especially the lower lip, hard and dry. Red speckles or a white filmy look signal damage that increases the chance of subsequent cancer. This type of damage can be reduced by covering the Lips with a lip balm containing sunscreen or by shielding the Face from the sun's harmful rays with a wide-brimmed hat.



**Discoloration:-**

Freckles and irregularly shaped brownish Areas (melanotic macules) are common around the lips and May last for many years. These marks are not cause for Concern. Multiple, small, scattered brownish black spots may be a sign of a hereditary disease called Peutz-Jeghers Syndrome, in which polyps form in the stomach and Intestines. Kawasaki disease, a disease of unknown cause that usually occurs in infants and children 8 years old or younger, Can cause dryness and cracking of the lips and reddening of the lining of the mouth.

**Sores:-**

A raised area or a sore with hard edges on the lip May be a form of skin cancer. Other sores may develop as Symptoms of other medical conditions, such as oral herpes Simplex virus infection or syphilis. Still others, such as Keratoacanthoma, have no known cause.

**Ideal characteristics of herbal lip balm**

1. It is smooth and easy to apply.
2. It is non-irritant and non-toxic.
3. It have required plasticity, different odour, colour, texture and packaging etc.
4. It is stable in shelf-life time and it is free from bloom and sweating during storage of Lip balm
5. It should be free from contamination.
6. It should be free from gritty particles.
7. It should be long lasting.
8. It should not melt or harden within a reasonable variation of climatic temperature.

**FORMULATION –**

SR.NO	INGREDIENT	FORMULA
1	BEETROOT EXTRACT	26.5 gm
2	BEESWAX	2.75 gm
3	COCONUT OIL	10 ml
4	VITAMIN E	1 ml

Weigh  
↓  
Add beet root extract and coconut oil  
↓  
Add Vitamin E, beeswax  
↓(heat)  
stirred Homogenous mixture  
↓  
keep in the fridge for 30 min for the mixture to solidify.  
↓  
Transfer to container

**Method of preparation:**

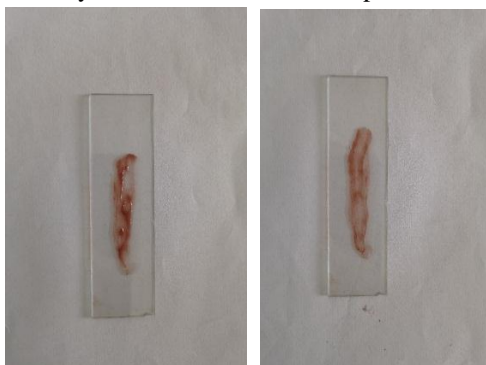
- 1.To prepare this lip balm we need pure beetroot.Then grate it using a grater with small holes.After grating squeeze out the juice through a cheese cloth.
- 2.Take 26.5 ml of beetroot juice. Add 10ml of Coconut oil to the juice. Give flame to the mixture.Make sure to mix occasionally.
3. When we notice that the beetroot juice starts to caramelize, reduce the heat to low so that it does not burn.
4. At this stage, take the flame off . Immediately pour the mixture into a beaker or a heat resistant cup.
5. Add 2.75 gm of beeswax . Then melt the wax using the double boil method.
6. When the wax is melted, remove from water bath and let it cool a little.
7. When it cools down , add in it vitamin E capsule . Mix for some few seconds.
8. Then keep in the fridge for 30 min for the mixture to solidify.
9. After 30 min, mix well till it get a smooth consistency. When it mixed well , transfer it into a clean container.
10. This can be used as a lipbalm and also as a substitute for a lipstick. Make sure your hands are clean when using this lipbalm.

**EVALUATION PARAMETERS -****Organoleptic Properties: -**

Prepared lip balm has shown Brownish red color with pleasant Oduor.

**Test of Spread ability: -**

uniform, no fragmentation, perfect application, without any deformation at room temperature

**Measurement of pH: -**

The pH of lip balm was near to neutral pH i.e. 7.2, this would not cause any irritation to the lips.

**Greasiness: -**

A greasiness test was examined to identify the amount of oil in the formulated lip balm. In this study, 4 g of lip balm was placed on the filter paper, and the sample was left at room temperature for 24 hours.

**Sensitive Skin**

This is done by applying the product as a patch to the skin for 30 minutes and observing for a reaction of:

N – No reaction

R – Skin redness

I – Irritation or itching.

**RESULT**

SR.NO	EVALUATION PARAMETER	OBSERVATION
1	Melting point	64 <sup>0</sup> C – 65 <sup>0</sup>

2	Organoleptic properties	-
2.1	Colour	Brownish red
2.2	Odour	Pleasant
2.3	Appearacne	Smooth
3	Spreadability	Good
4	PH measuremenet	7.2
5	Skin irritation	no

**CONCLUSION**

Formulation stored at room temperature and in the refrigerator showed similar stability. Stable organoleptic properties and spreadability are considered “good”. The pH of the lip balm matches with that of the skin so it is Compatible with the skin. This work has reviewed the current status of natural lip balm products. This also studied all aspects of natural lip balm including natural ingredients, formulation methods, evaluation and applications. Hence it can be concluded that the extensive literature study has been performed on the natural lip balm products and shown wide scope for such products in future.

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