



# Formulation And Evaluation of Polyherbal Lip balm

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## ABSTRACT:

Cosmeceuticals are the products of cosmetic that are biologically active ingredients that impersonates to medical or drug like benefits. Its primary purpose is to hydrate, soothe chapped lips and protect from drying out. Lip balm is one of the cosmetic preparations mostly used as moisturizer in winter season for dry lips. Lip balm increases the beauty of lips and moisturizes the lip and shine to the lips. All the ingredients used in this preparation are natural and gives pleasant odour, keeps lips for soft. Lip balm has been made by using various ingredients like beeswax, Dragon fruit peel powder, lemon peel powder, coconut oil, sandalwood oil, glycerine, honey. Homogenous mixing method was used to produce the lip balm. The formulation of lip balm was tested by applying it on a glass slide. Various parameters such as chemical stability, pH, melting point, and spread ability were carried out for the evaluation of lip balm. Natural lip balm is safe for 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 act as a natural emulsifier. Honey is an effective treatment of wounds because it is non-irritating, non-toxic, self-sterile, bactericidal, anti-oxidant, nutritive, easily applied and more comfortable and also used as a colouring agent and flavouring agent. Coconut oil is a popular ingredient in lip balm due to its numerous benefits for lip care. Coconut oil has healing properties, deep moisturization, soothing and hydrating properties. Dragon fruit peel powder is a beneficial ingredient in lip balm it gives antioxidants- peel contains high levels of flavonoids and betacyanins, which help protect lips from oxidative stress and environmental damage. It is a natural colouring agent that's why the chemical colourants not needed in lip balm. Dragon fruit peel powder also work as a exfoliation finely ground peel powder help gently remove dead skin cells, making lips smoother. Sandalwood oil is a luxurious and beneficial ingredient used for its soothing, healing, and aromatic properties.

**Keywords:** Beeswax, Dragon fruit peel powder, Honey, moisturizing, sandalwood oil, hydrates.

## 1. INTRODUCTION

Due to the presence of hazardous synthetic excipients in cosmetics, there has been a great public concern regarding the use of organic sources. Lips do not have any oil glands; thus, it is really important to provide that extra moisture and protection throughout the day! Conventional lip balm often contains petrolatum, synthetic waxes, alumina, paraben, hydrogenated oils and artificial fragrances and colours which are toxic. Often the lip balm is eaten by the user, thus it becomes major issue for health regulator Cosmetics are incredibly in demand since historical time. These days focus is shifted more towards naturally derived cosmetic products. Among all cosmetic products, lip balm formulations are most widely used to enhance the beauty of lips and add glamour touch to the makeup. Lip balms offer a natural way to maintain and promote healthy lips. Current cosmetic lip products are based on use of enormous chemical ingredients with various side effects.

The quest for natural and wholesome beauty solutions has never been more pronounced. Consumers are increasingly scrutinizing the ingredients in their personal care products, seeking alternatives to the often synthetic and potentially irritating components found in conventional formulations. This heightened awareness is particularly significant when it comes to lip care, a daily ritual that impacts both aesthetic appeal and overall well-being. Lips, devoid of their own sebaceous glands, rely on external moisturization, making the choice of lip balm critical.

Traditional lip balms frequently rely on petroleum-based ingredients, artificial waxes, and synthetic fragrances, raising concerns about potential long-term effects and skin sensitivities. Given the likelihood of incidental ingestion, the safety profile of lip balm ingredients becomes even more paramount. The desire for a natural, gentle, and effective approach to lip care has paved the way for innovative formulations that harness the power of botanical extracts.

This project embarks on the development of a polyherbal lip balm, a meticulously crafted blend of nature's finest ingredients. By combining the synergistic properties of carefully selected herbs, this formulation aims to deliver superior moisturization, soothing relief, and long-lasting protection. This polyherbal lip balm will not only enhance the natural beauty of the lips but also promote their health and vitality. The emphasis is on creating a product that is both effective and gentle, catering to the growing demand for clean, sustainable, and plant-based cosmetic solutions.

Lip balm is a cosmetic product that is used to moisturize and protect the lips. It is typically made from a combination of waxes, oils, and other ingredients. Lip balm can be used to treat dry, chapped lips, as well as to prevent them from becoming chapped in the first place.

There are many different types of lip balm available, each with its own unique benefits. Some of the most common types of lip balm include:

- **Tinted Lip Balm:**

Used for both hydration and adding colour to the lips. Offers a lighter alternative to lipstick.

Applied directly to the lips for a subtle tint.

- **Medicated Lip Balm:**

Considered the most soothing and least irritating option. Often prescribed by dermatologists for chapped lips and other lip conditions.

- **Flavoured Lip Balm:**

Contains added flavours like vanilla, mint, mango, etc. Provides moisturization and a pleasant taste and smell.

- **Organic Lip Balm:**

Made with organic or natural ingredients (e.g., avocado oil, jojoba oil, beeswax, vitamin E).

Offers moisture and protection for dry and chapped lips.

- **SPF Lip Balm:**

Contains ingredients that protect the lips from the sun's harmful rays. Functions as a sunscreen, preventing sunburn, burning, and skin cancer. Ideal for daily use, especially for people who are sun-conscious.

- **Plumping Lip Balm:**

Not only moisturizes but also makes lips appear rounder and fuller. Contains specific ingredients for a plumping effect. Suitable for those seeking a fuller lip look without surgery.

- **CBD or Hemp Oil Lip Balm:**

Cannabidiol (CBD) or hemp oil lip balm are a kind of lip balm that contains CBD oil or hemp oil. Hemp oil is a form of plant which is an excellent moisturizer for lips, while the CBD oil is an active compound of cannabinoids has anti-inflammatory benefits. The lip balm will act as an anti-oxidant to lips to help soothe and heal chapped lip.

## ANATOMY OF LIPS

The lip serves as organs of prehension, suction and speech. It is composed of the skin, superficial fascia, orbicularis muscle and the muscles inserted around it (areolar tissue and mucous membrane). The areolar tissue contains coronary vessels which completely encircle the buccal orifice near the free merging of the lips. Coronary vessels are the superior and inferior coronary arteries which arise from the facial. The superior coronary is larger than the inferior anastomoses with its fellow of the positive side and gives off small artery to the septum arteriaseptinasi.

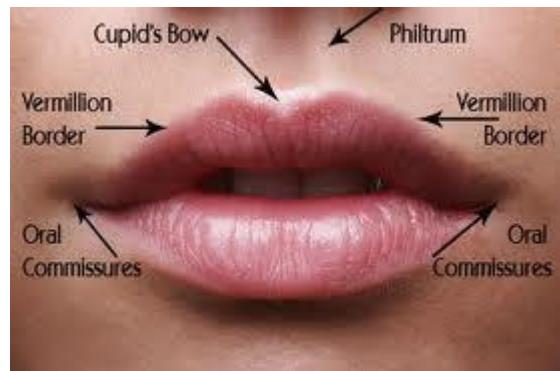


Fig 1: Anatomy of lips

## LIP DISORDERS

**Swelling:** An allergic reaction can make the lips swell. The reaction may be caused by sensitivity to certain foods or beverages, drugs, lipstick, or airborne irritants. When a cause can be identified and then eliminated, the lips usually return to normal. But frequently, the cause of the swelling remains a mystery. A condition called hereditary angioedema may cause recurring bouts of swelling.

**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.

**Sores:** A raised area or a sore with hard edges on the lip may be 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.

**Allergic Contact Cheilitis:** The most common cause of contact cheilitis includes the use of personal hygiene products such as toothpaste and mouthwash which contain numerous antibacterial agents, essential oils and preservative.

## Plant Profile

### 1. Beeswax



Fig. 4 BEESWAX

Beeswax helps heal lips and prevent infections. Beeswax has anti-bacterial and anti-inflammatory properties that can help prevent and relieve infections around your lips, along with vitamin A which helps to improve wound healing.

Beeswax is also an occlusive, meaning it forms a moisturizing, protective layer on the surface of the lips.

### 2. Dragon fruit peel powder



Fig. 5 DRAGON FRUIT PEEL POWDER

It belongs to the Cactaceae taxonomic family. Dragon fruit peels, often discarded, are rich in various bioactive compounds like polyphenols, flavonoids, and dietary fiber, with potential antioxidant, anti-inflammatory, and anticancer properties. The peels of dragon fruit, specifically *Hylocereus undatus*. Dragon fruit peel contains several bioactive compounds, including betacyanins, phenolic compounds, flavonoids, and pectin. These

compounds contribute to the peel's vibrant color and potential antioxidant and health-promoting properties. The red color in dragon fruit peel is primarily due to betacyanins which are a type of water-soluble pigment also found in the flesh of red dragon fruit. These pigments are a natural food colorant. Dragon fruit peel powder can be beneficial for lips due to its antioxidant properties, potential for use as a natural dye, and ability to help moisturize and protect lips. It can also provide a gentle exfoliating effect.

#### Taxonomy:

Kingdom: Plantae (Plants)

Division: Magnoliophyta (Flowering plants)

Class: Magnoliopsida (Dicotyledons)

Order: Caryophyllales

Family: Cactaceae (Cactus family)

Tribe: Hylocereeae

Genus: Hylocereus

Species: *Hylocereus undatus*

#### Morphology:

The morphology of dragon fruit peel is characterized by its semi-smooth, waxy texture and the presence of fleshy, overlapping scales with green tips. These scales are a key feature, contributing to the fruit's distinct appearance and are found in various colors, including red, pink, fuchsia, and red-brown, depending on the variety. The peel also contains significant amounts of bioactive compounds like betacyanins, phenolic compounds, and dietary fibers.

#### Benefits:

- High antioxidant content
- Natural moisturizing properties,
- Exfoliating capabilities.

### 3. Honey



Fig. 6 HONEY

Honey is a sweet, viscous substance produced by bees from the nectar of flowers. It is composed primarily of sugars, but also contains amino acids, vitamins, minerals, and antioxidants. There are about 320 different varieties of honey, which vary in color, odor, and flavor. The antibacterial activity of honey was first recognized in 1892. It has been rediscovered by the medical profession and it is gaining acceptance as an antibacterial treatment of topical infections resulting from burns and wounds. It is well established that honey inhibits a broad spectrum of bacterial species. More recently, honey has been reported to have an inhibitory effect to around 60 species of bacteria including aerobes and anaerobes, Gram positives, and Gram negatives

#### Benefits:

- Natural moisturizing
- Antibacterial properties for healing chapped or cracked lips
- Antioxidant protection
- Leading to softer, smoother, and healthier-looking lips.

### 4. Coconut oil



Fig. 7 COCONUT OIL

Coconut oil, derived from the kernels, meat, and milk of the coconut palm fruit, is primarily composed of fat, with a high percentage of saturated fats, especially medium-chain triglycerides (MCTs). It has been used for various purposes, including culinary, medicinal, and cosmetic applications. The lauric acid in coconut oil has nourishing properties that seep into your skin. Some coconut oils absorb quickly, providing moisture to heal dry, chapped lips. It's a versatile oil used in cooking, baking, and various industrial applications like cosmetics and soap production.

#### Benefits:

- Deep Moisturization
- Barrier Protection
- Healing Properties
- Antibacterial Defense

#### **5. Sandalwood oil**



Fig. 8 SANDALWOOD OIL

Sandalwood essential oil can be beneficial for lip care due to its soothing, moisturizing, and potentially anti-inflammatory properties. When diluted appropriately, it can help relieve dryness, soothe chapped or cracked lips, and may even aid in healing minor wounds or cold sores.

#### Benefits:

- Soothes And Calms Dry, Chapped Lips
- Combats Lip Infections And Cold Sores
- Locks In Moisture For Soft And Supple Lips
- Reduces Inflammation And Irritation
- May Promote Skin Regeneration And Reduce Fine Lines And Wrinkles

## 6. Glycerine



Fig. 9 GLYCERINE

Glycerine is a popular ingredient in lip care products, providing numerous benefits for dry, chapped lips. It helps to lock in moisture, soothe dryness, and create a protective barrier against environmental stressors. Glycerine's humectant properties allow it to retain moisture, leaving lips feeling soft, supple, and hydrated. Regular use of glycerine on lips can also help reduce the appearance of fine lines and wrinkles, leaving them looking smoother and more youthful. As a natural and gentle ingredient, glycerine is suitable for all lip types, making it a great addition to any lip care routine.

### Benefits:

- Moisturizing
- Soothing
- Healing
- Helping To Combat Dryness, Chapping, And Irritation, And Potentially Even Improving Lip Color.

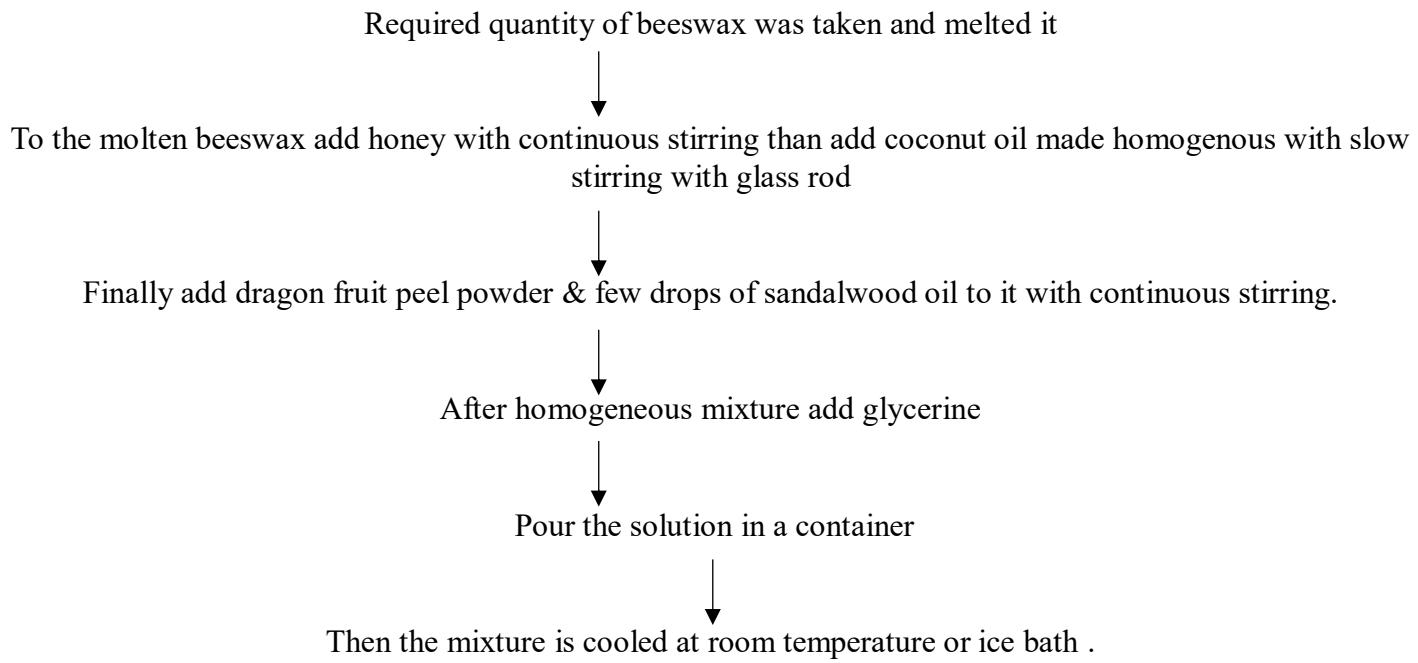
## METHOD OF FORMULATION

### • Composition of 8gm. formulation of polyherbal lip balm

Sr. no.	Ingredient	Quantity	Action
1	Beeswax	1g	Thickening agent, emollient
2	Dragon fruit peel powder	0.25g	Anti-oxidant & colouring agent
3	Honey	2ml	Preservative, Humectant & as an flavouring agent and brighten up lips
4	Coconut oil	3.5ml	Moisturizing agent
5	Sandalwood oil	2 drops	perfume
6	Glycerine	1ml	Glossy effect

Table 1: Information of ingredients

## Method of preparation of lip balm



## FINAL FORMULATED PRODUCT



Fig 2: Formulated Product

## EVALUATION OF LIPBALM

- **Organoleptic properties:**  
The lip balm was studied for the basic of organoleptic characteristic such as Colour, Odour and Texture.
- **Stability test:**

The purpose of stability testing is to provide evidence on how the quality of drug substance or drug product varies with time under the influence of variety of environmental factors such as temperature, humidity and light and enables to recommend storage condition and to predict the shelf life. Stability study for lip balm was performed at different temperatures such as 3- 5°C, 25°C.

- **Melting Point :**

1. Fill the capillary tube with a small amount of the sample.
2. Seal the capillary tube at one end.
3. Hold the capillary tube over the Bunsen burner or hot plate and slowly heat the sample.
4. Observe the temperature reading on the thermometer and record the temperature at which the sample begins to melt.
5. Continue heating the sample until it is completely melted. Record the temperature at which the sample is fully melted.

Melting Point : 40-60°C



- **pH measurement:**

The pH study was carried out by dissolving 1gm of sample into 50ml water. The pH measurement was done using pH meter.



Fig. 3: pH meter

- **Spreadability test:**

The spreadability was expressed in terms of time in seconds taken by two slides to slip off from the formulation, placed in between the slides, under certain load lesser the time taken for separation of the two slides better the spreadability. Two sets of glass slides of standard dimension were taken. Then one slide of suitable dimension was taken and the formulation was placed on that slide. Then other slide was placed on the top of the formulation. Then a weight or certain load was placed on the upper slide so that the formulation between the two slides was pressed uniformly to form a thin layer.



Fig 4: Spreadability

- **Skin irritation test:**

Apply some amount of formulation on back of your hand or dorsal side of your hand and observe for 6 hours if any irritation is caused at that area of application.



Fig 5: Skin irritation

- **Anti-Microbial test:**



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## **RESULT OF ANALYSIS**

**Name of Sample** : poly herbal lip balm  
**Report No** : AR19042505 **Report date** : 28-04-2025  
**Client Name** : Parmar jahanviben A.  
**Client Address** : #N/A

\*\*\*\*\* End of report \*\*\*\*\*

### Note:

- 1) Analysis performed as per Inhouse Method
- 2) Result listed in the report shall be applicable for sample submitted and the parameter of test applied
- 3) Sample drawn and submitted by client for analysis
- 4) The liability of our lab is limited to the invoiced amount.
- 5) This report cannot be replicate, wholly or in part, in any form of media without our permission.
- 6) Analysis method shall not be shared.



**Authorised Signatory**

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## RESULT AND DISCUSSION

Sr. no.	Parameter	Result
1	Colour	Light red
2	Texture	Smooth
3	Odour	Pleasant
4	Ph	5.13
5	Spreadability test	Good
6	Skin irritation	No irritation
7	Melting point	40-60
8	Anti-Microbial test	Pass

Table 2: Result

## CONCLUSION

This study validates that a lip balm formulated with natural components can serve as a secure and premium alternative to standard products. The preparation exhibited excellent stability under diverse storage conditions, ensuring dependable performance. Its pleasing application properties, including good spreadability, combined with stable organoleptic qualities, enhance the user experience. A melting temperature of 60°C confirms the product's robustness. In essence, this work successfully demonstrates the development of a reliable and effective natural lip balm.

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