INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES
[ISSN: 0975-4725; CODEN(USA): IJPS00]
Journal Homepage: https://www.ijpsjournal.com

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Research Article

Preparation And Evaluation of Lip Balm

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ARTICLE INFO

Published: 04 Jul. 2025
Keywords:
Herbal Lip Balm, Natural Ingredients, Lip Care, Antioxidant Properties, Medicated Lip Balm
DOI:
10.5281/zenodo.15805241

ABSTRACT

The lip-care products for everyday basis contains harmful heavy metals and preservatives Other than leaching through the pores on your lips, these heavy metals and other chemicals can also be accidently ingested. Lip balm formulations are most widely used to enhance the beauty of lips and add glamour touch to the make-up. Lip balms offer a natural way to maintain and promote healthy lips. Current cosmetic lip products are based on use of enormous chemical ingredients which has a various side-effect. Hence, an attempt has made to study the natural ingredients which is used to formulate the natural lip balm. The starting point, oils, colours, adding agents, and other ingredients may be found natively. Organic moisturiser hydrates, nourishes, and protects lips that have been damaged by dryness. A better option for treating a variety of lips ailments may be healthy lip gloss. It was discovered that beetroot lip balm has antioxidant properties. Butylated compounds are generally used as preservatives in lip balm which can lead to cancer. Which are harmful to lips. Herbal lip balms are commonly used to avoid the problem which arise due to synthetic lip balm. Herbal lip balm is applied on the lips to prevent drying and protect us against the adverse environment. Herbal lip balm protects the lips from drying, chapping, inflammation, sores, cheilitis etc. these side effects can be reduced by using the medicated lip balms. These review article provide us a treatment for lips in the formulation of medicated lip balm. All ingredient used in the formulation are totally herbal and can reduce the chances of having lip disease.

INTRODUCTION

Due to the increasing public concern on the synthetic lip balm, new methods are used to produce products using herbal sources. Chapped, dry or cracked lips are very common problem in harsh weather. Due to various side effect of the synthetic preparation present in the market we have come up to formulate an herbal lip-balm having minimal side effects. The beet (*Beta vulgaris*) is a plant in *Chenopodiaceae* family

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Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

which now belong to *Amaranthaceous* family. The beetroot brings crimson color. Several parts of plant are used as antioxidant, antidepressant, antimicrobial, antifungal, antiinflammatory, anti-ulcer, diuretics and carminative. The pH of beetroot is alkaline pH 7.5-8.[1,2] It contains significant amount of vitamin C, vitamin B1, B2, B6, B12. Beet powder is used as coloring agent.[3,4] Now a days the use of cosmetic products has been increased and the choice of shades, color, textures, lusters, have been changed and become wider. The lip cosmetics are available in hundreds of colors, shade and texture to satisfy the demand of women. Lip product is often eaten away by the users so it was necessary to have a health regulation over the formulation. The dye that has been used for the color of the preparation of lip balm are dangerous to humans. The toxic chemicals which are used by the industry in preparation of lip balm which are not known to humans such as butylated compounds which are used as antioxidant can cause cancer, endocrine disruption, and organ system toxicity. Paraben used as the preservative can cause rashes, cancer. Fragrance use as fragrant have side effect as hormone disruption, breast cancer. Using these harmful compounds can cause be life threatening. The preparation of lip balm using natural herbal product can minimize the adverse effect of the available synthetic preparation. The present work has convinced us to formulate a herbal lip balm having minimal or no side effects which will extensively use by humans. The public has been very concerned about the usage of natural substances since cosmetics include dangerous synthetic excipients. Lip balm is a substance applied to the lips to prevent drying out in the sun and wind when one is outdoors. Lip balm is sold in screw-on lidded pots and tubes. During the winter, lip balm is frequently used because the chilly air can cause a person's lips to become dry, cracked, and painful-a condition known as "chapped" lips.[5] All lip balms, even those referred to as butter or salves, are meant to protect the lips. They have moisturizing ingredients that stop water loss, such as lanolin, shea butter, or petroleum jelly. Lip balm has wax added to help it adhere to the lips. In this research, we formulated lip balm using Beetroot juice along with other constituents of natural origin which provide an alternative to synthetic chemicals that cause side effects to the skin. The use of coconut oil, beeswax, and beetroot will protect the skin from drying and protect against environmental factors.

Anatomy of lips

The lips function as organs with the ability to speak, suction, and graze. It is made up of the superficial fascia, the orbicularis muscle, the skin, and the surrounding muscles. An arid, red mucous membrane that is continuous with the skin covers the lip borders. The coronary vessels, which completely ring the buccal orifice close to the lips' free border, are found in the areolar tissue or submucous layer.

Beetroot's chemical composition

Many biologically active phytochemicals, such as betalains (such as betacyanins and betaxanthins), flavonoids, polyphenols, saponins, and inorganic nitrate (NO3), can be found in beetroot. It is also a rich source of many different minerals, including calcium, magnesium, potassium, sodium, phosphorous, iron, and zinc.

BENEFITS OF USING LIP BALM

1. **Moisturizes Dry Lips**
- Lip balm helps prevent and treat chapped or cracked lips by locking in moisture.
- Ingredients like **shea butter**, **coconut oil**, and **glycerin** hydrate the delicate skin on your lips.

2. **Creates a Protective Barrier**

- Forms a thin layer that shields lips from environmental damage such as wind, cold weather, and dry indoor air.
- **Beeswax** and **petrolatum** are common barrier-forming agents.

3. **Heals Damaged Lips**

- Helps soothe and repair **cracked, sore, or peeling lips** with healing ingredients like **vitamin E**, **aloe vera**, or **lanolin**.

4. **Provides Sun Protection**

- Many lip balms contain SPF to protect lips from **UV radiation**, which can cause sunburn and increase the risk of skin cancer on the lips.

5. **Adds Shine and Tints**

- Some balms provide a **natural gloss** or **tinted color**, enhancing the appearance while caring for your lips.

6. **Improves Lip Texture**

- Regular use can help make lips **softer, smoother**, and more **supple** over time.

7. **Prevents Lip Licking Habit**

- Keeps lips comfortable and moisturized, reducing the urge to lick them, which can worsen dryness.

8. **Comfort During Illness**

- When you're sick or dehydrated, lips often dry out—lip balm offers instant relief.

INGREDIENTS OF FORMULATION

1. Sea Beet (Beta vulgaris subsp.)

While having several layers of the epidermis the dermis on the lips is quite thin relative to the skin on the face. Lips are subject to disorders whereby pain and swelling of the lips may occur fast. Lips must thus be moisturised with a lip product like lip balm. Lip care products are substances that are placed to the lip to stop dryness and shield them from harmful environmental pollutants. These create an oil-based layer that is adaptable adherent, and waterproof. It is necessary to balance the concentration of main ingredients to formulate lip balms including the base, oils, colouring agents and flavouring agents. Natural lip balms offers a natural way to maintain and promote healthy lips.

Fig. 1. Beet Root

2. Bees wax

Bees wax is incredibly moisturising, has a lovely scent, and may shield the lips against UV rays that harm them. A natural emulsifier is beeswax. Beeswax includes just a little of substances with antibiotics, according to study. This is especially beneficial for people who have lips that are very dry and cracked. These antibacterial medications can lessen the discomfort of the inflammation that follows an infection. Oxidation found in abundance in beets root boosts the suppleness of the epidermis and leaves lips feel smooth and soft.

Fig. 2. Bees Wax

3. Almond Oil

Almond oil's lipids aid to moisturize the lips by deeply penetrating the skin tissues. Olive oil's soothing effects lessen the discomfort of cracked and sunburned lips. To combat inflammation, aloe Vera extract possesses anti-inflammatory effects. Antioxidants that prevent wrinkles and other types of skin damage are infused into the lips.

Fig. 3. Almond oil

4. Vitamin E

Oxidant and environmental conditioner, folic acid. Vitamin E slows down the aging process, keeping the lips' delicate, young texture. Dry, chapped lips can be treated with topical vitamin E oil. Utilizing vitamin E on dry lips speeds up the appearance of newly formed cells as it encourages cell repair and cycle. For appealing colors, synthetic dyes were used commercially; however, it is harmful to the environment and skin. Lip balm's usage guarantees that dry, cracked lips quickly repair. Your lips' epidermis is a lot thinner than the skin of your face. Therefore, utilizing a lip balm can ensure that the lips remain well-hydrated and that they recover more quickly if you have cracked and dry lips.

Fig. 4. Vitamin E capsule

5. Rose water

Rose water is a natural astringent that helps to balance the skin's pH and tighten pores, making it an excellent toner for all skin types. Its anti-inflammatory properties can reduce redness and irritation, while its antibacterial properties can help to combat acne and prevent future breakouts. Rose water is also rich in antioxidants, which can help to protect the skin from environmental stressors and promote a more youthful appearance. Additionally, rose water can help to hydrate and moisturize the skin, leaving it feeling soft, smooth, and supple.

Fig. 5. Rose water

6. Coconut oil

Coconut oil is a multifaceted oil extracted from mature coconuts, offering a wealth of benefits for skin, hair, health, and cooking. Rich in saturated fatty acids, particularly lauric acid, coconut oil possesses antimicrobial, anti-inflammatory, and moisturizing properties. For skin, coconut oil provides intense hydration, helping to alleviate dryness, eczema, and psoriasis, while its antimicrobial properties can aid in wound healing. In hair care, coconut oil deeply nourishes and conditions, reducing frizz, preventing split ends, and promoting healthy hair growth. When consumed in moderation, coconut oil may support

weight management, improve cholesterol levels, and provide immune-boosting benefits.

Fig. 6. Coconut oil

FORMULATION TABLE

INGREDIENTS	QUANTITY	FUNCTIONS
Beeswax	5g	Solidifier, barrier formation.
Coconut Oil	3.6ml	Emollient, adds shine.
Beet Root	4.5ml	Natural colorant, Antioxidant.
Vitamin E Oil	2g	Preservative, Skin nourishment.
Rose Water	5ml	Flavouring agent.
Almond Oil	3.6ml	Moisturizing agent.

METHOD OF PREPARATION

- **Step 1:**
  5ml of beetroot juice was taken and 3.6ml of Coconut oil added to the juice. Heat gently and mix well occasionally**.**
- **Step 2:**
  3.6ml of almond oil was taken and to that, 5gm of melted beeswax.
- **Step 3:**
  Then mix both the solutions and add rose water 5ml. Heat gently and finally add vitamin E**.**
- **Step 4:**
  Transfer the solution to the container and keep it in refrigeration for 30 minutes till it gets solidified.

PROCEDURE FLOWCHART

Formulation:

- Weigh
- Add beeswax and almond oil
- Add Vitamin E, beet root juice, rose essence, almond oil
- Stirred
- Homogenous mixture
- Room temperature air dried
- Applying glycerine
- Filled mould into ice bath for 10 minutes.

EVALUATION TEST

- **Organoleptic characteristics**

The fundamental organoleptic characteristics of the lip balm, including color, flavor, aroma, and appearance, were examined.[9]

- **Test of spreadability**

To visually assess the uniformity in the development of the protective layer and determine if the stick fractured, distorted, or broke during application, the product was applied repeatedly (at room temperature) onto a glass slide.[8]

The spreadability was then calculated from the following formula: Spreadability= M × L/T

Where,

M = mass in grams,

T =time taken in seconds,

L =distance traveled by lip balm

- **pH**

Digital pH meters were used to test the pH. The pH was measured after 1 g of the formulation was combined with 100 ml of pure water. Three times, readings were recorded using a digital pH meter, and an estimate of the mean value was made.[10]

- **Determination of viscosity**

Using Brookfield, the formulation's viscosity was examined. The viscosity value was expressed in units of cps.[11]

- **Skin sensitivity test**

The procedure involved placing the substance as a patch on the skin, monitoring it for 30 minutes, and recording the result. The following was marked as the response received:[12]

N- No reaction.

R- Redness of the skin.

I- Irritancy or itching

RESULT AND DISSCUSSION

Sr. No.	Evaluation parameters	Observation
1	pH	6.2
2	Melting point	67 degree C.
3	Test of *spreadability*	Easily spreadable and uniform (24.5 g/cm/sec)
4	Organoleptic properties	
	Color	Brownish red
	Odor	Pleasant odor
	Appearance	Clear and smooth
5	Skin irritation	No irritation.
6	Viscosity	350 cps
7	Breaking point	33 gm
8	Greasiness	Less greasy
9	Surface anomalies	No defect

CONCLUSION

The present study aimed to create a lip balm with as many natural elements as feasible. The main colouring and flavouring ingredients were beetroot extract, rose water, vitamin E capsules, and almond oil. Almond oil served as the moisturising agent. Researchers looked examined how these components affected the formulation's physical features, including spread ability, uniformity, and organoleptic characteristics. It may be said that using these natural components helped create a great lip balm composition. Findings of numerous studies suggested that the recipe was safe to use and cleared various physical tests. According to stability information, the mixture should be stored at room temperature. In the future, natural bases like Sheabutter, paraffin wax, etc. could take the place of the beeswax that was employed as a base for the existing formulation. The formulated lip balm shows good stability at 40 ˚C and it is easily spreadable and uniform. The natural constituents present in lip balm provide fewer side effect than the commercially available ones. The pH of the lip balm matches with that of the skin so it is compatible with the skin. Thus the results signifies that the natural ingredients used in lip balm produce good aesthetic property with a more stable

product. The other evaluation study confirms the advantages of using natural ingredients in this lip balm. Further, beetroot a natural lip balm and vitamin E an antioxidant provides added advantages to the formulation. Further studies like *in-vivo* are required to confirm the safety and efficacy of the formulated lip balm.

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HOW TO CITE: Anjali Rathod, Sneha Madan, Nikhil Sonawane, Rajeshwari Solunke, Preparation And Evaluation of Lip Balm, Int. J. of Pharm. Sci., 2025, Vol 3, Issue 7, 599-605. https://doi.org/10.5281/zenodo.15805241