

Preparation and Evaluation of Beetroot Lip Balm by Cold Process Method

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Abstract—Lip balm or lip salve is a wax-like substance applied topically to the lips to moisturize and relieve chapped or dry lips, angular cheilitis, stomatitis, or cold sores. Lip balm often contains beeswax or carnauba wax, camphor, cetyl alcohol, lanolin, paraffin, and petrolatum, among other ingredients. Some varieties contain dyes, flavor, fragrance, phenol, salicylic acid, and sunscreen. Design, formulation and quality improvement of lip balm made from natural ingredients for tropical lip health use was studied. In this study, lip balm have been made by beeswax (2.5 g), almond oil (5 mL), virgin coconut oil (VCO) (5 mL), honey (2.5 mL), and distilled water (1 mL). The lip balm was produced by mixing method until homogeneous. The effect of temperature was also observed from 25 to 100 °C to obtain a lip balm with a homogeneous texture and safe. 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 5.6 and melting point of 65°C were obtained.

Index Terms—Beetroot, lipbalm, stability studies, chemical stability.

I. INTRODUCTION

Cosmetics have become an essential part of modern lifestyle with life styles with lipbalm being one of the most commonly used beauty products. Many commercial lipbalm contain synthetic dyes and harmful chemicals that can lead to allergic reaction, skin irritation and long term health concerns. Beetroot (*Beta vulgaris*) is a natural root rich in pigment known as betalains gives red used as colouring agent. Beetroot also contains antioxidant and nutrients provide additional skin benefits. This approach not only reduces the use of synthetic ingredients but also promotes utilization of natural resources for sustainable cosmetics production. 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. The purpose of all lip balms, even those called sales or butters, is to protect the lips. They contain a moisturizing ingredient (such as petroleum jelly, shea butter, or lanolin) that prevents water loss. Wax is added to help lip balm stick to 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 Lip balm is a topical product used to moisturize, protect, and soothe dry, chapped, or irritated lips. It is typically applied directly to the lips and can provide a barrier against the elements. Such as wind, cold weather, or dry air. Lip balm is one sort of lip product. Its major purpose is to keep the skin from drying out and to protect it from harmful environment influences. Current cosmetic lip products is the use of hazardous chemical substances that negative effect. For this reason, researching the natural substances utilized in the production of natural lip balm is necessary. Cosmetics are important in today's lifestyle. To embrace a more natural way of living, practically every industry is currently embracing green, including the cosmetics sector. For a healthy lifestyle, natural foods, herbal remedies, and natural healing techniques are the best options. There is also a high demand for organic vegetable products. The use of herbal cosmetics in personal care products has multiplied several times with regard to their consistency, herbal extract-based

cosmetics for skin and hair care are highly well-liked. The term "herbal" denotes safety in contrast to synthetic products, which have several negative impacts on people's health.

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.

II. MATERIALS

1. BEETROOT

Family: Amaranthaceae (Scientific name: Beta vulgaris)

Active constituents: Betalains (red color), Betacyanin (anti-inflammatory), Betanidin (antioxidant), Flavonoids (antioxidant), Carotenoid

Uses:

- Gives Natural lip stain
- Haraswad siens lips
- Calms chapped or irritated lips
- Helps to lock in moisture for softer, smoother lips Haraswad sine's lips.

2. Coconut Oil

Family: Arecaceae (Palmae) (Scientific name: Cocos nucifer)

Active constituents: Lauric acid, Palmitic acid, Oleic acid, Linoleic acid

Uses:

- Hydrates and softens lips.
- Provides a smooth and creamy texture.
- Reduce inflammation.

3. BEES WAX:

Family: Apidae (Honey bee family) (Scientific name: Cera alba)

Active constituents: Wax esters (70-80%), Free fatty acids (10-15%), Hydrocarbons (5-10%), Vitamin A, Vitamin E.

Uses:

Act as a Emollient A natural alternative to synthetic wax. Adds texture and consistency to lip balm.

4. Coco Butter:

Family: Cacao

Scientific name: Theobroma Cacao

Active constituents: Fatty acids (oleic, stearic, palmitic), Vitamins (E, K), Minerals (iron, magnesium), Antioxidants, Flavonoids

Uses:

Provides essential vitamins and antioxidants.

Heals cracked or damaged lips.

Provides a protective barrier against dryness.



5. VITAMINE CAPSULE

Scientific name: Alpha-Tocopherol

Active constituents: Tocotrienol, Alpha-Tocopherol, Beta-Tocopherol, Gamma-Tocopherol, Delta-Tocopherol

Uses:

- Vitamin E hydrates and locks in moisture.
- Helps reduce fine lines and wrinkles on the lips.
- Adds a healthy, natural shine to lips.

Vitamin E protects lips from UV rays and environmental damage.

III. METHODS

Infusion:

Herbs are infused in a carrier oil (like coconut or mentha oil) by gently heating.

Decoction:

Herbs are boiled in water to extract their properties and their resulted herbal tea is combined with other ingredients.

Cold process: Essential oils are extracted at room temperature.

Procedure:

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 60 ml of beetroot juice. Add 30g 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
4. At this stage, take the flame off. Immediately pour the mixture into a beaker or a heat resistant cup.
5. Add 5.5 gm of beeswax and cocoa butter. Then melt the wax and butter using the double oil method.
6. When the wax and butter 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

11. lipbalm is finally ready.

Evaluation Parameters:

Texture:

The formulated lipbalm Related lip balm sample was placed on the base of de AMETEK BCT) Analyzer Cylinder probe (TA39)ched to the load cell since it is the most suitable probe for cosmetic products.

Colour:

The colour analysis of lip balms was evaluated using the Konica Minolta CJ-400 chroma meter. This chroma meter has three indicators which contributing to lightness, redness and yellowness of Use tested sample

PH Test

In this study, the ph meter model HI-2211-01 was used to measure the Ph value for all Semulated lip balm. The pH meter was calibrated using a buffer solution before continuing the ph measurement of the lip balm. The Ph value for the lip balm sample was measured and recorded

Greasiness

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.

IV. CONCLUSION

Cosmetics chemists choose from thousands of ingredients when they create new products, but they are always careful to select ones with chemical properties that enhance the look, feel, and use of the product they are making. For instance, no one wants lip balm to be too hard. Which is why most homemade lip balm recipes call for some type of oil or butter. Oils are generally thick, viscous liquids at room temperature and are usually emollients, meaning that they soften and smoothen the skin. Butters are another kind of emollient; they are soft, but not liquid, at room temperature. On the other hand, a super soft, runny lip balm would be too messy, so waxes, like beeswax, which are solids at room temperature, are added to thicken the recipe. The "perfect" product means getting just the right ratio of emollients to waxes.