

FORMULATION AND CHARACTERIZATION OF LIP BALM FROM BEETROOT

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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 drylips, 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 thebest 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. 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.

Keywords: Beetroot, lipbalm,Coconut oil,Beeswax,Vitamin E, Cocoa butter

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).

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,

Cosmceuticals are the ingredients that have medicinal properties that benefits topical action and also provide protection against degenerative skin condition. The present work was carried out by using these ingredients that have less side effects. Products used to protect lips rather than to decorate them are well known as lip balms. They form an adherent, moisture resistant film of oily substances. Usually without any dye.[1]

Synonyms:-

Chukandar, Sugar beets, Mangel, Spinach. Beet Geographical source: It is found in India, Europe and Western Asia

Biological source:

It consists of fresh root of Beta vulgaris **Cultivation :-**

Beet crops are propagated from seed, sown in early spring when the ground is suitable for tilling. In home gardens successive plantings may be made every 10-14 days until 3-4 plantings are in, to insure a continuing supply of fresh tender beets.

The main crop, grown for processing or for fall and winter marketing, especially in the North, should be planted in May or June. Seed is drilled at intervals of 1.5-2 cm in rows 30- 45 cm apart, at the rate of 4-6 kg/ha, and covered about 1.3 cm deep. The beet ball (seed) varies in size and the seeds germinate irregularly, so that a uniform crop is difficult to attain.

Screening the seeds enhances the chance. of getting a more uniform crop. When the beets are large enough to eat as beet greens with the small beets attached, rows should be thinned treated to prevent damp-off and seed rot. Germination is best at 18-24°C. Seed stalks are likely to be produced

after temperatures of 5-10°C for 15 days or longer.[2]

purpose of lip balm

The purpose of all lip balms, even those called salves 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.[3]

history of lip balm

Lip balm was first marketed in the 1880s by Charles Browne Fleet, though its origins may be traced to earwax. More than 40 yearsprior 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

The History of Lip Balm Americans spend over two hundred million dollars a year on lip balm. Lip balm is a wax-like substance applied to the lips of the mouth to moisturize and relieve dry, chapped lips. Three scientists with an interest in experimenting and a motive for healing the world's lip complications started out small, but turned into something big and developed their product in million dollar companies. These products have evolved over the years, gaining popularity and meeting the needs of their consumers. Each inventor developed their own derivative of the original lip balm to address their own needs and demands from people near them.

Botanical Identification of Beetroot:

Beet, (Beta vulgaris), also called beetroot, common beet, or garden beet, one of the four cultivated forms of the plant Beta vulgaris of the amaranth family (Amaranthaceae), grown for its edible leaves and taproot.

Beetroots are frequently roasted or boiled and served as a side dish. They are also commonly canned, either whole or cut up, and often are pickled, spiced, or served in a sweet-and-sour sauce.

The leaves of garden beets can be cooked like spinach or eaten fresh if picked young. Beetroots are a good source of riboflavin as well as folate, manganese, and the antioxidant betaine.[4]

Role of ingredients:

1) Beetroot:



The beetroot extracts present in the lip balm moisturize and hydrate your lips to restore balance and good health for your lips. Vitamin-E & essential oils present in the lips form a protective base for your lips to avoid damaged lips.

Beetroot contains nutrients that may improve athletic performance, boost heart health, manage glucose levels, and more. The nitrates in beets and beetroot juice may help improve blood flow, while antioxidants may protect against cancer.

2) coconut oil:



The primary benefit of coconut oil is its moisturizing effects. This makes it ideal for chapped lips. Your lips are particularly sensitive to moisture loss because the skin is thin, and they're exposed to the elements more so than other parts of your skin.

3) beeswax:

Beeswax is perhaps the most essential ingredient in our lip balms. This is because it contains natural moisturizers that lock in moisture from the air and help keep the skin looking firm and plump.

Beeswax is a natural substance generated and secreted by honey bees that use it to develop their honeycombs. Beeswax is comprised largely of fatty acids, hydrocarbons, and esters.

4) vitamin E:



Vitamin E can also help to close up those painful cracks in the skin that are caused by dryness and cold weather. By applying the award-winning AM/PM Tinted Lip Balm with Vitamin E, you can seal up these cracks and keep the skin of your lips soft, supple.

We all know that feeling when lips are dry, chapped and irritated. You might think you've paid enough attention to your lips, but really, they are more delicate than you think. Our lips have one of the thinnest layers of skin on the body, and



therefore, they are more easily irritated. One of the treatments recommended by dermatologists is using a lip balm. Among the many key ingredients used in lip care products, Vitamin E is among the most popular and efficient ones. Here are the advantages of using Vitamin E on lips.

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5) Cocoa butter:



Cocoa butter is an emollient that is a great source of natural antioxidants. It adds a protective hydrating layer to lips, helping protectthem from extreme temperatures and indoor heat that can leave your lips dried out. Vitamin E is known for its restorative skin properties and healing ability.[5]

Cocoa butter, also called theobroma oil, is a lightyellow vegetable fat that comes from cocoa beans. Producers ferment, dry, roast, strip, and press cocoa beans to extract cocoa butter.

Method of preparation:

- 1) To prepare this lip balm we need pure beetroot. Then grate it using a greater with small holes. After grating squeeze out the juicethrough a cheese cloth.
- 2) TPake 60 ml of beetroot juice. Add 30gm 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 caramelise, 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 5.5 gm of beeswax and cocoa butter. Then melt the wax and butter using the double boil 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.[7]

Chemical constituents:

Beetroot is consist of multiple biologically active phytochemicals including betalains (e.g., betacyanins and betaxanthins), flavonoids, polyphenols, Saponins and inorganic Nitrate (NO3); it is also a rich source of diverse minerals such as potassium, sodium, phosphorous, calcium, magnesium, copper, iron, zinc

Evaluation of lipbalm:

Sr.N	Ingredie	Quanti	Source
0	nts	ty	
1	Beetroot	60 ml	Plant beetroot
		juice	
			Coconut meat or dried
2	Coconut	30 gm	coconut meat
2	Oil	50 gm	called copra.
3	Beeswax	5.5 gm	Bees hives by
		_	honeybees A.mellifera
4	Vitamin	3	Sunflower, soya, corn
	Е	capsule	and olive oil.
5	Cocoa	5.5 gm	Cocoa beans
	Butter	_	

Texture:



The formulated lip balm sample was placed on the base of the AMETEK Brookfield CT-3 Texture Analyzer. Cylinder probe (TA39) was attached 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 CR-400 chroma meter. This chroma meter has threeindicators which contributing to lightness, redness and yellowness of the tested sample.

PH:

In this study, the pH meter model HI-2211-01 was used to measure the pH value for all formulated 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.

Stability testing:

Three best formulations that showed the nearest values of all physicochemical properties with the commercial lip balm were selected and scrutinised for their stability.

The stability test for lip balms was conducted for 4 weeks to evaluate the sustainability of them when placed at two different temperatures (chiller, $4 \pm 1^{\circ}$ C and room temperature, $27 \pm 1^{\circ}$ C). The other physicochemical tests, including pH, colour and textureof the lip balm were conducted for every week of the stability test period.

Comparison of formulated and commercial lip balms

Texture, colour, pH and greasiness tests were measured for all formulated lip balm in this study. The commercial lip balm also was tested and measured for all the criteria to compare the value with the expressed lip balm values. The physicochemical properties of the commercial lip balm were used as a benchmark to find the best formulation of lip balm made up from beetroot.[9]

Apply lip balm for the best protection:



Step One: Uncap the container.

If the balm is in a tube, you only need to raise it about a half centimeter. If it's in a container, apply a pea-sized amount to your finger.

Step Two: Apply to the bottom lip.

Rub the balm on your bottom lip, just along the outside.

Step Three: Apply to the top lip.

Rub the balm on your top lip, just along the outside.

Step Four: Rub your lips together.

Rub your top and bottom lip together. This helps spread the balm evenly over your entire mouth.

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.[13]

Reference:

- M. Kadu, S. Vishwasrao, and S. Singh, International Journal of Research in Cosmetic Science, 5(1), 1–7 (2015) GoogleScholar
- V.P. Kapoor, Natural Product Radiance 4, 306– 314 (2005). Google Scholar
- S. Deshmukh, M. Chavan, M. Sutar and S. Singh, Int J Pharm Bio Sci. 4, 139–144 (2013). Google Scholar
- 4. B. J. Kukreja and V. Dodwad, International Journal of Pharma and Bio Sciences 3, 46–52 (2012).Google Scholar
- 5. M.A. Mundo, O.I. Padilla-Zakour and R.W. Worobo, International Journal of Food Microbiology 97, 1–8 (2004)
- 6. Ahmed, J. K., Salih, H. A. M., &Hadi, G. (2013). Anthocyanins in red beet juice act as scavengers for heavy metals ions suchas lead and cadmium.

Result and discussion:

Some lip balm sticks create complete coverage in one rub, while others need several rubs. Somesticks seem to last forever, while others are used up quickly. These are important characteristics of lip balm, and hard to quantify with home equipment. Why is it so hard to measure themscientifically? They depend on how you apply your lip balm: whether you press firmly or softlyon your stick, or whether you rub fast or slowly over your lips. This test will compare the yield when one specific pressure is applied. Do your best to keep rubbing speed constant as well.[11]

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