Formulation and Evalution of Lip BalmBy Using Beet Root

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Abstract— **This study explores the formulation and efficacy of lip balm derived from beetroot extract, a natural ingredient rich in antioxidants and nutrients beneficial for skin health. The research investigates the extraction process to obtain beetroot's active compounds, followed by the formulation of lip balm incorporating these compounds. The study evaluates the lip balm's effectiveness in moisturizing, nourishing, and protecting lips against environmental stressors. Additionally, sensory analysis is conducted to assess the product's texture, scent, and overall user experience. The findings highlight the potential of beetroot-derived lip balm as a natural and sustainable alternative in lip care, offering both cosmetic and therapeutic benefits**.

I. INTRODUCTION

Many cosmetics contain harmful synthetic (man-made) ingredients, which has caused concern among people. Since lips don't have oil glands, they can easily become dry, so it's important to keep them moisturized and protected throughout the day. Most regular lip balms include harmful substances like petrolatum, synthetic wax, alumina, parabens, hydrogenated oils, and artificial colors or fragrances. These can be toxic. People often lick their lips or accidentally eat some lip balm, which makes the use of safe ingredients even more important for health. Cosmeceuticals are natural ingredients that have both healing and skin protecting benefits. This study focused on using such safer ingredients with fewer side effects to make a lip balm. Lip balms are meant to protect the lips, not decorate them. They form a thin, oily layer on the lips that keeps in moisture and blocks out dryness. These balms usually don't have color. Beeswax, made by female bees, is often used in lip balms. It keeps lips moisturized, smells good, protects from sun damage, and helps mix the other ingredients together. Vitamin E is an antioxidant that also works as a natural softener. It helps keep lips smooth and youthful by reducing aging signs. Coconut oil goes deep into the skin and its fatty acids help keep lips soft and hydrated.

Coconut oil helps reduce redness and pain from dry or sunburned lips because it has anti-inflammatory properties. Honey helps heal wounds because it can kill bacteria and fungi and also has antioxidants. Beetroot has a lot of antioxidants that make the lips soft, smooth, and help the skin stay stretchy and healthy [2]. Beetroot is a rich source of betalains, flavonoids, vitamin C, and polyphenols, which contribute not only to its bright red color but also to its antioxidant, anti- inflammatory, and skin-rejuvenating properties. These compounds help to combat oxidative stress caused by environmental factors such as UV radiation and pollution, which are known to damage skin cells and accelerate aging.

The natural colorants found in beetroot, especially betanin, can provide a gentle and appealing pink or reddish tint to the lips, eliminating the need for synthetic dyes that may cause allergic reactions or irritation. Beetroot contains nitrates and iron, which promote blood circulation. Some anecdotal evidence suggests that applying beetroot juice or beetroot-based products topically may temporarily enhance lip color and plumpness by increasing blood flow, giving lips a naturally healthy appearance. As consumers increasingly shift toward natural, organic, and chemical-free skincare products, beetroot lip balm has gained popularity for its ability to provide hydration, protection, and a subtle tint using plant-based ingredients [3]. Betalains are water-soluble nitrogen-containing pigments with high antioxidant potential. These pigments are stable under mildly acidic conditions, making them ideal for cosmetic formulations like lip balms. With increasing awareness of environmental and health concerns, consumers are leaning toward green beauty. Beetroot

lip balm fits perfectly into this movement due to its: Biodegradable and renewable ingredients, Cruelty-free and vegan formulation potential Minimal ecological footprint in farming and extraction. Vitamin C in beetroot helps with collagen production, which is crucial for maintaining lip plumpness and firmness. Iron and Folate help nourish the skin and support circulation, which can enhance lip health and natural color. Saponins and tannins in beetroot may also contribute to antimicrobial effects, potentially aiding in the prevention of lip infections such as cold sores.

Anatomy of Lips:

What Is Lip?

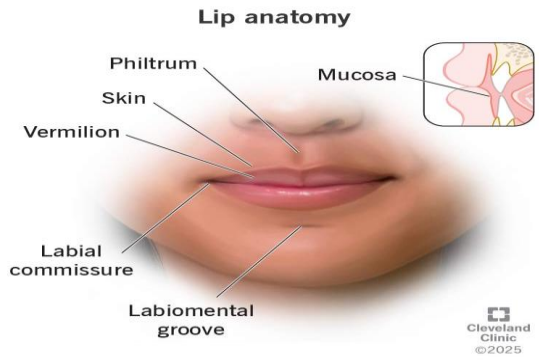

Fig no. 01 lip anatomy

Your lips are two folds of tissue that make up the external structures around your mouth. While you might jiust be the thinking about the softer, hairless skin right around your mouth, your lips actually include a lot more.

The medical term for your lips is ‘labia oris’ or just ‘labia.’ your upper lip is the labium superior, and your bottom lip is the labium inferior. Here superior means upper and inferior. Here, superior means upper and inferior means bottom (as opposed to better or worse).

II. FUNCTION

What Do Lips Do?

Your lips have several different purposes, including;

- Apperance; your lips are a key part of how your looks. That means how you feel about their appearance can affect your overall sense of well-being and ability to feel confident. And lips are something that people may specifically find physically attractive.
- Eating and drinking; your lips are a part of how you eat and drink. And using thrm can be so automatic that don’t even realize how imp [ortant they are.
- Communication; Your lips are extremely important to your ability to speak. You can also use them for communicating without words. That includes making sounds, facial expressions or even subtle gestures.
- Social interactions; Lips can be part of how you interact socially with others. A common example would be displays of affection like kissing.
- Keeping things out: You can use your lips to keep your mouth closed with an airtight and watertight seal.

Anatomy

What are the parts of the lips’ anatomy?

Your upper lip technically starts at the bottom edge of where your nose extends outward from your face. Your bottom lip ends just as your chin starts to extend forward, about even with where your lower gumline connects to the inside of your lip.

Your lips have the following parts:

- Skin: These are the areas of skin between your mouth and nose and your mouth and chin. They have sweat and oil glands and hair follicles.
- Vermilion: This is what most people mean when they talk about lips. Its name comes from the color it often has, a reddish orange. But your lip color can vary a lot depending on your skin color. It also lacks sweat or oil glands, so it gets its moisture from sources like your saliva.
- Philtrum: This is the small dimple in the center of your face between your upper lip and nose. The philtrum’s lower curved edge, where the vermilion begins, is known as Cupid’s bow.
- Mucosa: This is the part of your lip that extends inside your mouth. It lines the inner mouth walls that rest against your teeth and gums.
- Labial commissures: These are the creases at the corners of your mouth, where your upper and lower lips meet.
- Labiomental groove: This is the small groove or crease between your lower lip and chin.

The main muscles that control your lips are the orbicularis oris muscles. They form an oval under the

skin around your mouth. They don't attach to your skull directly. Instead, they attach to other muscles of your face, especially muscles that attach around your cheekbones and chin.

Your lips also rely on specific nerve connections to your brain. Your facial nerve carries signals that control lip movement. But your trigeminal nerve carries signals to your brain related to your lips' sense of touch.

The 5 major zones are vermilion/white roll, sub vermilion, peri stomal, philtral column, and commissural. The subversion corresponds to the dry mucosal lip, and the peristomal at the junction of dry and wet mucosal lip. The vermilion/white roll can be divided on the upper lip to include the lateral, apical cupid's bow and central filtral zones, while the vermilion lower lip is divided into medial and lateral zones. The sub vermillion is divided into medial and lateral zones, and the peristomal into medial and lateral zones. Lips: The surface of the lips consists of four zones: hairy skin, vermilion rim, vermilion and oral mucosa. The normal shape of the lips varies with age and is greatly influenced by ethnicity. Vermilion: The red part of the lips.

It is covered by a specialized stratified squamous epithelium. Cinnabar Border: The border of lighter skin that separates the vermilion from the surrounding skin. Cupid's bow: the outline of the line formed by the vermilion border of the upper lip. Mouth: The opening is delimited by the upper and lower cinnabar. Corner of the mouth: The place where the lateral vermilion aspects of the upper and lower lips meet.

The upper and lower lips are known as the labium superiorius oris and labium inferius oris, respectively. Both the upper and lower lips contain mucosa, vermilion, and skin surfaces. This article provides a brief overview of anatomy, microvasculature, and musculature of the lips, as well as important surgical and clinical considerations regarding lip pathology. While considerations of the lips are often centered on the vermilion zone, the upper lip extends from the nasolabial folds to the inferior margin of the nose, and the lower lip encompasses the region between the lateral commissures and the labiomental crease of the chin. The upper and lower lips intersect at the mouth angle, referred to as the commissure. This is the point at which several muscles involved in lip movement attach.

Lateral subunits and the lower lip, 1 subunit. The cutaneous and mucosal portions of the lip meet at the vermilion that has a variable prominence called the white roll. The major zones are vermilion/white roll, sub vermilion, peristomal, philtral column, and commissural. The edges of the lips are covered with reddish skin, sometimes called the vermilion border, and abundantly provided with sensitive nerve endings. The reddish skin is a transition layer between the outer, hair-bearing tissue and the inner mucous membrane. The interior surface of the lips is lined with a moist mucous membrane. In newborn infants the inner surface is much thicker, with sebaceous glands and minute projections called papillae. These structural adaptations seem to aid the process of sucking. Most of the substance of each lip is supplied by the orbicularis oris muscle, which encircles the opening. This muscle and others that radiate out into the cheeks make possible the lips' many variations in shape and expression. The lips are pretension, suction, and speech organs. The skin, superficial fascia, orbicularis muscle, and muscles inserted around it make up this structure (areolar tissue & mucous membrane). Dry, red mucous membrane covers the lips' edges, which is continuous with the skin and contains numerous vascular papillae and touch corpuscles. Internally, the mucous membrane reflects from the upper and lower lip onto the gums, forming two superiors and inferiors' folds in the middle line.

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. Nonhereditary conditions such as erythema multiforme, sunburn, cold and dry weather, or trauma may also cause the lips to swell.

Inflammation:

With inflammation of the lips (cheilitis), the corners of the mouth may become painful, irritated, red, cracked, and scaly. Cheilitis may result from a deficiency of vitamin B2 in the diet.

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, s mall, 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.

Sun Damage
Sun damage may make the lips, especially the lower lip, hard and dry particularly if the lip surface thins, reddens, and develop sores (ulcers). Sun damaged lips with such changes should be evaluated by doctor or dentist. Sun damage to the lips can be minimized by covering the lips with a lip balm containing sunscreen and by shielding the face form the sun's harmful rays.

Difference between lip and regular skin structure:
The lips are more attractive than the regular skin. Generally, the top corneum layer of regular skin has 15 to 16 layers mainly for protection purpose. The top corneum layer of the lip contains about only 3 to 4 layers and very thin compared to typical face skin. The lip skin contains very few melanin cells. Because of this, the blood vessels more clearly appear through the skin of the lips that gives a lovely pinkish color of the lips. The lip skin has no hair follicle and no sweat glands. Therefore, it does not have the sweat and body oil in protecting the lip from outside environment.

Lip Balm:
Lip balms are moisturizers that are applied to the lips to keep them from drying out and to protect them from the elements. Although analogies to lipstick apply because it is a cosmetic form akin to lip balm, the cosmetic literature has minimal data on this sort of formulation (stick form). This resemblance extends to organoleptic and stability needs such as temperature resistance, agreeable taste, innocuousness, smoothness during application, adhesion, and purposeful removal ease (DE Navarre, 1975; Gouvea, 2007). Lip balm and lip gloss are not interchangeable, with the former being a product that may be used by both men and women. Fatty acids, such as waxes, oils, and butters, are the key constituents of lipstick, providing consistency an d acting as emollients. Castor oil, beeswax, carnauba wax, candelilla wax, paraffin, and cocoa butter are some of the most common. However, there are a few key distinctions between lipstick and lip balm, particularly in terms of functionality: lipstick is intended to colour the lips, whereas lip balm protects them. Furthermore, lipstick formulations are more complex than lip balm formulations due to the increasing number of components. To make lip balms, the concentration of the key ingredients, such as butters, oils, and waxes, must be balanced such that the final product has a fusion point of 65 to 75 degrees Celsius (Gouvea, 1993, Bonadeo, 1982). The formulation will have varying qualities depending on the proportions of wax, oils, and colors. A high percentage of wax and pigment can be used to create a long-lasting product, while the inverse can result in a smoother lipstick or lip balm (Cunninghan, 1996). The chemicals in a lip balm formulation can have an adverse effect on softening and rupture points, which are two separate features. Two formulations with the same fusion point but different consistencies can exist. To correct these problems, the formulator may have to put in a lot of effort. In order for the formulation to have appropriate fusion, softening, and rupture points, a balance between the constituents must be reached. [8-9] proportions of wax, oils, and colors. A high percentage of wax and pigment can be used to create a long-lasting product, while the inverse can result in a smoother lipstick or lip balm (Cunninghan, 1996). The chemicals in a lip balm formulation can have an adverse effect on softening and rupture points, which are two separate features. Two formulations with the same fusion point but different consistencies can exist. To correct these problems, the formulator may have to put in a lot of effort. In order for the formulation to have appropriate fusion, softening, and rupture points, a balance between the constituents must be reached. [8-9]

Lips are a part of the human body that is very thin as compared to face skin (Kadu et al., 2015) even though it consists of three to four layers of the skin. Lips are susceptible where lips disorder such as inflammation and swelling of lips can quickly occur. Inflammation occurs when the corner of lips becomes painful, cracked and irritated (Kadu et al., 2015) while swelling happens when some people may have an allergic to certain foods such as seafood and causing the lips to become swelling. Besides, a hereditary condition also can lead to lip swelling (Chaudhari et al., 2018). Therefore, lips must be moisturised using any lip product such as lip balm when the lips disorder appears. The use of tested lip balm is essential to prevent any disease happens.

Currently, lip products made from enormous chemical ingredients have been grown in the market even though it will bring adverse side effects to the users (Kadu et al., 2015). People nowadays are demanding on the naturally derived ingredients as they believed that the natural ingredients could contribute to sound effects on their lips. However, most of the home-made lip balm products (purposely to sell the product) have not tested for their physicochemical properties to make sure the suitability of the product to human lips. The tested lip balm will help in preventing any adverse side effects that could bring any lips disorder to the users.

Formulation of natural lip balm consists of natural ingredients such as beeswax (acts as a base), oil (acts as a solvent) and also natural colouring agent. The natural colouring agent can be varied from any plant, including Beta vulgaris or commonly known as beetroot. Beetroot is a perishable vegetable which the minerals content such as iron and calcium may increase because of the reduction of water mass during storage before it is used (Dhawan et al., 2019). Beetroot contains purplish-red pigment, termed as betalain (Emerton, 2008), a water-soluble and nitrogen- containing dye. The compound comprises the red-violet betacyanin and the yellow betaxanthins (Mereddy et al., 2017). Apart from the colouring agent, there are several active ingredients in beetroot that are beneficial to the human body such as carotenoids (Singh et al., 2014) and anthocyanins (Gengatharan et al., 2015). Carotenoid in beetroot acts as anti-inflammatory, anti- microbial, anti-fungal and rich in nutrients (Kale et al., 2018) while anthocyanins functions as a potent antioxidant, anti-inflammatory and cardio protective activity (Ahmed et al., 2013; Gerardi et al., 2018; Kong et al., 2003). Anthocyanins can also be a source of red pigment. However, betalains are more water-soluble than anthocyanins, and they have three times higher colouring strength than anthocyanins (Mereddy et al., 2017). Besides, betalains are more stable to pH and temperature than anthocyanins even though it has been widely used in industries. Beetroot is also a good source of dietary fibre that contains vitamins, minerals, and high nutritional because it contains high glucose content (Da Silva et al., 2019).

Therefore, the use of beetroot in the formulation of lip balm can be profitable to the lips. The most important reason is it will be used as a colouring agent due to non-toxic effects on the human and have a natural and safe alternative to be used as red dyes (Elbandy & Abdelfadeil, 2008). In this study, all-natural ingredients were utilized in the lip balm formulation to find the best concentration of base, oil and beetroot. Virgin coconut oil was used as oil because it contains natural vitamin E that acts as an antioxidant and helps to increase the shelf life of oilbased products (Rizvi et al., 2014). Beeswax was used as a base for the lip balm formulation because it is more stable due to the higher melting point (Kadu et al., 2015) as compared to another base like cocoa butter. This study focuses on the determination of the best ratio for all ingredients to formulate lip balm from beetroot. It is an important step to balance the concentration of all ingredients used to develop a lip balm to make sure the stability of the product (Ribeiro Fernandes et al., 2013). Besides, this study emphasized the analysis of physicochemical properties of the formulated lip balms before these products are tested in sensory evaluation.

Now a days, people increasing interest in natural products, as the public becomes aware of ecological and environmental effects related to the use of abundant chemicals in the daily products. Cosmetics made from natural sources as raw material considered as organic cosmetics which are believed as safe and sometimes may act as health cure. Furthermore, no or mild chemical reactions are involved in the preparation of the product and it claims as harmonized with nature. Organic cosmetics refer to the cosmetics that made by 95% of the raw materials comes from natural sources, while natural products contain at least 5% organics raw materials as an ingredient (Fernandes et al., 2013). One of the main sources of raw materials in cosmetic is dye or colourant. Natural dyes refer to

the colorants produced from the natural sources such as plant, animal, insect or minerals. The dyes also can be used widely in the colouration of textiles, foods, medicine and craft products as well as in cosmetics. Although, some processing was required in the process to obtain the dyes but essentially the dye itself was obtained from natural sources. The greatest sources of dyes were been the Kingdom Plantae, notably fruits and leaves. Lip balm refers to the formulations that can be applied onto the lips to prevent drying and protects lips against adverse environmental factors (Kadu et al., 2014). There are many established companies produce lip balm in the market such as The Body shop, Nivea, Mentholatum etc which may contain chemical origin. However, it is necessary to balance the concentration of the main ingredients to formulate lip balms including the base, oils, colouring agents and flavouring agents. Natural lip balms offer a natural way to maintain and promote healthy lips (Fernandes et al., 2013). Lip balms are also often eaten away by the user and it is imperative that the ingredients are not dangerous to humans on consumption. There are four main components as key formulations ingredients for natural lip balm (Kadu et al., 2014). Basically, waxes are used as base to give the more stable structure and make it easier to form desirable shape of lip balm. Oils are required to blend properly to the waxes, so that provide a suitable film on the applied lip skin to protect and moisturizes the lip. Coloring agents or dyes is mainly used to impart a distinctive appearance to the products. Dye is an important ingredient of cosmetic formulations as user desire controlled by three senses namely sight, touch and smell (Kadu et al., 2014). Dyes used is cosmetic should not affected by oxidizing or reducing agents as well as pH changes and it also should not interfere with the tests and assays. The usage of synthetic dyes was done commercially for attractive colours but it is hazardous to skin and environment (Devi et al., 2013). The natural dyes have not commercially succeeded as synthetic dyes due to lack of the botanical knowledge and precise technical knowledge on the extraction methods and dyeing procedure (Devi et al., 2013). Flavoring agents is required to mask the four basic taste sensations namely salt, bitter, sweet and acid from the other ingredients. This is optional to give a value added in the products. In this research, natural dyes from the plant roselle, dragon fruit, betel leaf, beetroot and red cabbage was extracted to produce a high quality of desirable natural dyes mainly because of the quality of colour that can be created with them.

Disadvantages of Natural Lip Balm

- Lip balms made of low-quality ingredients can harm the lips seriously. Such lip balms may dry out the lips instead moisturizing it.
- Compared to commercially-prepared lip balms, homemade lip balms tend to stay on the lips for a shorter duration of time. Thus, need to reapply often.
- Some companies manufacture lip balms considering only the beauty aspect, ignoring the health benefits and soft character of the skin. Such Products will gradually damage the natural colour, softness and glow of the lips.
- The naturally derived colours and flavours are more difficult to obtain and also have issues related to stability in the products.
- Natural oils have other disadvantages such as greasier, comedogenic, and less spread ability.

Application of Lip Balm: -

Lip balms are formulations applied onto the lips to prevent drying and protect against adverse environmental factors. Numerous lip balms of chemical origin are currently available in the market from companies like the body shop, Nivea, Himalaya, Blistex, etc. The cosmetic literature reports limited data on this type of formulation, although references related to lipstick apply because it is a cosmetic form similar to lip balm. This similarity extends to include organoleptic and stability requirements such as resistance to temperature variations, pleasant taste, innocuousness, smoothness during application, adherence and easy intentional removal. Lip balm should not be considered equivalent to the lip gloss, with the former being a product intended for use by both men and women To formulate lip balms, it is necessary to balance concentration of the main ingredients including butters and waxes and other excipients. Many people weekly facials, daily skin scrubs, anti-aging lotions, many other products to ensure they have healthy and glow skin. But with all the attention being given to healthy ski care is largely forgotten. Natural lip balms offer a natural to maintain and promote healthy lips. Lip balm often eaten away by the user and hence it is imperative health regulators

have a microscopic look at the ingredient that go in to the lip balm. The dyes that contribute to the of the lip balm are dangerous to humans on consume.

Botnical Identification of Beet Root:

Plant:

Fig no. 02

Taxonomy: -

1) Biological name: - Beta vulgaris
2) Family: - Amaranthaceae
3) Subfamily: - Betoideal
4) Kingdom: - Plantae
5) Order: - caryophyllales
6) Genus: - Beta
7) Clade: - Angiosperms
8) Species: - B. Vulgaris

Synonyms: -

Bengali: Bita gacha Malayalam: Bit Marathi: Bita Punjabi

BeetTamil Carkkarai vali kilanku ceti Telegu: Dumpamokka

Gujarati: Salada Kannada: Gajarugadde

Biological source: -

Beet root it consists of fresh root of Beta vulgaris belong to Family Chenopodiaceae.

Etiology: -Beets are a food plant for the larvae of a number of Lepidoptera species

Geographical Source: - Beetroot was domesticated in the ancient Middle East, primarily for their greens, and were grown by the Ancient Egyptians, Greeks and Romans. By the Roman era, it is thought that they were cultivated for their roots as well.

Cultivation Collection: -

Cultivars: The choice of cultivar is influenced by days to maturity, root size and shape, foliage size, exterior surface smoothness, interior colour and degree of zoning. The hybrid (F1) cultivars available for summer production offer many advantages. Although these beets are expensive, they are worth growing because they are better quality, more adaptable to extreme high temperatures and so are more uniform in shape, produce greater yields and have better internal colour. Hybrids also taste better, especially out of season. [10-11]

Planting A soil pH above 5.5–6 is a good amount to plant the beetroot, otherwise growth will be stunted. You need to till in aged manure before planting. Beets need especially good nutrition and a high phosphorus level to germinate. Nitrogen is very helpful however; an excess will cause sprawling greens and tiny bulbs beneath the soil which is not good. In areas with low moisture, you have to soak the seed for 24 hours. The seed has to be at 50 degrees before planting.

Leaves:

Fig no. 03

Beet greens are an excellent source of vitamin K, vitamin A (in the form of carotenoids), vitamin C, copper, potassium, manganese, vitamin B2, magnesium, vitamin E, fiber and calcium. They are a very good source of iron, vitamins B1, B6, and pantothenic acid, as well as phosphorus and Beet greens are an excellent source of vitamin K, vitamin A (in the form of carotenoids), vitamin C, copper, potassium, manganese, vitamin B2, magnesium, vitamin E, fiber and calcium. They are a very good source of iron, vitamins B1, B6, and pantothenic acid, as well as phosphorus and protein.

Bark:

Fig no. 04

They improve blood structure which in turn improves the health of the circulatory system, digestive system and large intestine. Beetroots contain betaine, a compound that works together with choline (a B-complex vitamin also found in beets), to prevent buildup of homocysteine levels in the blood.

Flowers:

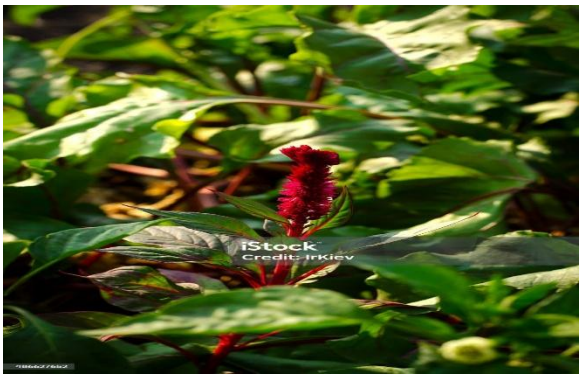

Fig no. 05

The garden beet is a biennial plant and is primarily grown for the thick fleshy taproot that forms during the first season. In the second season a tall, branched, leafy stem arises to bear clusters of minute green flowers that develop into brown corky fruits commonly called seed balls.

Fruit:

Fig no. 06

Beets are rich in folate (vitamin B9) which helps cells grow and function. Folate plays a key role in controlling damage to blood vessels, which can reduce the risk of heart disease and stroke. Beets are naturally high in nitrates, which are turned into nitric oxide in the body.

Role in ingredient:

1. Beetroot:

Fig no. 07

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. 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 moisturized 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. Lip balms are items that are mainly utilised to moisturize lips instead of to adorn it. 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 offer a natural way to maintain and promote healthy lips.

2. Beeswax:

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

Fig no. 08

Bee's 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 anti-bacterial medications can lessen the discomfort of the inflammation that follows an infection. Oxidation found in abundance in beets root boost the suppleness of the epidermis and leave lips feel smooth and soft.

3. 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.

Fig no. 09

Beeswax is a natural substance made by honeybees. It shows how amazing nature is and how hard bees work For thousands of years, people have used beeswax in many ways, from ancient times to today. Bees create beeswax to build the honeycomb in their hives. This helps them store honey safely. But beeswax isn't just important for bees it's also very useful for people. We use it in things like makeup, medicine, art, and crafts. Beeswax is made up of special natural ingredients like fats and oils, which give it strength and helpful qualities. It can heal the skin and make products look and feel better. When we learn about beeswax, we discover a natural gift with a long history and many uses.

Synonym: Linseed oil, Ricinus oil
Biological source: It is non-volatile fatty oil obtained from the seeds of the castor bean, Ricinus communis.
Family: Spurges
Chemical constituents: It is mainly composed of fatty acids and neutral lipids.
Uses: It is used as a laxative. It is used as a moisturizer. It may promote the healing of Cracked lips. It promotes hydration.

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.

Fig no. 10

Oxidant and environmental conditioner, folic acid. Vitamin E slows down the ageing process, keeping the lips' delicate, young texture. Dry, chapped lips can be treated with topical vitamin E oil Utilising vitamin E on dry lips speeds up the appearance of newly formed cells because it encourages cell repair and cycle. The vitamin E. oil's thick and greasy texture can also prevent further irritation. The extent of the freshness of a product can also be determined by its hue. Nature colours, however, are less hazardous than manufactured ones. For appealing colours, 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, utilising a lip balm can ensure that the lips remain well-hydrated and that they recover more quickly if you have cracked and dry lips. The current study project intends to develop and assess herbal lip balm for the preservation of lips utilising readily available materials. Additionally, it will give lips a more appealing and glossy aspect. The goal of this endeavour was to thoroughly study natural lip balm. This study relied on a thorough review of the research on excipients, composition and lip gloss evaluation.

Beeswax serves as a base, oil serves as a solvent, and natural colouring agents are all included in the creation of natural lip balm. Any vegetation, including Beta vulgaris, also known as beetroot and can serve as an organic colouring source. Beetroot is a food that is perish and because of the loss of water during storage before use, the amount of mineral such as iron and calcium could rise. The water-soluble and nitrogen-containing dye known as beta lain, a reddish pigment, is found in beetroot.

The reddish-violet betacyanin, an and the yellow betaxanthins make up the complex. In addition to the colouring agent, beetroot has a number of useful active substances for the body, including carotenoids and anthocyanins. Beetroot's carotenoid has anti-inflammatory, antimicrobial, anti-fungal, and nutritional properties, whilst anthocyanin's have strong antibacterial, anti-inflammatory, and cardiovascular protection. Red colour can also be made from these pigments. However, betalains, or have three times larger colour intensity than the pigments and are further water soluble than anthocyanins. Although battalions are commonly employed in industries, they are more stable to pH and temperature than anthocyanins. Due to its high fructose content, beets are also an excellent source of fibre from food, which also contains vitamins, minerals, and high nutrient content.

5. Petroleum Jelly

Helps sooche and heal dry lips by locking in moisture, resulting in beautiful, visibly healthy lips. Made with Vaseline Jelly and designed to protect the skin on your lips, it provides the long-lasting moisturization your lips need. Adds a sheer pink tint to your lips and leaves behind a light rosy fragrance.

Fig no. 11

Petroleum jelly is a highly refined mixture of mineral oils and waxes (typically 100% petrolatum) that creates a, hydrophobic, occlusive barrier on the skin. It seals in moisture to treat dry skin, minor wounds, and diaper rash, and acts as a barrier against chafing. It is generally safe and non-comedogenic, though it should not be applied to infected or fresh, deep wounds.

6. Rose water

Rose water moisturises your lips and makes them pink and plump. All you need to do is take some rose water on a cotton pad and dab it over your lips. Then, apply a good layer of lip balm. Voila, you have your soft pink lips.

Fig no. 12

Rose water has been used for thousands of years, dating back to ancient Persia and Egypt. Cleopatra is said to have used rose water in her skincare. It's traditionally made by steam. Components are present

in rose water flavonoids, Terpenes, phenyl ethanol, citronellol and geranoil (natural antiseptics).
Toner: Balances skin pH, tightens pores, and removes excess oil.
Moisturizer: Hydrates and revitalizes dry or tired skin.
Acne treatment: Its antibacterial and anti-inflammatory properties help reduce acne and redness.
Anti-aging: Reduces fine lines, puffiness, and under
Makeup remover: Gently removes makeup when combined with oils (like coconut or almond oil).
After-sun care: Soothes sunburns and cools the skin.

7. Glycerol
Glycerin being a natural humectant does an excellent job of absorbing and retaining moisture. It can seal any cracks or flaky skin on your lips and make them super soft and plump. If your lips are naturally dark, pigmented or dis-coloured, then glycerin is going to transform them into super plush, pink lips

Fig no. 13

Glycerin is a type of carbohydrate known as a sugar alcohol or a polyol. This odorless liquid has a sweet taste and a syrupy consistency. While glycerin occurs naturally in plants through the fermentation of sugars, most of the glycerin nowadays is produced from the hydrolysis of fats and oils.
The first man-made attempt to produce glycerin was in 1779 by K. W. Scheele, a Swedish chemist, when he was boiling a mixture of olive oil and another chemical containing lead.

III. LIST OF INGREDIENTS

Base	Oil	Colouring Agent	Flavoring Agent
Bees Wax	Coconut Oil	Beet Root	Rose Water
Petroleum Jelly	Vitamin-E	Rose	Orange

Table no. 01

Base
Waxes form an important group of ingredients for the manufacture of personal care products and decorative cosmetics. Waxes are used in different industries and products. They are predominately used in candles, but also find important applications in food, cosmetics and pharmaceutical industries as thickeners/emulsifiers. Chemically, waxes are complex mixtures of hydrocarbons and fatty acids combined with esters. Waxes are harder, less greasy and more brittle than fats. They are very resistant to moisture, oxidization and bacteria. There are four categories of waxes as: (a) Animal Waxes: Beeswax, lanolin, spermaceti; (b) Plant Waxes: Carnauba, Mineral Waxes: Ozokerite, paraffin, microcrystal ceresin; (d) Synthetic Waxes: Polyethylene, carbo acrawax, stearon. The most widely used waxes for cosm products are beeswax, carnauba and candelilla wax Waxes are esters of a fatty acid and a fatty alcohol. Jojob is therefore a wax, not oil. Physically, waxes characterized by a high melting point (50-100oC). The used wax is beeswax which is a good emollient thickener. Two other natural waxes often used in cosm are carnauba and candelilla wax. Both are harder and ha higher melting point making them more stable and sui for dry products e.g. lip balm.
Cocoa butter is a natural fat that comes from cocoa bean and it gives a creamy softness to the lip balm. It will nourish and moisturize lips and help heal chapped and dry lips because it contains antioxidants [17&18] . Another important and useful component of lip balm is white beeswax with melting point 62º-64ºC. It usefully binds oils and high melting point waxes. It is used in 3 to 10% of the total formula. It shrinks on cooling and thus helps preparation of molded products. At higher concentration it produces a dull way appearance and causes the balm to crumble during use. Candelilla wax has a melting point 65º-69ºC and can be is used in 5-10% of formulation. A mixture of candelilla wax and beeswax is very good for making lip balm. If candelilla wax is used to a little in a excess than beeswax the product gets a smooth and glossy appearance. On the other side carnauba wax increases the melting point of the base and hardens the lip balm therefore used in very small amounts. It brings an attractive luster to the products.

Beeswax:
Beeswax is used as an emollient and thickener to Achieve lip balm consistency. The wax is insoluble in Water but can be dissolved in organic solvents, such as Acetone, chloroform, and benzene. It can be obtained straight from a bee farm or bought from another Company in a form of solid pellets. Beeswax is chosen in a form of solid pellets from PT Sumber Berlian Kimia and delivered from Jakarta, Indonesia. One Package of this product contains 1 kg of beeswax, and the required amount is 4 kg of beeswax per day.

Honey
Honey functions as a natural humectant and emollient, serves as a source of vitamins B1 and B6 (nourishment), stimulates new skin cell formation (softening lips), elicits an anti- inflammatory effect on chapped lips, protects the lips from the damaging effect of free radicals, exhibits antibacterial and antiseptic properties to prevent bacterial infection, and provides relief to symptoms of chapped lips because of its vitamin C content. Raw honey is obtained by pressing beehives and then purifying it into pure honey.

Petroleum jelly -
Chapstick moisturizes dry lips, and Vaseline helps in sealing the moisture in and keeping the skin barrier intact. While you can get away with using just chapstick, there is no point in using Vaseline without applying chapstick first.

Oil:
Oils and fats are differing in their physical forms; generally, the latter are solid at room temperature. Both fats and oils are chemically glycerol esters composed of glycerol and fatty acids and are also called as triglycerides. Fatty acids can be saturated or unsaturated, thereby determining the stability and property of the oil. Oils with a high degree of saturated fatty acids (lauric, myristic, palmitic and stearic acids) include coconut oil, cottonseed oil, and palm oil. Oils with a high degree of unsaturated fatty acids (oleic, arachidonic, linoleic acid) are canola oil, olive oil, corn oil, almond oil, safflower oil, castor oil and avocado oil. Saturated oils are more stable and do not become rancid as quickly as unsaturated oils. However, unsaturated oils are smoother, more precious, less greasy, and better absorbed by the skin.

Natural butters like shea butter, avocado butter or cocoa butter are not true butters but natural fats. In general, natural butters are excellent emollients and thickeners and dependent on the type may have various additional properties (e.g. Antioxidant & and soothing properties in shea and avocado butter due to phenolic compounds). The oil mixture is required to blend properly with the waxes to provide a suitable film on the applied lip skin. An ideal mixture is one which enables the product to spread easily and produces a thin film with good covering power. Sunflower or olive oil, both oils will give a great gloss to lips. Castor oil is used in many lip balms because of its good qualities, though now days some other oils or solvents are being used. A refined grade castor oil is of good color and is odorless and tasteless. Castor oil is a very good plasticizing agent. An antioxidant is to be added to the castor oil against rancidification though it is not as prone to rancidification as other vegetable oils like olive oil or almond oil. Jojoba oil is known for its skin-softening properties which can prevent lips from dehydrating. While wolfberry seed oil is renowned for its moisturizing and skin conditioning properties. Rosehip oil is excellent for maintaining then natural moisture balance in skin. Vitamin E is a well-known antioxidant that plays an essential role in the lip balm base. Peppermint essential oil energizes and revitalizes skin.
Cinnamon essential oil is an excellent antioxidant. Lavender essential oil is soothing and nourishing to skin. And grapefruit essential oil is light and refreshing for dry lips. Almond oil is pale yellow oil with slight characteristic odour. It consists of glycerides chiefly of oleic acid with s maller amounts of other acids namely, linoleic, meristic and palmitic. It has emollient properties.
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Coloring Agents: -

Colorants or coloring agents are mainly used to impart a one of a kind looks to the Cosmetic products. Color has been utilized in cos metics on the grounds that early times. Basically, a desire to buy a beauty product is controlled with the aid of using 3 senses particularly sight, contact and smell. As such as, shadeation is a critical aspect of beauty formulations. The satiation is imparted to the lips in ways; (a) By staining the pores and skin with an answer of dyestuff which can penetrate the outer layer of the lip pores and skin, (b) By masking the lips with a coloured layer which serves to hide any pores and skin roughness and supply a clean look. The first requirement is met with the aid of using soluble dyes and the second is met is insoluble dyes and pigments which make the movie greater or much less opaque. Modern lip balms comprise both to achieve the blended effect. The colours must be from the listing of licensed dyes beneath Neath the medicine and cosmetics act. The naturally going on colours.

Flavoring agent:

To hide the four basic taste sensations, flavors or flavoring agents are frequently required. Flavors is a multisensory experience involving taste, touch, smell, sight, and sound, all of which are influenced by a mixture of physiochemical and physiological processes. Many artificial or imitation flavour's have been created as technology in the flavors industry has advanced. It's more of an art than a science to create a suitable flavour . Flavor ants are chosen based on the drug's flavors profile, or other substances may be required. The following Table 3 depicts the masking flavors in relation to various tastes. Lip balm flavors should not contain any ingredients that are irritating or harmful. These should have a pleasant flavour and be able to hide the base's greasy odours. Flavoring chemicals are necessary to hide the odors of the fatty or wax basis while also imparting a pleasing flavour. They're usually employed at a concentration of 2-4 percent of the final product. The flavour of the lip balm should be steady and suitable with the other ingredients. The flavors should not be so strong that they clash or overshadow other flavor's that may be utilised with the lip balm at the same time. Perfumes with a fruity scent have also been recommended. It's also possible to use something edible. Apricot, strawberry, raspberry, cherry, honey, and other flavors are common. Honey has the ability to act as a natural preservative for food. Product intended for use by both men and women.

IV. CHEMICAL COMPOSIOTION OF BEET ROOT

Betacaine are unique nitrogen-containing pigments found exclusively in families of Caryophyllales order and some higher order fungi, where they replace anthocyanin pigments. Beta vulgaris betalains include two classes of compounds: betacyanin's, which are red violet and betaxanthins (predominantly, violaxanthin-I), which are yellow. The major betalain in red beet is betanin, which is betanidin-5-O-beta-glucoside, containing phenolic and cyclic amine groups, acting as antioxidants. Betanin, the major betalain in red beetroot, showed poor bioavailability. Commonly betalains are used as food colorants.

The five examined Beta vulgaris cultivars from Hungary showed no significant differences in the content of red-violet pigments. However, studying commercial beetroot products and beetroot juice prepared from seven red beet varieties grown in Upper Austria, it was found, that total betalain content is variety- specific. In comparison to other vegetables, the antioxidant capacity of beets is very high. A highly significant correlation was demonstrated between antioxidant capacity and the contents of red pigments, whereas a remarkably less tangible relationship was

found between antioxidant capacity and content of yellow pigments. Betalain's other biological effects are uncertain. Betaine (trimethyl glycine) is found naturally in most living organisms and rich dietary sources include seafood, especially marine invertebrates (≈1%), wheat germ or bran (≈1%) and spinach (≈0.75%).

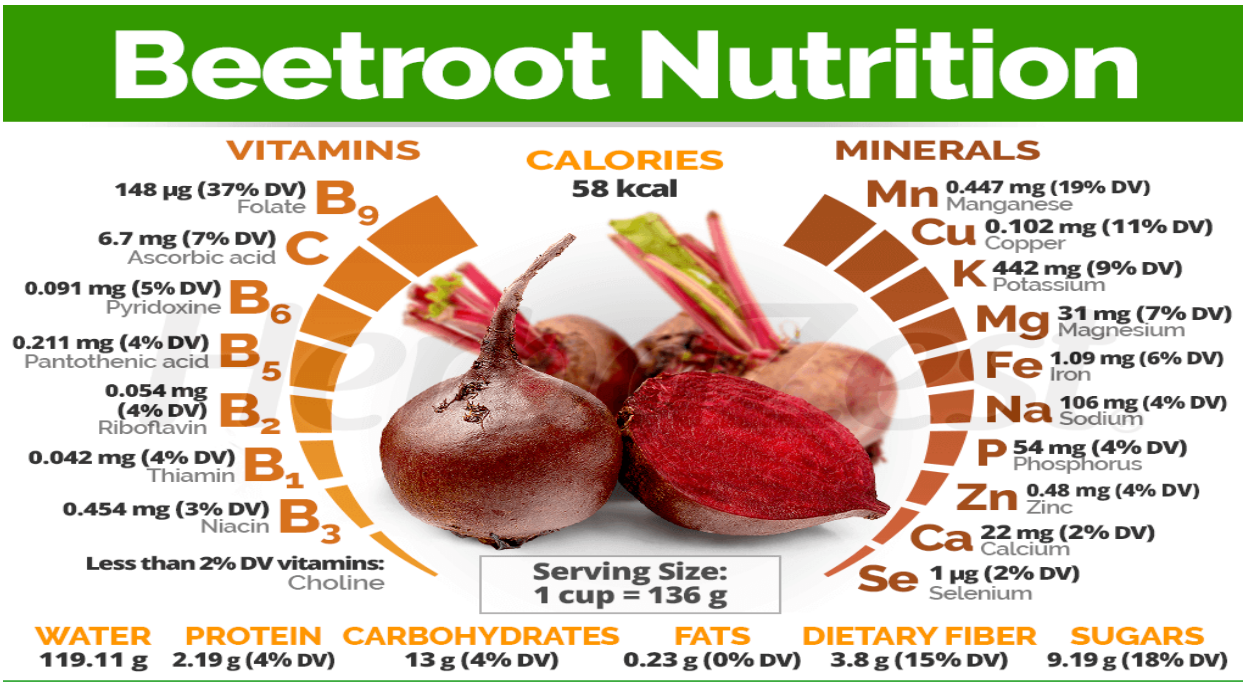

Fig no. 14

Material And Equipment

Sr. no.	Material
1.	Beet root
2.	Bees wax
3.	Coconut oil
4.	Petroleum jelly
5.	Honey
6.	glycerol
7.	Rose water
8.	Rose lip
9.	Vitamin E

Table no. 02

Equipment

Sr. No.	Equipment
1.	Autoclave
2.	Centrifuge
3.	Melting point
4.	Apparatus
5.	Weighing balance
6.	Ice bath
7.	Water bath
8.	Beaker

Table no. 03

V. REVIEW OF LITERATURE

1. Lip balm

Women frequently use lip balm to give their lips a lovely colour and protection. Lip balm is a cosmetic product with added benefits. Oil, colorant, and other chemicals are the basic components of a lip stick. Beeswax is the typical wax used in lip balm. In lip Lick composition 10, camellias are wax and c camellias are wax are combined to create strength and strike true colour in the lip balm. The composition of lip uses a variety of plant-based oils, including jojoba seed oil, the oil of sweet almonds, and castor seed oil. Oils serve as a moisturising agent in lip balm and help to combine the substance to create a smooth and flawlessly flexible substance. Shea Butter works as a moisturiser to create stable lip balm mixtures that are rigid at ambient temperature yet glide and melt over the lips once applied.

2. Global Lip balm Demand

The quick urbanization. Consumers' purchasing power is increased by 11ion in developing nations. The global demand for lip balm is driven by the trend of increased internet usage. According to Alana from Thai advertising tactics, consumer appetite for lip balm will increase over the course of the upcoming year as they advertise their products on social media platforms like YouTube, YouTube, Facebook, and Instagram.

Based to a company analysis, worldwide sales for lip balm peaked in 2016 at $7.15 billion and is expected to reach $9.2 billion in 2018. The Lipbalm market is predicted to produce S13.4 billion in sales by the year 2021. The market's rise is mostly attributed to the increase in demand from young adults who work women globally. In the near future, the demand for lip balm will progressively rise. A negative impact of synthetic colours on the health of people has increased along with the population. The current study's goal is to produce natural lip balm coloring. Give the most effective answer to this problem.

3. Self-Decoration

Mankind have long decorated themselves to draw attention to the other gender. Anthropologists contend that women utilise cosmetics to mimic an orgasmic condition in their bodies. Doune Ackerman living in Pellington in 1999. Because the lips resemble the genitals, The consciously and unconsciously causes why women constantly make them look even redder using lip balm are that they blush red and swell while around. Despondent animal behaviorist these assertions are supported by Moates, who sees makeup as a trick used by con artists to divert focus from the rest of the body including the head. He believes that the red lip balm lips stand in for the arrogantly engorged labia.

The detailed pupfish of Exposition 1999 is checked at a distance by the skating state of the light and the darkened eyes. According to evolutionary psychologists, our plasticene ancestors evolved behaviors like self-decorrelation through natural selection processes, which then entered our genetic code. The triple 2000 and gad. Rose and Rose 2000, Goode 2000.Women's use of self-decoration has changed significantly in recent years. Pleiss. From the 1950's big, lush-lashed eyes. With the new specialized lip balm firms that sprang up over the years, minoring lipbalm has undermined & n revival in popularity to become a daily product. As a result of the black and blue lipbalm of the gothic and shock bands in the nineties, the lipbalm environment continues to alter today.

4. Women and beauty

Highlighted society's commercialization of young girls as they attempt to achieve the unrealistic lanky model image portrayed in popular culture. According to Thompson and, who also looked at how the body came to be seen as the ideal form, women normalize their bodies to preserve an appearance that is regarded as the cultural standard through the practise of self-care (Rook, 1985). Additionally, studies have looked closely at the impact that these signals have on women's aspirations for their physical appearance (Solomon).

Similar to other study, society gives greater significance to physically attractive persons (Setoff 1999). Richens, 1991; Fabricant and Gould, 1993.According to studies, those who are seen to be more beautiful typically have greater social standing than those who are less attractive (Fabricant and Gould the year 1993). Richens and Mc Nell, 1991. It is understandable that there are complaints about cosmetics given how well they are promoted to achieve a goal and how they are used to enhance female appearance. Due to the widespread belief that a woman's look and her perception of her own value are linked, Witham was famous colure has been aggressively abused (English, Lurky 1996; Simon and Ashmore 1994.And lipbalm is a crucial component of the appearance that many women work so hard to achieve.

VI. AIM AND OBJECTIVE

Aim: Formulation and evaluation of lip balm from beetroot

Objective:

1.To extract and utilize natural pigments from beetroot (Beta vulgaris L.)

2. To formulate a lip balm using beetroot extract in combination with natural base ingredients such as beeswax & coconut oil.

3. To evaluate the physical properties of the formulated lip balm, including texture, spreadability, melting point, and pH, ensuring product stability, irritation of skin.

4. To assess the moisturizing and tinting effects of the beetroot lip balm on lips.
5. To conduct stability studies of the lip balm under various environmental conditions, analyzing changes in color, odor, and pH over time.
6. To ensure the safety and skin compatibility of the lip balm.

Plan Of Work

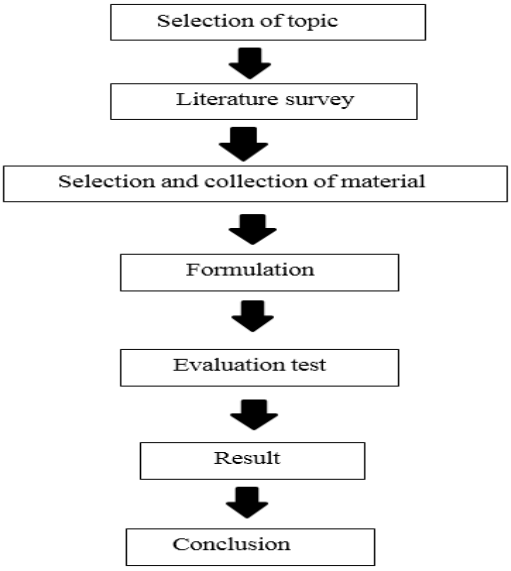

Table no. 04

Sr. no	Ingredients	Quantity taken	Quantity given	Uses
1	Beet root extraction	0.8 ml	0.6 ml	Colouring Agent
2	Bees Wax	9.0 gm.	5.0 gm.	Impart glossiness and hardness
3	Almond Oil	0.6 ml	0.4 ml	Moisturizing Agent
4	Vitamin E	0.5 ml	0.3 ml	Anti-oxidant, Maintain the stability
5	Rose Water	Q.S	Q.S	Flavouring Agent
6	Glycerol	Q.S	Q.S	Glossy Effect

Table no. 05

VII. MATERIAL AND METHODOLOGY

Material:
Collection of material: Beetroot juice for natural colour and antioxidants, vaseline for seal prevents water from evaporating and keeping lips hydrated longer, beeswax to give structure and firmness to the balm, coconut oil for moisturizing and nourishing lips, vitamin E for preservation and skin benefits and lip balm container to store the final product.

VIII. METHODOLOGY:

Procedure:
Step 1: Take Fresh beetroot wash clean, peeled, and chopped. Juice was extracted using a blender and filtered.

Step 2: Boil the beetroot juice for 20 min on low heat and let it simmer until it reduces to a thick, concentrated liquid put it aside to cool.

Step 3: set up a double boiler method and add the Vaseline, bee wax, and almond oil. And after stir continuously until all ingredients and melt completely and combine it.

Step 4: Remove the melted Almond oil, bee wax and Vaseline mixture from heat. Quickly stir in the reduced beetroot extract. Add vitamin E and Rose water. mix well for an even blend

Step 5: Immediately pour the mixture into the small lip balm container. Let them keep in freezer for 30 min to solidify and after take it out and keep at room temperature. And once set, cover with lids and labe..

Formulation

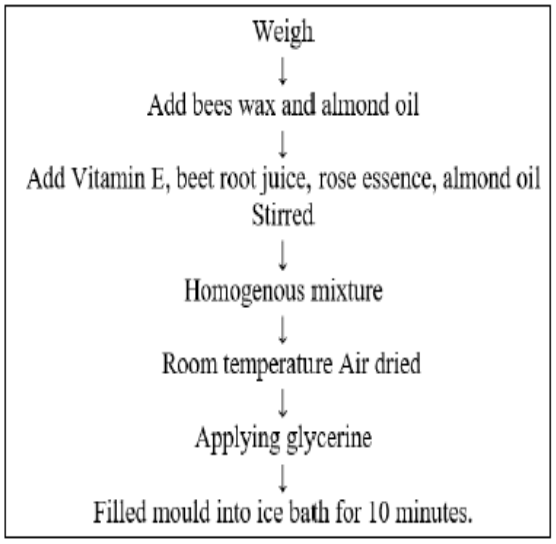

Table no. 06

I) weigh all the excipients. ii) Add bees wax and almond oil in a beaker and melt it in water bath at 55-600C3 iii) Add all other ingredients like vitamin E, beet root juice, rose essence, almond oil was mixed vigorously and add to the mixture and mixture was stirred continuously till homogenous mixture was obtained. iv) A mixture was poured into the container and it was let to be air dried at room temperature.
v) Before pouring the mixture in lip balm moulds, on the mould applying glycerine with the help of cotton, put the filled moulds into ice bath for 10 minutes.

Method Of Preparation
01] FORMULATION
I. Weigh all the excipients.
II. Add bees wax and coconut oil in a beaker and melt it in water bath at 55-660 c.
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V. Before pouring the mixture in lip balm moulds, on the mould applying glycerine with the help of cotton, put the filled moulds into ice bath for 10 min

2] Formulation: -
I. Weigh all the excipients.
II. Add coconut oil and beet root juice in a beaker and melt it in water bath at 55- 660 c.
III. Add all other ingredients like vitamin E, rose essence, almond oil was mixed vigorously and add to the mixture and mixture was stirred continuously till homogenous mixture was obtained.
IV. A mixture was poured into the container and it was let to be air dried at room temperature.
V. Before pouring the mixture in lip balm moulds, on the mould applying glycerine with the help of cotton, put the filled moulds into ice bath for 10 min.

3] Formulation:
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 juice through 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 5.5gm 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 its 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 gets a smooth consistency. When it mixed well, transfer it into a clean container.
10. This can be used as a lip balm and also as a substitute for a lipstick. Make sure your hands are clean when using this lip balm.

IX. EVALUTION PARAMETER

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 three indicators which contributing to lightness, redness and yellowness of the tested sample.

Measurement of 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.

Melting Point- The sample of lip balm is taken in a glass capillary whose one end was sealed by flame. The capillary containing drug dipped in liquid paraffin inside the melting point apparatus. Melting was determined and melting point was reported. [20-21]

Organoleptic properties: - The formulation was studied for physical appearance, colour and odour. The presence of coarse particles and consistency were used to evaluate the texture and homogenecity of the formulations.

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 ± 1°C and room temperature, 27 ± 1°C). The other physicochemical tests, including pH, colour and texture of the lip balm were conducted for every week of the stability test period.

Skin Irritation test:It is carried out by applying lip balm on the skin for 10 min.

Test of spreadability the test of spreadability consisted of applying the product repeatedly onto a glass slide to visually observe the uniformity in the formation of the projective layer and whether the stick fragmented, deformed or broke during application. (16) Prepared lip balm, initially has shown G- Good: uniform, no fragmentation, perfect application, with any deformation at room temperature.[18]

Skin Sensitivity- It was carried out by applying the product in the form of a patch on the skin for 30 min and observe the reaction as-

N -No reaction,

R-Redness of the skin,

I- Itching, swelling, inflammation. [18-20]

X. RESULT AND DISCUSSION

1] Formulation:

1. Melting point:

Melting point of lip balm was found to be in the range of 680C- 690C, which matches the appropriate melting point of between 650 -750C.

2. Organoleptic Properties:

Prepared lip balm has shown cream colour with pleasant odour.

Sr. no.	Parameter	Observation
1.	Colour	Cream
2	Appearance	Excellent, Smooth
3.	Odour	Pleasant

Table no. 07

3. Test of Spreadability:

Prepared lip balm has initially shown G- Good: uniform, no fragmentation, perfect application, without any deformation at room temperature [Spredability-8 cm.].

4. Measurement of pH:

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

5. Stability Studies:

Stability of drug can be defined as the time from date of manufacture and the packaging of the formulation, until,its chemical or biological activity is not less than a pre-determined level of labelled potency and its physical characteristics have not changed appreciably. The purpose of stability testing is to provide evidence on how the quality of a drug substance or drug product varies with time under the influence of variety of environmental factors such as temperature, humidity and light, enabling recommended storage condition and shelf- lives. Stability studies were carried out for 1 month /30 days at room temperature (25.0+- 3.00C),

refrigeration (4+- 2.00C) and oven temperature (40.0 +-2.00C).

6. 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. [2 drops].

2] Formulation
1. Melting point
Melting point of lip balm was found to be in the range of 650C- 700 C, which matches the appropriate melting point of between 650 -750C.

2. Organoleptic Properties
Prepared lip balm has shown cream colour with pleasant odour.

Sr. no.	Parameter	Observation
1.	Colour	Red
2	Appearance	Excellent, Smooth
3.	Odour	Pleasant

Table no. 08

3. Test of Spread ability:
Prepared lip balm has initially shown G- Good: uniform, no fragmentation, perfect application, without any deformation at room temperature. [Spredability -7cm.]

4. Measurement of pH:
pH of lip balm was near to neutral pH i.e. 7.0, this would not cause any irritation to lips.

5. Stability Studies:
Stability of drug can be defined as the time from date of manufacture and the packaging of the formulation, until,its chemical or biological activity is not less than a pre-determined level of labelled potency and its physical characteristics have not changed appreciably. The purpose of stability testing is to provide evidence on how the quality of a drug substance or drug product varies with time under the influence of variety of environmental factors such as temperature, humidity and light, enabling recommended storage condition and shelf- lives. Stability studies were carried out for 1 month /30 days at room temperature (25.0+- 3.00C, refrigeration (4+- 2.00C) and oven temperature (40.0 +-2.00C).
It was observed that prepared lip balm shows I - Intermediate uniform; leaves few fragments; appropriate application; little deformation of the lip balm at room temperature (25.0+-
3.00 C) and refrigeration (4+-2.00 C) and little deformation at oven temperature (40.0+- 2.00 C).

6. 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.
[3 drops].

3] Formulation:
1. Melting point
Melting point of lip balm was found to be in the range of 660C- 720C, which matches the appropriate melting point of between 650 -750C.

2. Organoleptic Properties: -
Prepared lip balm has shown cream colour with pleasant odour.

Sr. no.	Parameter	Observation
1.	Colour	Brownish
2	Appearance	Excellent, Smooth
3.	Odour	Pleasant

Table no. 08

3. Test of Spreadability:-
Prepared lip balm has initially shown G- Good: uniform, no fragmentation, perfect application, without any deformation at room temperature. [Spreadability- 6cm.]

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

5. Stability Studies: -Stability of drug can be defined as the time from date of manufacture and the packaging of the formulation, until,its chemical or

biological activity is not less than a pre-determined level of labelled potency and its physical characteristics have not changed appreciably. The purpose of stability testing is to provide evidence on how the quality of a drug substance or drug product varies with time under the influence of variety of environmental factors such as temperature, humidity and light, enabling recommended storage condition and shelf- lives. Stability studies were carried out for 1 month /30 days at room temperature (25.0+- 3.00C), refrigeration (4+- 2.00C) and oven temperature (40.0 +-2.00C).

6. 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.
[4drops].

Here's how to 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.

Fig no. 15

How Often Should You Apply Lip Balm?
According to dermatologists, you should only put on lip balm a few times throughout the day. Most experts recommend that you apply it in the following situations:
1.When you wake up in the morning. 2.After eating or drinking.
3.When you go to bed at night.

XI. 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. [7-9-10]
Our product has the following advantages. It is an exclusively patented product. Contains a combination of a humectant, an emollient and an occlusive humectant to lock lips in moisture. By the governmentCan be used by both men and women. It has additional functions such as nutrition, scar healing and sun protection. Our product concept is a long-lasting moisturizing herbal lip balm with honey, hyaluronic acid and SPF. Our product has a positive impact on consumers' lips because it is made from 100% botanical ingredients that contain a combination of emollients, humectants and occlusive agents to prolong the duration of our lip balm's moisturizing benefits.
The aim of current research work was to prepare lip balm by using maximum possible natural ingredients. Mainly beetroot extract chosen as a colouring agent, rose water used as a flavouring agent, vitamin E capsule used as an antioxidant, almond oil was used as moisturizing agent. The effects of these ingredients on physicochemical properties such as organoleptic characteristics, melting point, consistency and spreadability on formulation were studied. It can be concluded that lip balm formulation was successfully

prepared by using these natural additives. Results of various tests implied that the formulation passed various tests physicochemical tests and safe to use. Based on stability data, the storage condition for the formulation is at room temperature. In the current formulation, Beeswax was used as a base, in the future; it can be replaced with a natural base like Shea butter, paraffin wax, etc.

The dye yield resulted from the solvent extraction method and the colour strength produced after formulation of lip balm indicated that dye plants under this study have considerable potential for application as a source of natural dye for cosmetic purpose. Ethanol showed the best solvent in this extraction method. This research results also showed that all the lip balm made from natural dyes were stable and had a good force of application. In addition, after 1 year storage in the room temperature, the condition of the product was still good. Finally, yet importantly, this product did not cause irritation to lip. Meanwhile, they were safe to apply as organic cosmetics. In order to produce the high quality of extracted dye for the purposes in the cosmetic; integrated knowledge of the extraction procedures and the treatments of the plant parts that want to apply as a dye are needed. There are broad of procedures that will make the production of dyes are present in many conditions. For instant, the selection of solvents and the adjustment concentration of solvents used will make the yield of dye extracted in a variety of colours are need to be focused.

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