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"Formulation and Evaluation of Beetroot Lip Balm"

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ABSTRACT
Preservatives and dangerous heavy metals are present in daily lip care products.These heavy metals and other pollutants can be accidentally consumed in addition to leaking via your lips' pores. The most common uses for lip balm formulations are to accentuate the beauty of the lips and give makeup a glamorous touch. A natural solution for preserving and enhancing healthy lips is to use lip balms. The usage of massive chemical compounds in today's cosmetic lip products has a number of negative impacts. Therefore, considerable effort has been made to research the natural elements that go into making the natural lip balm.Natural base, oils, coloring, flavoring, and other ingredients can be used to make the natural lip balm. Lips that have been impacted by dryness can be protected and nourished with organic lip balm. For a variety of lip problems, organic lip balm may be a better choice. It was discovered that beetroot lip balm possesses antioxidant properties.Natural lip balm preparation is the most popular cosmetic product for enhancing lip beauty and adding a glamorous touch and sheen.A natural method of encouraging hydrated and healthy lips is with lip halms.The foundation of contemporary cosmetic lip products is the use of hazardous chemical compounds that have a number of negative effects. Because of this, research is being done on the natural substances used to make lip balm.

Keywords:- Beetroot, organic lip balm, natural ingredients, antioxidants, hydrated, cosmetics, nourishment.

I. INTRODUCTION

Preventing the skin from drying out and shielding it from damaging environmental factors are the main goals. However, some lip balms have unfavorable side effects. For instance, lip balms with phenol, menthol, and other inferior ingredients may be detrimental to the lips. Among the cosmetic products applied to the lips are lipsticks, lip balms, lip jellies, lip salves, lip gloss, and lip rouge. These formalas offer the lips a glossy texture and a beautiful color. Lip rouge is an alternative to lipstick. They are nearly liquid or semisolid in nature.They can be created by combining pigments with a base that has the right amount of aqueous phase in it. For incorporating medications that are encased in noisome, this formulation is perfect. Because of its consistency, this kind of formulation is easy to apply using a brush that is fastened to the lid of the container. Additionally, it helps the active medication better penetrate the lip membrane. The cosmetic formality is easy to use and has a nice visual appeal. The more accurately the active ingredient is administered to the afflicted area, the more effective the illness treatment will be. The cosmetic formulation will be more patient-acceptable than the existing imitation, which could increase patient compliance.In order to treat recurrent herpes labialis, the study aimed to develop a medicated lip rouge that contained noisome acyclovir. This was an attempt to establish a formulation that could provide a higher concentration of the medication in the dermal tissue for successful cold sore therapy.

Anatomy Of Lip

The lips are organs that are intended for grazing. Speech and suction. It is made up of the orbicularis muscle, the skin, the superficial facial muscles, and muscles that are added surrounding it. A dry, red mucous membrane that is continuous with the skin forms the lip margin. The coronary arteries that completely enclose the buccal orifice close to the free border of lips are found in the areolar tissue or submucous layer.

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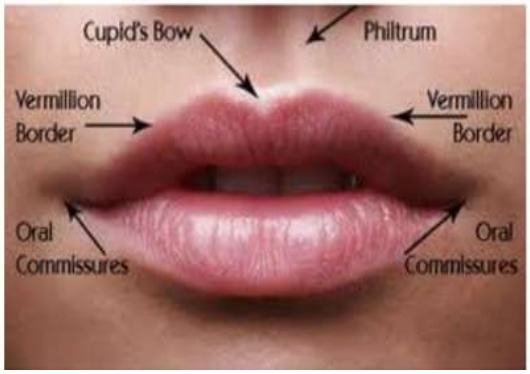

1.Origin: Sea Beet (Beta vulgaris subsp.)

•**Synonym:-** Beta vulgaris rubra, Chukandar
•**Biological source:-**It consists of fresh root of Retavulgaris.
•**Family:-**Amaranthaceae
•**Chemical constituents:-** It consist of multiple biologically active phytochemicals including betalains, flavonoids, polyphenols, saponins and inorganic nitrate, it is a rich source of Diverse minerals such as potassium, sodium, phosphorous, calcium, magnesium, copper, iron, Zinc.

•**Uses:-**
1)It is used as colouring agent.
2)It is used as a binder.
3)It gives glossy appearance to lips.
4)It also provides emollient action on lips.
5) It also prevents cracking of 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 moisturised with a lip product like lip. Balm. Lip care products are substances that are placed to the lip to stop dryness and shield them from harmful environmental pollutants. Lip balms are items that are mainly utilised to moisturise 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 offers a natural way to maintain and promote healthy lips.

2. Bees wax :-

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•**Synonym:-** Paraffin-wax, Carnauba
•**Biological source:-**It is a product made from the honeycomb of the honeybee and other bees.
•**Family:-** Apidae Chemical constituents: The main chemical constituents are carbon (73.3%), hydrogen (13.2%)And oxygen (7.5%).

•**Uses:-**
1)It offers a moisturizer that protects your lips from becoming dry and developing Cracks.
2)It is also used in lip-balm, lip-gloss, etc.

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.Bees wax is a very moisturizing, can help protect the lips from the harmful rays of the sun, and has a pleasant smell. Bees wax acts as a natural emulsifier. Research has also discovered that bees wax contains small amount of natural anti-bacterial agents. This is especially helpful for individuals who have excessively dry and cracked lips. These anti-bacterial agents can help prevent a painful inflammation that comes with an infection. Beet root is rich in anti oxidants that make the lips soft, supple and improve the elasticity of the skin.

3.Vitamin E:-

Natural lip balm preparation is the most popular cosmetic product for enhancing lip beauty and adding a glamorous touch and sheen. A natural method of encouraging hydrated and healthy lips is with lip halms. The foundation of contemporary cosmetic lip products is the use of hazardous chemical compounds that have a number of negative effects. Because of this, research is being done on the natural substances used to make lip balm.

• **Synonym:-**Tocopherol
• **Biological source:-**It is a group of compounds found in a wide variety of foods.
• **Chemical constituents:-**It refers to a group of eight different compounds: a-, B-, y-, and Stocopherols and the corresponding four tocotrienols.

• **Uses:-**
1)It is used as a preservative and treating fine lines and wrinkles.
2) It makes lips softer.

Oxidant and environmental conditioner, folic acid. Vitamin E slows down the ageing process, keeping the lips' delicate, youngTexture. 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. off'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 glossevaluation,Beeswax serves as a base, oil serves as a solvent, and natural colouring agents are allincluded in the creation of natural lip balm. Any

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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 col intensity than the pigments and are further water soluble than anthocyanin's 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 fromfood, which also contains vitamins, minerals, and high nutrient content.

4. Rose water:-

• **Synonym:-**Rose Otto, Attar of rose
• **Biological source:-**It is obtained from the petals of different Rosa species especially Rosa centifolia and RosaDamascena mill.
• **Family:-**Rosaceae
• **Chemical constituents:-**The most common chemical compounds present in rose oil are: citronellol, geraniol, nerol, linalool, phenyl ethyl alcohol, farnesol, stearoptene, limonene and eugenol, etc.
• **Uses:-**
1) It is used as fragrance.
2)It is used to create a more natural aroma.
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.

5. Almond oil :-

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

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6. 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.

• Ideal characteristics of lip balm :-

1.It is smooth and easy to apply.
2.It is non-irritant and non-toxic.
3.It's have required plasticity, different odour, colour, texture And packaging etc.
4.It is stable in shelf-life time and it is free from bloom and Sweating during storage of Lip balm
5.It should be free from contamination.
6.It should be free from gritty particles.
7.It should be long lasting.

• Advantages og Lip Balm :-

1.Natural Lip Balms Helps To Care The Natural Health And Beauty Of The Lips.
2.The Natural Lip Balm Can Use Both Men And Women Can Use Them.
3.Natural Lip Balm Products Help To Protect Lips Affected By Cold Sores, Chapping And Dryness.
4.The Use Of Natural Lip Balm Cosmetic To Treat The Appearance Of The Face And Condition Of The Skin.

• Disadvantages of lip balm:-

1. Lip Balms Made Of Low Quality Ingredients Can Harm The Lips Seriously.
2. Lip Balm Addiction.
3. Compared To Commercially-Prepared Lip Balms, Homemade Lip Balms Tend Tostay On The Lips For A Shorter Duration Of Time.
4. Natural Oils Have Other Disadvantages Such As Greasier And Less Spreadability.
5. Common Ingredients Used In Natural Lip Balm.

• Application Of Herbal Lip Balm:-

1. Natural Lip Balms Are Products Applied Onto The Lips To Avoid Dryiness And Protect Against Adverse Environmental Factors.
2. Numerous Lip Balms Of Chemical Origin Are Currently Available In The Market From Companies Like The Body Shop, Nivea, Himalaya, Blistex, BabylipEtc
3. Natural Lip Balm Being A Product Intended For Use By Both Men And Women.
4. To Produce Lip Balms, It Is Necessary To Balance The Concentration Of The Main Ingredients Including Butters, Oils And Waxes And Other Excipients.
5. Lip Balms Are Often Eaten Away By The User And Hence It Is Imperative That HealtRegulators Have A Microscopic Look At The Ingredients That Go In To The Lip Balm.

List of ingredients :-

1) Ingredients-

Sr.no	Ingredients
1.	Beet root
2.	Bees Wax
3.	Almond Oil
4.	Vitamin E
5.	Glycerol
6.	Rose Water

Metholedology adopted :-

Sr. No	Ingredients	Quantity taken	Quantity given	Use
1	Beet root extraction	0.8ml	0.6ml	Colouring agent
2	Bees wax	9.0gm	5.0gm	Impart glossiness and hardness
3	Vitamin E	0.5ml	0.3ml	Antioxidant, maintain the stability
4	Almond oil	0.6ml	0.4	Moistoriniga gent
5	Rose water	Q. S	Q. S	Flavouring agent
6	Glycerol	Q.S	Q. S	Glossy effect

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Formulation :-

Weight
↓
Add bees wax and almond oil
↓
Add vitamin E, beet root juice,rose water (stirred)
↓
Homogeneous mixture
↓
Room temperature Air dried
↓
Applying glycerine
↓
Filled mould into ice bath for 10minutes.

Method Of Preparation :-

1)Weight all the excipient.

2) Add bees wax and almond oil in a beaker and melt it in water bath at 55-66° c.

3) Add all other ingredients like vitamin E. beet root juice, rose essence, almond oil were mixed vigorously and add to the mixture and mixture was stirred continuously till homogenous mixture was obtained.

4) A mixture was poured into the container and it was let to be air dried at room temperature.

5) 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.

Prepared beetroot lip balm

Experimental work :-

Evaluation -

1. 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.

2. Organoleptic properties

The formulation was studied for physical appearance, colour andOdour. The presence of coarse particles and consistency were usedTo evaluate the texture and homogenecity of the formulations.

3. Measurement of pH

The pH of lip balm was determined in order to investigate thePossibility of any side effects. The pH study was carried out byDissolving 1gm of sample into 100 ml water. The pH measurement Was done using pH meter. PH of lip was nearto neutral.

4. Skin Irritation test

It is carried out by applying lip balm on the skin for 10 min

5. Test of spread ability

The test of spread ability consisted of applying the productRepeatedly onto a glass slide to visually observethe uniformity in the Formation of the protective layer and whether the stick fragmented, Deformed or broke during application. Prepared lip balm, initiallyHas shown G- Good: uniform, no fragmentation, perfectapplication, With any deformation At room temperature

6. Stability studies

Prepared lip balm was placed for accelerated stability studies atRoom temperature (25.0+3.00 C), refrigeration (4+-2.00C) and Oven temperature (40.0+-2.00 C) for 30 days. After 30 days it was Again characterized for organoleptic properties, Melting point,Spreadability and pH.

7. Effectiveness test on papers

Finally, after taking out the lip balm from chiller, it was tested by Applying the lip balm on a piece of paper. This process is Important to determine colour obtained from different sources. It Also can determine the effectiveness of the colour product.

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8. 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 reactions- N -No reaction R-Redness of the skin I-Itching, swelling, inflammation.

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.

Figure 12 : How to use

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.

II. CONCLUSION:

When developing new products, cosmetic chemists pick from thousands of chemicals, but they always take care to chose those with chemical qualities that improve the product's appearance, texture, and functionality. For example, most DIY lip balm recipes call for some form of oil or butter because no one wants their lip balm to be overly firm. At room temperature, oils are typically thick, viscous liquids that soften and smooth the skin because they are emollients. Another type of emollient is butter, which is soft but not liquid at room temperature. Waxes, such as beeswax, which are solids at room temperature, are added to the formulation to thicken it since a very soft, liquid lip balm would be too messy. Achieving the ideal balance of emollients and waxes is necessary to produce the "perfect" product.

The goal of the current study was to make a lip balm using as many natural ingredients as possible. Almond oil, vitamin E capsules, rose water, and beetroot extract served as the primary colouring and flavouring components. Almond oil was used as a moisturiser. The impact of these ingredients on the formulation's physical properties, such as homogeneity, spread ability, and organoleptic properties, was investigated by researchers. One could argue that the excellent lip balm composition was made possible by the use of these natural ingredients.Numerous studies' conclusions indicated that the recipe passed a number of physical tests and was safe to use. The mixture should be kept at room temperature in accordance with stability data. The beeswax used as a base for the current composition may eventually be replaced by natural bases such as shea butter, paraffin wax, etc.

III. RESULT AND DISCUSSION :-

1. Melting point

Melting point of lip balm was found to be in the range of 68 °C –69 °C which matches the appropriate melting point of between 65 °C -75 °C.

2. **Organoleptic Properties**

Prepared lip balm has shown cream colour with pleasant Odour.

Sr.no	Parameters	Observation
1	Colour	Cream
2	Apperance	Excellent , smooth
3	Odour	Pleasant

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3. **Test of Spread ability**

Prepared lip balm has initially shown G-Good: uniform, no fragmentation, perfect application, without Any deformation at room temperature.

4. Measurement of pH

PH of lip balm was near to neutral pH i.e. 7.2, this would notCause any irritation to lips.

5. Stability Studies

A medicine is said to be stable if, by the time it reaches the Predetermined level of potency listed on the label and its Chemistry or biologic activity has not decreased significantly, it Has been manufactured and packaged. The goal of stability Analysis is to demonstrate how a drug substance's or product's Quality changes over time with the effect of various environmental Factors, including temperature, humidity, and light, allowing for The establishment of appropriate storage conditions and shelf-lives. At the room temperature (25.0+-3.00C), refrigeration (4+- 2.00C), And oven temperatures (40.0 +-2.00C), tests of stability were Conducted for one month or 30 days.

It was noted that the generated lip balm exhibits I – Medium Uniformity, leaves few pieces, is applied properly, deforms Minimally at the room temperature (25.0+-3.00 C), in the Refrigerator (4+-2.00 C), and in the oven (40.0+- 2.00 C). While many lip balm sticks provide full protection with only one Rub, others require several. While some sticks appear to endure Forever, others are consumed swiftly. These are significant lip Balm qualities that are challenging to measure using household Tools. Why is it so challenging to measure them with science? They rely on how you use your lip balm, such as whether you push Down firmly or gently, or if you rub your lips quickly or gently. In The present study, what yields at various pressures will be evaluated. Try your best to maintain a steady rubbing pace as well. Each lip balm's physicochemical characteristics were examined, and The top formulas were determined. There have been studies on the Interactions among variables (ingredients) and the outcomes (physicochemical characteristics). It demonstrated how the chemical And physical features of the balm's lips are impacted by all of the Components. Additionally, a 4-week stability assessment of the best Formulas was done to spot any alterations that might have happened To the lip balm. Comparing the three best formulations to the Commercial lip balm, the hardness, colour, pH, and greasiness Values were practically identical. The greatest lip bombs were in the Same ballpark as store lip balms in terms of colour, pH, and grease Content.

All lip balms kept at room temperature during the stability testing For 4 weeks had good spreadability and were uniform in terms of Hardness, pH, and colour.

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