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Review Article

Formulation And Evaluation of Herbal Lip Balm Using Beetroot Extract

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ABSTRACT

Cosmetics chemists meticulously select ingredients with specific chemical properties to enhance the efficacy and user experience of their products. Vitamin E capsule acts as an antioxidant, and almond oil serves as a moisturizing agent. Through comprehensive physicochemical studies, we confirmed the successful formulation of the lip balm, ensuring its safety and efficacy. Our patented lip balm incorporates a combination of humectants, emollients, and occlusive agents to lock in moisture and nourish the lips. It caters to both men and women, offering additional benefits such as scar healing and sun protection. It caters to both men and women, offering additional benefits such as scar healing and sun protection. Our product concept focuses on long-lasting hydration, utilizing botanical ingredients like honey, hyaluronic acid, and SPF for optimal lip care.

INTRODUCTION

Beetroot, scientifically referred to as Beta vulgaris (L), is well known plant that belongs to the Chenopodiaceous family. Members of this family are dicotyledons and they are used for. their unique and stable pigments in the food industry.(1) These pigments, known as betalains, are alkaline in nature and have beneficial properties. Further studies have shown th at betalain pigments possess antiviral and antimicrobial effects. Additionally, the antioxidant properties of betalains have been thoroughly examined through various experiments.(2,3) It has been reported that betalains help in improving the resistance of human low density lipoproteins to oxidation. Betalains are gaining attention due to their applications in food coloring and their antioxidant and radical scavenging abilities,which may help in managing oxidative stress-related conditions, cancer, viral infections, and parasitic diseases.(4)

Beetroot

its antimicrobial and antiviral effects and has the potential to inhibit the growth of human tumor cells demand for cosmetics made with natural

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ingredients is rising. Utilizing organic raw resources, these novel techniques, technologies, and tactics have been put into practice.(5,6) Lip coloring is an age-old technique for enhancing lip beauty and adding glitz to facial makeup. The selection of colors, textures, and lusters has been expanded and altered in response to this.

Organoleptic properties

The formulation was examined for its physical appearance, color, and odor. These attributes were assessed through direct visual inspection. (7, 8)Texture and homog eneity were evaluated by pressing a small amount of the formulation between the thumb and index finger.

pH

One gram of formulation was mixed with 25 ml of distilled water. The pH of the formulation was measured using a pH meter (Mettler Toledo), which had been previously calibrated with standard buffer solutions (pH 4, 7, and 10). Each measurement was repeated three times.(9)

Melting Point

The melting point was determined using a melting point apparatus (Veego, India). In brief, one end of a capillary tube was sealed, and the formulation was inserted into the tube from the other end to a specific height.(10)

Test for spreadability

Spreadability was tested using glass slides. The formulation was placed between two slides, and a load was applied to spread the formulation over the slides.(11)

Skin sensitivity

This test involved applying the product as a patch to the skin for 30 minutes and observing the reaction, which could be:

Stability test

The lip balm formulation was tested for stability over a period of 30 days under different temperature conditions, including room temperature (25 ± 2°C), higher temperature in an oven (40 ± 2°C), and refrigerator (5 ± 2°C).(11) The organoleptic properties and spreadability were assessed on the 7th, 15th, and 30th day.

Beetroot phytochemical screening

The purpose of the phytochemical screening was to find some bioactive substances in the extract. Saponin, flavonoids, alkaloids, and tannins are among the phytochemical categories that were examined.(12,13) The bioactive content of beetroots may be diminished by processing them under various presumptive conditions and steps.

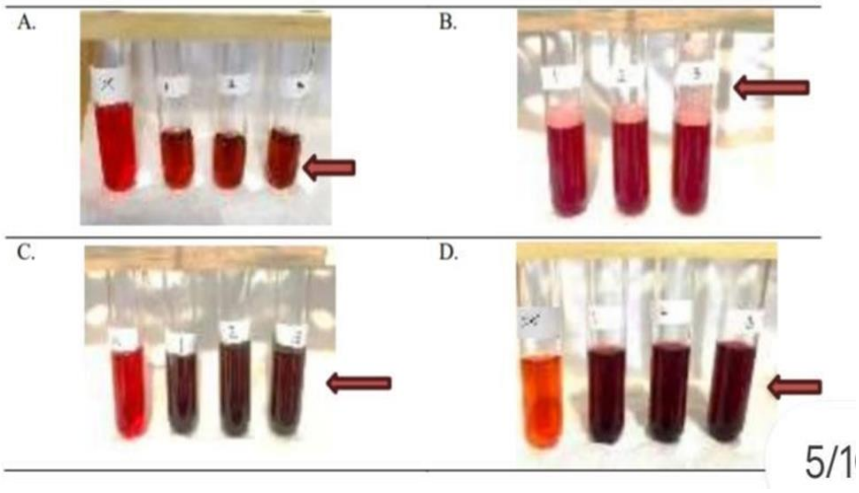

Figure 2. Bioactive compounds were identified in triplication (The number indicated the sample used). A). Flavonoids test; (B). Saponins test; (C) Tannins test; (D) Alkaloids test.

Ingredients

- Coconut oil
- Beeswax
- Vitamin E
- Honey
- Beetroot extract
- Rose water

• Coconut oil

• Beeswax

• Vitamin E

Vitamin E, sometimes referred to as the "skin vitamin," is an important nutrient that is necessary for preserving good health and wellbeing. Vitamin E is an essential antioxidant that helps the body fight off dangerous free radicals, shield cells from oxidative damage, and strengthen the immune system. (14, 15)Vitamin E serves a wide range of purposes beyond its antioxidant qualities, impacting everything from skin integrity to neurological function and cardiovascular health. Vitamin E, which is widely distributed in foods like leafy greens, almonds, and seeds and can also be purchased as a supplement, never fails to enthrall academics and health enthusiasts with its potential medical uses.(16) We learn about the various ways that vitamin E supports resilience, longevity, and vitality in humans in this investigation Body.

• **Honey**

• **Beetroot extract**

Synonym: Beta vulgaris

Biological source: it cultivated form plant beta vulgaris

Family: amaranthaceae

Chemical Constituents:

Potassium, Sodium, calcium, magnesium, iron, p-hydroxy Benzoic acid.

Use:

- beet root natural bleaching properties can help lighten dark lip and even skin tone
- It is using as colouring agent

ADVANTAGES (17)

1. The beetroot can improve the texture of lips.
2. Beetroot contains vitamin C that can nourish and hydrate the lips
3. The beetroot has anti-inflammatory properties that can reduce the redness And swelling

DISADVANTAGE:

1. The beetroot natural pigment is fade more quickly compared to synthetic Dyes.
2. Risk of Kidney Stones
3. GI Discomfort

• **Rose water**

Rose water, a fragrant concoction of rose petals, is a traditional remedy valued for its delicate Rose water, a fragrant concoction of rose petals, is a traditional remedy valued for its delicatearoma, a variety of uses, and possible medical advantages.(18) Rose water has been valued for ages in many cultures due to its fragrant qualities and its use in culinary creations, beauty rituals, and holistic treatments.

Formulation

Sr. No	Ingredients	Uses	Quantity
1	Coconut oil	Moisturize	30 ml
2	Bees wax	Natural emulsifier	5.5 gm
3	Vitamin E	Antioxidant	0.30 gm

4	Honey	Emollient	2 gm
5	Beet root extract	Pigment	50 gm
6	Rose water	As cooling agent & fragrance	3 ml

Natural Lip Balm (19)

1. Natural lip balms support the lips' inherent beauty and health.
2. The natural lip balm is suitable for both men and women.
3. Natural lip balms protect lips that are prone to dryness, chapping, and cold sores.
4. The application of natural lip balm cosmetics to improve skin health and facial beauty.

Natural lip balms Disadvantages

1. Lip balms containing inferior chemicals have the potential to cause significant injury to the lips.
2. Addiction to lip balm.
3. The shelf life of handmade lip balms is generally shorter than that of commercially manufactured lip balms.
4. Other drawbacks of natural oils are their greasiness and reduced spreadability.

Method

The equipment used included a Pyrex beaker glass, an Erlenmeyer glass, a measuring glass, an Ohauss micropipette, a digital analyzer, a powder machine, a Buchner funnel, an Ohauss stirrer magnetic, a water bath (WT-6H), a Hanna PH meter, an oven (Memmert), a mortar, a stamper, and other standard tools for combining ingredients.

Procedures

Step 1: Melt the almond oil and beeswax together in a double boiler or heat-safe container over low heat. Occasionally stir until completely melted and thoroughly mixed.

Step 2: Take the mixture off the stove and let it cool a little once the oil and beeswax have melted.

Step 3: Add the rosewater, beetroot extract, honey, and the contents of the vitamin E capsule (if using) to the mixture while it is still warm but not hot. To make sure all the ingredients are included, thoroughly stir.

Step 4: Before the liquid solidifies, quickly pour it into sanitized lip balm tubes or containers. As the mixture cools, it may begin to solidify, so be sure to work quickly.

Step 5: Before applying, let the lip balm cool and fully set. Depending on the temperature in your surroundings, this could take many hours. Step 6: After cooling, cover the lip balm tubes or containers and keep them out of direct sunlight in a cool, dry location.[18]

Evaluation Criteria

Color: Evaluate the beetroot powders ability to contribute color and its Consistancy.

Texture: Asses the Lip Balm smoothness and spreadability.

Moisturization: Assess how well the Lip Balm hydrates nourishes your Lips.

Fragrance: If essential oil are use to provide fragrance.

Longevity: Maintain colour and hydration throught the day.

Application of Natural Lip Balm

1. Products called natural lip balms are applied to the lips to prevent dryness and shield them from harmful environmental elements.(20)
2. There are a lot of chemical-based lip balms on the market right now from brands like Babylip, Himalaya, Blistex, Nivea, and The Body Shop.
3. Natural lip balm is a product that both men and women can use.
4. The concentration of the primary ingredients, such as butters, oils, waxes, and other excipients, must be balanced in order to make lip balms.

CONCLUSION:

Cosmetics chemists meticulously select ingredients with specific chemical properties to enhance the efficacy and user experience of their products. For example, in the formulation of lip balm, a balance between emollients and waxes is crucial to achieve the desired texture. Oils and butters act as emollients, softening and smoothing the skin, while waxes like beeswax provide structure and thickness. Our patented lip balm incorporates a combination of humectants, emollients, and occlusive agents to lock in moisture and nourish the lips. It caters to both men and women, offering additional benefits such as scar healing and sun protection. Our product concept focuses on long-lasting hydration, utilizing botanical ingredients like honey, hyaluronic acid, and SPF for optimal lip care. In our research, we aimed to develop a lip balm using predominantly natural ingredients. Beetroot extract serves as a natural colorant, while rose water provides fragrance. Vitamin E capsule acts as an antioxidant, and almond oil serves as a moisturizing agent. Through comprehensive physicochemical studies, we confirmed the successful formulation of the lip balm, ensuring its safety and efficacy. Beeswax was used as a base in the current formulation, but future iterations may explore natural alternatives like shea butter or paraffin wax. Furthermore, our study explored the potential of natural dyes derived from plant sources for cosmetic applications.

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