Formulation and Evaluation of Herbal Lipbalm

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Abstract—**The present study focuses on the formulation and evaluation of a herbal lip balm incorporating carrot (Daucus carota) extract along with natural excipients such as beeswax, olive oil, rose water, glycerol, and vitamin**
E. Carrot extract, rich in beta-carotene and antioxidants, was selected for its moisturizing, healing, and protective properties. The lip balm was prepared using a standardized method involving melting of waxes and oils, incorporation of active ingredients, and moulding into solid form. The prepared formulations (F1 and F2) were subjected to evaluation parameters including organoleptic properties, melting point, pH, spread ability, skin irritation, and stability. Results indicated that the lip balm exhibited smooth texture, pleasant odor, orange coloration, satisfactory spread ability, and stability under different storage conditions. No signs of irritation were observed, and the pH was within the acceptable range for topical application. Among the two formulations, F1 demonstrated superior performance. The study concludes that herbal lip balm containing carrot extract is safe, effective, and represents a promising alternative to synthetic lip care products.

I. INTRODUCTION

Introduction cosmetics and personal care products play an essential role in modern society among them lip care products such as lip balms are widely used to protect lips from dryness, cracking and environmental damage lips lack sebaceous glands and therefore require external moisturization and protection. Herbal cosmetics have gained significant popularity due to their safety. Biocompatibility and reduced side effects compared with synthetic product; Carrot is a well-known root. Vegetable belonging to the family Apiaceae it is rich in betacarotene, Antioxidant, vitamins A, C and E, and various phytochemicals which provide nourishing and protective effects for the skin, carrot extract has moisturizing antioxidant and healing properties that make it suitable for cosmetic formulations. Herbal lip balm formulations incorporate. Natural waxes, oils, and plant extract to maintain. Lip hydration provide gloss and protect again environmental stress the preset study focuses on the formulation and evaluation of herbal lip balm prepared using carrot extract along with natural excipients such as beeswax, olive oil, rose water , vitamin E These components were used in the current experiment because they had fewer adverse effects. Often the. Lip balm is eaten by the user, thus it becomes major issue for health regulator. Cosmeceuticals are the ingredients that have medicinal properties that Benefits topical action and also provide protection against degenerative skin condition. The present work was carried out by using these ingredients that Have less side effects. Products used to protect lips rather than to decorate them are well known as lip balms. They form an adherent, moisture resistant Film of oily substances. Herbal lip balms are a well-known way to adorn side effects of conventional lip balm. They create an oily layer that is sticky And locks the moisture into lips, usually without any coloring.

LIP BALM lip balm is a waxy substance applied to the lips to keep them moist. Lip Balm was created to protect the lips from external influences such as the cold of winter and prevent dry, chapped lips. Protecting the lips Helps prevent irritation and infection. Lip Balm Prevents saliva from wetting the skin repeatedly. It also reduces the pain associated with chapped lips. The ingredients used to prepare the lip balm maintain the moisture of the lips and promote the healing of chapped lips.
Lip balm was first marketed in the 1880s by Charles Browne Fleet, though its origins may be traced to earwax. More than 40 years prior to the Commercial

introduction of lip balm by Fleet, Lydia Maria Child recommended earwax as a treatment for cracked lips in her highly-popular book.The Purpose of all lip balms, even those called salves or butters, is to protect the lips. They contain a moisturizing ingredient (such as petroleum jelly, Shea Butter, or lanolin) that prevents water loss. Wax is added to help lip balm stick to lip. Lip balm is a waxy substance applied to the lips to keep them moisturized. It was originally created to protect The lips from external influences, such as cold winter temperatures, and to prevent dryness and chapping. Protecting the lips in this way helps reduce irritation and the risk of infection. Lip balm also prevents saliva From repeatedly wetting the skin, which can worsen dryness. In addition, it helps reduce the discomfort Associated with chapped lips. The ingredients used in lip balm formulations are designed to maintain moisture And support the healing of damaged lip tissue. Lip balm was first marketed in the 1880s by Charles Browne.

Types of Lip Balm
- Medicated Lip Balm – contains drugs for healing
- Herbal Lip Balm – made from natural ingredients
- Flavored Lip Balm – contains flavoring agents
- Tinted Lip Balm – gives slight color

Ideal Properties
- Smooth and uniform
- Non-irritating
- Pleasant smell
- Good spreadability
- Stable at room temperature • Non-sticky

II. AIM AND OBJECTIVES

Aim: To formulate and evaluate a herbal lip balm using carrot extract for nourishing, moisturizing and protecting lips naturally. Objectives:

1. To prepare carrot extract suitable for cosmetic formulation.
2. To formulate herbal lip balm using natural waxes and oils.
3. To assess the moisturizing and protective properties of the herbal lip balm.
4. To prepare a lip balm using natural ingredients like carrot extract, beeswax,and oils
5. To utilize the antioxidant properties of carrot (rich in beta-carotene and vitamin A) for lip care.
6. To provide moisturizing and healing effects to dry and chapped lips.
7. To avoid harmful synthetic chemicals by using herbal components.
8. Too evaluate the prepared lip balm for parameters such as:
- Appearance
- Spreadability
- Melting point
- Stability
- pH

9. .To ensure the formulation is safe, effective, and skin-friendly

III. DRUGS AND EXCIPIENTS

Active Ingredient: Carrot extract, olive oil, bees wax, rose water, glycerol, vitamin E

1. CARROT:
- Scientific name: Daucus Carota subspecies sativus.
- Biological source: Carrot (Daucus carota) is native from Europe and west and central Asia and was probably domesticated in Afghanistan.
- Kingdom: Plantae (plants)
- Division: Magnoliophyta (flowering plants)
- Class: Magnoliopsida (dicotyledons)
- Family: Apiaceae (carrot family)

USES OF CARROT:
- Improves Skin
- Improves Digestion
- Improves Kidney Function
- Reduces Incidences of Stroke
- Maintains a Healthy Heart
- Improves Liver Function
- Anti-Bacterial & Viral
- Great for Eye Health
- Healthy Teeth
- Anti-Canc.

2. BEES WAX:

• Synonyms: Yellow wax, Cera alba. White wax obtained is known a CeraFlava.

• Biological Source: Obtained from the honey comb of the bees Apis

• Mellifera and other species of Apis belonging to the family Apidae, order

• Hymenptera,

• Geographical source: It is produced in France, Italy, West Africa, India.

USES OF BEESWAX:

• Preparation of ointments.
• Plasters & polishes, manufacture of candles.
• Moulds & dental, electronic industries.
• Also used in cosmetics for preparation of lip- sticks and face creams. Pharmaceutically, it is an ingredient of paraffin ointment I.P.

3. OLIVE OIL:

• Synonyms: Oleum Olivae
• Biological source: it is a fixed oil expressed from the
• ripe fruits of Olea europoea.
• Family: Oleaceae
• Geological source: native to Palestine and countries near to Mediterranean Sea. Cultivated in USA and southern Australia Largest producers

USES OF OLIVE OIL:

• Under eye treatment
• Acts as a sunscreen
• Get rid of wrinkles
• Anti-aging Effects
• Make up remover
• Conditions hair
• Prevents heart diseases

4. VITAMIN E:

• Vitamin E is naturally occurring anti-oxidant.

• It is a fat-soluble vitamin. It is also known as tocopherols, tokos-child birth, pheros to bear, ol-alcohol.

• It is also known as “anti-sterility/anti-infertility vitamin” because it helps in normal reproduction in many animals and humans. It is also Known as a beauty vitamin.

Uses:

• Cardiovascular diseases
• Inflammatory diseases
• Radiation damage
• Diabetes mellitus
• Lipid disorders
• Eye diseases
• Neurological diseases

5. ROSE WATER:

• Rose water is prepared by steeping rose petals in water. Sometimes, a By- product of the process of extracting rose oil is also used in the place of rose water.

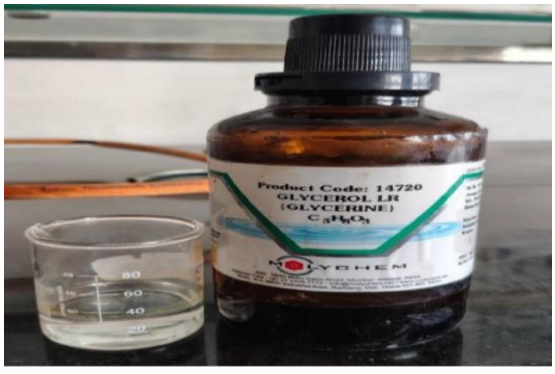
• There are a number of rose water benefits which make it a popular Ingredient in cuisines and religious rituals.

• Rose water for skin and rose water for face are two of rose water’s most Well-known uses.

Uses:
• Helps balance and tone oily skin.
• Soothes and cools dry and Sensitive skin.
• Cleanses and purifies Normal skin.
• Tones and rejuvenates mature skin.
• Help reduce inflammation of skin with acne or eczema and heal better.
• May be used as an aftershave to soothe irritated skin.
• Helps heal sunburns, cuts and wounds.
• Rose water helps to balance the pH of the skin.

6. GLYCEROL:
Formula: C3H803 □ Density: 1.26 g/cm³ □ Molar mass: 92.09382 g/mol.
IUPAC ID: propane-1,2,3-triol Boiling point: 290 °C
Classification: Alcohol, Polyol C3H8O3

Uses:
• Hydrate the Outer Layer of the Skin
• Relieve Dry Skin
• Healing Properties
• Moisturizer
• Protects The Skin Barrier
• Exfoliates Anti-Aging Smoothens the Skin
• Soothens the Skin
• Improves Complexion



IV. ADVANTAGES

7. Natural ingredients – Made from herbal components, so it is safer and free from harmful chemicals.
8. Rich in nutrients – Carrot contains beta-carotene and vitamin A, which help nourish and repair lips.
9. Moisturizing effect – Provides deep hydration and prevents dryness and chapping.
10. Antioxidant properties – Helps protect lips from environmental damage.
11. Low side effects – Less risk of irritation compared to synthetic lip balms.
12. Healing properties – Helps in soothing cracked and damaged lips.
13. Eco-friendly – Herbal formulations are generally biodegradable and environmentally safe.
14. Using a lip balm can help preserve the lips' natural health and attractiveness. Lip balms with sunblock have been shown to shield lips from
15. UV radiation.
16. Men and women alike can utilize these goods, as they are not gender-specific. Lip balm
17. Products aid in preventing dryness, chapping, and cold sores on the lips.
18. The product should not cause friction or dryness when it comes into contact with the skin. It should instead allow a uniform layer to form
19. Over the lips, protecting the labial mucous from environmental factors like pollution, dryness, and UV radiation. It also feels renewed and
20. Refreshed, and it helps with lip-related symptoms like cold, flu, and allergies.

V. DISADVANTAGES

21. Short shelf life – Herbal products may spoil faster due to lack of strong preservatives.
22. Stability issues – Color, smell, or texture may change over time.
23. Lower SPF protection – Usually does not provide strong sun protection unless added separately.
24. Allergic reactions – Some individuals may still be sensitive to natural ingredients.
25. Less long-lasting effect – May require frequent reapplication.
26. Variation in quality – Natural

ingredients may vary depending on source and preparation.

27. Cost of preparation – Sometimes more expensive due to use of pure natural ingredients.

28. Lip balms with inferior components have the potential to cause severe lip damage. Lips that use these balms may get parched.

29. Addiction to lip balms is another common side effect associated with their use. In contrast

30. Homemade lip balms typically disappear off the lips more quickly than those created in a lab. Therefore, you must frequently reap.

VI. .MATERIALS AND METHODS

1. Ingredients- Bees Wax, Olive Oil, Carrot Extract, Vitamin E, Rose Water,Glycerol

Equipments- Measuring cylinder, Beaker, Mortar pestle, Conical flask,Funnel, Lipbalm beaker, Whatman filter paper. Funnel, Lipbalm beaker, Whatman, filter paper.

Fig. Ingredients used in the formulation of Lipbalm.

METHODOLOGY

Fig. Instruments used in the formulation of Lipbalm.

VII. METHOD OF EXTRACTION

2. Fresh carrots are taken and their upper layer is removed by the help of peeler.

3. The peeled carrot is grated evenly then the mixture was poured into a fine muslin cloth and was squeezed to separate the juice from theSeeds.

4. The juice was collected from the beaker and stored in the fridge for the further use.

VIII. METHOD OF PREPARATION

PREPARATION OF HERBAL LIPBALM:

Step 1: Weigh Ingredients. Accurately weigh all required ingredients like carrot extract, beeswax, olive oil, Vitamin E, etc.

Step 2: Melting Base. Take beeswax and olive oil in a clean beaker and heat gently using a water bath until completely melted.

Step 3: Add Active Ingredients. Add carrot extract (or juice), Vitamin E, and rose essence/rose water to the melted mixture.

Step 4: Mixing. Stir the mixture continuously to obtain a uniform (homogeneous) mixture.

Step 5: Cooling.Allow the mixture to cool slightly at room temperature.

Step 6: Moulding .the mixture is

Pour the semi-liquid mixture into lip balm containers or moulds (greased with glycerin if needed).

Step 7: Solidification .Place the filled moulds in an ice bath for about 10 minutes to solidify.

Step 8: Final Product

Remove from moulds and allow to air dry. herbal carrot lip balm is ready for use.

IX. FORMULATION TABLE

Sr.no	Ingredients	Quantity F1	Quantity F2	Uses
1.	Carrot extract	0.8 ml	0.73 ml	Coloring Agent
2.	Beeswax	9.0 gm	8.25 g	Impart Glossiness And Hardness
3.	Olive oil	0.6 ml	0.55 ml	Moisturizing Agent
4.	Vitamin E	0.5 ml	0.46 ml	Antioxidant, Maintain the Stability
5.	Rose water	Q.S	Q.S	Flavoring Agent
6.	Glycerol	Q.S	Q.S	Glossy Effect

Fig: Formulation of herbal lip balm

X. EVALUATION TEST FOR HERBAL LIPBALM

1. Organoleptic Evaluation (Physical Appearance):
Steps:
1. Take a small amount of lip balm.
2. Observe color, odor, and texture.
3. Check for smoothness and uniformity.
4. Color: orange
6. Odor: Pleasant: like rose □ Appearance: smooth

2. Melting Point Test:
1. Fill a capillary tube with lip balm.
2. Attach it to a thermometer.
3. Heat in a water bath slowly.
4. Note the temperature at which it melts.

3. pH Test:
Steps:
1. Dissolve a small amount of lip balm in distilled water.
2. Dip pH paper or use a pH meter.
3. Record the value.

pH Test

4.Spreadability Test Steps:

1. Place lip balm between two glass slides.
2. Apply slight weight on top.
3. Measure how easily it spreads.

- Easily spredable

5.Skin Irritation Test Steps:

1. Apply a small amount on the inner wrist.
2. Leave for 24 hours.
3. Observe for redness or irritation.

Observation:

No irritation, redness, or itching

5. Stability Test:

Steps:

Store lip balm at different temperatures: Room temperature

Refrigerator

Elevated temperature (40–45°C) Observe for 1–2 weeks.

Observation:

No change in color, odor, or texture No phase separation

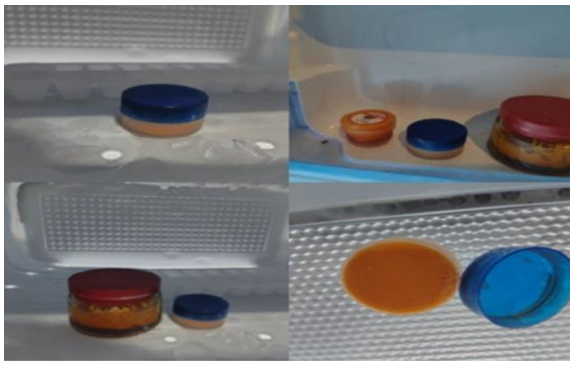


Fig. Stored lip balm at different temperatures

XI. RESULT AND DISCUSSION

The prepared herbal lip balm showed smooth texture, uniform color, and pleasant odor. The pH of the formulation was found to be within the acceptable range for skin application. The melting point indicated good stability at room temperature. Spread ability was satisfactory, allowing easy application on lips.

No signs of irritation or redness were observed during the skin irritation test. Stability studies indicated that the formulation remained stable without phase separation or color change.

The results suggest that carrot extract can be effectively incorporated into lip balm formulations to provide natural antioxidant and moisturizing benefits.

Result: F1 is the better than F2, The Formulation and Evaluation of Herbal Lipbalm Is Performed Successfully

Sr. No	Evaluation parameter	Observation
1.	Melting point	65°c
2.	Organoleptic property	
2.1	Color	Orange
2.2	Odor	Pleasant.
2.3	Appearance	Smooth
3.	Spreadability	Easily spredable
4.	pH measurement	5.6
5.	Skin irritation	No
6.	Stability test	No change in color, odor, or texture

XII. CONCLUSION

The present study successfully formulated and evaluated a herbal lip balm containing carrot (Daucus carota) extract. The formulation demonstrated desirable physical properties, stability, and compatibility with skin. The presence of natural oils, waxes, and carrot extract provided moisturizing and protective effects for the lips.

Herbal lip balm formulations represent a promising alternative to synthetic cosmetic products. Further studies may focus on long-term stability testing and consumer acceptance to enhance commercial applicability.

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