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## Formulations and Evaluations of Herbal Lipsticks from Prickly Pear (Cactus Fruit) Colour Pigment



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### ABSTRACT

The formulation and evaluation of herbal lipstick involve the development of a cosmetic product using natural and plant-derived ingredients. This abstract provides an overview of the process and considerations involved in creating such a lipstick, as well as the evaluation methods used to assess its quality.

The formulation of herbal lipstick begins with the selection of suitable herbal ingredients known for their beneficial properties and safety profiles. These ingredients can include plant oils, waxes, pigments, and herbal extracts that provide moisturizing, nourishing, and colour-enhancing effects.

The natural pigment or colorants in the cosmetics are inconceivable in demand since, historical time till day. Herbal preparations like herbal tablets, herbal paste, herbal creams, herbal lipsticks etc. has become more popular among the consumers. In present days the use of such products has increased and shades of colour, texture and lustre have been changed and become wider. The present investigation was done to formulate herbal lipsticks. Attempt was also made to evaluate the formulated lipsticks. Which is having minimal or no side effects.



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## INTRODUCTION

### LIPSTICK

- Lipstick is a cosmetic product used to apply colouration and texture to lips, often made of wax and oil. Different pigments are used to produce colour, and minerals such as silica may be used to provide texture.
- Lipsticks are of both types liquid and solid.
- It is applied on the area of lips.
- The function of lipstick is to apply coloration and texture to lips.
- There is a different type of lipstick like: lip gloss, lip liner, moisturizing lipstick, gloss lipstick, matte lipstick, and liquid lipstick.
- The main ingredients of the lipstick are: wax, oil, and pigment



### Lipstick

#### Types of Lipstick

Lipstick comes in various types and finishes, catering to different preferences and needs. Here are some common types of lipstick:

1. **Matte Lipstick:** Matte lipsticks have a flat, non-shiny finish. They offer intense colour payoff and are known for their long-lasting formula. Matte lipsticks can sometimes be drying, so it's recommended to moisturize your lips before application.
2. **Satin Lipstick:** Satin lipsticks have a smooth and semi-matte finish. They provide a comfortable feel on the lips and offer a balance between moisture and colour payoff.

3. **Cream Lipstick:** Cream lipsticks have a creamy and hydrating texture. They glide smoothly on the lips and provide a lustrous finish. Cream lipsticks are often moisturizing and comfortable to wear.
4. **Sheer Lipstick:** Sheer lipsticks have a translucent finish and offer a subtle wash of colour. They are typically lightweight and provide a more natural look. Sheer lipsticks are great for everyday wear or when you prefer a more effortless appearance.
5. **Glossy Lipstick:** Glossy lipsticks have a high-shine finish that adds a lustrous, wet look to the lips. They are usually hydrating and can make the lips appear fuller. Glossy lipsticks often have a more sheer or semi-opaque colour payoff.
6. **Liquid Lipstick:** Liquid lipsticks come in a liquid form and usually dry down to a matte or satin finish. They provide intense colour payoff, and long-lasting wear, and often have a transfer-proof or smudge-proof formula.
7. **Metallic Lipstick:** Metallic lipsticks have a shimmery or metallic finish, which adds a reflective effect to the lips. They often contain fine metallic particles that create a bold and eye-catching look.
8. **Stain Lipstick:** Stain lipsticks leave a long-lasting tint on the lips. They have a lightweight, water-based formula that absorbs into the lips, providing a natural-looking flush of colour.

These are just a few examples of the different types of lipsticks available. Within each category, you can find a wide range of shades, formulas, and brands to suit your preferences and desired look.

### **HERBAL LIPSTICK**

- Herbal lipstick is moisture-rich formulation of all-natural ingredients that gives moisture to dry lips and make them glossy.
- Herbal lipstick is safer and more effective than other chemical product.
- Because it contains all-natural ingredients which do not cause any type of side effect or chemical reaction.
- So, the lips can be free from any type of diseases.

- This lipstick has made from natural colour obtained from fruit and gives different varieties of colour.
- This advantage makes this product different from other marketed products.

### **AIM AND OBJECTIVE**

- The aim of the study is to create herbal lipstick that contains an aqueous extract of prickly pear fruit and natural essential oils like coconut oil and castor oil. The main objective of this herbal lipstick is to provide hydration, softness, and moisture to the lips. The colour produced by the lipstick is also purely natural. However, the most important purpose of this herbal lipstick is to provide anti-inflammatory and antioxidant effects to the lips.
- The use of natural ingredients in cosmetics and personal care products has become increasingly popular due to concerns about the potentially harmful effects of synthetic ingredients. The prickly pear fruit extract is known for its anti-inflammatory and antioxidant properties, which can help protect the lips from damage caused by environmental factors like sun exposure and pollution. Natural essential oils like coconut oil and castor oil can help keep the lips moisturized and soft.
- The anti-inflammatory and antioxidant effects of herbal lipstick are particularly important because inflammation and oxidative stress are linked to various skin problems, including dryness, ageing, and even skin cancer. Therefore, the use of herbal lipstick can not only enhance the appearance of the lips but also contribute to their overall health and well-being.

- **MATERIALS & METHODS**

- 1) Beeswax
- 2) Liquid paraffin
- 3) Coconut oil
- 4) Rose essence
- 5) Colouring pigment-prickly pear.

### **prickly pear**

- Prickly pear pigment, also referred to as cactus pigment or battalions, is a group of natural pigments found in the fruit, stems, and leaves of certain species of cactus plants, including the

prickly pear cactus. These pigments are responsible for the vibrant red, purple, and yellow colours of the cactus.

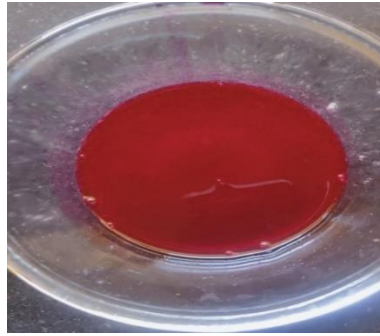


### **Prickly Pear Fruit**

- Betalains are water-soluble pigments that belong to the betalamic acid class of compounds. They are known for their antioxidant and anti-inflammatory properties, making them valuable for use in cosmetics and medicinal products. In the food industry, prickly pear pigment is utilized as a natural food colouring and is commonly added to candies, jams, and other processed foods. It is also used as a natural dye for textiles and cosmetics.

### **METHOD OF EXTRACTION**

- The method used to extract the prickly pear fruit involved homogenizing the peeled fruits with an equal amount of water.
- The resulting mixture was then heated for 5 minutes at 80°C and quickly cooled on an ice bath until it reached a temperature of 8-10°C.
- After this, the extract was centrifuged for 20 minutes to obtain a pure and concentrated extract.
- The centrifugation was done by the centrifuge hand machine which is shown in the below given figure.
- The given below figure is of extract which is produce by the extraction process.



**(Extract)**

- This process is commonly used to extract water-soluble compounds from plant materials and is often used in the production of natural cosmetic and herbal products.

#### **PROCESS FOR MANUFACTURING HERBAL LIPSTICK:**

- I had taken 4 different quantities of ingredients
- Firstly, Bees Wax was melted.
- To that the oil mixtures were added: - Coconut oil and Liquid paraffin.
- Then colour pigment was added to the above mixture and stirred until a uniform colour is obtained.
- While stirring add Rose Essence for fragrance.
- Place in the freezer.
- Scrap the top layer with sharp knife and remove stick by the mould.
- Pass the lipstick through the flame in quick fashion it give gloss to the surface layer of the lipstick.
- Performing softening temperature test.
- Place the lipstick in a lipstick container.

**INGREDIENTS WITH THE PRESCRIBED QUANTITY IN THE FORMULATIONS**

**Ingredients with the prescribed quantity's formulation**

Ingredients	Quantity taken			
	F1	F2	F3	F4
Bee Wax	5.5gm	5.5gm	5.5gm	5.5gm
Coconut oil	12 ml	9 ml	6 ml	3 ml
Liquid Paraffin	-	3 ml	-	3ml
Colouring Pigment	3.5 ml	3.5 ml	9.5 ml	9.5 ml
Rose essence	QS	QS	QS	QS

**GENERAL FORMULATIONS**

S. No.	Excipients	Importance
1	Bee Wax	Glossy and hardness
2	Liquid Paraffin	Blending
3	Coconut oil	Blending / Moisturizer
4	Colouring Pigment	Colour
5	Rose essence	fragrance and preservative

**EVALUATIONS OF LIPSTICK**

**The evaluations tests carried out on the herbal lipstick are:**

**1. Colour and texture**

- Formulated lipstick was checked for colour, glossy and smooth texture.

**2. Melting point**

- Determination of melting point is important as it is an indication of the limit of safe storage. The melting point of formulated lipstick was determined by the capillary tube method; the capillary was filled with lipstick and attached to thermometer. The temperature at which lipstick was completely melted recorded as the melting point.

### **3. Perfume stability test**

- The formulation of herbal lipstick was tested after 20 days, to record the fragrance.

### **4. Solubility test**

- The formulated herbal lipstick was dissolved in water and ethanol to observe the solubility.

### **5. pH parameter**

- The pH of formulated lipstick was determined using digital pH paper.

### **6. Ageing stability**

- Prepared herbal lipsticks were stored at refrigerator temperature (4°C), room temperature (20 - 30°C) and high temperature (40 - 50°C) for 1 hour. Various parameters such as bleeding, crystallization and ease of application were observed.

### **RESULT AND DISCUSSION**

The natural ingredients used in formulating natural herbal lipstick, contain colouring agent, which is obtained from prickly pear fruit.

The quality control evaluation of water extract of 4 herbal lipstick was tested and it gives the result which is shown below. Four different herbal lipstick were formulated and the physiochemical parameters such as colour, odour and pH were evaluated. All four different herbal lipstick have different colours and characteristics of odor.



**Results of Evolution Testing**

Sr No.	Evaluation Parameters	F1	F2	F3	F4
1	Colour	Light Pink	Light Pink	Vibrant Pink	Vibrant Pink
2	PH	6.5	6.5	6.8	6.8
3	Melting Point	58° C	61° C	67° C	68° C
4	Perfume Stability	+++	+++	+++	+++
5	Ageing Stability	Slight Crack texture	Slight Crack texture	Smooth	Smooth
6	Solubility test	Insoluble Water and Ethanol	Soluble in Water and Ethanol	Soluble in Water and Ethanol	Soluble in Water and Ethanol



**Figure F1**



**Figure F2**



**Figure F3**



**Figure F4**

It was observed that among all the prepared formulations (F1-F4). The formulation F4 was good enough to meet the general characteristics of ideal lipstick, on the other hand formulations F1, F2 and F3 showed poor pigmentation after application.

The formulation F3 produce good colour but due to the absence of liquid paraffin the lipstick does not stick together properly. It makes a loose mixture.

The formulations F1 and F2 produce very light colour.

## **CONCLUSION**

In the study, several formulations of lipstick, namely F1, F2, F3, and F4, were prepared and evaluated. Among these formulations, F4 was found to be the most satisfactory in terms of meeting the desired characteristics of an ideal lipstick. However, formulations F1, F2, and F3 exhibited shortcomings in different aspects.


Formulations F1 and F2 were observed to produce a very light colour when applied. This means that the pigmentation of these lipsticks was insufficient, resulting in a less vibrant or noticeable colour on the lips.

Formulation F3, on the other hand, demonstrated good colour production. However, it lacked an important ingredient, liquid paraffin, which affected its ability to stick together properly. As a consequence, F3 resulted in a loose mixture, making it difficult to maintain the lipstick's shape and consistency during application.

In summary, while formulation F4 met the general characteristics expected of an ideal lipstick, such as appropriate pigmentation and consistency, formulations F1, F2, and F3 fell short in terms of pigmentation, colour intensity, and cohesive properties respectively.

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