



FORMULATION AND EVALUATION OF LIP CARD WITH BETACYANIN PIGMENT OF BETA VULGARIS (BEET ROOT)

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Abstract: Colouring lips has conferred all over cultures throughout the study of a past event. From past to the present and day by day increases the demands of these products for adorn and looks more and more bewitching. At the present day, the demands for herbal cosmetic in the market are increases and are avoid less gift of nature. There is an oceanic range of natural cosmetic products to fulfil the needs of women. Lip cards are used cosmetic added in the makeup to enhance the beauty of lips. Lipstick in the form of cards is called lip cards. Nowadays people don't have much time. Lip cards are less time consuming, easy to apply and easy to carry. Beta vulgaris is a perennial plant belonging to the *Chenopodiaceae* family. Round and red in colour. Fruit is rich in vitamin A and vitamin C and also calcium, iron, phosphorus, potassium, protein and carbohydrates. Beets are also high in folate, dietary fiber and antioxidants. Beets contain a pigment called Betalains & Betacyanin that is used for dyes. Betalains a combination of a purple pigment (betacyanin) and a yellow pigment (betaxanthin).

Keywords-Lip card, Beetroot, Betacyanin, Formulation and Evaluation of Lip card.

1. INTRODUCTION

The idea to make lipstick in the form of cards or lip cards can be used as an alternative way to dress up practically in short time. Especially for women who are busy and have less free time. Lip cards is the latest breakthrough in the world of cosmetic and is also easy to use made from natural ingredients and does not contain preservative Lip cards having Suitable texture and antioxidant properties. Base, oil, emollient and colorant these components are used in preparation of lip cards. Colorants or pigment is the component that plays an important role in the lip cards formulation. Colorants obtained in two forms, Synthetic and natural sources. Synthetic color or dyes used in lip cards are dangerous to human health, consumption and it may cause some allergic effect on skin, drying of lips, some skin discoloration. The use of natural color are very good for human health. Natural color dyes are extracted from natural sources such as plants, insects and algae. As compared to synthetic color Natural colors are safe to use. The lip cards contains beetroot extract which functions as a dye that can be used for lips coloring. In beets, there was betacyanin which is a beet red pigment composed of two pigment compound namely reddish purple betasianin and yellowish betaxanthin. It produces a reddish color so that it is used as a natural coloring agent.

1.1. Lip:

The lip skin is non-hairy and does not have sweat glands. Therefore, it does not have the usual protection layer of sweat and body oils which keep the skin smooth, inhibit pathogens and regulate zest. For these reasons, the lips dry out faster and become chapped more easily. The lower lip is formed from the mandibular prominence a branch of the first pharyngeal arch. The lower lip covers the anterior body of the mandible. It is lowered by the depressor labiiinferioris muscle and the orbicularis oris borders it inferiorly.

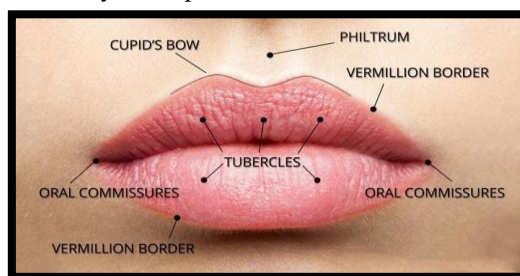


Fig.no.1. Lip physiology

The upper lip covers the anterior surface of the body of the maxilla. Its upper half is of usual skin colour and has a depression at its center, directly under the nasal septum, called the philtrum, which is Latin for lower nose, while its lower half is a markedly different, red colored skin tone more similar to the color of the inside of the mouth, and the term vermilion refers to the colored portion of either the upper or lower lip. It is raised by the levator labii superioris and is connected to the lower lip by the thin lining of the lip itself.

1.2. Facial expression:

The lips assist substantially to facial expressions. The lips visibly express emotions such as a smile or frown, iconically by the curve of the lips forming an up-open or down open parabola, respectively. Lips can also be made pouty when whining, or cheerful to be provocative.

1.3. Lipstick

Lip cosmetics made in sticks basically disperse the coloring matter into a base with the coloring matter into a base with the right mixture of oil wax and fat. Used to give good marks help to change their color to give attractive color and appearance. If applied wisely, it is able to completely change the obvious features of the face. Lips are considered more seductive when slightly moisturized. Their appearance is achieved by the lubricating base i.e. the gloss on the lips which acts as a stimulant on the lips.

1.4. Liquid lipstick

Liquid lipstick also used for applying colour to the lips. It is applied to the lips with the help of lipstick brush applicator. Its helps to provide moisture as well as more attractiveness and Shine to the lips. These lipstick providing more permanent films than can be obtained with convectional lipstick. This liquid lipstick consists of alcoholic solution of alcohol soluble dye, suitable film-forming resins and plasticizer. The alcohol soluble dye are used as dye stuff in a liquid lipstick

1.5. Lip Card

Lip cards are used for decoration and to prevent the lips from drying out. It is made from natural derivatives with the goodness of jojoba oil and vitamin E. This helps to keep your lips always nourished and moisturized.

Lip cards have a super hydrating base that does not delay 6 hours. The cards are light weight and water resistant. It does not contain harmful chemicals. They are paraben free and cruelty free. This gives the lips a glossy matte effect. They are used by biting a folded paper between your lips and they coat your lips.



Fig no.2- lipstick



Fig no.3- liquid lipstick



Fig no.4- lip cards

1.2.1 Active profile

Common name: Beetroot
 Genus: Beta
Species: *vulgaris*
 Binomial name: Beta vulgaris
Family: *Chenopodiaceae*



Fig.no.5. Beet root

Historical underpinnings:

The beet is gotten from the wild best or ocean beet (*Beta Maritima*) which develops on the shores of Eurasia. Antiquated Greeks called the beet teutlion and utilized it for its leaves, both as a culinary spice and therapeutically. The Romans additionally utilized the beet restoratively however were quick to develop the plant for its root. They alluded to the beet as beta. Basic name for the beet include: beetroot, chard, European sugar beet, red nursery beet, Harvard beet, blood turnip, mangel-wurzel, mangel and spinach beet

1.2.2 Chemical composition of Beetroot

Beets contain a significant amount of vitamin A and C and also calcium, iron, phosphorus, potassium, protein and carbohydrates. Beets are also high in folate, dietary fiber and antioxidants. They are high in betaine which is prescribed to lower toxic levels of homocysteine (Hcy).

The highest level of vitamins and other nutrients are available when the vegetables are eaten raw. The beets green are high in vitamin A. The beet remains flavorful, tender and juicy even when the root is large. Some have a slightly clove-like aroma and are sweet, while others have an apple like astringent flavor.

Table no.1 Chemical composition of Beetroot

Composition	100%	Composition	100%
Carbohydrate	7.59%	Calcium	12.20%
Protein	1.35%	Copper	0.09%
Fat	0.3%	Sodium	72.58%
Dietary fiber	1.9%	Zinc	0.21%
Iron	1.4%	Ash	1.4%
Potassium	30.12%	Moisture	87.4%
Manganese	0.79%	Betalain (mg/100g)	14.20%

1.2.3 Benefits –

- 1) Lip cards can be carried around with you in your bag, wallet, and purse anytime, anywhere easily.
- 2) Lip cards are lightweight and enjoyable.
- 3) Lip cards are easy to handle and apply and less time consuming.
- 4) Lip cards contain natural nutrient that keep lips healthy.
- 5) Lip cards are do not spill, leak or break.
- 6) Lip cards do not stain other items lying in handbags or suitcase.

2. Material methods

Materials

Red beet root (*Beta Vulgaris*) collected from Jalgaon local vegetable market.

2.2. Methods

2.2.1. Preparation of extracts.

Red beetroot (*Beta Vulgaris*) collected from the local market, was used for the preparation of lip cards. Harvested fruits were cleaned and peeled by using a Ceramic knife to avoid the interaction between the acidic compound present in the fruit and the steel or metal knife. Then the fruit was cut into small pieces and crushed by hands. The betacyanin pigment was extracted by cold maceration with 50% ethanol for 3 days. Then, the extract was obtained by double filtering by the muslin. The extract was concentrated by freeze drier and the resultant concentrated solution was stored in the refrigerator (4°C) for future use.

2.2.2. WOOD PULP PAPER.

In this experiment, we use wood pulp paper. Paper is one of the most versatile products of everyday life, with hundreds of different uses. It is required for cosmetic, medicinal, educational, communication as well as hygienic, household, packaging, cleaning purposes. Paper is a mat of fibers made from plant material and most often it is made from fibers made of wood. Making paper from wood is important in the industry. The main star wood pulp paper used in the experiment is paper which is a biodegradable, renewable and energy source if burned. If it is made sustainably, then the paper is an environmentally friendly product. If the paper is reusable and recyclable if possible, this problem does not need to arise. Uses pulp for various applications. Tissues, toilet paper, sanitary towels, lip cards require good absorbency.



Fig no.5. 0.3 mm Thick Wood pulp paper.

2.3.1. Physical & chemical Analysis of Beet root extract.

Colour- Red

Odour- pleasant

Taste- sweetish earthy and a little bitter.

Solubility- Easily soluble in water.

pH parameter-The pH of formulated herbal lip cards was determine using pH meter. pH range for lip cards 6-7. Thus, it provided natural test and safe for the lips skin. The pH range is safe to apply on lips.

2.3.2. Confirmative Test for Betacyanin

- a) The samples were heated in 2 M HCl for 5 min at 100° C. The colour changes were observed.
- b) To the sample solution add 2 M NaOH drop wise and the change in colour was observed.

2.3. Formulation

NOTE: This formulation is for 28-30 lip cards.

Table No.2. Formulation of lip card.

Sr. No.	Ingredients	Quantity 50%		
		A	B	C
1	Isododecane	26	27	26
2	Dermacryl 79	2	4	2.5
3	Cetyl alcohol	2	1	2.5
4	Beetroot Extract	6	7	7
5	Jjoba seed oil	6	5	6
6	Shea butter	7	5	5
7	Vitamin E	0.5	1	0.5
8	flavor	0.5	0.5	0.5

Table No.3.Final Formulation of lip card.

Sr. No.	Ingredients (C)	Quantity 50%	Uses of ingredients
1	Isododecane	26	Solvent
2	Dermacryl 79	2.5	Film former
3	Cetyl alcohol	2.5	Improve viscosity
4	Beetroot Extract	7	Active / coloring agent
5	Jjoba seed oil	6	Smoothness And hydration
6	Shea butter	5	Improve consistency
7	Vitamin E	0.5	Antioxidant
8	flavor	0.5	Good taste

2.4. Preparation of base

1. All the apparatus should be washed and cleaned properly.
2. All ingredients weighed properly in a separate phase.
3. Bees wax melt in separate beaker
4. Dissolve flavor in Isododecane and add this mixture in a Dermacryl-79 and mix it properly
5. Add above mixture in a melted ingredients and stir and mix well
6. The prepared product is applied 0.1 to 0.3 mm thick layer on the paper and packing in blister pack type.



Fig.no.6. formulated lipstick

3. Evaluation parameters lip card

1. Spreadability
2. Melting point
3. Thickness
4. Durability
5. Skin irritation test
6. Determination of Thermal Stability.

1. Spreadability:

The spreadability is very much important as shows the behavior of lip cards .It is used to identify the extend of spreadability by the lip cards on the skin. A small quantity of sample was placed on the glass slide and another slide was place above them; 100g of weight was placed on the slide. The time taken for the lip cards to spread on the slide was noted and measured which was found to be 6.5cm in 5min. It was calculated using the following formula:

Formula:

Sm

t = 1

S = Spreadability

m =Weight placed on the slide

l = Length of glass slide

t = Time taken in seconds

2. Melting point

Determination of melting point is important as it is an indication of limit of self-storage. Hardness and melting point are main physical properties important for the stability of lip cards in all usage period and transportation. This characteristic can vary according to the composition of ingredients.

4. Thickness

Thickness Testing. Coating thickness is an important variable that plays a role in product quality, process control, and cost control. Measurement of film thickness can be done with many different instruments. If cards is thicker lipstick is not properly applied to the lips.

5. Durability

Durability testing is the duration of time a product, part, material, or system can meet its performance requirements. E.g. lifetime span. Durability testing helps to improve your product and create greater revenue through customer satisfaction and retention.

6. Thickness

Thickness Testing. Coating thickness is an important variable that plays a role in product quality, process control, and cost control. Measurement of film thickness can be done with many different instruments. If cards is thicker lipstick is not properly applied to the lips.

7. Skin irritation test

Test for irritation was performed on human volunteers with their consent. Five volunteers were selected and 1.0 g of formulated cream was applied on an area of 2 square inch to the back of hand. The volunteers were observed for lesions or irritation.

8. Determination of Thermal Stability

Thermal stability (20°C, 30°C and 40°C) of the prepared and formulation was determine according to (BSI) Indian standard guideline.

4. Result.

To formulate lip cards by using Beetroot extract and evaluating by using different parameters of lip cards are as follow.

Confirmative Test for Betacyanin

- The extracted samples were heated in 2 M HCl for 5 min at 100° C. The colour vanishes, which shows the presence of **betacyanin**.
- To the extracted sample solution add 2 M NaOH drop wise and the colour changes to yellow, which shows the presence of **betacyanin**.

Table No.4. Evaluation of Beet root extract.

Sr. No.	Parameters	Results
1.	Color	Red
2.	Odour	pleasant
3.	Taste	Sweetish earthy and a little bitter.
4.	Solubility	Soluble in water
5	pH	6-7

Table No.5. Evaluation of lip card

Sr.No.	Parameters	Results		
		1 Week	2 Week	3 Week
1.	Colour	Red	Red	Red
2.	Odour	Pleasant	Pleasant	Pleasant
3.	Consistency	Semi-solid	Semi-solid	Semi-Solid

Table No.6.Evaluation of lip card by using different parameter.

Sr.no.	Evaluation parameters	Observation
1.	Color	Red
2.	Melting point	65-70°C
3.	Skin irritation test	No
4.	Odour	Pleasant
5.	Thickness	0.3 to 0.5 mm
6.	Shape	Rectangular
7.	Paper	Wood pulp paper
8.	Size	86 x 54mm

5. DISCUSSION

The present study demonstrated that aqueous extract of Beta vulgaris has coloring effect to the lips. The coloring effect of aqueous extract in lip cards contributed due to presence of Betanin (betacyanin).

6. CONCLUSION

The demand for natural lipstick is growing day by day, present study showed Beta vulgaris contains nutrients, vitamins and Betanin which are responsible for coloring effect and moisturizing. Further the result of the present study demonstrated that Beta vulgaris is one of the vulgaris species that merits more investigation and research.

7. ACKNOWLEDGEMENT

The authors are thankful to the Department of Cosmetic Technology, R. C. Patel Institute of Pharmaceutical Education and Research, Shirpur, Dhule (Kavayitri Bahinabai Chaudhari North Maharashtra University, Jalgaon) for providing necessary facilities for carrying out the experimental work.

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