

## FORMULATION AND EVALUATION OF NATURAL LIPSTICKS PREPARED FROM *BIXA ORELLANA* SEEDS AND *BETA VULGARIS* ROOT EXTRACT AND THEIR COMPARATIVE STUDY

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### ABSTRACT

Cosmetics are incredible in demand since historical time till day .Lipstick formulations are most widely used to enhance the beauty of lips and add glamors to touch to the makeup. With this aim and objectives, an attempt was made to formulate natural lipsticks by using colouring pigments of *Bixa orellana* linn seeds and *Beta vulgaris* linn root and the lipsticks were evaluated for their organolaptic properties such as spreading , hardness, shine and gloss and found to be satisfactory product to give attractive beauty .The preparation of this lipsticks with the natural ingredients like Bixa seeds , Beet root ,Olive oil, Ripe fruit powder of shikakai. Due to various adverse effects of available synthetic preparation ,the present work was conceived by us to formulate a herbal lipsticks having minimal or no side effects which will extensively used by the women of our communities with great surety and satisfaction.

**Keywords:** *Bixa orellana* , *Beta vulgaris*, Herbal lipsticks, Formulation, Cosmetics.

### INTRODUCTION

Now a days, in the whole world there is turn to return towards the use of herbal products and to adopt more natural way of life. People prefer natural food, herbal medicines and natural curing practices for healthy life, there is much craze for the vegetable products cultivated through biological/organic farming without using synthetic fertilizers and pesticides. The usage of herbal cosmetics has been increased to many folds in personal care system and there is a great demands for the herbal cosmetics.[1]

The word herbal is a symbol of safety in contrast to the synthetic one which has adverse effects on human health. Herbal preparations viz., herbal tablets, herbal tonics, herbal paste, herbal shampoo, herbal sindhur, herbal contraceptives and herbal lipstick has become popular among the consumer herbal medicines represent the fastest growing segment to heal the various ailments. Possibly, herbal user desire to assume control over health care needs.[2,3]

Coloring lips in an ancient practice date back to prehistoric period. In present days the use of product has increased and choice of shades of colors textures, luster, have been changed and become wider. This can observed from the facts that lipstick is marketed in hundred of shades of colors to satisfy the demand for the women[4]. In recent time's lipsticks have been under the scanners of many health watchers. Lipsticks are often eaten away by the user and hence it is imperative that health regulators have a microscopic look at the ingredients that go in to the lipstick. The dyes that contribute to the color of the lipstick are dangerous to humans on consumption. In a mild form, the coal tars that are the basic ingredients .from which synthetic dyes are formed can cause allergy, nausea, dermatitis, and drying of the lips. In a more severe form they can be carcinogenic and even fatal. Due to various adverse effects of available synthetic preparation the present work was conceived by us to formulate an herbal lipstick having minimal or no side effects which will extensively used by the women of our communities with great surety and satisfaction.

*Bixa orellana* Linn. Family (Bixaceae) is an ever green shrub native to Argentina, Bolivia, Brazil, Chile, Colombia and exotic to India , USA and Thailand.[5] *Bixa orellana* linn appears like a small bush like tree.It grows to about 5 or 6 meters high and has a peculiar reddish sap. The leaves are alternate, oval to heart shaped and 10-30 cm long. The flowers are large, pinkish in colour and produced in terminal clusters. The fruits are initially green but turn reddish – brown. They are fully covered by soft spines and when they dry, open into two compartments exposing the seeds.[6]The roots bark

and seeds of *B.orellana* are antiperiodic, antipyretic and astringent. They are useful in intermittent fevers and gonorrhoea . The pulp surrounding the seed is a mosquito repellent and is useful to treat dysentery. The decoction of the root is used for liver diseases. The whole plant is bitter, purgative, cures leprosy, biliousness, kidney disorders and vomiting. Seeds and leaves of the annatto tree were used by the Aztecs to prepare remedies for a variety of illnesses such as tonsillitis, asthma, pleurisy, rectal disorders, headache, jaundice, sunstroke, and burns.[7](Fig .1)



Fig. 1: *Bixa orellana* Linn. seeds



Fig. 2: *Beta vulgaris* Linn root

The beet (*Beta vulgaris*) is a plant in the Chenopodiaceae family which is now included in Amaranthaceae family. It is best known in its numerous cultivated varieties, the most well known of which is the root vegetable known as the beetroot or garden beet. Beetroot (*Beta vulgaris*) is the main source of natural red dye, known as "beetroot red". Betanin is the main component of the red colorant extracted from *Beta vulgaris*. The roots are most commonly deep red-purple in color, but come in a wide variety of other shades, including golden yellow and red-and-white striped. The color of red/purple beetroot is due to a variety of betalain pigments, unlike most other red plants.[8] (Fig. 2)

## MATERIAL AND METHODS

### Selection of herbs

The various herbs used in the formulation of herbal lipsticks were selected on the basis of literature survey [9,10].

### Collection of plant material

The herb used in formulation of herbal lipstick were collected in the months of September 2012 from the Alard College of Pharmacy Marunje Pune, (MS) and the plant seeds were used for preparation of herbal lipstick. And *Beta vulgaris* were procured from the local market of Marunje village Pune (MS).

### Extraction of colour pigments

The shade dried coarsely powdered seeds of *Bixa orellana* (100 gms) were extracted with ethanol (60-80°C) for 18 hrs. After completion of extraction, the defatted extract was filtered while hot through Whatman filter paper (No.10) to remove any impurities if present. The extract was concentrated by vacuum distillation to reduce the volume to 1/10; the concentrated extract was transferred to 100 ml beaker and the remaining solvent was evaporated on a water bath. Dark reddish coloured extract was obtained. The concentrated extract was then kept in desiccators to remove the excessive moisture. The dried extract was packed in air tight glass container for further studies[11]. Coloring agent betanin can be obtained from beetroot by milling followed by pressing, filtration and evaporation of the resulted juice [12]

### Methodology

#### Formulation of Natural Lipstick

The Natural lipsticks were formulated as per method described[13] (Fig. 3 and 4). The lipstick prepared from *Bixa orellana* Linn and *Beta vulgaris* Linn were denoted by NL1 and NL2 respectively. The ingredients used in the formulation of both lipsticks are shown in Table 1 and 2.

#### Evaluation of Natural Lipstick[14]

It is very essential to maintain a uniform standard for herbal lipstick, keeping this view in mind the formulated natural lipsticks were evaluated on the parameters such as melting point, breaking point force of application, surface anomalies etc. Both the lipsticks shown the result in the specific limits for the respective evaluation parameter and were found nearly same as reported in Table no 3.

**Table 1: Preparation of natural lipstick from *Bixa orellana* seed extract**

Ingredients	Quantity (gm) NL1	Importance
Olive oil	13	Blending agent
Paraffin wax	26	Glossy and hardness
Bees wax	38	Glossy and hardness
<i>Bixa orellana</i> extract	0.8	Coloring agent
Ripe fruit powder of Shikakai	14	Surfactant
Strawberry essence	1.0	Flavouring agent
Lemon juice	0.5	Anti oxidant

**Table 2: Preparation of natural lipstick from Beet root juice**

Ingredients	Quantity (gm) NL2	Importance
Olive oil	12	Blending agent
Paraffin wax	29	Glossy and hardness
Bees wax	37	Glossy and hardness
<i>Beta vulgaris</i>	0.8	Coloring agent
Ripe fruit powder of Shikakai	13	Surfactant
Strawberry essence	1.0	Flavouring agent
Lemon juice	01	Anti oxidant



**Fig. 3: (NL1)**



**Fig. 4: (NL2)**

**Table 3: Evaluation of prepared natural lipsticks (NL1 and NL2)**

Evaluation Parameters	Inferences	
	NL1	NL2
Colour	Yellowish Red colour	Red colour
pH	6.9±0.1	6.5±0.1
Skin irritation	No	No
Melting point	59	60
Breaking point	30	25
Force of application	good	Good
Perfume stability	++	+
Surface anomalies	No	Yes
Aging stability	Smooth	Smooth
solubility	Ethanol	Chloroform

### 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 capillary tube method, the capillary was filled and kept in the capillary apparatus and firstly observed the product was slowly-slowly melted. After sometimes observed product was

completely melted. The above procedure was done in 3 times and the melting point ratio was observed in all formulation.

#### Breaking point

Breaking point was done to determine the strength of lipstick. The lipstick was held horizontally in a socket inch away from the edge of support. The weight was gradually increased by a specific value (10 gm) at specific interval of 30 second and weight at which breaks was considered as the breaking point.

#### Force of application

It is test for comparative measurement of the force to be applied for application. A piece of coarse brown paper kept on a shadow graph balance and lipstick was applied at 45° angle to cover a 1 sq. Inch area until fully covered. The pressure reading is an indication of force of application.

**Surface anomalies:** This was studied for the surface defects, such as no formation crystals on surfaces, no contamination by moulds, fungi etc.

#### Aging stability

The products were stored in 40°C for 1 hrs. Various parameters such as bleeding, crystallization of on surface and ease of application were observed.

#### Solubility test

The formulated herbal lipstick was dissolved in various solvents to observe the solubility.

#### pH parameter

The pH of formulated herbal lipsticks were determined using pH meter.

#### Skin irritation test

It is carried out by applying product on the skin for 10 min.

#### Perfume stability

The formulated herbal lipsticks were tested after 30 days, to record fragrance.

#### CONCLUSION

This research provides guideline on the use of herbal ingredients on the preparation of lipsticks having minimal or no side effects. The natural ingredients like Olive oil, ripe fruit powder of Shikakai were used in the preparation of natural lipsticks along with *Bixa orellana* and *Beta vulgaris* as colouring agent. The present study proves that both *Bixa orellana* and *Beta vulgaris* are colouring agents and *Bixa orellana* containing lipstick was best among both natural lipsticks. The prepared lipsticks were show excellent properties like shining, spreading and smoothness of lips. The research finding also provides a guideline on effects of ingredients towards the physical properties and consumer acceptance of the lipstick formulations.

#### RESULT AND DISCUSSION

Different natural ingredients were used for formulating natural lipsticks that contain colouring agent which is a natural colourant obtained from herb *Bixa orellana* and *Beta vulgaris* and the effect of different natural ingredients on different evaluation parameters in the formulation have been investigated. The prepared lipsticks (table 1 & 2) were evaluated (table 3) and it was found that herbal natural lipstick, NL1 was best among all three lipsticks formulations. Hence from present investigation it was concluded that this formulated herbal lipstick having minimal and no side effects and thus showing maximum local effect on lips.

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#### REFERENCES

1. Kapoor V.P, Herbal cosmetics for Skin and Hair care, Natural Product Radiance, 2005; 4(4): 306-314.
2. Kaul S, Dwivedi S. Indigenous ayurvedic knowledge of some species in the treatment of human disease and disorders. Inter J Pharm and Life Sci 2010; 1 (1): 44-49.
3. Dwivedi S, Dwivedi A, Dwivedi S N. Folklore uses of some plants by the tribal are of Madhya Pradesh with special reference to their conservation. Ethno botanical Leaflets. 2008; 12: 74 1-743.
4. Chattopadhyay P K. Herbal Cosmetics and Ayurvedic Medicines, I ed. National institute of Industrial Research; 2005. p. 45-50.
5. URL: [http://www.worldagroforestry.org/treedb2/AFTPDFS/Bixa\\_orellana.pdf](http://www.worldagroforestry.org/treedb2/AFTPDFS/Bixa_orellana.pdf)
6. URL: <http://www.plants.usda.gov/java/profile>
7. Asseervatham S B, Sasikumar J M, Kumar D. Studies on In-vitro free radical scavenging activity of *Bixa Orellana* L. bark extract. Inter J Pharm Pharm Sci 2012; 4(2): 719-726.
8. M.A. Pedreno, J. Escribano, "Correlation between antiradical activity and stability of betanine from *Beta vulgaris* L roots under different temperature, pH and light conditions", Journal of the Science of Food and Agriculture, vol. 81, 2001, pp. 627-631
9. Ellison, Don. Cultivated Plants of the World. London: New Holland. 1999, 209-217.
10. Kokate C, Purohit A, Gokhale S. Pharmacognosy, Nirali prkashan; 2007.
11. Sharma PP. Cosmetics- formulation and Quality Control, 3rd ed. Vandana Publication; 2005.
12. T. Dobre, O. Floarea, "Separarea compuşilor chimici din produse naturale" ("Separation of chemical compounds from natural products"), Edit. MatrixROM, Bucuresti, 1997.
13. Jain S K, Sharma N K. Text Book of Pharmaceutics. Vallabh Prakashan; 2005.
14. Dwivedi S, Dwivedi S N, Patel PC. Formulation evaluation and antimicrobial activity of herbal lipstick. Recent Adv in Prospan Potent of Medi Plants 2009; 39 -43.