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Research Article

**FORMULATION AND EVALUATION OF LIPSTICKS USING  
NATURAL PIGMENTS****Sushma Desai<sup>1\*</sup>, Chandrasekhar Rao Baru<sup>2</sup>, Raju Darishetty<sup>3</sup>, Mohammed Aslam<sup>4</sup>, Karam  
Anil Kumar<sup>5</sup>, Tummala Prasad<sup>6</sup>, Jahidul Islam<sup>7</sup>**<sup>1\*</sup>Department of pharmaceuticals, Gitam School of Pharmacy, Rudraram, Hyderabad, Telangana,  
India.<sup>2,3,4,5,6,7</sup>Department of pharmaceuticals, Chilkur Balaji College of Pharmacy, Aziz Nagar,  
Hyderabad, Telangana, India.**Abstract:**

*lipsticks are the most popular among the cosmetics used among women for the protection and giving shape to the lips adding beauty to the face. The current project is to explore the natural pigments utilization like beet root, Bixa Orellana, Butea Monosperma and synthetic color sunset yellow and compare its properties as that of marketed products in physical and stability aspects. In the preparation of these lipsticks' utilization of natural edible oils like olive oil and essence like strawberry for the fragrance purposes. Four formulations prepared NL1, NL2, NL3, NL4 and evaluated for color, pH, skin irritation, melting point, force of application and stability studies.*

**Keywords:** lipstick, natural pigments, cosmetics, stability.

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**INTRODUCTION:**

Cosmetics according to the Indian “Drugs and Cosmetic Act 1940” regulates the manufacturers to produce them in aspects of safety, effectiveness and conformity to the quality standards. Lipsticks come under one such cosmetics widely used by women (Sunil et.al., 2013). Available in more than 200 shades of colors, lipsticks are a compulsory in any makeup kit to make it perfect adding more confidence to the professional look. Lipsticks generally consists of three main ingredients namely oil, wax and colorants. The price range of renowned brands are in ₹ 249-699. Herbal and natural ingredients are utilized to develop these lipsticks to reduce maximum toxicities (Rasheed et.al., 2020) & (Mishra et.al., 2012). Bixa Orellana seeds (Aher et.al., 2012) are edible used in cooking for color imparting to the dishes, apart from it having medicinal benefits such as giving improved eye sight, heart health maintenance, anti-inflammatory & anti-cancer properties. The manufacturing process for lipsticks (Anil kumar et.al,2018) includes sequence of steps like pre-milling of extracted pigments from various sources. The second step is melting & mixing step involving primarily melting of waxes and oils followed by mixing of pigments into the liquified wax mixture then third step as moulding where the molten mixture poured into desired shapes moulds of metal or plastic for hardening. The final step is flaming where the lipsticks exposed to flame for seconds of time to get a glossy finish and shape.

**Promising Key features offered by these brands are**

- Being Travel friendly
- Smudge proof
- 12-hour wearable
- Creamy texture
- Velvet matte finish
- Enriched with oils
- Suitable for Indian skin tones

**There are various types of lipstick such as**

- ✦ Lipstick cream
- ✦ Lipstick palette
- ✦ Lipstick pencil
- ✦ Lipstick tube/stick
- ✦ Liquid Lipstick

General method of preparation of lipsticks are mixing, blending and heating process of mixtures of waxes, oils and various colors and other additives like binders, perfumes etc.

**Advantages of lipsticks usage are as follows:**

- Lips look fuller and defined,
- Transforming makeup look
- Boosting the mood
- Fabulous look

**Disadvantages of using lipsticks**

Irritation

Drying or chapping in lips

Staining/discoloration of natural color of lips

Greasy consistency

Toxins ingestion

**Harmful effects are also observed such as:**

Like cancers, disruption in endocrine system, renal failure, affecting nervous system.

**Materials & Methodology:** The materials required for formulation of lipsticks are olive oil, paraffin wax, bees wax, cadila wax, acacia, tragacanth, bixa Orellana pigment, betanin pigment, are obtained from local area Aziz nagar and derived the pigment. Butea Monosperma pigment powder was purchased from the Gond tribal market. sunset yellow coloring agent, strawberry essence, lemon juice & perfume was purchased from the market.

**Methodology of pigment derivation from Bixa**

**Orellana:** the seeds obtained from the Bixa Orellana plant were sun dried and then using sieves removed off extraneous materials of fibres and other particles. Later the seeds were cleaned using neat dry cotton cloth. Then the neat and clean seeds were light roasted and cooled them at room temperature. The seeds were powdered using household mixer grinder till fine powder is obtained. The fine powder of the seeds were once again sieved for uniformness of the fine pigment, then collected and stored in air tight covers till further usage.

**Preparation of lipsticks:** A total of four formulations with varying pigments and flavouring combination selected were given in the table no. 1. All the ingredients according to the working formula were accurately weighed. The waxes were first melted and added the pigment to it, in the liquid stage only added the binders and flavouring substances and perfume, mixed together to get uniform mixture. Then poured the liquid mixture into pre-greased lipstick moulds. The moulds were allowed to cool in undisturbed condition. The lipstick moulds were checked from time to time till solidification is observed. The lipstick moulds then opened by unscrewing and carefully removed from it.

Table no: 1 Formulation of lipsticks

S.NO	INGREDIENTS	FORMULATION			
		HL1	HL2	HL3	HL4
1.	OLIVE OIL	12ml	13ml	10ml	12ml
2.	PARAFFIN WAX	29g	26g	-	29g
3.	BEES WAX	37g	38g	7g	37g
4.	BIXA ORELLANA PIGMENT	0.8g	-	-	-
5.	STRAWBERRY ESSENCE	1ml	--	4ml	-
6.	LEMON JUICE	1ml	1ml	-	0.1ml
7.	FLAME OF FOREST PIGMENT	-	0.8g	-	-
8.	GUM TRAGACANTH	-	4g	0.5g	-
9.	ROSE ESSENCE	-	1ml	-	-
10.	CANDILA WAX	-	-	1g	-
11.	COLORING PIGMENT (SUNSET YELLOW)	-	-	2g	-
12.	BETANIN PIGMENT	-	-	-	2g
13.	PERFUME	-	-	-	2ml
14.	ACACIA	-	1.5g		

Source: <https://www.indianjournals.com>

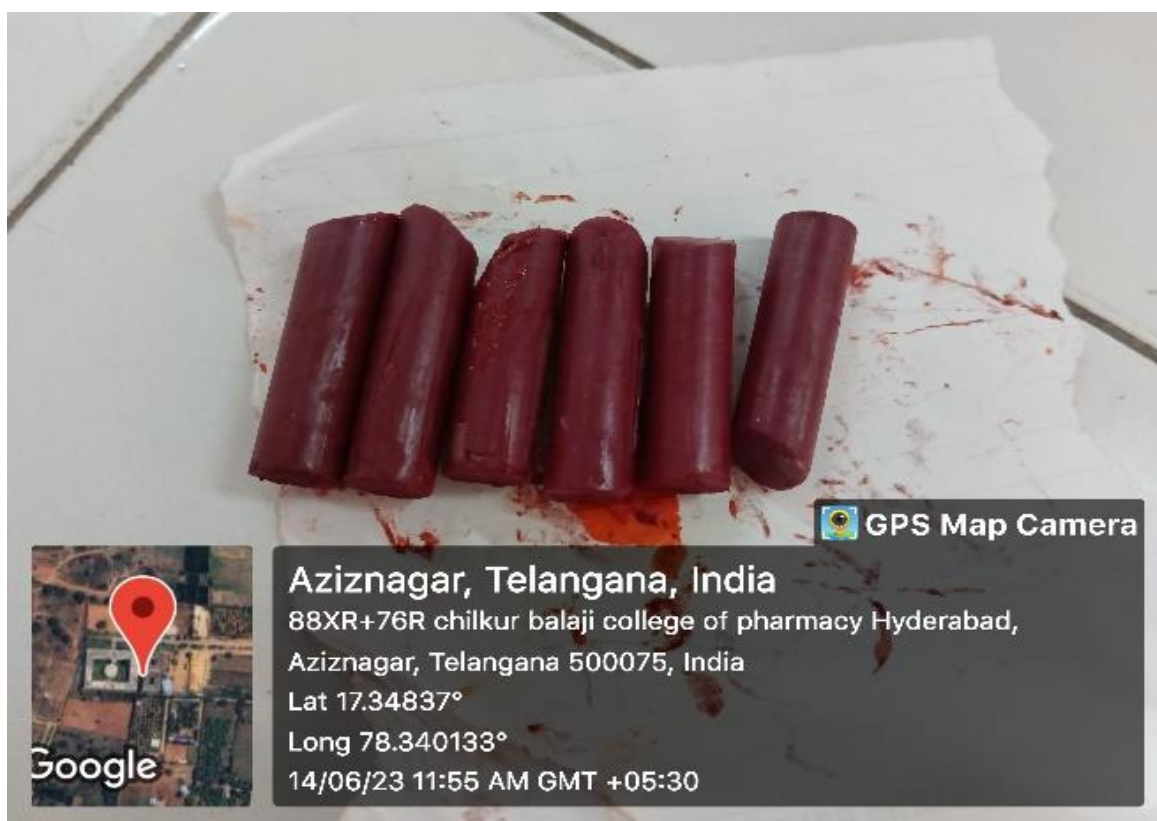


Fig no: 1 lipstick using natural pigment

Source: Chilkur Balaji college of pharmacy pharmaceuticals lab

**Evaluation of lipstick formulation:** The formulated lipstick formulations were evaluated for the following physical parameters as color and texture, pH, solubility, spreadability, melting point, breaking point, force of application and stability studies at various temperatures.

- ❖ **Color & texture:** The color and texture of the formulations were physically evaluated by visual inspection for uniformity in color dispersion.
- ❖ **pH:** Determination of lipsticks pH was done using pH paper.
- ❖ **Solubility:** The solubility of the formulations checked by dissolving in the organic solvents such as ethanol, methanol and chloroform.
- ❖ **Spreadability:** The spreadability of the formulations were inspected by applying on the skin.
- ❖ **Melting point:** The melting point was found by using capillary method were the lipsticks filled into the capillary tube by first melting it, then

allowed to cool for solidification followed by heating and noted the temperature where the lipsticks start to flow from the tube.

- ❖ **Breaking point:** This test is performed by holding the lipstick horizontally within the socket and the weight load of 10g applied onto the other end and the time noted till it breaks. The time it takes to break is noted as breaking point of the formulation revealing its strength.
- ❖ **Force of application:** The force of application of the lipsticks were tested by holding the lipsticks at 45° angle and applying it on piece of paper to cover of 1 sq.inch area.
- ❖ **Stability studies:** stability testing done for formulations keeping at room temperature, 40° c and at 50° c for 1 Hour and checked for their sweating, surface integrity changes.

The results have been tabulated in the table no. 2 and the stability study conducted using stability chamber shown in figure no.2.



Fig no: 2 lipsticks formulations HL1, HL2, HL3, HL4  
Source: Chilkur Balaji college of pharmacy pharmaceuticals lab

Table no: 2 Evaluation Parameters of Lipsticks Formulations

S.NO	EVALUATION PARAMETER	HL1	HL2	HL3	HL4
1.	COLOR	Magenta- red	orange	red	Reddish-purplish
2.	pH	6.9	6.5	6.5	6.8
3.	Skin irritation	no	no	no	no
4.	Melting point	59	60	60	60
5.	Breaking point	30sec	25sec	25sec	25sec
6.	Force of application	good	good	good	good
7.	solubility	ethanol	ethanol	ethanol	ethanol

Source: <https://rjptonline.org>

### CONCLUSION:

The lipsticks formulated using the natural ingredients like Bixa Orellana and Butea Monosperma for coloring with edible oil using olive oil have given satisfactory results for both physical evaluation and stability studies conducted reveal that naturally derived colors proven to be very stable as that of synthetically derived coloring pigments. The current project with the results giving more scope for the development of lipsticks with maximum nature derived pigments for safe and authentic beauty appearance.

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