



FORMULATION AND EVALUATION OF HERBAL LIPSTICK USING BEETROOT, PAPAYA AND ALKANET EXTRACT

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ABSTRACT

The synthetic lipsticks give harmful effects to the lips. Chapping and hyperpigmentation are the main problem of many women's who used the lipsticks. The conventional lipsticks only used for cosmetic purpose. It didn't give any lip care property so, to give additional benefits we used herbal products for therapeutic property, so it gives beauty benefits along with lip care, because it is non-toxic and it is not harmful too. This research provides guidelines on the use of herbal ingredients on the preparation of lipsticks having minimal or no side effects. The natural ingredients such as Aloe Vera gel, Vitamin E, Castor oil, Almond oil used in the formulation of natural lipstick along with Beta Vulgaris and Carica Papaya, Alkana tinctoria as the colouring agents. Evaluation test for lipstick are Colour, Surface anomalies, Solubility test, Melting point, pH parameter, and Skin irritation test are performed. For identification of lycopene and carotenoids TLC test are performed. The natural ingredient give the colour to the formulation.

KEYWORDS: Natural ingredients, Herbal lipstick, Colouring agent, Cosmetic, Formulation and evaluation.

INTRODUCTION

Lipsticks are cosmetics products in which pigments, oils, waxes, emollient, colouring agent, preservatives, etc. are used. The dyes used in lipsticks can be harmful to the lips but the ingredients in natural lipsticks is all natural and safe to use.

It prevents cracking and rupturing of lips which may lead to bacterial infection. The present study was performed to formulate herbal lipstick, shows the less side effects. Lipstick are commonly made from different components, such as vegetable oil like, castor oil, almond oil etc., mineral derivatives (Vaseline oil, white petroleum), pigments and waxes, which are not only used for aesthetic purposes but can also act as bioactive agents in extreme weather, e.g., UV protection.

AIM AND OBJECTIVE

Aim- Formulation & Evaluation Of Herbal Lipstick Using Beetroot, Papaya And Alkanet Extract.

Objective-

1. To study and formulate the Herbal lipstick from Natural Colour pigment made from the standardized extracts of Beta vulgaris.

2. To study the extraction method of lycopene and carotenoids from beetroot extract and papaya extract.
3. To study the methods of preparation for the lipsticks the characterization of the lipsticks and the formulation of the natural lipstick.
4. It highlights the importance of using natural herbs and ingredients to fabricate lipsticks to avoid side effects such as skin irritation and allergy reaction.
5. To study the evaluation parameters of formulated herbal lipstick.

DRUG PROFILE

1. **Beet Root:** Beta vulgaris is belonging to the Chenopodiaceae family Beta vulgaris fruit is rich in vitamin A and vitamin C and also calcium, iron, phosphorus, potassium, protein and carbohydrates, etc. Beets are also high in folate, dietary fibre and antioxidants. Beets contain a pigment called Betalains & Betacyanin that are used for dyes
2. **Papaya:** Papaya belongs to Caricaceae family Papaya contains carotenoids which helps to smoothen the lips from irritation. It acts as a moisturising agent and heal chapped lips.
3. **Aloe vera:** Aloe Vera is a plant that belongs to the Liliaceae family and is often used in cosmetics. It has a healing impact on skin wounds and has the ability to moisturise and soften the skin. The amino acids in Aloe vera, such as leucine and isoleucine, glycosides saponin acid, have antioxidant properties.
4. **Alkanet:** Alkanna tinctoria, the dyer's alkanet or simply alkanet, is a herbaceous flowering plant in the borage family Boraginaceae. root produces a fine red coloring material which has been used as a dye in the Mediterranean region since antiquity. It has been used as a colorant for lipstick and rouge (cosmetics).
5. **Lemon:** The lemon is a species of small evergreen trees in the flowering plant family Rutaceae. Lemon juice contains citric acid. It shows cleansing property.

MATERIAL AND METHOD

Ingredients- Beetroot extract, Papaya extract, Alkanet root extract, Castor oil, Almond oil, Aloe vera gel, Coco butter, Vitamin E tablet, Lemon juice, Strawberry essence.

Equipments- Measuring cylinder, Beaker, Mortar pestle, Conical flask, Funnel, Lipstick mould, Whatman filter paper.

Instruments- Refrigerator, Water bath, pH meter, U.V cabinet.

METHODOLOGY

METHOD OF EXTRACTION

Beetroot Extraction Procedure

Decoction process was used for the extraction of colour pigment and it was prepared by boiling the beetroot with ethanol. The vegetable material was cut into slices boiled with ethanol at 60 to 80 °C approximately for 15 min. The starting ratio of crude drug to ethanol is 1:6 the volume is then brought down to one-fourth its original volume by boiling during the extraction procedure. Then, the extract is filtered and used in the formulation. Dark reddish coloured extract was obtained.

Papaya Extraction Procedure

100 gm of papaya paste was weighed and 125ml of acetone was mixed and was allowed to stand for 3-4 mins to remove water. The mixture was filtered by using Whatman Filter paper. The filtrate was collected and filtered by using a filter paper to dehydrate the paste. Then 125 ml of petroleum ether and magnesium sulphate was added to the filtrate and the content was stirred well for 3-4mins. It was then filtered by using Whatman Filter paper. The filtered lycopene extract was collected and allowed to evaporate. Evaporated sample was used by adding petroleum ether: acetone (9:1).

Alkanet Root Extraction Procedure

The extraction of red pigment from Alkanet root is done by maceration extraction technique. The alkanet root is insoluble in water the extraction is done by using oil. The various oils used for the extraction technique like, coconut

oil, castor oil, olive oil, almond oil . The alkanetroot is infused in oil and is kept macerated for 3 days to obtained a dark red colour pigment . The obtained red pigment which is infused in oil is then filter using a lint cloth .



Fig.1 Extraction of Alkanet, Papaya And Beetroot

IDENTIFICATION OF LYCOPENE AND CAROTENOIDS

Thin Layer Chromatography:

The solvent Methanol: Chloroform (3:7) was used as a mobile phase for the sample identification. Silica slurry coated TLC plate was used as a stationary phase. A line was drawn at the bottom of the TLC plate and the sample was placed using the capillary tube over the line marked. The TLC plate was placed in a beaker containing the mobile phase and was left undisturbed for the solvent to reach the top of the TLC plate. The TLC plate was removed and air dried. The Retention Factor (Rf) of the compound was calculated using the formula.

$$R_f = \frac{\text{Distance travelled by the compound}}{\text{Distance travelled by the solvent front.}}$$

Sample (lycopene)- $R_f = 2.9/5 = 0.58$

Sample (Carotenoids)- $R_f = 4.7/5 = 0.94$



Fig.2 Identification of Carotenoids from papaya



Fig.3 Identification of lycopene from beetroot

FORMULATION OF LIPSTICK

1. In this formulation bees wax, Almond oil, Aloe vera gel and Coco butter in decreasing order of their melting point is melted on water bath at 70°C in a beaker.
2. Similarly add colouring matter to castor oil in another beaker and heat till it dissolves completely.

- Mix both phases at same temperature. The mixture was cooled to 35°C and essences and vitamin E is added.
- Before pouring the mixture, the castor oil is applied to the mould for lubrication.
- The molten mixture was poured into the lipstick moulds.
- After solidification it was separated from the mould and fitted in the lipstick container.

Table 1 Formulation Table

Sr. No	Ingredients	F1	F2	Importance
1	Bees wax	10gm	10gm	Glossy and hardness
2	Coco butter	0.5gm	0.5gm	Hardness
3	Aloe vera gel	1ml	1ml	Emollient
4	Almond oil	2ml	2.5ml	Moisturizing agent
5	Castor oil	5ml	5ml	Glossiness
6	Vitamin E	0.5ml	0.5ml	Antioxidant
7	Beet root extract	9ml	15ml	Colouring agent and Antihyperpigmentation agent
8	Papaya extract	18ml	10ml	Colouring agent and Moisturizing agent
9	Alkanet root extract	4ml	7ml	Colouring agent
10	Lemon juice	1ml	1ml	Exfoliator
11	Strawberry essence	q.s	q.s	Perfume



Fig.4 Formulated Herbal Lipstick F1



Fig.5 Formulated Herbal Lipstick F2

EVALUATION TEST FOR LIPSTICK

- Colour:** Lip colours are products that apply colour, texture and shine to the lips using a brush or other applicator. Lip colours contain ingredients that apply colour to the lips in a precise and controlled manner. Lip colours can also have multifunctional benefits, such as moisturizing, or may even include sunscreen for SPF protection. Lip colour product safety is established by selection of ingredients that are safe and suitable for this intended use.

and purpose.

2. **Surface anomalies:** This was studied for the surface defects, such as no formation crystals on surfaces, no contamination by moulds, fungi etc.
3. **Solubility test:** The formulation herbal lipstick was dissolved in various solvents to observe the solubility. The sample of lipstick i.e. F1 and F2 was dissolved in the chloroform and ethanol.
4. **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.
5. **Softening Point:** Formulated herbal lipstick was varying different temperature conditions.
6. **Breaking Point:** The breaking point test shows the strength of lipstick. Herbal lipstick was kept inch away from socket horizontally. The weight was gradually increased by 10 gm at 30s interval and determines weight at which lipstick breaks and considered as its breaking point.
7. **pH:** The pH of formulated herbal lipstick was determined using pH meter. 1gm of lipstick was dissolved in 100ml of distilled water and measured for its pH in pH meter.
8. **Skin irritation test:** It is carried out by applying product on the skin for 10 min.
9. **Spreadability:** Applying the formulated lipstick on glass slide and observed with fragmentation and deformation or breaking during application and compared with standard formulation.
10. **Time duration:** Lipstick are apply on skin and observed the time duration of lipstick stay on skin.

RESULT AND DISCUSSION

The different natural ingredients were used for formulating natural lipsticks that contain colouring agents which is a natural colorant obtained from herbs like Beta Vulgaris and Carica Papaya, Alkanna tinctoria.

Table 2 Evaluation parameter of lipsticks

Sr. No	Evaluation Parameters	F1	F2
1)	Colour	Yellow	Dark reddish pink
2)	Surface anomalies	Defect show on surface	No defect
3)	Odour	Aromatic	Aromatic
4)	Texture	Smooth	Smooth
5)	Spreadability	Smooth with no fragments	Smooth with no fragments
6)	Solubility	Soluble in Ethanol and chloroform	Soluble in ethanol and chloroform
7)	Melting Point	56°C	62°C
8)	pH	6.2	6.5
9)	Breaking Point	120g	130g
10)	Time Duration	3 hrs	8 hrs
11)	Skin Irritation	No	No

The effect of different natural ingredients on different evaluation parameters in the formulation have been investigated. The prepared lipsticks were evaluated and hence from present investigation it was concluded that this formulated herbal lipstick having minimal or no side effects and thus showing maximum local effect on lips. Formulation F2 was show the best result in compare to Formulation F1. In F2 it shows the better time duration and do not show any side effect.

CONCLUSION

It was concluded that the moisturizing property and hyperpigmentation property both can be achieved by using different natural ingredients such as bees wax, castor oil, almond oil, rose essence, beetroot extract, papaya extract, cocoa powder, Vitamin E which can be used for therapeutic and cosmetic purpose in lipstick. The prepared lipsticks were evaluated and hence from present investigation it was concluded that this formulated herbal lipstick having minimal or no side effects and thus showing maximum local effect on lips.

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REFERENCES

1. Chaudhari, N.P., Chaudhari, N.U., Chaudhari, H.A., Premchandani, L.A., Dhankani,
2. A.R. and Pawar, S.P., 2018. A Review on Herbal Lipstick from Different Natural Colouring Pigment. *Indian Journal of Drugs*, 6(3), pp.174-179.
3. Rani, G.S., Pooja, G., Harshavardhan, V., Madhav, B.V. and Pallavi, B., 2019. Formulation and evaluation of herbal lipstick from beetroot (*Beta vulgaris*) extract. *Research journal of pharmacognosy and phytochemistry*, 11(3), pp.197-201.
4. Shivanand, P., Nilam, M. and Viral, D., 2010. Herbs play an important role in the field of cosmetics. *International Journal of PharmTech Research*, 2(1), pp.632-639.
5. Esposito, C.L. and Kirilov, P., 2021. Preparation, characterization and evaluation of organogel-based lipstick formulations: Application in cosmetics. *Gels*, 7(3), p.97.
6. Mawazi, S.M., Azreen Redzal, N.A.B., Othman, N. and Alolayan, S.O., 2022. Lipsticks History, Formulations, and Production: A Narrative Review. *Cosmetics*, 9(1), p.25.
7. Chaudhri, S.K. and Jain, N.K., 2009. History of cosmetics. *Asian Journal of Pharmaceutics (AJP)*, 3(3).
8. Devi, N., Kumar, A., Garg, A., Hussain, A. and Khathuriya, R., 2018. A REVIEW ON HERBAL COSMETICS.
9. Devi, N., Kumar, A., Garg, A., Hussain, A. and Khathuriya, R., 2018. A REVIEW ON HERBAL COSMETICS.
10. Mawazi, S.M., Azreen Redzal, N.A.B., Othman, N. and Alolayan, S.O., 2022. Lipsticks History, Formulations, and Production: A Narrative Review. *Cosmetics*, 9(1), p.25.
11. Bele, A.A. and Khale, A., 2011. An overview on thin layer chromatography. *International journal of pharmaceutical sciences and research*, 2(2), p.256.
12. Ganea, M., Moisa, C., Cozma, A. and Bota, S., 2016. Determination of carotenoids by thin layer chromatography. *Analele Universității din Oradea, Fascicula: Protecția Mediului*, 26, pp.247-252.
13. ALWAHIBI M.S., PERVEEN K., Chemical analysis by GC-MS and in vitro antibacterial activity of *Alkanna tinctoria* extracts against skin infection causing bacteria. *Biomedical Research*. 28(18), 2017, 7946- 7949
14. YAZDINEZHAD A., MONSEF-ESFAHANI M., GHAREMANI M.H., Effect of *Alkanna frigid* extracts on 3t3 fibroblast cell proliferation. *International Journal of Pharma and Bio Sciences*. 3(4), 2013, 212-215
15. GUMUS K., OZLU Z.K., The effect of a beeswax, olive oil and *Alkanna tinctoria* (L.) Tausch mixture in burn injuries: An experimental study with a control group. *Complementary Therapies in Medicine*. 34, 2007, 66-73.
16. AVINASH M.D., HARI A.M., PRADEEP N.S., Herbal lipstick formulation: A new approach, *International Journal of Research in Ayurveda & Pharmacy*. 2(6), 2011, 1795-97
17. Tejashri A. Gore, Priya Rodge. 2018. Formulation and Evaluation of herbal lipstick containing antifungal agent. *Indo American Journal of Pharmaceutical Research*. 2018;8(01). pp.1298-1310.
18. Rasheed, N., Rahman, S.A. and Hafsa, S., 2020. Formulation and evaluation of herbal lipsticks. *Research Journal of Pharmacy and Technology*, 13(4), pp.1693-1700.