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FORMULATION AND CHARACTERIZATION OF LIP ROUGE BY USING COLOURED PIGMENT OF *PUNICA GRANATUM* L.

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ABSTRACT

Background: Currently market is flooded with many synthetic lip rouge which contains heavy metals like lead, nickel, copper, chromium, arsenic and cobalt and while applying these, some of those toxic substances are absorbed by the lips. Herbal based products are very much familiar now-a-days. This manuscript based on the formulation and characterization of lip rouge from seed extract of pomegranate.

Methods: The present work was aimed to formulate herbal lip rouge by using colouring agent obtained from seeds of *Punica granatum* L., soft paraffin, anhydrous lanolin, castor oil and light liquid paraffin. After formulation, it was evaluated and various parameters such as colours, texture, melting point, pH, breaking point, force of application, surface anomalies, aging stability were determined and reported.

Results: Results showed that, different evaluation parameters of prepared herbal lip rouge were resembled with standard values and with marketed formulation.

Conclusions: Consumers always search for natural-based cosmetics to avoid allergic reactions and any sort of side effects. Further research is appreciated for formulating the lip rouge with some other additional advantages of skins benefit.

Keywords: Lip rouge, Synthetic, Toxic substances, *Punica granatum* L., Herbal.

INTRODUCTION

Any herbal products like herbal shampoo, etc. are very familiar among the consumer. herbal tablets, herbal tonics, herbal pastes According to Drug & Cosmetic act 1940

and rules 1945, cosmetic means any article intended to be sprayed, poured, rubbed or sprinkled on, or introduced into, or applied to the human body or its any part for cleansing, beautifying, promoting attractiveness or altering the appearance. It also includes any articles intended for use as a component of cosmetic. Cosmetics include skin-care creams, lotions, powders, perfumes, lip rouges, fingernail and toe nail polish, eye and facial makeup, permanent waves, coloured contact lenses, hair colours, hair sprays and gels. By using cosmetics human can increase the appearance. By using natural ingredients herbal cosmetics such as lip rouge, lipstick can be formulated [1]. Synthetic lip rouge contains heavy metals like lead, nickel, copper, chromium, arsenic and cobalt and while applying these, some of those toxic substances are absorbed by the lips and stomach. The synthetic compounds even absorbed by the pigment of the skin, where they react with other chemicals of environment and causes rashes on the lips. Among all synthetic cosmetics, lip rouge is used to colour the lip and also it protects from external environment. Colouring lips is an ancient practice.

Punica granatum L. (hereafter pomegranate) is a member of family Punicaceae, which is a deciduous spreading shrub or small tree and has thorns with it. The peel of pomegranate is rich source of

tannin, flavonoids, polyphenols and some anthocyanins [2]. Pomegranate peel extract is having antibacterial (against a few gram positive and gram negative bacteria) and antioxidant property also [3]. In recent days the use of herbal cosmetics has increased and choice of shades of colours, textures, luster have been changed and become wider. Present study was aimed to explore use of seed extract from pomegranate as a colouring agent for preparation of safe and effective herbal lip rouge and evaluate different parameters such as colours, texture, melting point, pH, breaking point, force of application, surface anomalies, aging stability with standard values and marketed formulations.

METHODS AND MATERIALS

Materials:

Soft paraffin, anhydrous lanolin, castor oil, light liquid paraffin were purchased from premise instrumentation and services, Gangtok. Pomegranates were purchased from local market of Sikkim.

Methods:

Extraction of Pomegranate Seed:

The coarsely grounded seeds (100 gm) of pomegranate were squeezed by muslin cloth and then placed in a closed beaker with 50 ml ethanol and allowed to stand at room temperature for a period of 3 days with frequent agitation until the soluble matter has dissolved. The mixture then is filtered using filter paper [4].

Figure 1: Grounded seeds of *Punica granatum* L.

Figure 2: Maceration by ethanol of pomegranate seed

Formulation of Herbal Lip Rouge:

The herbal lip rouge was formulated as per general method of lip rouge formulation. In this formulation, Soft paraffin, anhydrous lanolin, castor oil, light liquid paraffin will be melted in porcelain dish on water bath. The previously prepared coloring agent from pomegranate was mixed with castor oil and finally heated. Both products were mixed at same temperature i.e. 40°C. Propyl paraben was also added with

mixture. Honey was added at 35°C as flavoring agent. Then mixture was poured into lip rouge moulds in excess amount and moulds were kept in refrigerator. After solidification surplus amount was scrapped with blade. Lip rouges were removed from mould and flamed [4]. Composition and importance of different ingredients used for preparation of lip rouge using pomegranate is shown in **Table 1**.

Table 1: Composition and importance of different ingredients used for preparation of herbal lip rouge

Ingredients	Quantity taken	Importance of the ingredients
Soft paraffin	12 gms	Moisturizing agent, formulation base
Anhydrous lanolin	3 gms	Prevent scaly & itchy skin
Castor oil	5 gms	Prevent wrinkle, antioxidant
Light liquid paraffin	8 gms	Formulation base & blending agent
<i>Punica granatum</i> L. seed extract	0.65 gms	Colouring agent
Propyl Paraben	q.s.	Preservative
Honey	3 drops	Flavoring agent



Figure 3: Filtration process of *Punica granatum* L. seed Figure 4: Extracted coloured pigment of pomegranate

Evaluation of Herbal Lip Rouge [4-6]:

It is very essential to maintain a uniform standard for lip rouge, keeping this view in mind the formulated lip rouges were evaluated on the parameters such as colour and texture, pH, melting point, breaking point, force of application, skin irritation test etc.

Colour and Texture:

Formulated lip rouges were checked for colour, glossy and smooth texture.

pH:

The pH of formulated lip rouges were determined using litmus paper.

Determination of Melting Point:

Melting point determination for lip rouge is an important parameter as it says about the limitation of safe storage. It was determined by capillary tube method. Approximately 40 mg lip rouge sample was taken and melted and filled into glass capillary tube opened at both ends. After this, Capillary was cooled with ice for 2.3 hours and fastened with thermometer. Thermometer with capillary was deep in the beaker containing full of water which was placed on heating plate with magnetic stirrer. Then, heating and stirring was started slowly at fixed speed. The temperature at which material moves along the capillary tube was considered as melting point.

Breaking point:

Breaking point is done to determine the strength of lip rouge. The lip rouge is held horizontally in a socket ½ inch away from the edge of support. The weight is gradually increased by a specific value (10 gm) at specific interval of 20 second and weight at which it breaks was considered as the breaking point.

Surface anomalies:

This was studied by the defects on the surface of the lip rouges. Parameters like crystals formation on surface, any contamination by fungi, moulds, formation of wrinkles were checked.

Aging stability:

Those products were stored at refrigerator temperature (4 °C), cool temperature (8-15 °C), room temperature (20-25 °C), and at warm temperature (30-40 °C). Various parameters such as bleeding, crystallization of wax on surface and ease of application were observed.

RESULTS AND DISCUSSION**Extraction of Pomegranate Seed:**

100 gm pomegranate seeds were squeezed by muslin cloth. Yield of pomegranate seeds extract was found to be 5.8 mg/100 gm.

Formulation of Herbal Lip Rouge:

Herbal lip rouges were successfully formulated using pomegranate seeds extract as colouring agent and they were further used for evaluation with different parameters.

Evaluation of herbal Lip Rouge:

Prepared lip rouges were evaluated for different parameters and also those were compared with marketed preparation. Results showed that, different evaluation

parameters of prepared herbal lip rouge were resembled with standard values and with marketed formulation. Results are shown in **Table 2**.



Figure 5: Prepared lip rouges using pomegranate seeds

Table 2: Evaluation of herbal lip rouge

S. No.	Parameters	Formulated lip rouge	Marketed formulation	Standard Values
1.	Colour and Texture	Colour- Wine Red Texture- Smooth	Colour – Red Texture - Smooth	Colour- --- Texture- Smooth
2.	pH	6.5	6.7	6.4
3.	Melting Point	60-62 °C	64-66 °C	60-66 °C
4.	Breaking point	250 gm	200 gm	---
5.	Force of application	Good	Good	Good
6.	Surface anomalies	No defects	No defects	No defects
7.	Aging stability	Smooth	Smooth	Smooth

CONCLUSIONS

Now a days when market is full with artificial and chemical cosmetics, herbal lip rouge plays an important role. Formulation and characterization of lip rouge by using coloured pigment of *Punica granatum* L. was done successfully. Further, these preparations can be safe and more advantageous if thorough clinical trial can be done.

AUTHORS' CONTRIBUTIONS

SR designed the work and RD wrote the manuscript. SR and RD both involved in formulating and evaluating the lip rouge.

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