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FORMULATION AND EVALUATION OF HERBAL LIP BALM INFUSED WITH PAPAYA AND TURMERIC

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ABSTRACT

Backgrond:- The study was to formulate and evaluate herbal lip balm infused with papaya and turmeric, so that an occlusive layer on the lip surface to seal moisturize in the lips and protect them from external exposure. **Method:-** The lip balm was prepared by direct method by extracting papaya powder(Carica Papaya) and turmeric powder(Curcuma Longa) also adding the ingredients like beewax, lemongrass oil, methylparaben, and vanillin. **Results:-** Then evaluated with some parameters like physical appearance, melting point, spreadability test, stability test, skin irritation test, pH test, consistency, washability test. The result was concluded among the three formulations where the second formulation of 10g was selected as the best outcome. As it provides physical character light orange color with pleasant odor and good taste with melting point 69.89^{o}C, with good stability and spreadability, contains 7.2pH near to neutral, no irritation to skin, provides a smooth and non granulated consistency and easily washable. **Conclusion:-** The result suggested that the prepared herbal lipbalm containing papaya and turmeric extract can effectively deliver the product in the market.

KEYWORDS: Carica papaya, Curcuma longa, Lip balm, Evaluated, Herbal lipbalm, Formulation.

INTRODUCTION

Due to increasing public concern, on the presence of hazardous synthetic excipients in cosmetics, new technique are gained to produce products using organic source. Chapped, dry or cracked lips are very common beauty dilemma, particularly in harsh weather. Lips have no oil glands, so theyreally need that extra moisture and protection throughout the day. Many people deal with dried out lips during the winters, but the problem continue in summer seasons, too. Conventional lip balms often contain petroleum, synthetic wax, alumina, paraben, hydrogenated oils and artificial fragrance and colours which are toxic. Lip balm are often eaten away by the users and hence it is imperative that health regulators have a microscopic look at the ingredients that goes in to the lip balm. The dyes that contribute to the colour of the lip balm are dangerous to human on consumption.[1]

The human lips could be infected or face disorder of different kinds depending on what may be causative agent this includes swelling, sun damage, inflammation, discoloration and sores. Lip inflammation chalets occurs when the corners of mouth becomes broken, chapped and painful. The cracked or broken points could be entry points for bacteria and fungi. In other hands, some people believes that inflamed cracked lips are symptoms for fever and drug reactions.

Organic lip balms are formulation applied to lips to prevent drying, chapping and provide protection against adverse environmental factors. Numerous lip balm originates from synthetic chemicals, and there is dearth of information of on organic lip balm formulation, although references related to lipstick formulation apply because, it is a cosmetic form similar to organic lip balms.[2]

The cosmetic formulation which are applied to the lips includes lipsticks, lip balms, lip jellies, lip salves, lip gloss, lip rouge etc. these formulation impart attractive colour along with gloss to the lips.[3]

To formulate lip balms, it is necessary to balance the concentration of the main ingredient including butters, oils, and waxes, so that the final product presents an adequate fusion point of between 65 and 75 degree Celsius, depending on the proportion of waxes, oils and pigments, the formulation will present different characteristics. A long wearing product may be obtained by employing a high proportion of wax and pigment, while the opposite will produce a smoother lipstick or lip

balm. Thus, contact of the product with the skin will not cause a sensation of friction or dryness and should allow the forming of the homogeneous layer over the lips in order to protect the labial mucous susceptible to environmental factor such as UV radiation, dryness and pollution.[4]

Types of lip balms

The lip balms are divided into different types by their ingredients:

- UV filter lip balm: This type of lip balm can be applied all the year round, especially insummer or when staying in a place with an increased solar activity.
- Nourishing lip balm: This type works best in winters.
- Moisturising lip balm: If you apply this type of lip balm in winter, your lips can be cracked because the balm is too quick to be absorbed. This type is better to used in summer.
- Medicated lip balm: It should be applied with care. It acts as softening and antiseptic medication.

Significance

The primary purpose of lip balm is to provide an occlusive layer on the lip surface to seal moisture in the lips and protect them from external exposure. Dry air, cold temperature, and wind all have a drying effect on skin by drawing moisture away from the body.

Merits

1. Lip balm helps to protect natural health and beauty of lips.
2. Lip balm helps to protects lips affected by cold sores, chapping and dryness.
3. It also work perfectly as overnight lip repair.
4 Cracked and sore lips are repair by lip balm.
5. Free from irritation.

Demerits

1. Lip balm made of low quality ingredients can harm lips seriously.
2. Low quality lip balm dry the lips instead moisturizing it.
3. Lip balm addiction is another disadvantage usually seen in it.
4. Naturally derived flavour and colour are more difficult to obtain and also have issue related to stability.
5. Natural oils has other disadvantage such as greasier, and less spreading ability.

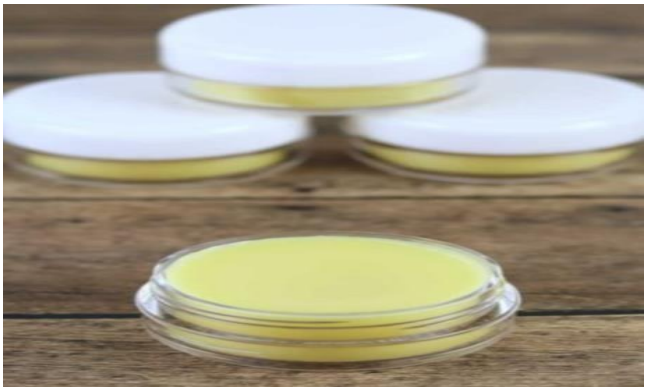

Fig. no. 01: Herbal lip balm containing papaya and turmeric.

Extraction

As the term used in pharmaceutically, involves the separation of medicinally active portions of plant and animal tissues from the inactive or inert component by using selective solvent in standard extraction procedures.

Soxhlet extraction

This process is otherwise known as continuous hot extraction. The apparatus is called Soxhlet extractor made up of glass. It consists of a round bottom flask, extraction chamber, siphon tube, and condenser at the top. A dried, grinded, and finely powdered plant material is placed inside porous bag (thimble) made up of a clean cloth or strong filter paper and tightly closed.

The extraction solvent is poured into the bottom flask, followed by the thimble into the extraction chamber. The solvent is then heated from the bottom flask, evaporates, and passes through the condenser where it condenses and flow down to the extraction chamber and extracts the drug by coming in contact. Consequently, when the level of solvent in the extraction chamber reaches the top of the siphon, the solvent and the extracted plant material flow back to the flask.

The entire process continues repeatedly until the drug is completely extracted, a point when a solvent flowing from extraction chamber does not leave any residue behind. This method is suitable for plant material that is partially soluble in the chosen solvent and for plant materials with insoluble impurities. However, it is not a suitable method for thermolabile plant materials.

Advantages
Large amount of drug can be extracted with smaller amount of solvent. It is also applicable to plant materials that are heat stable. No filtration is required, and high amount of heat could be applied.

Disadvantages
Regular shaking is not possible, and the method is not suitable for thermolabile materials.

MATERIALS AND METHODS

Materials: Materials used during work are enlisted in table.

Table no. 01: Materials and Sources.

Sr. no.	Materials	Sources
1	*Carica papaya L.*	Gondia district
2	*Curcuma longa*	Gondia district
3	Bees wax Lemon grass oilMethyl parabenVanillin Acetone Ethanol	College laboratory

Formulation of lip balm
Procedure:

- Weight all the ingredients and place porcelain dish into the hot water bath.
- Then, add bees wax into porcelain dish and melt it.
- Add papaya and turmeric extract in it and stir vigorously for 10 minutes.
- After 10 minutes of stirring then add methyl paraben, vanillin and lemongrass oil.
- Mix vigorously until it becomes slightly thick.
- Off the flame and immediately pour into suitable container.
- Put the container in ice bath for 15-20 minutes and lip balm will be prepared.

Formula for lip balm
Table no. 02: Formula for lip balms.

Ingredients	Formulation 1 Qty(5g)	Formulation 2 Qty(10g)	Formulation 3 Qty(15g)
Bees wax	1.5 g	4 g	7 g
Lemongrass oil	0.5 ml	1.5ml	3 ml
Papaya extract	1.7 g	1.8 g	1.9 g
Turmeric extract	0.3 g	0.2 g	0.1 g
Methyl paraben	0.5 g	1.5 g	2 g
Vanillin	0.5g	1g	1 g

Fig. no. 02: Formulation of lip balm.

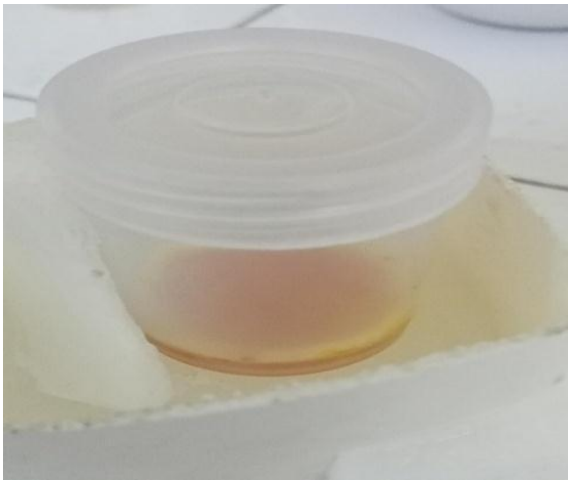

Fig. no. 03: Prepared lip balm.

Evaluation parameter for lip balm
It is very essential to maintain a uniform standard for herbal lip balm, keeping this view in mind the formulated herbal lip balm was evaluated on the parameters such as melting point, physical appearance, etc. Respective formulation have given their result given below:

(A) Physical appearance: Colour, odour and taste of lip balm was determined.
(B) Melting point: To determine the melting point, the material was made molten to fill capillaries. The capillaries where coupled to a system with a

thermometer and emerged in vial with water at a controlled temperature. The temperature at which the melting point of the lip balm sample was observed was considered the melting point.

(C) Spreadability: This is tested by applying the product (at room temperature) repeatedly on glass slide to usually observe the uniformity in the formation of the protective layer and determine if the product is fragmented, deformed or broken during application. The criteria used for spreadability,

G-Good: Uniform, does not leave fragments; perfect application, without deformation of thelip balm.

I-Intermediate: Uniform, leaves few fragments; appropriate application; little deformation of lip balm.

B-Bad: Not uniform, leaves many fragments; difficult or inappropriate application; intense deformation of lip balm.

(D) Stability: Prepared lip balm was placed for accelerated stability studies at room temperature (25 to 30^{o}C), and oven temperature (40 to 20^{o}C). As this type of cosmetic form undergoes softening and deformation at temperature over 50^{o}C, then the oven condition was chosen as the highest temperature of the stability study. As this formulation gives the satisfied results so, it was submitted to be Normal Stability Study.

(E) Skin irritation test: It is carried out by applying product on the skin for 10 minutes.

(F) pH Parameter: The pH of the formulated herbal lipbalm was determined by using pH meter. The pH meter was calibrated by using buffer solution. It was determined to keep the pH of the lipbalm as close as neutral as possible and also to investigate the possibility of any side effect.

(G) Consistency: It is used to determine the uniformity of the product.

(H) Acceptance of product: The formulation of herbal lip balm acceptance was examined by voluntarily participatedcandidates

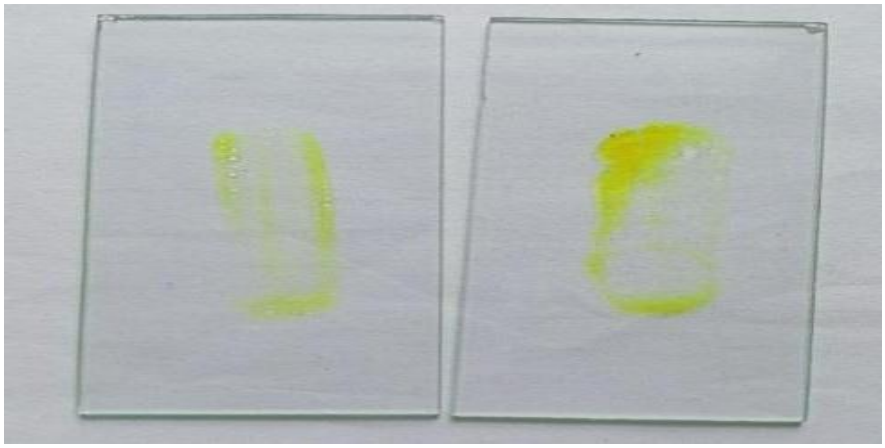

Fig. no. 04: Spreadibility test.

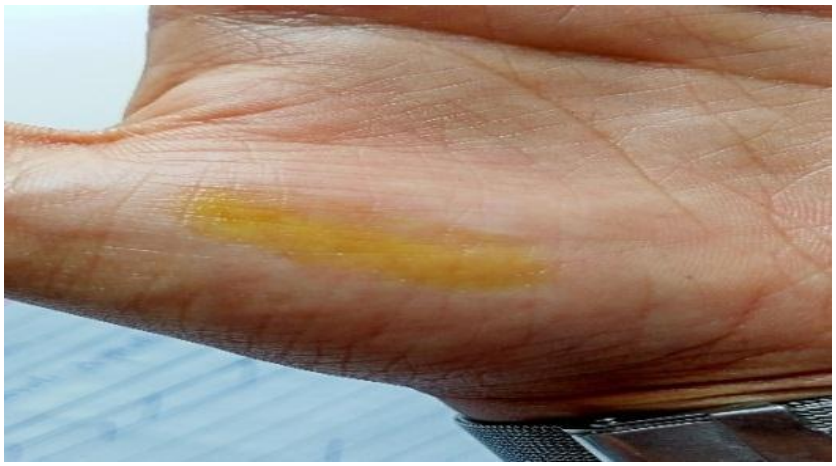

Fig no: 05 skin irritation test.

Fig. no. 06: Melting point.

RESULT

The prepared lip balm formulation were for various parameters. It was observed that the lip balm shows G-G (good uniform no framentation perfect appilcation without any deformation). I-I (intermediate uniform leaves few fragment appropriate application little deformation). B-B (bad not uniiform many fragments inappropriate application intense deformation of lip balm.

Table no. 03: Evaluation parameters for lip balm.

Evaluation parameters	FormulationNo 1 (5g)	FormulationNo 2 (10g)	FormulationNo 3 (15g)
A. Physical appearance			
a. Colour	Orange	Light orange	Orangishyellow
b. Odour	Pleasant	Pleasant	Pleasant
c. Taste	G	G	G
B. Melting point	68.70^0C	69.89^0C	70.61^0C
C. Spreadability test	I	G	I
D. Stability test	G	G	G
E. Skin irritation test	No irritation	No irritation	No irritation
F. pH test	7	7.2	7.4
G. Consistency	Smooth and granulated	Smooth andnon granulated	Smooth and granulated
H. Washability test	G	G	I

DISCUSSION

The herbal lipbalm of papaya and turmeric was formulated according to the requirements. The evaluation parameters performed are meeting the standards of operation guarantees the healing of sores and other wounds resulting from lip infection or disorders. This lipbalm also protects lips from chapping, dryness and beautify lip appearance. The extract of papaya containing papain leads to decrease inflammation and turmeric containing curcumin acts as a moisturizing treatment. The contents of lipbalm (papaya extract, turmeric extract, lemongrass oil, beeswax, methylparaben, vanillin). Gives the herbal product assurance of usage with no known negative impact on the users, in line with the report. Finally, owning the fact that the identified lip infections or disorders can be well managed, to treated and preventedif attentions are shifted to the use of plant-based organic lipbalm.

CONCLUSION

The organic lip balm formulation was prepared by keeping view to develop lip balm using natural ingredients. With hope to minimize side effects.This research results also show that all lip balm made from natural source is good, stable, &has good source of application.

This also studied all aspects of natural lip balm including natural ingredients formulation method, evaluation, &application hence it can be concluded that extensive literature study has been perform on natural lip balm product & show wide scope for product in future. Prepared lip balm shows good spreadability at normal temperature. During the stability test, the developed formulation of organic lip balm exhibited an appropriate melting point (mean of 69°C). It was concluded that Organic lip balm can be a better option for treatment of various lip issues.

The research finding also provides a guideline on effects of ingredients towards the physical properties and consumer acceptance of the lipstick formulations. owing to the fact that the identified lip infections or disorders can be well managed, to treated and prevented if attentions are shifted to the use of plant-based organic lip balms.

Formulation 2 was better than other formulation also have properties which help for better healthcare benefits. The future studies can be carried out on the basis of present studies of formulationsand evalution of herbal lip balm.

1. Various clinical trials can be done to check effect on skin for the details studies of formulations and evaluation of herbal lip balm.
2. To enhance the even texture and smoothness one can go for better homogenizing method.
3. To get the various shades in formulated herbal lip balm the amount of pigment canincrease and decrease accordingly.

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Availability of Data and Material:- All the information in the manuscript has been referred from the included references and is easily available on internet.

ABBREVIATIONS

Qty: Quantity
G: Gram
ml: mili gram

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