

Formulation, Evaluation And Optimization Of Herbal Moisturizing Cream Using Psidium Guajava And Carica Papaya

Aneena Ashehar*, Fathima.S*, Gopika Ajith Kumar*, Hima.G.S*, Iswarya.S.Pillai*, Silpa.S.S

The dale view college of pharmacy and research centre punalal p.o, poovachal, thiruvananthapuram, 695575, kerala.

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ABSTRACT

Objective: The main intention of this research was to design, prepare and evaluate herbal moisturizing cream using Psidium guajava and Carica papaya.

Method: The formulated cream were physically evaluated and an optimized formulation is selected and then it is evaluated by various physicochemical parameters like pH, viscosity, spreadability etc.

Result: Three different formulations of moisturizing cream were prepared and the findings are obtained within a limit. While comparing 3 formulations F2 shows good appearance, texture and all other physical parameters and the F2 is selected as the best formulation.

Conclusion: The study aims on the formulation of herbal moisturizing cream using Psidium guajava and Carica papaya. It was found with regards to its use and better produced stability. Its moisturizing ability was best such a highly stable formulation could be marked for its use.

Keywords: Moisturizing cream, Carica papaya, Psidium guajava

numerous types of cosmetics are being used which mainly includes vanishing cream, cold cream, multipurpose cream, moisturizing cream are mostly used. The skin barriers are disrupted due to various matters and it may lead to skin problems, the major cause this is loss of water which lead to dryness, crack and looks aged etc. This can be prevented by using moisturizer which helps to maintain skin hydrated and provide healthy appearance to the skin. Different types of moisturizers are available with various synthetic agents, there is a need to replace the toxic synthetic agents using herbs obtained from nature.

Cream are semisolid emulsion that are intended for the application to the skin or mucus membrane they may be o/w or w/o. The moisturizing cream helps the skin to stay hydrated by reducing evaporation of water content from the skin. The formulated cream using guava and papaya is rich in antioxidant, vitamins such as A, E, and moisturize the skin deeply. The enzyme present in papaya is called papain, the papain encourage healing of the skin and promote the production of collagen. The collagen makes the skin healthy and maintain elasticity of the skin^[6].

Guava contain 81% of water so it provides hydrating effect on the body. The fruit is enriched with vitamin c and it help in regeneration of the skin and increase the production of collagen. The phytochemical constituent such as phenolic compounds present in guava helps the skin from cancerous cells and also premature aging. The starch extracted from potato provides absorption of the excess oil and dirt from the skin and makes the skin clean and refreshed.

The goal of this study was to emerge the moisturizing cream which does not cause any side effect or adverse reaction. The cream provide nourishment to the skin and also keep skin hydrated by preventing evaporation^[4,8]

I. INTRODUCTION

In ancient times and modern era the use of herbal products in cosmetics is increased day by day for the manufacture of various formulation in all fields. The preference of herbal cosmetics increased because they are of less or no side effect while compared with other synthetic product as they intensify the effect upon application. The herbal extract used in this formulation are purely derived from natural source and avoided the use of synthetic as well as other harmful agents. For avoiding various skin irritations the use of chemical or synthetic agents are avoided in the formulation. The various Vedas describe the concept of herbal cosmetics in ancient times. The various property shown by the herbal extracts are anti-inflammatory, antibacterial, antiseptic and anticancer properties. The interest of herbal cosmetics in skin care system in the market is increasing day by day. The

II. MATERIALS AND METHODS

MATERIALS

Collection of plant material

The active ingredient guava and papaya which is used in the present study were purchased from the local market in Kattakada, Trivandrum district.

Excipients

The excipient used in the formulation are cetyl alcohol, propylene glycol, white soft paraffin

Instruments

Digital balance, digital pH meter, Brookfield viscometer

METHODS

Preparation of extract

For the preparation of cream the fresh juice of papaya and guava is needed. So the fresh fruit of papaya and guava are collected and chopped into small cubes after peeling the skin and

thoroughly mixed well using a mixer and required amount of extract was collected.^[10]

Formulation of cream

The formulation of o/w emulsion based cream the selected oil soluble components are cetyl alcohol, almond oil, white soft paraffin, the selected water soluble component are extract of papaya and guava and vitamin E as preservative. Both the oil soluble components and aqueous phase were taken in a separate beaker. Then mix all the ingredient in the aqueous phase and heated on a water bath and temperature is maintained about 70⁰c, same temperature is maintained in oil phase and then add the aqueous phase to the oil phase and continue stirring by adding potato starch and the perfume is added to the formulation when it attains 40⁰c. The stirring is continued and finally on warm condition, the mixture is replaced into suitable container and packed^[8].

Table: 1

Sl no	Ingredients	F1	F2	F3
1	Papaya extract	6ml	6 ml	6ml
2	Guava extract	6ml	6ml	6ml
3	Propylene glycol	6ml	2ml	6ml
4	White soft paraffin	7.5gm	11gm	9gm
5	Cetyl alcohol	1.5gm	3gm	4gm
6	Almond oil	9ml	7ml	8ml
7	Starch	3gm	4gm	-
8	Vitamin E	1ml	1ml	1ml
9	Water	qs	qs	qs
10	Perfume	qs	qs	qs

EVALUATION OF CREAM

The formulated cream is evaluated by various evaluation parameters,

Physical evaluation

In the physical evaluation the formulated cream was observed for color, odor, texture (table2)

Irritancy

On the dorsal surface of the left hand, mark an area of 15 cm and the formulated cream is applied to the marked area. Then note down whether there occur any type of skin irritation, edema or inflammation.

Homogeneity

The formulated cream were test for the homogeneity by visual appearance by touch.

Washability

From the formulated cream little amount is applied on the hand and then it is washed with tap water.

p^H

Standard buffer solution was used for calibrating the pH meter. About 0.5 gm cream was taken and it is dissolved in 50ml distilled water and the pH was measured using digital P^H meter.

Viscosity

The viscosity of the cream was done by using Brookfield viscometer at temperature 25⁰c using spindle number 63 at 2.5rpm

Spreadability

The spreadability of the cream is evaluated by taking 2 set of glass slides of standard dimension and the formulated cream was placed on the top of the formulation. Then a weight of 30gm on the upper slide so that the cream between the two slides was pressed uniformly to form a thin layer. The length of cream spreaded and time taken to spread is noted.

Dye test

The scarlet red dye is combined with the formulated cream and a drop of cream was placed on a microscopic slide by covering with a coverslip. Then it was viewed under the microscope. If the ground is colourless and dispersed globules are red, then it is oil in water

(o/w) type and the contrary situation occurs in water in oil (w/o) type.

III. RESULT AND DISCUSSION**Organoleptic properties**

The cream was found to be pale yellow in color with pleasant odor.

Irritancy

The formulated cream shows no skin irritation, edema or inflammation during irritation test.

Homogeneity

The prepared cream shows homogeneity by appearance and by touch.

Washability

The cream when applied was easily washable with tap water.

Ph

The pH of the cream was found to be in the range of 5.6 to 6.8 which is nearer to skin pH. pH of F2 was found to be 6.26.

Viscosity

Viscosity was noted at a temperature of 25⁰C at 2.5rpm. The viscosity of F2 was found to be 2130cps.

Spreadability

It was observed that formulation F2 has the greatest spreadability than other formulations^[2].

Dye test

This test confirms that the formulation was oil in water type. The formulation F2 was more stable in oil in water (o/w) type emulsion.

Table: 2

Parameter	F1	F2	F3
Color	Pale yellow	Pale yellow	Pale yellow
Odour	Characteristic	Pleasant	Characteristic
State	Semisolid	Semisolid	Semisolid
Irritancy	Nil	Nil	Nil
Homogeneity	Not good	Best	Good
pH	6.09	6.26	6.34
Viscosity	2230	2130	1764
Spreadability	6.0	6.5	5.6



Fig. 1:

IV. CONCLUSION

The study was undertaken with the aim of formulating a herbal moisturizing cream using Psidium guajava and Carica papaya. Papaya is the major ingredient in many of the moisturizing creams due to its property of providing moisturized and nourished skin. It also has the effect of lightening the skin and it helps in preventing acne. Guava helps in hydrating the skin and enhancing radiance. Cetyl alcohol helps to treat dry skin by providing moisture. Almond oil increases the complexion and skin tone and helps in preventing dry skin. Potato starch promotes the production of collagen thus helps in removing the dead skin cells. Three formulations were prepared by varying the proportion of all the herbal ingredients. Among the preparations, formulation F2 was found to be best, as it was having the best properties. It was pale yellow in colour, and stable after 2 weeks observation. It was smooth in texture the spreadability was good. It was found to be the best with regards to its use and better product stability. Its moisturizing ability was best. Such a highly stable formulation could be marked for its use.

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AUTHORS CONTRIBUTION

Experimental work, technical support, supervision, guidance, development, optimization of formulation and clarification of the results and writings of this manuscript was done with the contribution of all the authors.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

REFERENCE

- [1]. Manisha Yogesh Sonalkar, Sachin Annasaheb Nitave, Formulation and Evaluation of Polyherbal Cosmetic Cream, World Journal of Pharmacy and Pharmaceutical Science 2016; 5: 772-9.
- [2]. Multimer M. Spreadability determination by an apparatus, J. Am. Pharm. Assoc. 1956; 45: 212-4.
- [3]. Kalpesh Chhotalal Ashara, Importance of Trituration Technique on Preparation and Evaluation of Cold Cream, Inventi Rapid Pharm Tech 2013; 1-2: 2012.
- [4]. SK Uddandu Saheb, Aduri Prakash Reddy, K Rajitha, B Sravani, B Vanitha, Formulation and Evaluation of Cream from Naturally Containing Plant Extracts, World J Pharm Pharm Sci 2018; 7: 851-62.
- [5]. Prashant C, Mallinath K, Formulation and Evaluation of Polyherbal Cream, International Journal of Current Pharmaceutical Research, 2nd edition, 2020.



- [6]. Varvaresou A, Papageorgiou S, Tsirivas E, Protopapa E, Kintziou, H Kefala, V Demetzos C, Self-Preserving Cosmetics, International Journal of Cosmetic Science 2009, p. 163-165.
- [7]. Indian standard bureau IS:6608;1978 P.5.1-6.1
- [8]. LachmanL,Herbert AL, Joseph A K.The theory and practices of industrial pharmacy chapter 111.Varghese publication house,India;199.p.569
- [9]. Milleno,The journal of photochemistry and photobiology B:Biological volume 201 Dec 2019.
- [10]. Bahram H.Arjamandi studied the extraction of guava using various solvents in American journal of dermatological science.