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FORMULATION AND EVALUATION OF POLYHERBAL COSMETIC CREAM

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ABSTRACT

Natural remedies are more acceptable & safer than synthetic ones. The present study of cream were formulated on the basis of Anti-oxidant property of herbal extracts & it's evaluation. In this polyherbal cream containing hydro alcoholic extract of Liquorice (Glycyrrhiza glabra), Neem (Azadirachta indica), Papaya leaf (Carica papaya). In quality evaluation of Formulation (F1-F6) were done on different parameters like PH, Viscosity, spreadability & Stability. There were no change in physical properties of polyherbal cream. The formulation showed good spreadabiliy, no phase separation & good consistency. It is found that viscosity of the cream is Adequate. There is no sign of microbial growth after incubation period of 24hrs at 37°. The creams were found to be stable during stability study.

KEYWORDS: Glycyrrhiza glabra, Azadirachta indica, Carica papaya, Polyherbal, Anti-oxidant.

INTRODUCTION

Cream is defined as semisolid emulsions which are oil in-water (o/w) or water-in-oil (w/o) type and these semisolid emulsions are intended for external application. Two phase of cream i.e. oil-in-water and water-in-oil.[1]

The Cosmetic product are the best choice to reduce skin disorders. The use of cosmetic is not only developing an attractive external appearance, but towards achieving good health by reducing skin disorders.[2]

Natural herbal skin creams are moisturize, hydrate and nourish the skin. The present work is develop herbal cream which can produce multipurpose effect, like to reduce skin disorders eg. hyper pigmentation, skin wrinkling, skin aging etc. Present polyherbal cream comprising drugs like Neem, Liquorice, papaya leaves.

- **Uses of Liquorice Root**
- It is used in psoriasis, skin rash, hyperpigmentation.
- Liquorice is known for it's antiviral, antibacterial, anti-inflammatory, antispasmodic, antioxidant, antidepressant, demulcent and expectorant activity.
- The plant not only calm or smooth skin, but also actively restore, heal and protect the skin.[3]
- It is used as Antimicrobial, Antiinflammatory, antidepressant, glowing complexation.[4]

- **Uses of Neem Leaves**
- It is used to it reduce the redness, itching of irritated skin.
- It reduce the scar & pigmentation.
- It help to moisturize dry & cracked skin.
- It protect the skin from some infection, fungus or parasite.[4]
- Actually the Neem leaf is used to treat skin disorders, not the neem oil. Most of scientific research found that neem has anti-inflammatory and antibacterial action using neem leaf extract.
- It is also used as anthelmintic, antifungal, antidiabetic, antiviral and also in skin disease.[5]

- **Uses Of Papaya Leaves**
- Papaya leaves contain more Vitamin A & Vitamin C which promoted the health of skin.
- It act as a good cleansing agent, it make skin clear & skin get free from pimples, blemishes, freckles.
- It contain Karpain so it used to inhibit microorganisms & other toxins.
- It treat Eczema & open wound.
- Open wound and sore can be treated using papaya leaf.
- To make hardened skin or wart on the feet papaya leaf extract can use.
- Papain which is main enzyme found in Carica papaya is recognized as natural medicine in controlling edema & inflammation.

- Some diseases which have inflammatory condition such as arthritis, rheumatism, asthama and wound healing can be treated using extract from leaves of carica papaya.[6]

MATERIAL AND METHOD

The plants used in study were taken from local market of Sangli, dried under shade, powdered coarsely & used for extraction.

Extraction of Liquorice

50gm. Of dried powdered of liquorice root were moistened with150ml of 10% Ammonia & then percolated three times with 80% ethanol (3×300ml) each for 24hrs. at room temp. The ethanolic extract was conc. till dryness.

Extraction of Neem

Neem extract was prepared by macerating 40gm of dry powder of neem with 250 ml of 70% (w\v) ethyl alcohol for a week in a round bottom flask with occasional shaking. The flask was kept in dark to avoid effect of light on the active constituent of the neem. The extract was then filtered through a muslin cloth. The extract concentrate till dryness.[7]

Extraction of Papaya Leaf

40gm. Dried powder of papaya leaves soaked in 250 ml of 70% (w\v) ethyl alcohol for a week in a round bottom flask with occasional shaking. The flask was kept in dark to avoid effect of light on the active constituent of the papaya. The extract was then filtered through the a muslin cloth. The extract concentrate till dryness.[7]

Cream Formulation

In (part A), Stearic acid (emulsifier) and Cetyl alcohol and mineral oil (oil soluble components) are dissolved and melt at 60^0C. In (part B), the preservatives and water soluble component Methyl paraben, propyl paraben, Triethanolamine and extract of Carica papaya, Glycyrrhiza glabra, Azadirachta indica, were dissolved in aqueous phase and heated at 60^0C. Then aqueous phase added to the oil phase with continuous stirring until get a smooth cream.[8]

Evaluation of cream

pH of the cream

About 0.5 g of cream was taken dissolved in 50ml of distilled water and then pH measured.

Homogeneity

The formulation were tested for the homogeneity by visual appearance and by touch.

Appearance

Appearance of the cream was judged by its color, state odour, texture.

After feel

Emolliency, slipperiness and amount of residue left after the application of fixed amount of cream was checked.

Type of smear

After application of cream, the type of smear formed on the skin were checked.

Removal

The ease of removal of the cream applied was examined by washing the appliedpart with tap water.

Irritancy Test

The cream was applied on the left hand dorsal surface of mark an area (1sq.cm) and time was noted. The irritancy, erythema, edema was checked for 24 hrs. and reported.

Accelerated Stability testing

Accelerated Stability testing of prepared formulation was conducted for two most stable formulation at room temperature, studied for 07 days. The formulation 03 and 05 tested at 40^0c ± 01^0c for 20 days. The formulation were kept both at room and elevated temperature and observed on 0^{th}, 05^{th}, 10^{th}, 15^{th}, 20^{th} day for the parameters given in table no.05

Dye Test

The Scarlet dye is mixed with the cream. A drop of cream observe under microscope. If the disperse globules appears red the ground colorless. The cream is o/w type and if disperse globules appear colourless in the red ground then the cream is w/o.

Table 01: Formulation of Cream.

Sr.No.	Ingredients	Formula % W/W					
		F1	F2	F3	F4	F5	F6
01	Liquorice Extract	1.0	1.0	1.0	1.0	1.0	1.0
02	Neem Extract	1.0	1.0	1.0	1.0	1.0	1.0
03	Papaya Extract	1.0	1.0	1.0	1.0	1.0	1.0
04	Stearic acid	08	08	10	10	12	12
05	Cetyl alcohol	04	03	04	03	04	03
06	Mineral oil	04	04	04	04	04	04
07	Glycerin	03	03	03	03	03	03
08	Methyl paraben	0.18	0.18	0.18	0.18	0.18	0.18
09	Propyl paraben	0.02	0.02	0.02	0.02	0.02	0.02
10	Triethanolamine	01	01	01	01	01	01
11	Water	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.

RESULT

pH of the cream

All the formulation of cream were shown pH nearer to skin required i.e. F1-6.5, F2-6.5, F3-6.6, F4-6.6, F5-6.7, F6-6.8.

Homogeneity

By visual appearance and by touch, it is confirm that all formulation produce uniform distribution of extract in cream (Table no.04).

Appearance

There is no change in colour of cream (Table no. 02).

After feel

Emolliency, slipperiness and amount of residue left after the application of fixed amount of cream were found (Table no. 04).

Type of smear

After application of cream of F3 and F4, the type of smear formed on the skin were more non greasy (Table no. 04).

Removal

The cream F3 and F4 applied on skin, was easily removed by washing with tap water (Table no. 04).

Irritancy Test

The formulation F6 and F4 shows no irritancy, erythema, edema, inflammation and irritation during irritancy studies (Table no.03).

Dye Test

It is confirm that all formulation were o/w type emulsion cream but Formulation F3 and F4 are more stable in o/w type emulsion.

Table 02: Physical Properties.

Sr.No.	Specification	Limits
01	State	Semisolid
02	Colour	Greenish Yellow
03	Odour	Characteristic
04	Texture	Smooth

Table 03: Types of Adverse effects of formulation.

Formulation	Irritant effect	Erythema	Edema
F1	Nil	Nil	Nil
F2	Nil	Nil	Nil
F3	Nil	Nil	Nil
F4	Nil	Nil	Nil
F5	Nil	Nil	Nil
F6	Nil	Nil	Nil

Table 04: Showing the result of evaluation of Herbal Cream.

Sr.No.	Formulation (O/W)	pH	Homogeneity	Appearance	Spreadability	After Feel	Type of Smear	Removal
01	F1	6.5	Uniform	Greenish yellow	Easy	Emollient	Non greasy	Easy
02	F2	6.5	Uniform	Greenish yellow	Easy	Emollient	Non greasy	Easy
03	F3	6.6	Uniform	Greenish yellow	Easy	Emollient	Non greasy	Easy
04	F4	6.6	Uniform	Greenish yellow	Easy	Emollient	Non greasy	Easy
05	F5	6.7	Uniform	Greenish yellow	Easy	Emollient	Non greasy	Easy
06	F6	6.8	Uniform	Greenish yellow	Easy	Emollient	Non greasy	Easy

Table 05: Physical parameters of F3 and F4cream at room and accelerated temperature.

Days	Temperature	Formulation	Parameters						
			pH	X_1	X_2	X_3	X_4	X_5	X_6
00	RT	F3	6.6	*	NCC	*	E	NG	ES
		F4	6.6	*	NCC	*	E	NG	ES
	40^0c+1^0c	F3	6.5	*	NCC	*	E	NG	ES
		F4	6.4	*	NCC	*	E	NG	ES
05	RT	F3	6.5	*	NCC	*	E	NG	ES
		F4	6.6	*	NCC	*	E	NG	ES
	40^0c+1^0c	F3	6.4	*	NCC	*	E	NG	ES
		F4	6.5	*	NCC	*	E	NG	ES
10	RT	F3	6.5	*	NCC	*	E	NG	ES
		F4	6.4	*	NCC	*	E	NG	ES
	40^0c+1^0c	F3	6.6	*	NCC	*	E	NG	ES
		F4	6.5	*	NCC	*	E	NG	ES
15	RT	F3	6.7	*	NCC	*	E	NG	ES
		F4	6.5	*	NCC	*	E	NG	ES
	40^0c+1^0c	F3	6.6	*	NCC	*	E	NG	ES
		F4	6.5	*	NCC	*	E	NG	ES
20	RT	F3	6.4	*	NCC	*	E	NG	ES
		F4	6.3	*	NCC	*	E	NG	ES
	40^0c+1^0c	F3	6.5	*	NCC	*	E	NG	ES
		F4	6.4	*	NCC	*	E	NG	ES

X_1-Homogenity, X_2-Appearance, X_3-Spreadability, X_4-After feel, X_5- Type of smear, X_6-Removal, *:Good, E: Emolient, NG: Non greasy, ES: Easy, NCC: Not change in colour.

DISSCUSSION

From above result it is concluded that on combining the extract Glycyrrhiza glabra root, Carica papaya leaves & Azadirachta indica leaves to get multipurpose effect such as whitening, antiwrinkle, antiaging and sunscreen effect on skin. As it is not possible that efficiency of medicinal and cosmetic property in single plant extract, but by combining the different natural components can be possible to increase the efficacy of extract. The prepared cream improve and synergize the cosmetic properties as compare to individual extract. These studies suggested that these extract and base of cream are more stable up to 12 months and safe.

CONCLUSION

Oil in water emulsion based cream was formulated using natural ingredients and was evaluated. By combining all these ingredients it can be concluded that this cream can be used

as a multipurpose cream and the ingredients mixed can produce synergistic effect of other. These studies suggest that base of cream of F3 and F4 are more stable and safe for use.

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