

FORMULATION AND EVALUATION OF HERBAL CREAM FROM THE LATEX OF *CALOTROPIS GIGANTEA*

Ranjan Kumar Maji^{*1}, Sudip Pal², Aveek Datta³, Sambit Maiti⁴

^{*1,2,3,4}Bharat Technology, Uluberia, Howrah-711316, India.

ABSTRACT

The aim of this present research work is to formulate and evaluate herbal cream. The herbal cream gives various types of advantages than any other creams. The aim of present study is to prepare the herbal cream for the use of wound healing activity, anti-inflammatory activity, analgesic activity, antifungal property and cure of various disease of the skin. Method of prepare herbal cream is very sample. At first oil phase are prepared, the mixture of stearic acid (48gm), potassium hydroxide (23gm), sodium carbonate (12gm), white soft paraffin (15gm) were melted at 70°C. after that aqueous phase is prepared, ethanol (10ml), drug (latex of *Calotropis Gigantea* 1ml), glycerin (3ml), methyl paraben (1.5gm), perfume (1.5gm), distilled water (35ml), heated at 70°C. Then aqueous phase is added in to the oil phase at 70°C with continuous stirring. Then the mixture is put in room temperature with continuous stirring and added perfume and preservatives after that the product is transferred in suitable container. The physical parameter is determined such as pH, thermal stability, homogeneity, irritancy test, patch test, spreadability studies, accelerated stability testing etc. The further studies formulation and evaluation will be carried out bellow.

Keywords: *Calotropis gigantea*, herbal cream.

I. INTRODUCTION

Now a day, the demand of herbal cosmetics is increasing rapidly day by day. On the basis of dosages from herbal cosmetic are classified into difference group like emulsion, powders, cakes, oils, mucilage, jellies, suspensions, pastes, soaps, solutions, etc. And the cosmetics are also used skin, hair, teeth, nails, mouth, etc. Being creams are semisolid doges from they are applied largest organ of the body (skin) or mucous membrane.¹ This preparation contained oil phase and aqueous phase (o/w). And also contained crude drug latex of *Calotropis gigantea*. The latex is easily collected from the green part of the plant. The latex containing alkaloids, cardiac glycosides, calotropin, uscharidin, calotoxin, calactin, calotropin DI & DII and calotropin FI & FII and its defense organism fungi, bacteria, insect etc.^{2,3}The latex is used depilatory, anthelmintic, asthma, abortifacient, analgesic, leprosy, liver injuries as well as on oxidative stress. The latex is also used antifungal property and wound healing activity.^{4,5,6}

II. METEIRALS AND METHODS

Materials:

The plant materials latex of *Calotropis gigantea* collected from rural belt of Purba Medinipur, West Bengal, India, and the chemicals stearic acid, potassium hydroxide, sodium carbonate, white soft paraffin, ethanol, glycerin, distilled water, methyl paraben, perfume, were collected from the Market of Kolkata.

Methodology:

The cream is prepared by dissolving the glycerin in hot water, separately melt all waxy materials and oil are added to it. Heat the molten mass as about 70°C. Pour the glycerin solution at same temperature and add the latex of *Calotropis gigantea* constant stirring until cold. When the temperature id dropped to about 45-50°C.

Table 1- Formulation chart for Herbal Cream:

Sl.no	Ingredient	Quantity taken		
		F1	F2	F3
1.	Stearic acid	48gm	48gm	48gm
2.	Potassium hydroxide	20gm	23gm	25gm
3.	Sodium carbonate	15gm	12gm	10gm
4.	White soft paraffin	15gm	15gm	15gm
5.	Ethanol	10ml	10ml	10ml
6.	Drug (latex of <i>Calotropis gigantea</i>)	1ml	1ml	1ml
7.	Glycerin	3ml	3ml	3ml

8.	Distilled water	35ml	35ml	35ml
9.	Methyl paraben	1.5gm	1.5gm	1.5gm
10.	Perfume	1.5gm	1.5gm	1.5gm

EVALUATION PARAMETER OF HERBAL CREAM:

1.pH of the cream

Calibrating the pH meter with buffer solution, 2.5gm of cream are dissolved in 100ml of ethanol and its pH is measured.⁷

2. Viscosity:

Viscosity of the formulation is determined by Viscometer at 100 rpm.⁸

3.Test for thermal stability:

In humidity chamber at temperature $39 \pm 1^\circ\text{C}$ the thermal stability is determined.⁹

4. homogeneity:

By visual appearance and touch the homogeneity is determined.⁹

5. Appearance:

The appearance of the cream is judged by its color, pleasant, and roughness and graded.

6. Irritancy test:

Mark an area (Isq.cm) on the left hand dorsal surface. The cream is applied to the specified area and time is noted. Allergic or toxic reaction is observed regular intervals up to 24 hour and reported.¹⁰

7. Patch test:

The creams are applied to the patches which is placed in the skin and allergic or toxic reaction is observed regular intervals up to 24 hour and reported.⁷

8. Spreadability studies:

Spreadability studies described the extant area where the cream readily spreads on application to the skin or other effect part.

Calculating formula for spreadability studies;

$$S = \frac{m}{t}$$

m = weight of the upper slide.

l = length of the glass slide.

t = time taken (second).⁹

9. Accelerated stability testing:

In accelerated stability testing the cream is stored at elevated stress conditions for 7days, & the cream is keep room temperature for 7days, and the formulation observed on 0th, 3th, 5th, 7th day of the evaluation parameter.¹¹

III. RESULT AND DISCUSSION

Table 2: Evaluation of cream

Sl.no	Name of experiment	Result of experiment		
		F1	F2	F3
1.	pH	6.2	6.1	6.0
2.	Viscosity	30000cps	31000cps	33000cps
3.	Thermal stability	No oil separation	No oil separation	No oil separation
4.	Homogeneity	Visual appearance by touch.	Visual appearance by touch.	Visual appearance by touch.
5.	Appearance	White color and pleasant odor.	White color and pleasant odor.	White color and pleasant odor.

Table 3: Physical properties of herbal cream:

Sl.no	Physical properties	Herbal cream		
		F1	F2	F3
1.	Color	White	White	White
2.	Odor	Characteristics	Characteristics	Characteristics
3.	Appearance	Semi-solid	Semi-solid	Semi-solid

Table 4: Spreadability test:

Sl.no	Time (see)	Spreadability		
		F1	F2	F3
1.	15	14.2	14.1	13.9
2.	20	13.8	13.6	13.4
3.	25	13.3	13.1	12.9

Table 5: Accelerated stability testing:

Stability studies	F1		F2		F3	
	Initial	After 7days	Initial	After 7days	Initial	After 7days
Physical appearance	Semi-solid	Semi-solid	Semi-solid	Semi-solid	Semi-solid	Semi-solid
Texture	Ok	Ok	Ok	Ok	Ok	Ok
color	White	White	White	White	White	White
pH value	6.2	6.2	6.1	6.1	6.0	6.0
Thermal stability	Ok	Ok	Ok	Ok	Ok	Ok
Degradation of the product	Nil	Nil	Nil	Nil	Nil	Nil

DISCUSSION:

The various physicochemical properties of the prepared herbal cream are shown above. From the result it is clear that all the cream shows good creaming property and homogeneity. The pH of all formulations was in the range compatible with normal pH range of the skin. The rheological behaviors of the cream formulations were also studied with Brookfield viscometer. The results indicated the viscosity of the cream formulations was consistent neither too thick nor too thin. Increase in the viscosity of formulation, the spreadability decreased and vice versa. The cream formulation has all the desirable properties that must be present in an ideal cream formulation.

IV. CONCLUSION

The herbal cream contained natural values and less chemical, its reduced various type of side effect of the largest organ of the body (skin) or mucous membrane. The cream is prepared by simple method. The herbal creams containing antioxidant that can be used as the prevention of a barrier to protect skin. And the formulations are safe to use for the skin.

V. REFERENCES

- [1] 1.L Forster T, Rybinski WV, Wadle A. Influence of Microemulsion phases on the preparation of fine Disperse Emulsions; Adv. in Colloid & Interlace Sei. 1995; 58: 119- 149.
- [2] 2. Medicinal Plants of Andhra Pradesh. Part. I. CCRUM, Ministry o Calotoxin, uscharin, and calactin.
- [3] 3. Seiber JN, Nelson CJ and Lee SM; Cardenolides in the latex and leaves of seven Asclepias species and Calotropis gigantea, Phytochemistry, 1982, 21: 2343 – 2348.
- [4] 4.Medicinal Plants in Folklores of Bihar and Orissa. CCRUM, Ministry of Health & Family Welfare; 2001: 119-120

- [5] 5. Pfaller MA, Diekema DJ: Rare and emerging opportunistic fungal pathogens: concern for resistance beyond *Candida albicans* and *Aspergillus fumigatus*. J Clin Microbiol 2004; 42(10):4419-4431
- [6] 6. Nalwaya N, Pokharna G, Deb L, Jain NK. Wound healing activity of latex of *Calotropis gigantea*. 2009 July-Sep; 1(1): 176-181.
- [7] 7. Gupta N, Dubey A, Prasad P, Roy A, Formulation and Evaluation of Herbal Fairness Cream, 2015; 3(3):40-45.
- [8] 8. Singh Mandeep, Sharma Shalini, Khokra Sukhbir Lal, Sahu Ram kumar, Jangde Rajendra, Preparation and Evaluation of Herbal Cosmetic Cream, Pharmacologyonline 2, 2011: 1258-1264
- [9] 9. Sahu Alakh N, Jha SB and Dubey SD, 'Formulation & Evaluation of Curcuminoid Based Herbal Face Cream', Indo-Global Journal of Pharmaceutical Sciences, 2011, Vol 1, Issue 1: Page No. 77-84.
- [10] 10. Ravindra RP and Muslim PK, 'Comparison of physical characteristics of vanishing Cream base, cow ghee and shata-dhautaghrita as per pharmacopoeial standards', International Journal of Pharma and Bio Sciences, 2013 Oct; 4(4): (P) 14 – 21.
- [11] 11. Kuchekar S, Bhise K, 'Formulation and development of antipsoritic herbal gel cream', Journal of scientific and industrial research, Vol 71, April 2012, page no.279- 284.