

A Review on Preparation and Evaluation of Polyherbal Cold Cream

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ABSTRACT-

Herbal cosmetics are the preparations, which represent cosmetics associated with active bioactive ingredients or pharmaceuticals. Chemical based cosmetics are harmful to the skin and an increased awareness among consumers for herbal products triggered the demand for natural products and natural extracts in cosmetics preparations. The increased demand for the natural product has created new avenues in cosmeceutical market. The natural content in the botanicals does not cause any side effects on the human body; instead enrich the body with nutrients and other useful minerals.

Cold cream is an emulsion which when applied on the skin, a cooling effect is produced due to slow evaporation of water present in emulsion. These formulations can be evaluated by using various evaluation parameters like pH, viscosity, irritancy, spreadability, microbial growth, thermal stability, homogeneity, acid value, saponification value, accelerated stability studies, patch test, smear test, after feel, washability, physical properties, dye test, after feel, in vitro diffusion study etc. The objective of this review is to compile the information of different herbal formulations of cold cream and its evaluation. Herbal cold cream formulations studied by many researchers and this information can be used by many researchers for novel herbal cosmetic formulations with new herbs.

KEYWORDS: Herbal cosmetics, Natural extract, Cold cream, Neem, Turmeric, Fruit extract.

I. INTRODUCTION-

Cosmetics are the products which are generally used to beautify the skin and also to purify the skin^[1]. The cosmetics are the word derived from Greek word – ‘kosmesticos’ which means to adorn.

From that time the materials which are used to promoting appearances or to beautify the skin are called as cosmetics^[2]. From ancient time till now people are still using polyherbal or herbal cosmetics for the beautification of skin^[1].

Herbal cosmetics are the preparations, which represent cosmetics associated with active bioactive ingredients or pharmaceuticals.^[3] The use of phytochemicals from a variety of botanicals have dual function,

- (i) they serve as cosmetics for the care of body and its parts and
- (ii) the botanical ingredients present influence biological functions of skin and provide nutrients necessary for the healthy skin or hair.^[5]

Herbal Cosmetics, here in after referred as Products, are formulated, using various permissible cosmetic ingredients to form the base in which one or more herbal ingredients are used to provide defined cosmetic benefits only, shall be called as “Herbal Cosmetics”^[5]

Benefits of herbal cosmetics

1. Being natural, least harmful effect on the skin or other body parts.
2. Relatively more safe.
3. More placebo effect to the consumers due to its use in traditions and culture.
4. Flexibility in formulation.
5. Population proves effects from ancient time.
6. Easy availability.
7. Economical.
8. It helps to clean and beautify the body without side effects.
9. It normalizes the body functions.
10. It has extreme nutritional value with high content of vitamins and minerals.
11. It enhances the energy level of body.
12. It stimulates the body's immune system without disturbing the natural balance of body.
13. Variety of Phyto-constituents can be incorporated.^[6, 7]

Advantages of herbal cold cream

1. Ease of application.
2. Convenient to all the population.
3. Avoidance of risk.
4. In case of intra and inter-patient variations, avoid fluctuation of drug levels.

5. No special risk or technician required for application of product.
6. Achievement of efficacy with lower total daily dosage of drug. High patient compliance.^[4]

Disadvantages of herbal cold cream

1. Larger particle sized drugs cannot be easily absorbed through the skin pores.
2. Chances of skin irritation of contact dermatitis due to any drug interactions.
3. Poor absorption may result due to the poor permeability of some drugs through the skin.
4. Chances of allergic reaction.
5. It can be used mainly for drug which required very small plasma concentration for action.
6. Denaturation of the drugs takes place due to the presence of an enzyme in epidermis.^[4]

II. MATERIAL AND METHOD

Khadi herbal pure neem (*Azadirachta indica*) oil procured from the local market and turmeric (*Curcuma longa*) powder also procured from the local market.

Chemicals used are of Analytical reagent (AR) grade (LOBA Chemicals Ltd.)

Sr.No	Ingredients	Quantity
1	Beeswax	1.5gm
2	Almonds oils	0.15ml
3	Turmeric Extract	0.9 gm
4	Neem oil	3.8ml
5	Vitamin E oil	0.15ml
6	Powdered Borax	0.05gm
7	Rose Water	2.6ml
8	Aloe vera Juice	1.57gm

Table no. 1 : formulation table for Polyherbal coldcream(for 10 gm)

Evaluation of Cream:

Physical properties:

The cream was observed for the color, odor and appearance.

Washability:

The cream was applied on the hand and observed under the running

pH:

The pH meter was calibrated with the help of standard buffer solution. Weigh 0.5 gm of cream dissolved it in 50.0ml of distilled water and its pH was measured with the help of digital pH meter.

Viscosity:

Viscosity of the cream was determined with the help of Brookfield viscometer at 100 rpm with the spindle no. 7.^[11,12,13]

Spread ability test:

Extraction of Curcumin –

Accurately weighed quantity of turmeric was taken. Then extract it with n-hexane for 2 hrs. discard the n-hexane extract with the extract marc with acetone for 2 hrs. Distil off the acetone and dry the crystals. Then recrystallize the curcumin with the help of ethanol^[8]

Preparation of Polyherbal Cold Cream

Formulation can be prepared by adding two different phases which are as follows.

Phase 1: Melt the solid ingredients by indirect heat then add all the oils in it and stir well.

Phase 2: Dissolve the borax in water with the help of heat.

While still hot add the phase 1 into the phase 2 gradually with constant stirring to the wax and oil mixture. Continue this process for 5 minutes, stir all the time then remove from the heat and stir until it gets cold. As compared to other creams this cream may be made heavier by adding more wax.^{(9) (10)}

The cream sample was applied between the two glass slides and was compressed between the two-glass slide to uniform thickness by placing 100 gm of weight for 5 minutes then weight was added to the weighing pan. The time in which the upper glass slide moved over the lower slide was taken as a measure of spread ability.

Spread ability = $m * l / t$

m = weight tight to upper slide

l = length moved on the glass slide

t = time take

Irritancy test:

Mark an area (1sq.cm) on the left-hand dorsal surface. The cream was applied to the specified area and time was noted. Irritancy, erythema, edema, was checked if any for regular intervals up to 24 hrs. and reported.

Test for microbial growth:

Agar media was prepared then the formulated cream was inoculated on the plate's agar media by steak plate method and a controlled is prepared by omitting the cream. The plates were placed in the incubator and are incubated in 37 C for 24 hours. After the incubation period, the plates were taken out and the microbial growth were checked and compared with the control.^[14]

Saponification value:

Take 2 gm of the substance and reflux it with the 25 ml of 0.5 N alcoholic KOH for 30 minutes. Then add 0.1 ml of phenolphthalein as a indicator and titrate it with the 0.5 N HCL.^[14]

$$\text{Saponification value} = (b-a) * 28.05/W$$

a =volume of titrate

b =volume of titrate

w =weight of substances in gram

Acid value:

Take 10 gm of the cream dissolved in accurately weighed in 50 ml mixture of the equal volume of alcohol and solvent ether. Then attached the flask with the condenser and reflux it with the slow heating until the sample gets completely dissolve then add 1 ml of phenolphthalein and titrate it with 0.1 N NaOH until it gets faint pink color appears after shaking in 20 seconds.

$$\text{Acid value} = n * 5.61/w$$

w =weight of the substances

n =the number of ml in NaOH required.

Dye test:

The scarlet red dye is mixed with the cream. Place a drop of the cream on a microscopic slide then covers it with a cover slip, and examines it under a microscope. If the disperse globules appear red the ground colorless. The cream is o/w type. The reverse condition occurs in w/o type cream i.e. the disperse globules appear colorless.

Homogeneity:

Homogeneity was tested via the visual appearance and test.^[14]

III. RESULT AND DISCUSSION

The results of evaluation are shown in table no. 2. Prepared formulation was pale green in color. It has pleasant odor and smooth texture.

1.Physical properties:

The physical properties of formulated cream were judged by color, odor and texture.

2.Washability:

The cream applied on skin was easily removed by washing with tap water.

Table no. 2: Physical properties

Sr.No	Parameter	Evaluation
1.	Saponification value	22.3
2.	Acid value	5.7

3.pH of the cream:

The pH of the cream was found to be in range of 5.6 to 6.8 which is good for skin pH. The herbal formulation was shown pH nearer to skin required i.e pH 6.8.^[14]

4. Viscosity:

Viscosity of formulated cream was determined by brook field viscometer at 20 rpm using spindle no. LV-4(64). The viscosity of cream was in the range of 499990 to 30000cp which indicates that the cream is easily spreadable by small amount of shear. The formulated cream shows the viscosity within range i.e. 48890cp.

5. Spread ability test:

The spread ability test showed that the formulated cream has good spreadable property.

6.Irritancy test:

The formulated cream shows no redness, edema, irritation and inflammation during studies. The formulated cream is safe to use.^[14]

7.Test for microbial growth:

There was no signs of microbial growth after 24 hrs. of incubation at 37°C and it was comparable with the control.

8.Saponification value:

The saponification value results of formulated cream was shown in table no. 3 and showed satisfactory values.

Table No.3: Saponification value and Acid value

Sr.No.	Parameter	Evaluation
1.	Saponification value	22.3
2.	Acid value	5.7

9.Acid value:

The acid value results of formulated cream was shown in table no. 3 and showed satisfactory values.

10.Dye test:

The scarlet red dye is mixed with the cream. Place a drop of the cream on a microscopic slide covers it with a cover slip, and examines it under a microscope. The disperse globules appears colorless in the red ground i.e. w/o type cream.

11. Homogeneity:

The homogeneity of the formulated cream was judged by the visual appearance and touch. The appearance and touch of the cream were good.^[14]

IV. CONCLUSION

From the Asian time aloe Vera is used for their various Medicinal properties like emollient, antimicrobial, anti-Inflammatory, antioxidant, aphrodisiac, anthelmintic, Antiseptic and cosmetic value for health care etc. Thus this Could become a media to use these medicinal properties Effectively and easily as a simple dosage form. The poly Herbal formulation and its ingredients were studied to be Consistent in quality and purity and can be easily used as face Cream. So it is concluded that formulation is safe and usable for the skin.

REFERENCE

[1]. N. Shah, B.M.Methal, (2006) A Handbook of Cosmetic, Vallabh Prakashan.
 [2]. Saraf, S., & Kaur, C. D. (2010). Phytoconstituents as photoprotective novel cosmetic formulations. Pharmacognosy reviews, 4(7)
 [3]. Preetha S Panicker and Manjusha MP. Preparation and evaluation of polyherbal coldcream. Journal of Pharmacognosy and Phytochemistry 2021; 10(1): 1708-1710
 [4]. Shital V. Sirsat*, Nikita M. Rathi, Anjali S. Hiwale and Punam B. Shelk.A REVIEW ON PREPARATION AND EVALUATION OF HERBAL COLDCREAM. World Journal of

Pharmaceutical Research ASJIF Impact Factor 8.084
 [5]. Volume 11, Issue 5, 690-697. Review Article ISSN 2277– 7105
 [6]. Kapoor VP, Herbal /a0pp for Skin and Hair care,National Botalpnical Research Institute, volume 4, July-August 2016, 306-314.
 [7]. Sharmila Dusi, J. Saminathan, International Journal of Pharmacy Research & Technology, 2020; 10:
 [8]. R. M. Mehta, Pharmaceutics-II, Fourth Edition, Vallabh Prakashan, 2015; 222.
 [9]. K.Kokate ,A.P.Purohit, S.B.Gokhale (2014) Textbook of Pharmacognosy. Nirali Prakashan 50th edition, p.p. 9.1 & 14.132.
 [10]. S. Khadabadi, S.L. Deore, B.A. Baviskar. (2014),Pharmacognosy and Phytochemistry, A Comprehensive Approach, published by PharmaMed Press, 1st edition, p.p.8.4
 [11]. B.S., Kalpesh K. Mehta, Anshu Gupta (2016). Dispensing Pharmacy A Practical Manual (p.p. 389-399). Pharma Med Press.
 [12]. Panda, H. (2000). Herbal Cosmetics Hand Book. National Institute of Industrial Re.
 [13]. Mali, A. S., Karekar, P., & Yadav, A. V. (2015). Formulation and evaluation of multipurpose herbal cream. International Journal of Science and Research, International Journal of Science and Research, 4(11), 1495-1498.
 [14]. Mukherjee, P. K. (2002). Quality control of herbal drugs: an approach to evaluation of botanicals. Business Horizons.
 [15]. V, S, Rabade. M, S, Pawar. G, K, Titarmare. (2020). Formulation and Evaluation of Polyherbal Cold Cream. International Journal for Pharmaceutical Research Scholars, 9(1); 25-31.