

Preparation and Evaluation of Herbal Cold Cream with Incorporated *Curcuma longa*

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Abstract:- To formulate and evaluate herbal cream cold cream using Turmeric to give glowing & cooling effect. **Methods:** The cream was prepared by using the cream base that is bee's wax, liquid paraffin, borax, distilled water, rose oil. The cream was prepared by using the slab technique/extemporaneous method for geometric and homogenous mixing of all the excipients and the herbal extracts. Cream Was prepared & was evaluated for different parameters like appearance, PH, viscosity, stability test, patch test, test for homogeneity, spread ability, smear test, evaluation of Emolliency & Test for microbial growth. **Results:** the cream showed good appearance, PH, adequate viscosity and no phase separation was observed. Also, the formulation showed no redness, erythema and irritation during patch study and they were easily washable was stable at room temperature. **Conclusion:** Herbal ingredient showed significant results, we can suggest that the cream was stable and can be safely used on the skin.

Keywords:- Turmeric, cold cream, homogeneity.

I. INTRODUCTION

The use of herbal products as cosmetics is as prevalent in modern era as it was in ancient times. Herbal cosmetics are mostly preferred because of their less or nil side effects when compared to synthetic products and show enhanced effects upon application^[5]. These herbal cosmetics used as beauty products help in enhancing and conditioning properties of skin. The herbal extracts used in these formulations are all derived from natural plant sources without the use of any harmful synthetic drugs. Chemical or synthetic drug/ API is avoided in the preparations because of various skin problems. The concept of herbal cosmetics was established long back in different systems of medicine such as Rigveda, Yajurveda, Ayurveda, Unani and Homeopathy systems^[5]. The herbs extracted by these systems show a number of properties like anti-inflammatory, anti-bacterial, anti-septic, emollient and sometimes also show anti-cancer properties^[5-7]. Thus, there is extensive use of herbal cosmetics in skin care systems and an ever increasing demand in the market. Various kinds of creams such as vanishing cream, coldcream, multipurpose cream, etc .are most commonly used herbal cosmetic products for topical application. Cold Creams prepared are usually w/o type of emulsion instead of o/w type of emulsion as seen in vanishing creams and gives a cooling effect upon application. This preparation of cold creams consist of herbal extracts of crude drugs such as rhizomes of *Curcuma*

longa (turmeric), *Oliumrosae* (roseoil), *Oleaeuropeae* (oliveoil). The main active ingredients .The extract of *Curcuma longa* has been clinically proven to show anti-cancer properties upon topical application better than oral administration ,in addition to many other properties^[3]. Curcumin shows many other properties such as wound healing, sun damage protection, aging treatment, skin cancer prevention (by selectively killing tumor cells and leaving the normal cells intact), and also treats chronic skin diseases^[2]. These herbs have been selected according to traditional systems and are based upon their modern researched uses.

II. PREPARATION OF COLD CREAM

A. MATERIALS^[1]:

The rhizomes of *Curcuma longa* (turmeric) was collected, cleaned and dried for 2 days in sunlight. Then crushed into fine powder using a mortar and passed from a suitable sieve plate such as sieve#60 to get rid of coarse particles.

The collected powder was subject to maceration with 70% ethanol in iodine flask to extract the solute or curcumin present in the turmeric powder for a period of 7 days. The extract was filtered by a filter paper and decolorized using charcoal to get a clear liquid. The prepared extract was evaporated to get the semisolid mass. This whole process is performed at room temperature.

B. COMPOSITION OF HERBAL COLD CREAM

Sr.no	Ingredients	Weight(gms)
1.	Beeswax	20 gm
2.	Liquid paraffin	60gm
3.	Borax	1gm
4.	Turmeric powder	1gm
5.	Rose oil	0.2ml
6.	Distilled water	19 ml
7.	Olive oil	1ml

C. METHOD

Melt beeswax in a china dish on hot plate. To this, liquid paraffin is added and heated on a hot plate at 70°C. Then in a 100ml beaker, borax was dissolved and heated along with olive oil on a 4hot plate at 70°C. Both the oily and aqueous phases are heated at the same temperature.I.e. 70°C and turmeric was added in the beaker. Now borax solution is added gradually to the melted beeswax solution, drop by drop with constant stirring. To this, few drops of rose oil is

added to give fragrance. It was stirred continuously until it cools down and a semi solid mass was obtained.

III. EVALUATION TEST FOR CREAMS

- Organoleptic Properties [4-5]: The organoleptic properties such as color, odor and appearance was observed.
- Determination of pH [6]: The pH value of freshly formulated emulsion was determined using a digital pH meter at room temperature.
- Determination of homogeneity [4]: The homogeneity of the herbal preparation was observed by visual appearance and by touch.
- Determination of spread ability [4-5]: The term spreadability is expressed as the extent of the area to which the topical application spreads when applied to the affected region of the skin. The therapeutic efficacy of the herbal formulation is also dependent on its spreading range. Thus, it is necessary to determine the spreading ability of the prepared formulation. For the determination about 3 gms of cream was applied between the two glass slides and pressed to obtain a thin film of uniform thickness. A weight of 1000 gm was placed over the top slide to apply the required pressure for 5 minutes. Followed by addition of about 10 gms of weight in a pan and the upper slide was subjected to pull with the help of a string attached to a hook. The time taken by the two slides to slip over each other by a distance of 10 cm under certain load was noted. Following is the formula to calculate the spreadability of the prepared formulation.

$$S = m \times L/T$$

Where, S – Spreadability

m – Weight tied to upper glass slide

L –Length moved on a glass slide

T – Time taken

The results were carried out in a triplicate manner and the average of these readings were noted.

- Determination of type of smear [4]: This test was conducted by the application of cream on the skin surface of a human volunteer for its greasiness. After application, the type of smear was observed.

- Determination of emolliency [4]:The emolliency test was performed to check the amount of residue left after the application of specific quantity of cream.
- G.. Determination of viscosity [4]: The viscosity of the prepared emulsion was determined by using Brookfield viscometer. Spindle number S-64 at 20 rpm was used at a temperature of 25°C and was determined by taking an average of three readings.
- Evaluation for type of emulsion [4-2]:
 - Dilution test: In this test type of emulsion is determined by diluting the emulsion either with water or oil. The emulsion is completely miscible with water if it is o/w type, as the dispersion medium is water and separates out if it is w/o type of emulsion. Similarly, w/o type of emulsion is miscible, if the emulsion is dissolved in oil but o/w type of emulsion is immiscible in oily liquid.
 - Dye solubility test: In this test a water soluble dye (amaranth) and an oil soluble dye (Sudan III) are used to determine the type of emulsion. Firstly, the emulsion is mixed with amaranth and observed under the microscope. If the continuous phase appears red, then it is o/w type of emulsion and the dye dissolves to give color. If there is appearance of red globules and colorless continuous phase, then it is w/o type of emulsion. Likewise, if Sudan III is mixed with an emulsion and if there is appearance of red continuous phase, then it is w/o type of emulsion.
- Test for microbial growth [2-5]: These test were carried out to determine the microbial contamination of the prepared formulation in an agar medium. The prepared creams were inoculated on the plates of agar plate medium using streak plate method and a control was prepared without the cream. These plates were placed into the incubator and were incubated at 37°C for 24 hours. After the incubation period, the plates were taken out and observed for microbial contamination in comparison with the control.
- Thermal stability test [5]: These determinations were carried out using a humidity chamber which was controlled at 60-70% RH and 37°C. The observations were studied for a span of one month.
- Patch test [5]: About 1-3 gms of the formulated creams was evenly applied on sensitive region of the skin surface such as the skin under the lower jaw. The cream for testing was applied on an area of 1 sq.m of the skin surface and the site was inspected after 24 hours of application.

IV. RESULTS

Sr.no	Properties	Result
1.	Color	Yellow
2.	Odor	Characteristic
3.	Appearance	Semi-solid

Table 1: Organoleptic properties of herbal cold cream

Sr,no	Physical parameters	Observations
1.	pH	5.8
2.	Homogeneity a) By visual b) By touch	Homogenous mass Even and consistent
3.	Type of smear	Less greasy
4.	Emolliency	No left over residue
5.	Viscosity	
6.	Dilution test	w/o type of emulsion
7.	Dye solubility test	w/o type of emulsion

Table 2: Other physical parameters

Days	Temp and humidity	Thermal stability of herbal cream
5	60-70% RH And 37°C	Stable, no separation of oil
10		Stable, no separation of oil
15		Stable, no separation of oil
20		Stable, no separation of oil
25		Stable, no separation of oil
30		Stable, no separation of oil

Table 3: Thermal stability studies (one month)

V. DISCUSSIONS

The organoleptic properties of formulated herbal cold cream were evaluated and the results were apt. Other physical parameters like pH, homogeneity, type of smear, emolliency, viscosity and type of emulsion were also evaluated accordingly and pH was found to be compatible with the pH of skin secretions and showed proper pH range that is approximately pH 6, prepared formulation showed good spread ability and emolliency.

The thermal stability studies were also conducted for a month, there was no sign of separation of aqueous and oily phases.

The formulated cream was studied for microbial contamination, no sign of microbial growth was visible after the specified incubation period of 24hrs and further more a patch test was done which shows, it is safe to use the prepared herbal turmeric cold cream as it did not show any signs of irritancy, redness.

REFERENCES

- [1.] Sujith S Nair, Molly Mathew and Sreena K, Formulation and Evaluation of Herbal Cream containing Curcuma longa, INTERNATIONAL JOURNAL OF PHARMACEUTICAL AND CHEMICAL SCIENCES Vol. 1 (4) Oct-Dec 2012.
- [2.] Sai Lakshmi Jyothirmai Kala* and Supriya Palaparthi, FORMULATION AND INVITRO EVALUATION OF POLY HERBAL ANTI AGING FACE CREAM, World Journal of Pharmaceutical Research Volume 6, Issue 13, 717-733
- [3.] Madalene CY Heng*, Topical Curcumin: A Review of Mechanisms and uses in Dermatology International Journal of Dermatology and Clinical Research 2017.
- [4.] Ashwini S. Dhase*, Somishwar S. Khadbadi and Shweta S. Saboo, Formulation and Evaluation of Vanishing Herbal Cream of Crude Drugs, American Journal of Ethnomedicine, 2014, Vol. 1, No. 5, 313-318.
- [5.] Akash S. Mali, Karekar P, Dr. Yadav A. V, Formulation and Evaluation of Multipurpose Herbal Cream, International Journal of Science and Research (IJSR) Volume 4 Issue 11, November 2015.
- [6.] Akhtar N, Khan BA, Khan MS, Mahmood T, Khan HMS, Iqbal M and Bashir S, Formulation Development and Moisturizing Effects of a Topical Cream of Aloe vera Extract, World Academy of Science, Engineering and Technology 75 2011.
- [7.] <https://www.turmericforhealth.com/turmeric-benefits/6-benefits-of-topical-turmeric-in-cancer>.