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Research Article

**FORMULATION AND EVALUATION TURMERIC AND
VITAMIN-E COLD CREAM****Miss. Nikita Ahinde¹, Miss. Mansvi Raibole², Mr. Mayur Gophane³, Mr. Pramod Bhosale⁴
& Dr. Vitthal Kuchake⁵**^{1,2,3} Students, Ojas College of Pharmacy, Jalna-431203, Maharashtra, India.⁴ Guide & Assistant Professor, Department of Pharmaceutics, Ojas College of Pharmacy, Jalna-431203, Maharashtra, India.⁵ Principal, Ojas College of Pharmacy, Jalna-431203, Maharashtra, India.**Abstract:**

Cosmetics play a significant role in enhancing human appearance and beautifying the skin. Cold creams are particularly water-in-oil emulsions designed for application on the skin or accessible mucous membranes. They provide localized and sometimes systemic effects at the site of application. In this context, researchers have explored the formulation and evaluation of cold creams enriched with turmeric and vitamin E.

Their no significant changes in physical properties were observed during the study period. The cream exhibited good consistency, spreadability, and pH. Stability parameters, including visual appearance, fragrance, remained consistent over time.

These ingredients not only provide moisturization but also offer potential skin-soothing and antioxidant properties. The evaluation parameters included pH, irritancy, spreadability, homogeneity, washability, physical properties. These assessments ensure the safety, efficacy, and stability of cold cream formulations.

In summary, turmeric and vitamin E enriched cold creams hold promise for their cooling and soothing effects, making them suitable for skin care. The incorporation of natural ingredients like turmeric and vitamin E enhances their moisturizing properties, benefiting the skin.

Pharmaceutical creams are used for a number of aesthetic purposes, including cleansing, beautifying, modifying look, moisturising, etc. They also protect the skin from bacterial and fungal infections and can be used to treat skin injuries including burns, cuts, and wounds. The general population and society can safely employ these semi-solid preparations.

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INTRODUCTION:

Cosmetics is any article intended to be rubbed, Poured, sprinkled, sprayed, introduced to or applied to any part of human body for cleaning, beautifying, promoting, attractiveness or altering the appearances of human body are cosmetics (DRUG AND COSMETIC ACT 1940). Cosmetics are the products which are generally used to be deck the skin and also to purify the skin. The cosmetics are the word deduced from Greek word – ‘kosmesticos’ which means to adorn.

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. Cream is classified as oil in water and water in oil emulsion. It is applied on outer part or superficial part of the skin and its main ability is to remain for a longer period of time at the site of application. The function of a skin cream is to protect the skin against different environmental condition, weather and gives soothing effect to the skin. There are different types of creams like cleansing, cold,

foundation, vanishing, night, massage, hand and body creams.

It is easily water washable and easy to wash away. They are non-irritating when applied on the skin. Water phase gives extra conservation to the skin. It gets liquefy at body temperature. It gets penetrated via the epidermis of the skin via the natural pores.

ADVANTAGES OF COLD CREAM: -

- Generally useful for dry skin.
- It can be used as a makeup remover and cleanser.
- As cold creams contain enough amounts of water and oil, they keep skin safe from the rough environments.

DISADVANTAGES: -

- Larger particle sized drugs cannot be easily absorbed through the skin pores.
- Chances of skin irritation of contact dermatitis due to any drug interactions.
- Poor absorption may result due to the poor permeability of some drugs through the skin.

EXCIPIENTS PROFILE:-**Table 01:- Excipients profile**

Sr No.	Name of Ingredients	Scientific Name	Uses
1.	Beeswax	Apiccerana, Apis Mel, Apismellifera, ApisMellif	Emulsifying agent, Stabilizer.
2.	Borax	sodium tetraboratedecahydrate	Stability maintain.
3.	Liquid paraffin	Pertolatum	Prevents a skin itching and lubricating agent.
4.	Methyl paraben	methyl p-hydroxybenzoic acid	Anti-bacterial properties and Preservative.
5.	Vitamin E	Tocopherol	Moisturizing agent.
6.	Almond oil	Prunusdulcis var. dulcis.	Protective layer of skin.
7.	Perfume	Lavender oil	Fragrance.

Formulation Table :-

Quantity for 50 gm are as follow -

Table No. 02:- Formulation table

Sr. No.	Name of Ingredient	Batch F1	Batch F2	Batch F3 (Confirmatory batch)
1.	Beeswax	3.75gm	6.25gm	6.25gm
2.	Borax	2.28gm	3.81gm	3.81gm
3.	Liquid paraffin	15ml	25ml	25ml
4.	Methyl paraben	0.06gm	1.0gm	1.0gm
5.	Vitamin E	0.15gm	0.25gm	0.25gm
6.	Almond oil	3.0ml	5.0ml	5.0ml
7.	Perfume	q.s	q.s	q.s
8.	Water	q.s	q.s	q.s



Figure 01:- Cold Cream Preparation

METHOD AND PREPARATION :-

The cream was prepared by using the cream base that is bees wax, liquid paraffin, borax, methylparaben, distilled water, Almond oil, Perfume, Turmeric and vitamin E. The cream was prepared by using the slab technique/extemporaneous method for geometric and homogenous mixing of all the excipients and the Turmeric extracts. Heat liquid paraffin and beeswax in a borosilicate glass beaker at 75 °C and maintain that heating temperature. (Oil phase). In another beaker, dissolve borax, methyl paraben in distilled water and

heat this beaker to 75 °C to dissolve borax and methyl paraben and to get a clear solution. (Aqueous phase). Then slowly add this aqueous phase to heated oily phase. Then add a measured amount of Turmeric and stir vigorously until it forms a smooth cream. Then add few drops of lavender oil as a fragrance. By using slab technique, we have developed three batches of our herbal cold cream, namely F1, F2, and F3. All three batches were evaluated for different parameters like appearance, PH, viscosity, phase separation, etc. Hence sample of F3 batch is confirmed.

Liquid paraffin + Beeswax heated at 75° C dissolved.

(oil phase)



Borax + methylparaben + distilled water heated at 75° C dissolved.

(aq.phase)



Add. Aqueous phase into oil phase .



Add. Specific amount of turmeric extract. (dropwise)



Stirr vigorously.



Add Few drop of lavender oil.

(fragrance)



Transferred into a wide mouth container.



Stored at room temprature.

Apparatus required laboratory-scale production as follows,

- 1) Measuring Cylinder.
- 2) Beaker.
- 3) Stirrer.
- 4) Glass rod.
- 5) Mortar pestle.
- 6) Water bath.

EVALUTION TEST:-**1.Physical property -**

The cream was observed for the color, odour, texture and appearance. The physical appearance of cold cream was inspected visually against dark background. The average of three reading is recorded. The result is given in the table no 3.

2. Irritancy Test -

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. The result is given in the table no 4.

3. Washability -

The cream was applied on the hand and observed under the running . The result is given in the table no 5.

4. pH Determination -

The pH of cream was found to be in range of 6 to 7. Which is good for skin pH. it's pH was determine with the help of pH paper (litmus paper) and pH universal indicator. The result is given in the table no 6.

5. Spreadability -

The spread ability was expressed in terms of time in seconds taken by two slides to slipoff from the cream, placed in between the slides, under certain load. Lesser the time taken for separation of the two slides better the spread ability. Two sets of glass slides of standard dimension were taken. The result is given in the table no 7.

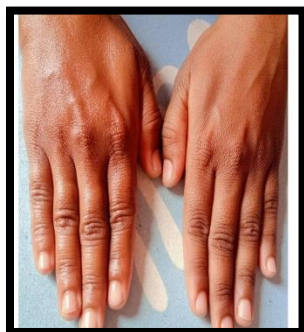


Figure 02:- Spreadability test

6.Homogeneity -

Homogeneity was tested via the visual appearance and test. Homogeneity is the formulated cold cream was tested for the homogeneity y visual appearance and by touch. After feel Emolliences, slipperiness and amount of residue left after the application of the fixed amount of cream was checked.

7.Phase separation -

No phase separation was observed in the formulation. Prepared cream was kept in a closed container at a temperature of 25-100 °C away from light. Then phase separation was checked for 24 h. The result is given in the table no 8.

8.stability -

A month-long stability test was conducted on the developed formulation by storing it at various temperatures. While being maintained at various temperatures, including room temperature and 40°C, the packed glass vials of formulation were examined for physical traits such as colour, aroma, pH, consistency, and feel. The result is given in the table no 9.

9.Sensitivity test -

The cream which was prepared has applied on 1cm skin of hand and exposed to sunlight for 4-5mins.

10.Greasiness -

Here the cream was applied on the skin surface in the form of smear and checked if the smear was oily or grease-like.



Figure 03:- Greasiness test

RESULT AND DISCUSSION: -

Physical properties –

Table 03:- Physical Properties

Sr.no.	Parameter	F1	F2	F3
1.	Colour	Pale yellow	Pale yellow	Pale yellow
2.	Odour	Pleasant	Pleasant	Pleasant
3.	Texture	Rough	Smooth	Smooth
4.	Appearance	Semi- solid	Semi-solid	Semi- solid

Irritancy –

Table 04:- Irritancy

Irritancy test	Results
Irritation	No
oedema	No
Redness	No
Swelling	No

Washability –

Table 05:- washability

Sr.no.	Formulation	Washability
1.	F1	Easily washable
2.	F2	Easily washable
3.	F3	Easily washable

PH observation –

Table 06:- pH

Sr.no.	Formulation	pH
1.	F1	6.2
2.	F2	6.4
3.	F3	6.8

Spreadability –

Table 07:- Spreadability

Sr.no.	Formulation	Spreadability
1.	F1	Easily spreadable
2.	F2	Easily spreadable
3.	F3	Easily spreadable

Phase separation –

Table 08:- Phase separation

Sr.no.	Formulation	Result
1.	F1	No phase separation
2.	F2	No phase separation
3.	F3	No phase separation

Stability –

Table 09:- Stability

Stability parameter	Result
Colour	No change
Odour	No change
Texture	No change
pH	No change

CONCLUSION:

The overall research concluded that the formulation batch F2 shows the best results and its provide the nourising, antioxidant and moisturizing property of the skin. Hence bath F3 has been formulated as a confirmatory batch & evaluated the formulation as per requirement. From the result it is concluded that formulated cold cream showed good physical property, irritancy test, washability, pH determination, spreadability, no phase separation, good stability, sensitivity, greasiness & remarkable viscosity. It will help to maintain the moisture and remove dirt from skin pores. It also improves patients compliance. Other excipients like vitamin E (Tocopherol) and borax act as cleansing and antioxidant agent which help in cleansing action of the cream. During the research study period, there is no phase separation occurs. Hence, based on results and discussion it can be safely used on skin.

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