

A Review on formulation and evaluation of cold cream

1 Miss. Achal C. Ghongade.2- Prof. Gulshan Rathi 3- Prof. Dr. Ramesh kalkotwar

1-Student, 2- Vice -Principal 3- Principal

1\2\3- Vss Institute Of Pharmacy, Badnapur Dist. Jalna.

Abstract:- Since the beginning of time, creams have been valued as essential topical preparations in cosmetic products because of how simple it is to apply and remove them from 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. The products used to enhance and beautify human appearances are known as cosmetics. The current study's objective was to design and assess cold creams that contained plant extracts made utilising the water in oil method for the goal of moisturising and nourishing the skin. Bees wax and Borax extract are used to make the cold cream. Utilising several evaluation techniques, the created product's quality was evaluated. The physical characteristics of the cream formulation did not alter. During the research study period, the cream formulation demonstrated good consistency and, Morphological Evaluation, Stability Test Stability, Irritability Test, pH, non-greasy properties, and no signs of phase separation. There was no discernible change in the created cream's viscosity, aroma, or visual appearance during the research period, according to stability measures. As the water in the emulsion slowly evaporates, the cooling and calming effects of the with cold cream are produced. Cold creams are more moisturising because they create an oily barrier to stop the loss of water from the stratum corneum, the outermost layer of the skin.

KEYWORD- *cosmetics, skin-care, cold-cream*

INTRODUCTION

Cosmetics are the products which are generally used to beautify the skin and also to purify the skin. The cosmetics are the word derived from Greek word – „kosmesticos“ which means to adorn. Since then, materials that are used to enhance the appearance or beautify the skin are called cosmetics. From ancient times to the present, people still use herbal cosmetics to beautify their skin. Cold cream is a water-in-oil emulsion. Cold cream provides a longer contact time at the application site compared to other semi-solid dosage forms or formulations. They addelegance to the skin and it is not so greasy. The oil phase, it softens the skin. The function of the cold cream is to restore the moisture of the dry skin, it allows to remove waste substances from the pores and also cools the body. It is easily water washable and easy to wash. They are non- irritating when applied to the skin. The water phase provides extra protection to the skin. It liquefies at body temperature. It penetrates through the epidermis of the skin through natural pores.

History

Cold cream was first invented by Galen, a famous Greek physician- pharmacist in the Roman Empire (who practiced in Rome) of the 1st Century AD. The Galen formula of cold cream has changed but little in proportions or method of preparation throughout many centuries.

The term "cold cream" refers to the numbing sensation the cream left behind on the skin. Water in oil (w/o) emulsions were typically used to create cold creams. Much of the water in the creams evaporates after they are applied to the skin, leaving the residual oil to function as a solvent, clearing the skin of makeup and other impurities. Additionally, surfactant activity might exist. According to some chemists, the cooling effect of the water evaporation on the skin is the reason why these creams are referred to as "cold creams." An other argument Is that the creams required to be stored in a cool environment to prevent them from growing rancid in the days before mineral oil or Petrolatum were utilised. They acquired their moniker because of how frigid they felt to the touch.

- **According to the function, cosmetics are classified into the following groups:**

- 1) Decorative function (Example - Lipstick, Nail polish, etc.).
- 2) Corrective function (Example - Dry cream and heavy face powder).
- 3) Protective function (Example-Dry cream and heavy face powder).
- 4) Curative function (Example - antiperspirant, hair preparation, etc .

- **According to their use,cosmetics are again sub divided into the following classes.**

- 1) For the skin (Example Powder, Cream, Lotion, Deodorant, Bath and cleansingpreparation, Make up, etc.)
- 2) For the Hair (Example Shampoo, Hair tonic, Hair dressing, Shaving preparation, etc.).
- 3) For the nails (Example - Nail polish, Nail conditioner, Polish remover, etc.). etc.).
- 4) For the teeth and mouth (Example - Dentifrices, Mouth washes.

SKIN CARE PRODUCT:-

- 1) Face wash
- 2) Moising cream
- 3) Vanishing cream
- 4) Cold cream

COLD CREAM:-

Cold creams are water-in-oil or oil-in-water type emulsions added with certain fats & perfumingagents.

Applied on skin to provide smoothness & remove makeup.

An ideal cold cream should have the following properties

- It should have a low sensitisation index
- It should be elegant in appearance.
- It should be non-dehydrating.
- It should provide a smooth texture.
- It should be non-greasy and non-staining.
- It should not cause irritation to the skin.
- It should not alter the membrane or skin functioning

Advantages of Cold Cream:

1) Cold Cream Benefits:

Cold creams have many advantages, such as

2) Better Skin Quality:

Cold creams are perfect for winters for it restores the hydration of the skin. Regular use will make the skin supple and soft. Many of the cold creams come with formulas safe for the skin.

3) Dry Skin Treatment:

The hydration restoration property makes it an ideal cream for people with dry and itchy skin. They can use it in winters to make the skin soft and moist.

4) Full Body Applications:

Cold creams are perfect for application to the full body including the lips. They are a great alternative to lip balms and moisturizers. You can take this one cream for travels and journeys.

Disadvantages of Cold Cream:

- 1) However, as they contain petroleum, that might block the evaporation of water, they often clog pores resulting in pimples,
- 2) They might also darken the complexion if overused
- 3) Cold cream is quite heavy in consistency. It will feel very “greasy” on the application.
- 4) Also, people living in hot, humid weather will find this too heavy.



Fig: 1 Cold Cream

• Literature Review

1] **Roshan Yadav, et al (May-2023)** 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. The products used to enhance and beautify human appearances are known as cosmetics.

2] Tejswini Devidas Navgire, et al (September-2021) The formulations showed good spreadability, no evidence of phase separation and good consistency during this study period. It was found that the viscosity of the cream increases when decreasing the rate of shear so the viscosity of cream inversely proportional to rate of shear (rpm). There is no sign of microbial growth after incubation period of 24hrs at 37°C and it was comparable with the control.

3] Miss. Shalu Manisha, et al (June-2022) Cream was formulated and evaluated by different evaluation parameters such as pH, viscosity, spreadability physical appearance and irritancy test. Stability testing for

prepared formulation was performed by stirring it at different temperature condition for time period 24h for 1 week. To know parameters like odour, pH, smoothness of lotion.

4] Nemade Mahesh Sopan, et al (September-2023) The formulated cream showed good consistency and spreading ability, pH and no evidence of phase separation during the study period. Stability parameters such as appearance, properties, viscosity and fragrance of the formulated cream did not show any significant change during the study period. Cold creams with herbal extracts have a cooling and soothing effect because the water in the emulsion slowly evaporates. Cold creams are more moisturizing because they create an oily barrier that reduces water loss from the outermost layer of the skin, the stratum corneum. They are water-in-oil emulsions intended for use on accessible skin or mucous membranes to produce a local and sometimes systemic effect at the site of application.

5] Prithviraj Balasaheb Ugale, et al (May 2023) Cream showed a multipurpose effect and all these aloe ingredients showed significant different activities. Based on results and discussion, the formulations were stable at room temperature and can be safely used on the skin.

6] Arjun Yadav, et al (May-June 2023) The MECA crude possesses a admixture

of phytochemicals that include alkaloids, carbohydrates, flavonoids, steroids, terpenoids, phenols, glycosides, tannins, and phlobatannins Table 2. also, we formulated the cold cream at 50 mg, 100 mg, and 200 mg attention. The cold cream color has been grounded position of medicine pale green to dark greenish and empty cold cream has no color shown in fig. 1. The wild succulent rubric of *Caralluma* crude is having rich in phytoconstituent and its further pharmacological exertion, still, phytochemicals aren't used direct topical apply for infected injuries that induce some allergen for skin. Hence, we need herhal formulated antimicrobial cold wave cream having the eventuality to against the bacteria and fungi and its confining side goods of the skin. According to former reports, colorful solvent succulents demonstrated antimicrobial exertion against different microorganism. Antimicrobial exertion of cold cream containing biofabrication of MECA crude, on the other hand, negative control cold cream containing without excerpt of MECA and Neosporin, is used as the positive control. The antimicrobial exertion of zone inhibition on the bacterial and fungal strain has significantly increased by Neosporin request available cream) and formulated cold creams.

Aim and Objective

AIM:-

The aim of present study to formulate and evaluate cold cream.

OBJECTIVE:

1. To prepare the cream by using the emulsification technique.
2. To evaluate safety, efficacy and quality of Cold cream.

3. They are non-irritant when applied on the skin.
4. To explore the many aspects of the rich traditional Indian medicine.
5. To apply knowledge gained during the course in evaluating the usefulness of herbal formulas.
6. To formulate and evaluate a cosmetic Cold cream for glowing skin by using natural herbal ingredients.
7. To synthesize a cold cream ideal for all skin types.
8. To find the useful benefits of cold cream on human use as cosmetic product

Material And Method

Material

- Bee wax
- Borax
- Methyl Paraben
- Liquid Parabeffine
- Rose Water / Perfume

- 1) **Bees wax :-** To Protect from Irritants-Beeswax can also act as a layer of protection when applied to the skin.



It can protect skin from environmental irritants and extreme weather. Promotion of Hair Growth-Beeswax not only moisturizes and soothes hair, but it can keep moisture from getting out of the hair. Beeswax can create a protective layer on the skin. It's also a humectant, which means that it attracts water. Both of these qualities can help the skin stay hydrated. Beeswax is also a natural exfoliator, ideal for sloughing away dead skin cell. Beeswax heals and softens skin, and is an antibacterial agent. It can help you fight conditions like acne, dry skin, eczema, and stretch marks. Our raw beeswax can help you create your own skin care moisturizers and lotions specially formulated just for you.

2) **Borax**:- Borax, combined with wax, is used in many cosmetic products like creams, gels, and lotions.



It is famously used in hand soaps to help wash off the oil or grease from the hands. Borax's alkaline nature makes it a perfect ingredient in cleansers and toners. In cosmetic products, borax is sometimes used as an emulsifier, buffering agent, or preservative for moisturizing products, creams, shampoos, gels, lotions, bath bombs, scrubs, and bath salts. Borax is also an ingredient combined with glue and water to make "slime," a gooey material that many kids enjoy playing with. Right from creams and body lotions to shampoos, bath gels and even the in-vogue bath bombs, just about every product associated with skincare has Borax as one of its components. Given its mild and antiseptic nature, quite a few natural cosmetic products tend to include Borax as an essential ingredient as well.

3) **Methyl Paraben** :- The compound is widely used as a preservative for foods, cosmetics and medicines.



Those methyl paraben-containing products caused contact dermatitis and drug hypersensitivity (Larson, 1977; Mowad, 2000), but there has been no fundamental study on allergic reactions related to methyl paraben. Methyl para hydroxy benzoate has been found to cause skin, eye, and respiratory irritations. Since it is an endocrine disruptor, methyl parahydroxy benzoate can mimic the hormone estrogen and cause negative effects to glands that secrete reproductive hormones. Million Marker does not recommend that pregnant women or women trying to conceive expose themselves to methyl p-hydroxy benzoate.

4) **Liquid Paraffine** :- Liquid paraffin, also known as paraffinum liquidum or Russian mineral oil.



Is a very highly refined mineral oil used in cosmetics and medicine. Cosmetic or medicinal liquid paraffin should not be confused with the paraffin (or kerosene) used as fuel. It is a transparent, colorless, nearly odourless, and oily liquid that is composed of saturated hydrocarbons derived from petroleum.

5) **Rose Water / Perfume** :- Rose water is perfect for cleansing your skin and removing any impurities that could cause unwanted spots.

Because of its gentle nature, it is suitable for people with any skin type - even sensitive skin. Using rose water for face and body cleansing will ensure your skin doesn't become dry and irritated.



Table

Ingredients	Quantity taken(40gm)	Use of ingredients
Bees wax	6.4gm	Emulsifying agent
Borax	0.32gm	Emollient
Methyl paraben	0.04gm	Preservative
Liquid paraffin	20ml	Laxative
Water	12ml	Diluent
Perfume	1.24ml	Fragrance

Table no. 1 Ingredients Used In Cold Cream

Apparatus Used:

- Measuring cylinder
- Spatula
- Pipette
- Water bath
- China disc
- Glass rod
- Thermometer

➤ **Raw Materials Used:**

Mineral and vegetable oils, together with fatty alcohols, fatty acids, and fatty esters, emulsifying agents,

preservatives, and filtered water, can all be used to create cold creams. There should be the following four main components:

- Oil
- Water
- Emulsifier
- Thickening Agent

➤ **Procedure of Making Cold Cream:**

- To start, we weighed each ingredient.
- Next, we add the 3.2 grammes of weighed beeswax to the china disc, which serves as the basis in this case.
- The 10ml of liquid paraffin is then added to the china disc.



Fig 2 Bees Wax

After melting the beeswax and making it miscible with the liquid paraffin, we combined the two materials using a glass rod and heated the mixture in a water bath at 70°C



Fig 3 Hot Water Bath

- The china disc was taken out of the water bath and set aside.
- We should keep in mind that the temperature of the combined solution should be up to 70°C and that it should be in a liquid state before adding the remaining ingredients to it.
- Next, using a glass rod to stir, we combined the borax and water.
- To get borax to dissolve in water, we boil the mixture in a water bath until it does. We dropped the boric acid solution into the first solution after the borax had completely dissolved.
- Dropwise add the boric acid solution while stirring the mixture continually with a glass rod.
- The following stage was adding the previously weighed 0.02 gm of methyl paraffin and mixing the solution with a glass rod until all of the paraffin's particles were fully dissolved.
- As a final touch, we added a drop or two of rose oil, which we utilised to smell the recipe.
- After that, we continually stirred the entire mixture using a glass rod until it took on a semi-solid form.

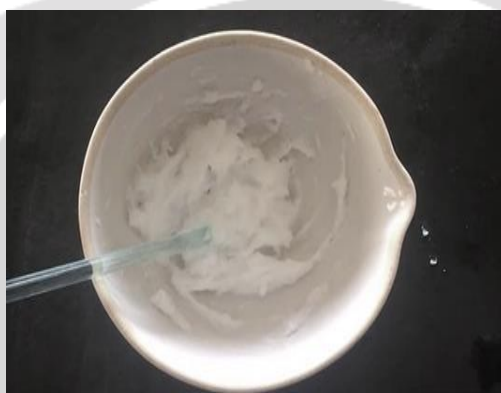


Fig 4 Prepared Cold Cream

Lastly we got our Final Product (cold cream).

USES OF COLD CREAM

The contents of a cream determine the uses of cold cream, i.e., functional ingredients determine the uses of cold cream. These are the primary applications for cold cream: In order to maintain the skin's moisture balance and prevent dry skin diseases, medicated cold cream is primarily utilised as a topical pharmaceutical dosage form for the treatment of skin. It is one of the basic applications for non-medicated cold cream.

- As a makeup removal and cleansing preparation.
- In order to provide an emollient effect
- To give the skin an oiled barrier of protection.

- As with sunscreen components, additionally offer a chemical barrier
- As a vehicle for pharmaceutical ingredients such difluocortolone valerate in ointments.
- To eliminate skin contaminants that are soluble in oil

EVALUATION OF COLD CREAM

➤ *The following several test may perform to evaluate the quality of cold cream.*

- **Morphological Evaluation:-** This refers to the manual evaluation of an ice cream's physical characteristics based on its colour, flavour, and texture.
- **pH:-** In order to calibrate the pH metre, standard buffer solution was used. With the aid of a digital pH metre, weigh 0.5 g of cream and dissolve it in 50.0 ml of purified water.
- **Stability Test:-** 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.
- **Sensitivity test:-** Because of its gentle nature, it is suitable for people with any skin type - even sensitive skin. Using rose water for face and body cleansing will ensure your skin doesn't become dry and irritated.
- **Test for Irritability:-** mark a 1-square-centimeter region on the left dorsal surface. The cream was applied to the designated region, and the duration was recorded. The presence of irritation was monitored for up to 24 hours at regular intervals

RESULT And DISCUSSION

o Morphological Evaluation :-

A morphological evaluation of cold cream is shown in the Table. Formulation was a white. The produced formulations' pleasant and well-acceptable flavour makes them ideal for cosmetic formulations. Smoothness and texture was suitable for cosmetic formulation requirements.

Morphological parameter	Results
Color	White

Odour	Pleasant
Texture	Fine

Table 2 Data of Morphological Evaluation

- o pH : -The pH is found to be neutral and shown in table as

pH	6.7
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Table 3 pH Test

- o Stability:

The stability results were displayed in Table. No change in colour, smell, texture, or smoothness was noticed under the stability parameters stated. The stability research indicated that at normal temperature.

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

Table 4 Stability Testing

o **Sensitivity test**



Fig 5Sensitivity test



Fig 6 Result after the sensitivity test

CONCLUSION

The created cream demonstrated good consistency and spreadability, homogeneity, pH, non-greasiness, and there was no phase separation during the research period, according to the aforementioned data. The purpose of cold cream is to moisturise dry skin and cool the body while also removing waste from pores and pores. It is simple to wet, wash, and put away. When used on the skin, they do not irritate. The skin receives additional conservation from the water phase.

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