



Formulation And Evaluation Of Cold Cream

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Abstract: Cosmetics are the preparations which are used to beautify and enhance the human appearances. The aim of the present research was to formulate and evaluate the sandalwood and almond oil cold cream, prepared by using water in oil method for the purpose of nourishing, moistening and anti-aging the skin. The cold cream was prepared by using the Almond Oil and Sandalwood oil. Quality evaluation of the formulated product was assessed by using different evaluation methods. No change of the physical properties was observed in formulated cream. The formulated cream showed good consistency and spreadability, pH and viscosity, no evidence of phase separation was seen during study period of work. Stability parameters like visual appearance, nature, viscosity and fragrance of the formulated cream showed that there was no significant variation during the study period of research. The herbal extract containing cold cream gives the cooling and soothing effect due to slow evaporation of water present in the emulsion. The cold creams are more moisturizing as they provide an oily barrier which reduces the water loss from the stratum corneum, the outermost layer of the skin. They are water-in-oil emulsion and intended for application on skin or accessible mucous membrane to provide localized and sometimes systemic effect the site of application.

Keywords: cold cream, almond oil, sandalwood oil, nourishing, anti-aggging, Evaluation of 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. From that time the materials which are used to promoting appearances or to beautify the skin are called as cosmetics. From ancient time till now people are still using herbal cosmetics for the beautification of skin Cold cream is the water in oil emulsion. Cold cream gives the prolonged contact time in the site of application as compared to the other semisolid dosage form or formulation. They give elegancy to the skin and it is not that much greasy. Due to the oil phase, it gives emollience to the skin. The function of the cold cream is for restoring moisture to dry skin, it allows to eliminate the waste materials from the pores and also cools the body. It is easily water washable. They are non-irritating when applied on the skin. The water phase gives extra conservation to the skin. It gets liquefy at body temperature. It gets penetrated via the epidermis of the skin by the natural pores. It enters the skin through the pores of the skin's epidermis. Galen, a Greek physician who created the cold cream formulation in the second century, is credited with developing it. He made a mixture of water, beeswax. These were the main moisturiser components he used to create the cold cream.

Galen's cream was the common name for this skin lotion. Cold creams can be used to remove temporary tattoo marks and then removed with a cotton ball in addition to moisturising the skin. Uses of cold creams are also related to the creation of children's face paint

COLD CREAM FOR COLD WEATHER

For good reason its hydrating benefits cold cream has had a modern renaissance. Dry skin is a result of the cold weather and cold creams are fantastic for dry skin. Water and oil are emulsified to create cold cream. The difference between water and oil is significant to the formulation of the cold cream recipe since it causes the skin to feel cold when applied, hence the name. This is due to the fact that cold cream absorbs more slowly into the skin than oil in water products do. The four main components of cold cream are typically water, oil, an emulsifier, and a thickening agent. The cream can reach the outer layer of skin without being absorbed as deeply into your skin as water-based treatments because water and oil are mixed in roughly equal amounts. As a result, when used as an nocturnal skin treatment, it feels more like an overnight mask than a moisturizer.

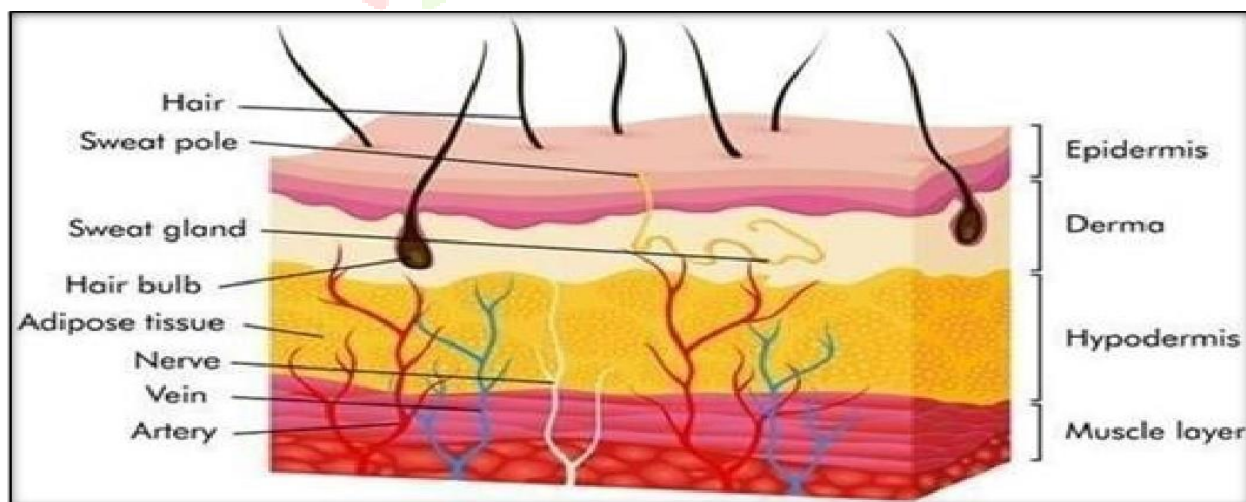
Advantages of Herbal Cold Cream:

1. It Prevents ageing and dehydration of skin.
2. As cold creams contain enough amount of water and oil, they keep skin safe from the rough environments.
3. They also keep skin moisturized and safe
4. Cold creams are designed to remove makeup and smooth the skin
5. Medicated cold cream is mainly used as topical pharmaceutical dosage form for the treatment of skin.
6. To help in the maintenance of moisture balance of skin and avoid rough skin co uses of cold cream (non-medicated).
7. As cleansing preparation to remove make
8. To provide an emollient effect and oily protective layer on the skin.
9. Also, provide a chemical barrier as with sun block ingredients.

PHYSIOLOGY OF HUMAN SKIN:

Epidermis:

The thickness of the stratified, keratinized squamous epithelium that makes up the epidermis, the skin's outermost layer, varies depending on where on the body it is located. The palms of the hands and the bottoms of the feet have the thickest layer. There is no blood present. The dermis interstitial fluid, which supplies oxygen and nutrients and drains away as lymph, bathes the deeper layers of the epidermis but does not reach the veins or nerve terminals of the epidermis.



Dermis:

The dermis is elastic and resilient. It is made of connective tissue, and the matrix contains elastic and collagen fibers woven together. Stretch marks, also known as permanent striae, are a result of the skin's elastic fibers rupturing when they are overstretched during pregnancy and obesity. Water is held together by collagen fibres, which also give the skin its tensile strength. As collagen fibres age, wrinkles start to appear. The primary cells in the dermis are mast cells, macrophages, and fibroblasts. Areolar tissue and various levels of adipose (fat) tissue are found under the skin's lowest layer.

Subcutaneous Gland:

Another crucial location for the processing and regulation of androgen is the sebaceous gland. The skin contains all the required enzymes for converting cholesterol to steroid precursors or adrenal hormones, such as dehydroepiandrosterone. Using an enzyme that is present as early as 16 weeks of foetal life, hydroxysteroid dehydrogenase, the sebaceous gland can also inactivate androgens. In the sebaceous glands, particularly those on the face and scalp, the type-1 isoform of 5-alpha-reductase, which is responsible for converting testosterone into its most potent form, is also abundantly generated.

 DRUG PROFILE:**1. Bees wax:**

Ability 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 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 formulation.



2.Sandalwood Oil: Obtained by distillation from heart-wood of Santalum album and family Santalaceae. They are contains Sandal wood oil contains 95% two isomeric, sesquiterpene alcohols, α -santalol and β santalol , An aldehyde santalol $C_{15}H_{22}O$, Santene, Santenone Sandalwood gel has cooling properties and is anti-inflammatory. It helps with a protective layer for skin and also to retain moisture,Fights skin-aging , Reduces infection and acne.



3. Almond oil: It's also anti-inflammatory and boosts immunity. Containing omega-3 fatty acids, almond oil might help you maintain healthy cholesterol levels and improve your memory.



4. Borax::

Borax is used in lotions and creams. Borax is combined with wax to improve the consistency of lotions and creams. It also works as an emulsifier when used with wax and it is mostly used in hand soaps. It is excellent ingredient used for cleaning as it's alkaline in nature.

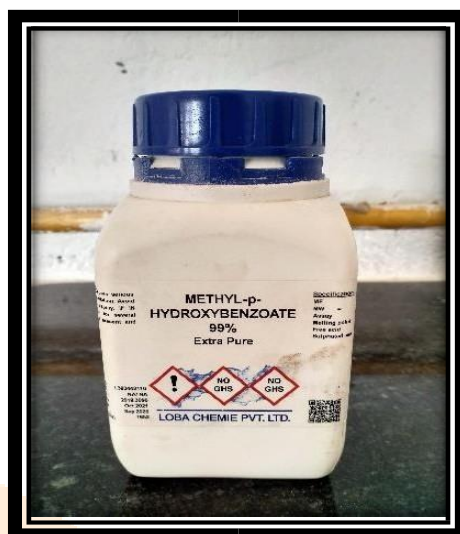


5. Methyl p-hydroxy benzoate:

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.

i. Since it is an endocrine disruptor, methyl para hydroxy benzoate can mimic the hormone estrogen and cause negative effects to glands that secrete reproductive hormones

ii. Million Marker does not recommend that pregnant women or women trying to conceive expose themselves to methyl p-hydroxy benzoate



6. Liquid Paraffin: 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 a fuel. It is a transparent, colourless, nearly odourless, and oily liquid that is composed of saturated hydrocarbons derived from petroleum.



7. Distilled water: distilled water is a type of purified water. Purified water is water that is virtually free of microbes and chemicals. This is achieved by reverse osmosis (water is forced through a membrane to remove chemicals, minerals and microbes), ozonation (disinfecting water with ozone instead of chemicals) or distillation... The EPA requires purified water to not contain more than 10 parts per million of total dissolved solids in order to be labeled purified water. Salts, minerals, and other organic materials are removed by collecting the steam from water

PREPARATION OF COLD CREAM ::

1. Weigh all ingredients in required quantity.
2. Heat liquid paraffin and beeswax in a borosilicate glass beaker at 75 °C and maintain that heating temperature (Oil phase).
3. 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).

4. Then slowly add this aqueous phase to heated oily phase.
5. Then add a measured amount of Sandalwood gel and stir vigorously until it forms a smooth cream. Then add few drops of Almond Oil as a fragrance.

Formulation Table:

Sr. No	Ingredients	Formula F1 (For 20gm)	Formula F2 (For 50gm)
1	Bees wax	3.2 gm	8 gm
2	Borax	0.16 gm	0.40 gm
3	Liquid paraffin	10 ml	25 ml
4	Sandalwood Oil	0.50 ml	1.25 ml
5	Almond Oil	0.12 ml	0.30 ml
6	Methyl p- hydroxy benzoate	0.02 gm	0.05gm
7	Water	6 ml	15 ml

EVALUATION OF SANDALWOOD AND ALMOND OIL COLD CREAM:

1) Determination of Physical 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. 1

2) Homogeneity:

- Homogeneity of the formulated cold cream was tested for the homogeneity by visual appearance and by touch.
- After feel emollience, slipperiness and amount of residue left after the application of fixed amount of cream was checked.
- Type of smear - After application of cream, the type of film or smear formed on the skin were checked. Removal
- The ease of removal of the cream applied was examined by washing the applied part with tap water.

3) Sensitivity test:

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

4) Spreadability:

The spread ability was expressed in terms of time in seconds taken by two slides to slip off 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. Then one slide of suitable dimension was taken and the cream formulation was placed on that slide. Then other slide was placed on the top of the formulation. Then a weight or certain load was 30 placed on the upper slide so that the cream between the two slides was pressed uniformly to form a thin layer. Then the weight was removed and excess of formulation adhering to the slides was scrapped off. The upper slide was allowed to slip off freely by the force of weight tied to it. The time taken by the upper slide to slip off was noted.

Spread ability = $m \times l/t$ Where,

M = Standard weight which is tied to or placed over the upper slide (30g)

L = length of a glass slide (5 cm)

T = time taken in seconds.

5) PH:

The pH of cold cream was determined using pH meter. The most accurate common means of measuring pH is through a lab device called a probe and meter, or simply a pH meter. The probe consists of a glass electrode through which a small voltage is passed. The meter is a voltmeter, measures the electronic impedance in the glass electrode and displays pH units instead of volts. Measurement is made by submerging the probe in the semisolid until a reading is registered by the meter.

6) Viscosity:

Viscosity of cream was done by using Brookfield Viscometer at a temperature of 25 °C using spindle No. 63 at 2.5 RPM. According to the results all the Two formulations showed adequate viscosity.

7) Phase Separation: Prepared cream was kept in a closed container at a temperature of 25- 100C away From light. Then phase separation was checked for 24h.

8) Test for microbial growth: There was no signs of microbial growth after 24 hrs. of incubation 37°C and it was comparable with the control.

RESULT AND CONCLUSION:

RESULT:

- **Physical observation:** Cold cream was evaluated for physical parameters showed in Table No. 1. The colour of the prepared formulation was white. The odour of the prepared formulation was good and acceptable, which is desirable for cosmetic formulations.

Sr. No	Parameter	Formula F1	Formula F2
1	Colour	White	white
2	Odour	Good	Good
3	Texture	Smooth	Smooth
4	State	Semi-Solid	Semi-Solid

Table No. 1: Physical observation.

- **Washability observations:** Cold cream was evaluated for washability. The observation shown in Table No:2. The formulation is easily washable.

Sr. No	Formulation	Washability
1	F1	Easily Washable
2	F2	Easily Washable

Table No. 2: Washability observation.

- **Sensitivity study observation:** Cold cream was evaluated for sensitivity study observation as shown in Table No. 3. The cold cream formulation doesn't show any signs of irritation, erythema, or edema during sensitivity studies

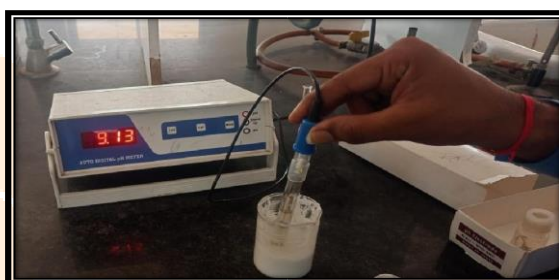
Sr. No	Formulation	Irritant Effect	Erythema	Edema
1	F1	No	No	No
2	F2	No	No	No

Table No.3: Sensitivity study observation

- **PH:** The prepared cold cream was subjected to pH studies, and the results are shown in Table No. 4. The pH of the formulation was found to be 9.13. The moisture content was within limits.

Sr. No	Formulation	pH
1	F1	9.5
2	F2	9.13

Table No. 4: PH



- **Phase Separation:**

Sr. No	Formulation	Phase Separation
1	F1	No phase Separation
2	F2	No phase Separation

Table No.5: Phase Separation

CONCLUSION:

By using Sandalwood Oil and Almond Oil cream showed a multi-purpose effect and all these ingredients showed significant different activities. Based on results and discussion, the formulations F1 and F2 were stable at room temperature and can be safely used on the skin. However, the formula 2 showed the best result in all aspects.

Almond oil and sandalwood oil cold cream is a moisturizing cream infused with the nourishing properties of almond oil and the soothing fragrance of sandalwood oil. Almond oil helps hydrate and soften the skin, while sandalwood oil provides a calming aroma and may have anti-inflammatory benefits.

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