

**FORMULATION AND EVALUATION OF COLD CREAM****\*Prashant Melgar, Pawan Misal, Saachi Mahajan, Shruti Pawar and Alim Shaikh**

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**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. 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 elegance to the skin and it is not that much greasy. Due to the oil phase, it gives an 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 watered washable and easy to wash away. 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 via the natural pores. More recently anti-aging creams have been manufactured which can

retain younger looking skin for many years. The best cleansing agents are cleansing creams, soap and water. Cream is defined as semisolid emulsions which are oil in water (o/w) or water in oil (w/o) type and these semi solid 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. The main aim of our work is to develop a herbal cream which can give multipurpose effect, like moisturizer, reduce acne and skin irritation, reduce skin diseases like eczema, psoriasis, dry skin, wrinkles, rashes etc. and also adding glow to the face. We have used two

herbal ingredients in our preparation which are Neem, Almond. Aloe Vera gel is used as a moisturizer, to reduce pimples and acne and also used for treatment of burn wounds.

## LITERATURE REVIEW

### A. Literature survey of Vitamin E Cold cream:

1) Roshan Yadav (2023): The main objective of our research study was to prepare an herbal cold cream. In day to day life for both women and men cosmetics plays an important role to beautifying and altering the appearance of the skin.

2) Arsh Chanana, Himmat Singh Chawra (2022): The main objective of research study was to formulate an herbal Cold cream using natural ingredients incorporated into gel. In today's life for both women and men cosmetics plays an important role to beautifying and altering the appearance of skin.

### B. Literature survey of Almond oil:

3) Belhekar Archana B1, Bodake Ravina S2 (2018):

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. It may help lower your risk for diseases like cancer and heart disease.

### C. Literature survey of Orange oil:

4) JYOTI GUPTA (2022):

Orange oil is an essential oil produced by cells within the rind of an orange fruit (*Citrus sinensis* fruit).

In contrast to most essential oils, it is extracted as a by-product of orange juice production by centrifugation, producing a cold-pressed oil. It is composed of mostly (greater than 90%) d-limonene.

### D. Literature survey of Borax:

5) Devin Gattey MD (2008):

Borax (or sodium tetraborate) is a naturally occurring alkaline compound that is a precursor in the manufacture of boric acid.

6) Kumbhar Subhash T (2009): Borax, combined with wax, is used in many cosmetic products like creams, gels, and lotions Formulation and Evaluation of Cold Cream

### E. Literature survey of Bee wax:

7) Vidhate Prajwal G (2021).

Ability to Protect from Irritants-Beeswax can also act as a layer of protection when applied to the skin.

F. Literature survey of Rose Water:

8) Rishabh Parihar (2022). Rose water is especially hydrating when combined with other moisturizing ingredients, such as ceramides or glycerin. "These help to moisturize the skin, protect the skin barrier and prevent further water loss from the skin.

9) Uma Chauhan (2021).

The anti-inflammatory properties can reduce skin redness and puffiness. Rose Water Maintains the Skin's Natural pH Balance.

G. Literature survey of vitamin E:

10) Medically reviewed by Debra Rose Wilson, Ph.D., MSN, R.N., IBCLC, AHN-BC, CHT  
By Zawn Villines Updated on October 11, 2023: Vitamin E oil is a moisturizer that you put on your skin. It works by increasing the amount of vitamin E in your skin.

## IDENTIFICATION OF DRUG

### Ingredients of Formulations

All the natural materials used in the present study i.e., Almond oil, Neem oil from local market, in a form of dried powder. The details of the plant material used for the formulation of cold cream are mentioned below

1. Almond oil
2. Orange oil
3. Borax
4. Bee wax
5. Rose water
6. Vitamin E

A. 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. It may help lower your risk for diseases like cancer and heart disease.

- Biological Source :Almond oil is a fixed oil obtained by expression from the seeds of *Prunus amygdalus* (sweet almonds) *P. amygdalus*(bitter almonds)
- Family: Rosacea
- Geographical Source; The oil is mainly produced from almonds grown in the countries bordering the Mediterranean (Italy, France, Syria, Spain and North
- Use: Sweet almond oil contains many nutrients that are good for the skin, including vitamins, minerals, fatty acids, and antioxidants. Using almond may help soothe and hydrate your skin and hair. Some people also use almond. oil to reduce the appearance of scars, stretch marks, and wrinkles and to treat skin conditions.

#### B. Orange Oil:

Orange oil is an essential oil produced by cells within the rind of an orange fruit (*Citrus sinensis* fruit). In contrast to most essential oils, it is extracted as a by-product of orange juice production by centrifugation, producing a cold-pressed oil. It is composed of mostly (greater than 90%) d-limonene, and is often used in place of pure d-limonene. Dlimonene can be extracted from the oil by distillation.

- Synonym: Sweet organ oil, oil of orange peel
- Biological source: It is volatile oil obtained from the freash orange peels of sweet orange. *Citrus cinensis*,
- Family: Rutaceae
- Geographical source: It is also cultivated in California, Florida, Jamaica, Australia. In India it is cultivated in Uttar Pradesh, Maharashtra, Madhya Pradesh, Karnataka Punjab.
- USES: improve skin complexion and reduce acne outbreaks

#### c. vitamin E oil:

vitamin E oil is a moisturizer that you put on your skin. It works by increasing the amount of vitamin E in your skin. Vitamin E helps many parts of your body including your cells. You can apply this oil to your skin as directed by following the instructions on the label.

- Synonyms: d-alpha tocopherol, d-alpha tocopheryl acetate.
- Natural sources: Wheat germ oil. Sunflower, safflower, and soybean oil. seeds. Almonds
- Uses: Reduces Hyperpigmentation. Increased melanin production in your skin causes a darker skin tone. Prevents Skin Aging. Dry skin is one of the major reasons for early skin ageing. Improves Dry Skin Conditions. Removes Dirt. Reduce Dark Spots. Prevent Sun Burn. Fights Against Free Radicals.

**D. 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.

- Synonyms: sodium borate
- Natural sources; Borax occurs naturally in evaporite deposits produced by the repeated evaporation of seasonal lakes. The most commercially important deposits are found in: Turkey; Boron, California; and Searles Lake, California
- Uses; Borax has many uses on its own, plus it is an ingredient in other products. Here are some insect killer. Fungicide, herbicide, desiccant, laundry booster, household cleaners of borax powder and pure borax in water:

**E. BEEWAX**

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.

- Synonyms: • Yellow wax, Cera alba. White wax obtained is known as cera flava. Formulation and Evaluation of Cold Cream 14
- Biological Source:
- Obtained from the honey comb of the bees *Apis mellifera* and other species of *Apis* belonging to the family *Apidae*, order *Hymenoptera*.
- Geographical source: • It is produced in France, Italy, West Africa, India.
- USES: In preparation of ointments, plasters and polishes.

**E. Rose Water**

Rose water is especially hydrating when combined with other moisturizing ingredients, such as ceramides or glycerin. "These help to moisturize the skin, protect the skin barrier and prevent further water loss from the skin," says Allah. However, it shouldn't replace your current moisturizer

- Family: *Rosaceae*
- species: *Rosa canina*, *Rosa rugosa*, *Rosa virginiana*, *Rosa canina*, *Rosa multiflora*, *Rosa damascena*, *Rosa gallica*, *Rosa centifolia*, *R. spinosissima*.
- Chemical Constituents: Volatile oils (e.g., citronellol, geraniol, eugenol, myrcene), tannins,

phenolic compounds (e.g., quercetin, kaempferol, flavonoids), beta-sitosterol, polysaccharides, organic acids (e.g., malic acid, tartaric acid), saponins, resin (Elizabeth, n.d.; United States Department of Agriculture, n.d.).

- USE: Soothes Skin Irritation. One of the key benefits of rose water is that it is rich antioxidant and anti-inflammatory property, Reduces The Appearance Of Redness. Fights Infections, Contains Anti-Ageing Properties, Hydrates Skin.

- List of Equipment

Apparatus required laboratory-scale production as follows

- 1) Measuring Cylinder,
- 2) Beaker
- 3) Stirrer
- 4) Glass rod
- 5) Thermometer
- 6) Water bath.
- 7) Porcelain dish.

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- 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:

- 1) Oil
- 2) Water
- 3) Emulsifier
- 4) Thickening Agent
- 5) perfume

#### Method of Preparation

- Take required quantity of Beeswax and Liquid paraffin in porcelain dish.
- Heat this mixture in water bath for melting purpose.
- Remove dish from water bath.
- Take Borax and distilled water in beaker.
- Heat this solution in water bath for about 75°C.

- This Borax solution added dropwise in porcelain dish with continuous stirring.
- Add Methyl paraben in porcelain dish dissolved it.
- Add orange oil and Almond oil in this solution.
- Add perfume for
- Add Vitamin E Oil.
- Herbal Cold Cream was obtained.

Sr.no	Name Of Ingredient	Scientific name	Uses
1	Methyl Paraben	Methyl hydroxybenzoic acid	Antibacterial property and Preservation
2	Borax	Sodium tetraborate decahydrate	Stability
3	Beeswax	Apiccerana, Apis Mel, Apismellifera, ApisMellif	emulsifying agent, stabilizer
4	Liquid Paraffin	petrolatum	Prevents skin itching and lubricating agent
5	Orange oil	Azadirachta indica	promoting clarity, radiance, and smoothness, thereby reducing the signs of acne and other uncomfortable skin conditions.
6	Almond oil	Prunus dulcis var. dulcis	protective layer skin
7	Vitamin E oil	Alpha-tocopheryl acetate	anti-inflammatory

		(ATA)	
8	Rose water	Rosa damascena	Anti-bacterial

## EVALUATION OF COLD CREAM

### Morphological Evaluation

- Physical properties: The cream was observed for the color, odor and appearance.

### Physicochemical Evaluation:

**Wash ability:** 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 dissolve 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.

**Spread ability test:** 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 =  $m \cdot l / t$

Where M = weight tight to upper slide

L = length moved on the glass slide

T = time take

### • Irritancy test

Mark an area (1 sq.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 Test for microbial growth: Agar media was prepared then the formulated cream was inoculated on the plate's agar media by streak 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.



- **Dye test**

The scarlet red dye is mixed with the cream. Place a drop of the cream on a microscopic slide the 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.

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

## CONCLUSION

Natural remedies are more acceptable in the belief that they are safer with fewer side effects than the synthetic ones. Herbal formulations have growing demand in the world market. Herbal face packs are considered as sustaining and productive way to advance the appearance of skin. Herbal face packs or masks are used to stimulate blood circulation, rejuvenates those muscles and help to maintain the elasticity of the skin and remove dirt from skin pores. Thus, in the present work, it is a very good attempt to formulate the herbal face pack containing naturally available ingredients like neem, almand. It is suggested that the prepared formulation was physio-chemically and microbiologically stable, and possessed characteristics of a standard cosmeceutical's formulation for skincare. The created cream demonstrated good consistency and spread ability, 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 moisturize 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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