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Formulation and Evaluation of Cold Cream

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Abstract: *Cold cream is a water in oil (W/O) emulsion, Also, it is known as Fatty Cream according to EuropeanPharmacopoeia. Outcomes of this article: Uses of Cold Cream, Formulation of Cold Cream, Preparation of Cold Cream, Tests of Cold Cream, History and Ideal properties of cold cream. Before the 1st century, many druggists would compound the rosewater cream and keep it fresh on ice, to make it cold as a skin cream. Coldcream was originally described as the Latin word "refrigeran" meaning "making cold" because when applied, the water evaporates and creates a cooling sensationA cosmetic product is defined as any Substance or preparation Intended to be placed in contact with the Various external part of human body. [Epidermis, hair system, nail.*

Lips, and external genital organ or with the teeth and mucous membrane of the Oral cavity with a view exclusively. or mainly to cleaning them. Perfuming them changing their appearance or correcting body odour and protecting them Condition keeping good them.The formulated cream showed good consistency and spread ability, pH, no evidence of phase separation during study periodof research. Stability parameters like visual appearance, nature,viscosity and fragrance ofthe formulated cream showed that therewas 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 waterloss fromthe stratum corneum, the outermost layer of the skin. They are water-in-oil emulsion and intended for application on skin or accessible mucous membraneto provide localized and sometimes systemic effect at thesite of application.Sandalwood is a class of woods from trees in the genus Santalum. The woods are heavy, yellow, and fine-grained, and, unlike many other aromatic woods, they retain their fragrance for decades.

Sandalwood oilis extracted from the woods for use..

Keywords: *Cold cream*

I. INTRODUCTION

The cosmetics word derived from Greek 'kosmesticos' which means to adorn. Cosmetics are products used to beautify skins to purify the skin. The cosmetics, according to the drug And cosmetics act is defined as articles intended to be rubbed, poured, sprinkled or sprayed on, introduced into or otherwise applied to the human body or part there for cleaning beautifying, promoting, attractions or altering the appearance.Cosmetics products used extensively throughout world for maintaining general appearance of face and other body parts. Eg. Skin, eyes, hair, hand etc. herbal cosmetics are preparation which represent cosmetics associated with active bio- ingredients, neutraceuticals and pharmaceutical. Cold cream is mainly used for skin treatment (such as a facial mask or lip balm), due to its moisturizing properties.

It can also be used to and remove makeup as cream. When shaving the temperature drops down, cold and windy weather cream which is generally enriched with vitamin E, natural oils such as jojoba and olive oil, rose petals and various fruit extracts particularly grape seed, protect the face skin from getting dry and provide a glow, softness and fairness. It, therefore becomes necessary for the consumers to keep a face cream in winter cosmetic kitty. Winter care creams are suitable for the three types of weather cream which is generally enriched with vitamin E, natural oils such as jojoba and olive oil, rose petals and various fruit extracts particularly grape seed, protect the face skin from getting dry and provide a glow, softness and fairness. It, therefore becomes necessary for the consumers to keep a face cream in winter cosmetic kitty.

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Winter care creams are suitable for the three types of face skins, i.e. normal, oily and dry. Many winter care face creams are designed to reduce the signs of peeling and repair fragile face skin due to winter dryness. The strong moisturizing formula in face cream also fulfils the therapeutic purpose of consumers during winters.

What Is Cold Cream...?Cold cream is an emulsion of water and certain fats, usually including beeswax and various scent agents, designed to smooth skin and remove makeup. Cold cream is an emulsion of water in a larger amount of oil, unlike the oil in water emulsion of vanishing cream, so-called because it seems to disappear when applied on skin. The name "cold cream" derives from the cooling feeling that the cream leaves on the skin. Variations of the product have been used for nearly 2000 years. Cold cream is an emulsion in which the proportion of fatty and oily material predominates, although when it is applied to the skin a cooling effect is produced due to slow evaporation of the water contained in the emulsion. Cold cream is an example of a Water in-oil (W/O) emulsion. In cold cream, the major portion is the oil phase. Simply, the cold cream is an oil-based semisolid preparation. Cold cream is also known as Unguentum or CeratumRefrigerans. Generally, it contains mineral oil, beeswax, borax, and water. It is a soothing and cleansing cosmetic typically of oily and heavy consistency, used to soothe and cleanse the skin. It can be classified as a form of cleansing cream. Cold cream is mainly used for skin treatment (such as a facial mask or lip balm), due to its moisturizing properties. It can also be used to remove makeup and as shaving cream

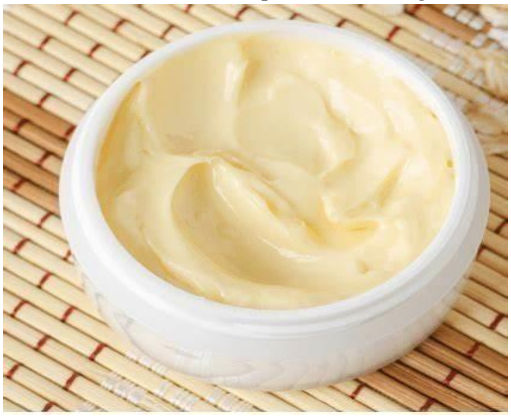

Fig. 1 cold cream

1.1 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.

1.2 Advantages of Cold Cream:

1. Convenient and easy to apply.
2. Avoidance of first pass metabolism
3. Inconveniences of intravenous therapy and of the varied conditions pf absorption like ph changes,presence of enzymes, gastric emptying time etc.
4. Avoidance of risks.
5. Avoid fluctuations of drug levels inter-and intra-patient variations
6 .Achievement of efficacy with lower total daily dosage of drug by continuous drug input.

2. AIM:

To develop and evaluate a herbal cold cream that utilizes natural ingredients to provide moisturization, nourishment, and protection to the skin while avoiding the adverse effects of synthetic chemicals.

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OBJECTIVE:

1] Formulation:

a] To select and incorporate natural, herbal ingredients with known skin- nourishing, moisturizing, and healing properties (e.g., aloe vera, shea butter, essential oils).

b] To prepare a stable cold cream formulation with desirable consistency, texture, and ease of application.

2] Evaluation:

a] To evaluate the physical and chemical stability of the cream (e.g., pH, spreadability, viscosity).

b] To assess the moisturizing and skin-conditioning efficacy of the product.

c] To compare the efficacy of the herbal formulation with standard commercial products.

3. PLAN OF WORK

Literature Review
Collected information about cold cream, its ingredients, and methods of preparation.
↓
Selection of Ingredients
Chose suitable ingredients like beeswax, paraffin, borax, water, etc., based on their roles in the formulation.
↓
Formulation of Cold Cream
Prepared the cold cream using the fusion method (heating oil and water phases separately and mixing them).
↓
Evaluation of Cream
Tested the cream for physical properties like:
Appearance pH Spreadability Washability Homogeneity Stability
↓
Skin irritation
↓
Recording Observations
Noted down results of each test for further analysis.
↓
Conclusion
Summarized findings about the quality and effectiveness of the prepared cream.
↓
Report Preparation
Compiled all data and written information for the final project submission.

4. LITERATURE REVIEW:

1. N. Shah, B.M.Methal, (2006) A Handbook of Cosmetic, VallabhPrakashan

Abstract:"A Handbook of Cosmetics" by N. Shah and B.M. Methal provides comprehensive information on the formulation, design, and manufacturing of cosmetic products. It covers various types of cosmetics, including creams, lotions, gels, and sprays, and discusses the science behind their formulation. The book also addresses regulatory requirements and safety considerations for cosmetic ingredients.

2. Saraf, S., & Kaur, C. D. (2010). Phytoconstituents as photoprotective novel cosmetic

Abstract: This review discusses the use of phytoconstituents as photoprotective agents in novel cosmetic formulations. Phytoconstituents, such as curcumin, resveratrol, tea polyphenols, silymarin, quercetin, and ascorbic acid, are highlighted for their ability to protect the skin against harmful agents and treat various skin conditions. The article emphasizes the importance of developing herbal cosmetic formulations to reduce skin cancer risk and delay photoaging.

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3. B.S., Kalpesh K. Mehta, Anshu Gupta (2016). Dispensing Pharmacy A Practical Manual (p.p. 389-399). Pharma Med Press.
Abstract:"Dispensing Pharmacy: A Practical Manual" by B.S. Sanmathi, Kalpesh K. Mehta, and Anshu Gupta is a comprehensive guide for pharmacy students. It covers various dosage forms, including liquids, solids, and semisolids, and addresses pharmaceutical Incompatibilities. The manual including practicl example, students exercise and pictorial presentations to provide essential knowledgeon dispensing andlabeling medications

K.Kokate,A.P.Purohit,S.B.Gokhale(2014) Textbook of Parmacognosy. NiraliPrakashan 50th edition, p.p. 9.1 & 14.132.
Abstract:
"Textbook of Pharmacognosy" by K.Kokate, A.P.Purohit, and S.B.Gokhale is a comprehensive guide covering various aspects of pharmacognosy, including cultivation technology, quality control of herbal drugs, phytochemistry, phytopharmacy, and the therapeutic utility of crude drugs.
The book emphasizes current trends in herbal drugs, nutraceuticals, Ayurvedic pharmacy, marine pharmacognosy, medicinal plant biotechnology, and endangered species of medicinal plants.

5. INGREDIENTS:
A) BORAX:
Borax is used in cosmetic industry to prevent bacterial growth. It is also used to eradicate skin bacteria and remove dead skin cells. emulsifier created by the chemical reaction made the oil and water parts of cold cream less likely to Separate on standing borax were So cold creams made with borax were more stable.

Fig.no 2 Borax

1. Borax
Biological Name: Sodium borate ($Na_2B_4O_7 \cdot 10H_2O$)
Family: Borate minerals
Synonyms: Tincal, Sodium tetraborate decahydrate, Borate of soda
Constituents: Boron, Sodium, Oxygen, Water Uses: Antiseptic & antifungal in skin preparations Used in eye washes Acts as a pH buffer in cosmetics Preservative and emulsifier

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B) NEEMOIL:

Prevents skin from inflammation and acne because of its anti- oxidant properties. Treat for Fungal infections. Antifungal and anti- bacterial property

Fig.no 2Neem

Biological Name: Azadirachta indica
Family: Meliaceae
Synonyms: Margosa oil
Constituents: Azadirachtin, Nimbin, Nimbidin, Salannin, fatty acids (oleic, stearic)
Uses:
Antibacterial, antifungal, anti-inflammatory
Used in acne, dandruff, and wound healing products Insect repellent and agricultural pesticide

C) HONEY :

Honey is used in a number of winter face Packs contains honey as an ingredient due to the viscous golden liquid's ability to
moisturise the skin effectively. Honey will not only remedy dry skin but will also prevent dryness during winters.

Fig.no 3 Honey Biological Name: Apis mellifera (source organism)

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Family: Apidae
Synonyms: Madhu, Natural sweetener Uses:Natural sweetener and energy source Antibacterial and wound healing agent Used in skincare for hydration and soothing

D) ALOE VERA:
Ayur herbals cream with Aloe Vera is a rich concentration of natural lubricants makes a dense layer of moisture the epidermis's hence
reduces the rate of water loss from the skin. This mechanism in return prevents ageing.

Fig.no 4 Aloe Vera

Biological Name: Aloe barbadensis miller Family: Asphodelaceae (formerly Liliaceae) Synonyms: Ghritkumari, Kumari
Uses
• Soothing burns and sunburns
• Skin moisturizer
• Aids in digestion and detox
• Anti-inflammatory and antimicrobial

E) COCONUT OIL:
Nature has a number of ointments which are capable of healing body from within and without and coconut oil best of them.
• Help to moisturize the skin.
• Minimizes look of fine lines.
• Protects skin against environmental stressors.

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Fig.no 5 Coconut oil

Biological Name: Cocos nucifera Family: Arecaceae (Palm family) Synonyms: Nariyal ka tel
Uses:
Hair and skin moisturizer Antimicrobial and antifungal Used in cooking and oil pullin

F) Rose water:

You can use it directly or mix rose water in your cold cream. Add extra dose of miniaturisation to the skin. It gives healthy glow to the skin. Good for boosting hydration.

Fig.no 6 Rose water

Biological Name: Rosa damascena (commonly used species)
Family: Rosaceae Synonyms: Gulab Jal Uses:
Skin toner and refresher

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Anti-inflammatory and antioxidant
Used in religious rituals and culinary preparations

G) Beeswax:
Beeswax is a product made from the honeycomb of the honeybee and other bees. 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 cells.
• Moisturizes skin
• Clear Acne
• Heal dry skin
• Reduces stretch marks
• Anti-inflammatory
• Protects liver.

Fig.no 7 Beeswa

Biological Name: Apis mellifera (produced by worker bees)
Family: Apidae
Synonyms: Cera alba (white beeswax),
Uses:
Base in ointments, balms, and creams Emulsifier and thickener in cosmetics Used in candle making and polishing

7. PROCEDURE:
• Then dissolve borax in water with continuous help of heat.
• Then add borax solution in oil mixture with continuously stirring with help of heat.
• Continuous this process for 5 min.
• Then remove from heat and stir until it get cold.
• We can also use honey and aloe Vera in it in small amount.
• preparation can be done by adding natural ingredients.
• First we melt the solid ingredients by indirect heat.
• Then add all oils in it and stir it well.

8. METHOD OF PREPARATION:
Extraction processes:
i] Aloe Vera gel:

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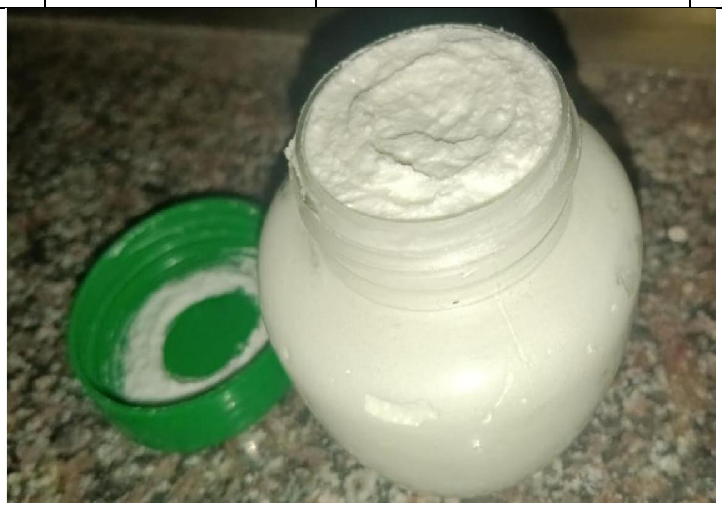
Mature, healthy and fresh aloe Vera leaves were collected and washed with distilled water. Then after proper drying of leaves, the outer part of the leaf was dissected using a sterile knife. Then the aloe Vera gel that is the colourless parenchymatous tissue was removed using the sterile knife. Then it is filtered to remove the fibres and impurities.
Then the filtrate or the filter product which is a clear aloe Vera gel was used in the preparation.

9. FORMULATION TABLE:

Sr.No	Ingredients	Role	Quantity
1	Borax	Emulsifier	1gm
2	Coconut oil	Hydration	20ml
3	Neem oil	Anti- microbial agent	5ml
4	Honey	Humectant	5ml
5	Rose water	Fragrance	30ml
6	Aloe vera	Lubricant	29ml
7	beewax	Emulsifier	10gm



10. EVALUATION OF CREAM:
Irritancy test:
Mark an area on left hand dorsal substance upto (1 Sq cm) The cream was applied to the specified area And time was noted. Irritancy way checked if any up to 24 hrs For regular intervals.
Physical evaluation:
The cream was observed for the colour, odour and appearance.
Wash ability:
The cream was applied on hand and observed under the running.
pH:
The pH meter was calibrated with help of Standard buffer solution.
Spreadability:
Spread ability is ability of a cream to Spread on Skin.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

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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 for- mulation. Then a weight or certain load was 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 adher- ing 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 = mx I/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.

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.

Phase separation:

Prepared cream was kept in a closed container at a temperature of

25-100

℃away from light. Then phase separation was checked for 24 h..

Sr.No	Formulation	Phase separation
1	A	No phase separation
2	B	No phase separation
3	C	No phase separation

Table no.2 Phase separation

Physical appearance:

Sr No	Parameter	Evaluation
1	Colour	Pale green
2	Odour	Pleasant
3	Texture	Smooth

Table no 3 Physical appearance

Uses of cold cream:

Typically used to cleanse the face off makeup Heavily moisturises dry skin. Can also be used as a balm. For dry cracked lips. It can also be used as a shaving cream alternative for men.

Direction of use:

• After cleansing apply the cream over hand & body.

• Give gentle upward strokes when applying on face & neck.

Precautions:

Avoid contact with product gets into eyes, rinse thoroughly with water if eyes.

Storage:

It should not be permitted to freeze.

Labeling information:

• The label information should contain.

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- Manufacture and expiration date.
- Conditions under which the it should be stored.
- Where applicable.
- Name of any added antimicrobial preservative.

11. CONCLUSION:

By using Honey, Aloe Vera, coconut oil cream showed a multi- purpose effect and all these herbal ingredients showed significant different activities. Based on results and discussion it can be sately used
on skin. From the above results it is concluded that the formulated
cream showed good consistency and spread ability, homogeneity, pH, non-greasy and there is no phase separation during study period of research. From the above study it can be concluded that the polyherbal cold cream is safe to use as it is developed from herbal extract. Natu- ral remedies are more acceptable in the belief that they are safer with fewer side effects than the synthetic ones. So, the values of herbs in the cosmeceutical has been extensively improved in personal care sys- tem and there is a great demand for the herbal cosmetics nowadays. An herbal cream which is non-toxic, safe, effective and improves patient compliance by the utilization of herbal extracts would be highly acceptable than synthetic ones.

12. RESULT:

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	Result
Color	White
Odour	Pleasant
Texture	fine

Table 4 Data of Morphological Evaluation

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

pH	7.3

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.

Table 6 Stability Testing Test

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

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Irritancy Test: The table below displays the results of the irritancy test. During irritancy trials, the formulation displayed absence of irritation, redness, and edema. This formulation is
skin safe for usage
Table 7 Result of irritancy test

Irritancy test	Result
Irritancy	No
Edema	No
Redness	No
Swelling	No

Spreadability: The Spreadability of cold cream was shown in table and found to be Table8

Formula	Average spreadibility
F1	6.5

Homogenicity: The homogenicity of cold cream was quite good enough

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