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Formulation and Evaluation of Herbal Cold Cream

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ABSTRACT

Creams have been the topical preparations of choice in cosmetic products from the very beginning of time because of the ease of application and removal from the skin. Aesthetic purposes for pharmaceutical creams are moisturizing, cleaning, beautifying, and changing appearance. They may be applied to cure skin wounds like burns, cuts, and wounds, and protect the skin from bacterial and fungal infections. Any product that is intended to be in contact with the different external parts of the human body is a cosmetic product. Epidermis, hair structure, and nails. Mouth's mucous membrane and lips, and the external sexual organs, with the intention of cleansing them. Preventing them from deteriorating, making them appear healthier, changing how they smell, or putting a perfume on them. Throughout the research duration of the study, the produced cream exhibited satisfactory consistency, spreadability, pH, and lack of any phase separation. Throughout the duration of the research, the produced cream exhibited satisfactory consistency, spreadability, pH, and lack of any phase separation. The stability requirements of the produced cream, e.g., its visual appearance, nature, viscosity, and odor, exhibited no detectable change throughout the duration of the research study. The slow evaporation of water of the emulsion is a cooling and soothing experience to the herbal extract containing cold cream. As they form an oily layer that prevents water loss from the stratum corneum, the skin's outer layer, cold creams are more moisturizing. They are oil-in-water emulsions and are designed to be applied to the accessible skin or mucous membranes in order to create a localized and sometimes systemic effect where they are used.

Key words: neem extract, cold cream, aloe barbadensis, herbal cosmetic

Introduction:

Cosmetics are products that are generally employed to beautify and clean the skin. The term "cosmetics" came from the Greek term "kosmestikos," which means "to adorn." The liquid in an oil painting is symbolized by cold cream. As opposed to other redundant lozenge shapes or expressions, cold cream has a longer contact time at the point of use. They provide the skin a classy look with very little slithery. The cold cream process of painting leaves the skin feeling soft. The intention of the cold cream is to cool the body and restore moisture to dry skin by enabling waste products to be eliminated from pores. It is quick to clean and can be soaked through effortlessly. When put on the skin, they do not cause any irritation. The skin is provided with redundant conservation by the water phase. It is used at room temperature. It penetrates the skin via the natural pores present in the epidermis. Anti-aging creams that are able to maintain the look of the skin as young for several years have been made more recently. Water, cleanser, and sanctifying creams are the trendy sanctification agents. Cold cream is used to depict the water present in an oil painting. In comparison to other unnecessary lozenge forms or expressions, cold cream gives a longer contact time at the point of use. They give the skin a highbrow look with less slithery. The process of oil painting leaves the skin feeling moisturized. The function of the cold cream is to cool the body and restore moisture to dry skin by providing for waste materials to be cut off from the pores. It is easy to clean and can be wetted easily. They irritate the skin when applied, but not at all. The skin is rendered redundant conservation by the water phase. It functions at room temperature. (1) Natural products used as makeup are as fashionable today as they ever were. Herbal cosmetics are more favored than synthetic ones simply because they are less apt to have side effects and have more dramatic effects when used. The herbal beauty products condition and enhance the natural nature of the skin. Because all the herbal extracts in these preparations are derived from natural plants, no potentially harmful synthetic drugs exist. Chemical, synthetic, or API-based drugs are not used in the preparations because of the potential for numerous skin disorders. Herbal cosmetics are highly in demand in the market and are often used in skin care treatments. Cream is a semisolid externally applied water in oil (w/o) or oil in water (o/w) type emulsion. There are two forms of cream: oil in water and water in oil emulsion. It remains longer at its primary function is the application site. It is applied to the outermost or superficial layers of the skin. The twofold advantages of a cream for the skin are soothing and environmental protection from weather and other environmental factors. There are numerous varieties of creams: hand and body, cleansing, vanishing, massage, night, and others. Our primary aim is to create a herbal cream with multiple functions. (2) The emulsion of water in oil is referred to as cold cream. In contrast to other semisolid drug delivery systems or formulations, cold cream offers a higher contact time at the site of application. They make the skin look elegant and not oily. The oil phase gives the skin emollience. Replacing lost water to dry skin is the intention of cold cream; in addition, it can cool the body and eliminate waste products from pores. It is easy to rinse and clean off with water. When put on the skin, they create no irritation. The skin is further guarded by the water phase. It melts at body temperature. (3) Neem is a tree species of the Meliaceae family, *Azadirachta indica*. Medicine is prepared from seeds, bark, and leaves. Fruit, flower, and root are all used, but to a lesser extent. Leprosy, eye infections,

nosebleed, intestinal parasites, stomach upset, loss of appetite, ulcers of the skin, heart and blood vessel disease (cardiovascular disease), fever, diabetes, gum inflammation (gingivitis), and liver problems are some of the illnesses for which neem leaf is used. The leaf is also used as an inducer abortions and as a means of birth control. Others use neem topically to treat skin infections, wounds, ulcers, head lice, and as a skin softener and mosquito repellent. Neem is also used as a pesticide. (4)

ANATOMY OF THE HUMAN SKIN

Epidermis: Depending on the location on the body, the stratified, keratinized squamous epithelium that composes the epidermis—the outer layer of skin—is different in thickness. The thickest part is found on the bottom of feet and the palms of hands. There is no blood present here. The lower layers of the epidermis are and oxygenated by the dermal interstitial fluid, which drains away as lymph and never reaches the veins or nerve endings of the epidermis.

Dermis: This layer is resilient and elastic. It is made up of connective tissue, consisting of collagen and elastic fibers embedded in the matrix. When the skin is stretched beyond its limits during pregnancy or obesity, the elastic fibers in the skin rupture, and stretch marks, also known as permanent striae. Collagen fibres, responsible also for tensile strength in skin, retain water. Aging collagen fibres are responsible for wrinkles. The principal cell types of the dermis are mast cells, macrophages, and fibroblasts. Areolar tissue and several levels of adipose (fat) tissue exist beneath the skin's lowest layer.

Subcutaneous Gland: A further important site for androgen processing and regulation is the sebaceous gland. All the enzymes necessary for the conversion of cholesterol to steroid precursors or adrenal hormones, including dehydroepiandrosterone, are found in the skin. Employing an enzyme available as early as 16 weeks of foetal development, hydroxysteroid dehydrogenase, the sebaceous gland also inactivates androgens. In facial and scalp sebaceous glands, however, the type-1 isoform of 5-alpha reductase, which catalyzes the conversion of testosterone to its most active form, is also plentifully produced. Hormones also play a major role in regulating the sebaceous gland. By binding to nuclear androgen receptors (AR), androgens regulate the activity of the sebaceous gland. Many skin structures contain ARs, with the sebaceous gland where Androgens are found having a special affinity.

Cold Creams:

- Cold cream is a water and some fats' emulsion that is applied to smooth skin and strip off makeup. It is usually prepared with beeswax and other perfumes.
- The European Pharmacopoeia calls it Fatty Cream.
- Water and oil are mixed in all types of cold cream. The water in the cream is evaporated as you put it on your skin, providing you with a feeling of coolness. It is most probably that the name was derived from this cooling sensation.
- Cold cream is also known as moisturiser or moisturising cream. Cold cream must act emolliently. On application, it must have a feeling of coolness and must not deposit any occlusive oil film on the skin.
- Despite being an emulsion with a high fatty and oily content, it has a cooling effect upon application to the skin since the water within the emulsion evaporates gradually. An example of a water-in-oil (W/O) emulsion is cold cream
- In cold cream, the oil phase is the major constituent. Quite simply, the cold cream is an oil-in-water semisolid preparation. Cold cream is also referred to as Unguentum or Ceratum Refrigerans. It usually consists of mineral oil, beeswax, borax, and water .
- It is a cosmetic that soothes and cleanses the skin; it is usually oily and heavy in consistency. It belongs to the category of cleansing cream.

HISTORY OF COLD CREAM PREPARATION

Before the first century, many druggists used to prepare rosewater cream and store it refrigerated on ice so that it could be in the right form to be used as a skin cream. As the water in cold cream evaporates when applied, it causes a cooling sensation, thereby the Latin term "refrigerans" (which means "making cold"). Galen, one of the famous Greek physicians and chemists based in Rome during the First Century AD's Roman Empire, is the source of the very first cold cream. Throughout many centuries, the preparation procedure and proportions of the Galen cold cream formula have rarely varied. It is perfect for the treatment of dry skin on knees, feet, and elbows as well as for applying it as a natural makeup remover and as a prevention from eczema on dry parts of the body. The cream derives its name from the way it is cold to the touch. It is used by people to soften the skin, cool sunburns, and shield their faces from cold weather, among other applications. The fat and water combination in this product will help moisturise. In contrast with the "oil in water" type emulsion of vanishing cream, which is so referred to as it seems to disappear upon being used on skin, the emulsion is of the "water in oil" type. A typical cold cream is a lubricating cream, generally referred to as night cream or massage cream, with lanolin and its derivatives. "Cold cream" is a name derived from the tingling feeling the cream left on the skin. Water in oil (w/o) emulsions were also commonly applied to make cold creams. A lot of the water in the creams evaporates upon application to the skin, leaving the remaining oil to act as a solvent, removing makeup and other contamination from the skin. There could also be surfactant activity. Some chemists say the reason for the cooling sensation of the water evaporation on the skin is why these creams came to be known as "cold creams." Another argument is that the creams needed to be kept in a cool place so that they would not become rancid during the days before mineral oil or Petrolatum were used. They got their name because they were so cold to the touch. Galen, a

Roman doctor who lived around 150 CE, is said to have invented the first cold cream using water mixed with molten beeswax and olive oil. A great deal of mixing was involved in producing it, and when it was left to stand, it also split. The recipe, as usual, utilized rosewater and/or oil of roses as a perfume and went on regardless, being included in the initial 1618 version of the "pharmacopoeia Londinensis". The earlier formulas were not stable since vegetable oils, such as almond oil, are prone to spoilage when mixed with water. Cold creams were usually made at home or purchased in small lots freshly mixed by a local pharmacy, chemist or druggist due to their short shelf life. (7)

Benefits of herbal cosmetics:

- Being natural, least harmful effect on the skin or other body parts.
- Relatively more safe.
- More placebo effect to the consumers due to its use in traditions and culture.
- Flexibility in formulation.
- Population proves effects from ancient time.
- Easy availability.
- Economical.
- It helps to cleans and beautify the body without side effects.

Need:

Herbal cosmetics" the demand of herbal medicines is growing at a rapid rate because they have no negative effects. The cosmetic of herbs is that it is entirely produced by herbs and bushes. The herbs taken from nature do not provide any negative impacts on human skin. Nowadays cosmetics are applied to enhance their looks. Cosmetics are making and applying in order to enhance their beauty. For different skin diseases formulations such as skin protective, sun screen, anti-acne, anti-wrinkle, either herbal or synthetic. Process of development for cosmetic formulation requires quality control standards. The herbs employed in cosmetic preparations contain types of properties such as antioxidant, anti-inflammatory, antiseptic and anti-bacterial, etc. herbal products with no side effects compared to synthetic formulations. Cold cream is an emulsion which upon application on skin, cooling sensation is felt due to slow evaporation of water in the emulsion. They are usually prepared by emulsification of oils and water. Cold cream was originally made from vegetable oils and animal fats in older days.

Objective:

- o To hydrate and moisturize the skin.
- o To enhance spread ability.
- o To improving appearance of your pores.
- o To reduce Cost of manufacturing.
- o Removing excess oils. Pulling out impurities.
- o Helping reduce signs of aging.
- o To prepare the cream by using the emulsification technique.
- o To evaluate safety, efficacy and quality of Herbal cold cream.
- o They are non-irritant when applied on the skin.
- o To study the various facets of the vibrant traditional Indian herbal medicine.

Literature Review

Sujit carped (2024):

Herbal cold cream formulation and evaluation have been a recent area of interest. The studies revealed that their respective formulations containing plant extracts and oils exhibited satisfactory consistency, spreadability, and stability. These creams also imparted a cooling and soothing sensation, which makes them appropriate for use on the skin. In a similar manner, reported that their herbal cold cream recipes, with Neem being a part of them, was stable and effective. These observations indicate that the use of herbal extracts can uplift the characteristics of cold creams. In addition showed the

ability of herbal creams with antioxidant-enriched extracts, to nourish and safeguard the skin. These experiments collectively identify the potential of herbal cold creams in skin care, especially when mixed with antioxidant-containing ingredients.

Bhavsar Saurabh Rajendra et.al (2021):

Have researched that since they are easily available, cheap, and non-poisonous, herbs are used very commonly as drug agents since humans have trust in them. Herbs have been utilized by humans to manage, clean, and beautify from the start of time. Cosmetics are defined as beauty products with desirable physiological actions, like healing, appearance smoothing, increasing and conditioning traits. Acne, black heads, pimples, and dark circles are nowadays very common in young adults and those afflicted with the condition. In Ayurvedic, blood impurities are usually the reason for skin problems. Skin disorders are caused by toxins that have accumulated in the blood as a result of poor diet and lifestyle.

Sweta v.Kulkarni et.al (2019):

Have researched that Skin is an extremely sensitive and protective layer of the body which comes in contact with environmental pollution therefore, it is quite necessary to safeguard the skin. Facial skin can be saved by applying several cosmetics meant particularly for facial application, It can be a cream, lotion face mask or peel off mask etc.

Material and methods:-

Beeswax:-

Cera alba, or beeswax, is a naturally occurring wax that is made by Apis honey bees. Eight wax-producing glands in the worker bees' abdomen segments shape the wax into scales, which the bees subsequently discard in or near the hive.

The hive workers collect it and use it to form cells storing honey and offering protection to the larvae and pupae within the beehive. In terms of chemistry, beeswax is primarily composed of various long-chain alcohols and fatty acid esters.

For thousands of years, beeswax has been utilized for many purposes such as being the earliest plastic, a lubricant and waterproofer, wood and leather polish, cosmetic ingredient, way of making candles, and painting medium for encaustic.

Beeswax is not toxic and only slightly poisonous in relation to plant waxes. It is licensed for use in foods in most nations and the European Union (E901, E901). But since the human digestive system is unable to digest it, its nutritional contribution is zero. (9)



Production:-

Worker bees secrete beeswax from eight wax-secreting mirror glands found on the interior surfaces of the sternites, the ventral shields or plates of each body segment, on abdomen segments 4 to 7. The worker's age controls the size of these wax glands, which gradually atrophy following many day-to-day flights. Capacity to Protect from Irritants: When it is used on the skin, beeswax is also capable of acting as a barrier against environmental aggressors. It can protect skin from extreme weather and environmental pollutants. Stimulation of Hair Growth: Beeswax is capable of inhibiting the evaporation of moisture from hair in addition to calming and moisturizing it. Beeswax possesses the capacity to put a coat of protection. Also, it absorbs water as it is a humectant. Both of these properties have the potential to hydrate the skin. Another great natural exfoliant to shed dead skin cells is beeswax. Beeswax is an antibacterial and healing element for the skin. It can help you overcome diseases such as stretch marks, eczema, dry skin, and acne.(10)

Borax:-

Natural minerals such as borax possess the formula $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$. Disodium tetraborate, sodium borate, or sodium borate is sometimes called borax. This is one of the most important boron compounds. The IUPAC nomenclature for borax is sodium tetraborate decahydrate. Two boron compounds that are related to each other are borax and boric acid. Borax is a naturally occurring mineral that is mined from the ground or collected from evaporated reserves. Boric acid (H_3BO_3) is the purified material left after borax processing. Borax is a salt of boric acid. While the compounds vary in a few respects, both versions of the chemical work well for slime or pest control.

**Liquid paraffin:-**

A mixture of liquid hydrocarbons is referred to as liquid paraffin. It has been used mainly as a lubricating laxative, but due to its adverse effects, it is not recommended. Yet, it is still being used due to this and is found to be as good as lactulose. Nevertheless, the former UK Committee on Safety of Medicines recommended taking the following precautions. Only 160 ml pack size is permissible. Liquid paraffin can be used only to alleviate symptoms of constipation. Prolonged use should be prohibited, and "repeated use is not advised" should be indicated on the label. (12)

**Aloe vera:-**

Succulent plant species belonging to the Aloe genus is aloe vera. It is considered an invasive species across the globe because of its wide distribution. Native to the Arabian Peninsula, this evergreen perennial is found wild in tropical and semi-tropical regions as well as dry areas everywhere around the globe. It has been used for thousands of years chiefly as a local remedy and is presently cultivated for commercial purposes. This species is attractive when used as a decoration and performs satisfactorily in pots indoors. (14)



Rose water:-

A water and rose petal mixture is termed rose water. Its fragrance is sweet and makes it a favorite perfume, but rose water also has culinary and medicinal applications. Rose water has been in use for centuries in medicine, as far back as the 7th century in Iran and elsewhere in the Middle East. There is evidence that Native American Indians in North America employed it as a cure for disease

**Olive Oil:-**

later in life, which, in addition to other things, sets the Mediterranean diet apart from other diets olive oil, which is the dominant source of fat in the area. The olive oil has been utilized primarily for spiritual and religious activities over the last 2000 years. It is even referred to in the Bible, the Holy Koran, and the works of Homer. In January 2018, in the Robert Mondavi Institute in Davis, California, the International Olive Council convened several international experts to examine and summarize the information available up to date on the effect of olive oil consumption on human health. Within this work, we provide a critical integration of the most important data that have been published and propose further study directions on olive oil and human health. (18)

**Neem:**

All components of *Azadirachta indica*, or neem, have been proposed to possess therapeutic properties. Pruthi (1937) was the first researcher to prove that neem was insecticidal. A microcrystalline compound named azadirachtin isolated from neem kernel extract is found to be effective as a larvicide against *Culex pipiens*. Abdullaheb et al. (2009) state that "naturally occurring bio pesticides could be an alternative to chemical pesticides." It has, according to reports, a mixture of compounds that inhibit the molting of insects, inhibit the ingestion of food, inhibit reproduction, and serve as a nontoxic insecticide to be used in agriculture. Neem kernel extracts in water were sprayed on crops to repel infestation. Neem leaf juice is used to cure skin infections, jaundice, and worm removal. Nut and leaf oil has stimulatory, insecticidal, and antimicrobial activity. It suppresses a variety of insects from feeding and, at much reduced doses, suppresses ecdysis.



Procedure:

Bee's wax is melted in a beaker using heating mental. Liquid paraffin is added to this and also heat on a hot plate at 70 °C. Also in a teacup of 100 ml, borax was dissolved and hotted with olive oil painting on a 4 at 70 °C. Both the unctuous and waterless phases are hotted at the same temperature .e, 70 °C and neem extract and alovera gel was added in the teacup. Now borax result is added gradationally to the melted beeswax result, drop by drop with constant shifting. To this, many drops of rose oil painting is added to give scent. It was stirred continuously until it cools down and a semi solid mass was gain. (23)

Basic components	Concentration in gram			Plain Cream
	50 mg	100 mg	200 mg	
Bees wax	1.12	1.12	1.12	1.12
Olive oil	6.86	6.86	6.86	6.86
Liquid paraffin	0.98	0.98	0.98	0.98
Borax	0.05	0.05	0.05	0.05
Rose water	0.3	0.3	0.3	0.3
Distilled water	Q.S	Q.S	Q.S	Q.S
Aloevera Gel	0.8	1.2	1	1
Neem Extract	50 mg	100 mg	200 mg	-
Total	15 gm	15 gm	15 gm	15 gm

Conclusion:

With the application of neem extract, Aloe Vera, olive oil cream exhibited a multi-action effect and all these herbal ingredients exhibited remarkable different activities. It was used topically to skin as per findings and discussion. The developed cream exhibited satisfactory homogeneity, pH, non-greasy nature, consistency, and spreadability, and no phase separation throughout the research study interval, as per data above. Since the cold cream consists of herbal extract, it can be used safely, as per the study above. Since natural medicines are considered safer and cause fewer side effects than man-made ones, they are more acceptable. Consequently, the advantages of employing herbs in cosmeceuticals have significantly risen in the personal care market, and herbal cosmetics demand is presently on an upswing. It would be far more acceptable to employ a herbal cream that employs herbal extracts to improve patient compliance and is safe, nontoxic, and effective than a synthetic one.



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