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FORMULATION AND EVALUATION OF HERBAL MOISTURIZING CREAM

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ABSTRACT:

This study aimed to formulate and evaluate a herbal moisturizing cream enriched with extracts of Aegle marmelos (beal) and Azadirachta indica (neem). The cream was formulated using beeswax, liquid paraffin, borax, methylparaben, and kewra oil along with the herbal extracts. Various parameters including moisturizing efficacy, skin barrier function, texture, sensory attributes, safety, and stability were evaluated to assess the quality and effectiveness of the cream. Results indicated that the herbal moisturizing cream exhibited promising moisturizing efficacy, enhanced skin barrier function, and compatibility with different skin types. Sensory evaluation revealed positive feedback on texture, aroma, and overall user experience. Microbiological safety and stability testing confirmed the cream's safety and shelf-life. Overall, the formulated cream presents itself as a natural and effective skincare solution, offering hydration, nourishment, and sensory delight to consumers.

Keywords: Herbal moisturizing cream, Beal, Neem, Formulation, Evaluation, Skin hydration, Skin barrier function, Sensory attributes, Safety, Stability

INTRODUCATION:

Herbal skincare products have gained popularity due to their perceived safety, efficacy, and natural ingredients. Aegle marmelos (beal) and Azadirachta indica (neem) are well-known medicinal plants with various dermatological benefits, including moisturizing, anti-inflammatory, and antimicrobial properties. This study aimed to harness the therapeutic potential of beal and neem extracts in formulating a herbal moisturizing cream. The cream was formulated using a blend of natural ingredients, including beeswax, liquid paraffin, borax, methylparaben, and kewra oil, along with the herbal extracts. The formulation was subjected to comprehensive evaluation to assess its moisturizing efficacy, skin barrier function, sensory attributes, safety, and stability

CREAMS :

Creams are topical medications that are meant to be administered topically. According to definitions, creams are "viscous liquid or semi-solid emulsions of either the oil-in-water or water-in-oil type," with different levels of consistency depending on the type of oil and water.

Creams serve a variety of cosmetic functions, including cleansing, beautifying, enhancing appearance, protecting, and medicinal. These topical preparations are intended to deliver drugs locally, into the mucous membrane or the skin's underlying layer. These treatments are intended to be applied topically to improve the drug's site-specific delivery to the skin for skin conditions.

Since creams are made using methods developed in the pharmaceutical business, they are regarded as pharmaceutical products. Both medicated and unmedicated creams are widely used to treat dermatoses and other skin problems. People can utilize creams that are allopathic, herbal, or ayurveda based on the demands of their individual skin issues. They include one or more drug ingredients that have been diluted or spread in an appropriate foundation. Based on phases, creams can be categorized as either w/o or o/w types of emulsion. Traditionally, semisolid formulations that are either oil-in-water (vanishing cream) or water-in-oil (cold cream) have been referred to as "cream."

GENERAL INGREDIENTS USED IN SKIN CREAMS :

Water: Water is the most important and extensively utilized basic ingredient in every cream recipe. These are the cheapest and most readily available. In skin creams, water is utilized as a solvent to dissolve other cream ingredients. Creams are made using water that is free of toxins, pollution, microorganisms, and other contaminants. Water can also create emulsions; the amount of water used in the formulation determines whether they are referred to as oil-in-water emulsions or water-in-oil emulsions, depending on the amounts of oil and water phase employed.

Oil, fats and waxes: An essential component of creams is made up of oil, fats, waxes, and their derivatives. Depending on their purpose, oils, fats, and waxes can thicken, perfume, preserve, and so forth.Mineral and glyceride oils are the two types that are possible.

Mineral oil: Mineral oil is composed of hydrocarbons obtained from petroleum oil.Mineral oil is a clear, odorless, highly refined oil that is commonly used in cosmetics. Mineral oil rarely causes allergic responses and does not solidify and clog the pores of the skin. It is lightweight and affordable, and it helps to prevent water loss from the body while keeping it moisturized. A variety of mineral oils are employed in cream formulations.

Examples:

- Light liquid paraffin
- Heavy liquid paraffin
- Liquid petroleum

Waxes: which comprise spermaceti, ceresin, beeswax, and carnauba wax in the cream's composition. Because they prevent the separation of liquid and oil components in an emulsion, waxes are employed in cosmetic products. In addition to sticking to the skin's surface, these waxes thicken the lipid layer.

Perfumes: A material called perfume transmits a smell, such as a pleasant and sweet smell. Natural fragrances that are utilized in creams include:

- White Blossoms:
- Rosy Dreams
- Orange Blossom

Vitamins: Vitamins are essential for preserving both the skin's and the body's overall physiological function. Generally, vitamins A, B, C, E, and so forth are used in the cream formulation.

Preservatives: In order to stop microbial alterations and contamination throughout formulation, shipping, storage, and customer usage, preservatives must be utilized in cosmetic products. Antioxidants can also be utilized to guard against changes brought on by oxygen exposure.

Moisturizer : A moisturizer, also known as an emollient, is a cosmetic preparation that lubricates, protects, and moisturizes the skin.

Humectants

Take in water. When the humidity level is higher than 70%, they can absorb this water from the air and moisturize the skin; but, more often than not, they draw moisture from the dermis into the epidermis, which dries up the skin.

Types of moisturizers:

Moisturizers come in a wide variety of varieties. Despite its oily viscosity, petroleum jelly is one of the best moisturizers, although it might be disliked. Cetyl alcohol, cetearyl alcohol, cocoa butter, isopropyl myristate, isopropyl palmitate, lanolin, liquid paraffin, silicone oils, stearic acid, stearyl alcohol, and castor oil, among other oils, are other common moisturizers. In addition, moisturizers can be found as lotions, creams, ointments, bath oils, or alternatives to soap. Mineral-based oils and waxes are resistant to rancidity and oxidation. Because of this, they have Antioxidants, ceramides, emulsifiers, scents, penetration enhancers, preservatives, and solvents are possible extra ingredients in moisturizer cosmetics. Certain products are advertised as having skin-enhancing and anti-wrinkle properties. Numerous substances from plants and animals have been touted as having skin.

Uses:

- Certain skin conditions include psoriasis, ichthyosis vulgaris, xerosis, and pruritus in atopic dermatitis are treated with moisturizers.
- In addition, moisturizers are frequently found in skin cleansers, sunscreens, antiperspirants, shaving creams, aftershaves, and hair tonics.
- Moisturizers are used in disposable napkins to prevent dry skin and napkin dermatitis.

Advantages of mosturizers :

- Skin issues are less likely when you moisturize.
- Applying moisturizer helps lessen the visibility of additional flaws.
- Your skin looks younger when it is moisturized.
- Mosturizing fights wrinkles.

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INGREDIENTS:

1. Beal
2. Neem
3. Bees wax
4. Liquid Paraffin
5. Borax
6. Methylparaben
7. Kewra oil

1)BEAL:

Synonyms :

Belou marmelos

Biological Source :

Bael is made up of Aegle marmelos Corr.'s unripe or partially ripe fruits, as well as their slices and asymmetrical bits.

Family: Rutaceae.

Chemical Constituents :
The main ingredient in the medication is a furocoumarin called marmelosin A, B, and C (0.5%). Umbelliferone, psoralin, and marmesin are other coumarins. The medication also includes tannins, protein, volatile oil, and carbs (11–17%). A high amount of vitamins C and A are also present in the pulp. Fruits have yielded the alkaloids O-methylhalfordinol and iso-pentylhalfordinol. The drug has also been reported to contain the alkaloids dictamine, marmeline, and angelenine.
Cumarin : Ant-inflammatory, Antiviral, anti-oxidant
Marmeline : Anti-oxidant, anti-inflammatory
Imperatorin : Anti-inflammatory
Aegeline : Anti-oxidant.

Uses :
Ayurvedic medicine uses this widely used drug to treat dysentery and diarrhea. Mucilage is credited with the action. Alkaloids found in leaves make them thought to be beneficial for diabetes. The oil extracted from seeds has antifungal, antibacterial, and antiprotozoal qualities. One of the ingredients of the well-known ayurvedic remedy Dasmula is bael root.

2)NEEM:

Synonym :- Margosa .

Biological Sources :- It Consists of all aerial parts of plant known as Azadirachta indica , Family Meliaceae.
Chemical Constituents :- Chemicals are isolated from the plant belong to the classes diterpenes (Sugiol), nimbol (Bark) , triterpenes : stimasterol (leaf) etc. The neem leaves contain not less than 1.0% w/w of Rutin.
Activity : Relieves skin dryness, anti-bacterial, antifungal.

Uses :- It has been studied scientifically and reported that it contains different chemical which have insect repellant , antifeedant , nematicide and antimicrobial properties.
The seed oil has spermicidal activity.

3)BEESWAX:

Methylparaben is a preservative commonly used in skincare and cosmetic products to prevent the growth of bacteria, yeast, and mold. It helps to extend the shelf life of products and maintain their efficacy over time.

4)LIQUID PARAFFIN:

Liquid paraffin, also known as mineral oil, is a highly refined, purified form of petroleum. It's widely used in skincare products as a moisturizer and emollient due to its ability to soften and soothe the skin. It helps to prevent moisture loss and keeps the skin hydrated.

5)BORAX:

Borax, also known as sodium borate, is a naturally occurring mineral compound. In skincare, it's used as an emulsifier and pH adjuster. It helps to stabilize emulsions and ensure the proper consistency of creams and lotions.

6)METHYLPARABEN :

Formal condensation of the carboxy group of 4-hydroxybenzoic acid with methanol yields methylparaben, a 4-hydroxybenzoate ester.

- The antimicrobial preservative is widely used in cosmetics.
- It occurs naturally in many foods, including blueberries.
  It acts as an antifungal, neuroprotective, antibacterial, and plant metabolite.
- It also serves as a preservative.
- In allergy testing, methylparaben is used.

7)ROSEOIL :

Kewra oil is an essential oil extracted from the flowers of the kewra plant (Pandanus odoratissimus), which is native to South Asia. It has a sweet, floral fragrance and is commonly used in perfumery and aromatherapy. In skincare, it's added for its aromatic properties, providing a pleasant scent to products.

Aim:

Formulation and Evaluation of herbal moiturizing cream.

Objective:

1. To lessen skin conditions, dry skin, wrinkles, acne, and skin irritation
2.To inhance glow to the face

Methodology:

Sure, here's a shortened version:

1.Collection: Gather A. marmelos leaves.

2. Processing: Clean, mash into paste.

3. Standardization:

- Organoleptic, Microscopical, Physicochemical Evaluations.

4. Development:
- Herbal Extraction.
- Cream Formulation.

5. Standardization of Cream:
- Colour, Odour, pH, Viscosity, Spreadability.
- Assess Irritancy, Washability, Compatibility.

Preparation of Extract: Fresh leaves of A. marmelos were collected, cleaned, and mashed into a paste.

Extraction with Water (Active A): 300g of the paste was macerated with water at room temperature for 12 hours. The supernatant was filtered, yielding Active A.

Extraction with Chloroform (Active B): After filtering, the leaves were air dried and subjected to a 72-hour chloroform extraction until the extract turned pale. The resulting extract was filtered, dried, and labeled as Active B (Dried form), stored in a sterile glass bottle at 4°C.

INGREDIENTS	QUANTITY
Beal	4gm
Neem	1.5 gm
Beeswax	3gm
Liquid paraffin	10ml
Borax	0.2gm
Methyla paraben	0.02gm
Kewra oil	Q.S

Formulation of cream : Within the sacred confines of a borosilicate glass beaker, orchestrate a dance between liquid paraffin and beeswax, guiding them to an ethereal 75°C, where they merge into the celestial embrace of the oil phase. In a separate chamber, blend the alchemical duo of borax and methyl paraben with distilled water, coaxing them to a transcendent 75°C, birthing a shimmering aqueous elixir.

With reverence, fuse the aqueous essence with the oil symphony, each droplet a celestial harmony in the cosmic ballet. Measure out the mystical extracts of beal and neem, infusing the concoction with the essence of ancient secrets, stirring until a tapestry of opulent cream unfurls like the wings of a phoenix.

As the crescendo approaches, add a few drops of kewra essence, its ethereal fragrance a whisper from the realm of dreams, elevating the concoction to a plane where mere mortals dare not tread.

Evaluation Test:

1. Moisturizing Efficacy:
- Conduct a hydration test using a corneometer to measure skin hydration levels before and after applying the moisturizer. Higher hydration levels post-application indicate better moisturizing efficacy.

2. Skin Barrier Function:
- Assess the moisturizer's ability to enhance the skin barrier function by conducting a transepidermal water loss (TEWL) test. Lower TEWL values post-application suggest improved barrier function.

3. Texture and Absorption:
- Evaluate the cream's texture, spreadability, and absorption rate through sensory evaluation by panelists. A smooth texture and quick absorption are desirable attributes.

4. Longevity:
- Measure the moisturizer's longevity by assessing how long the skin remains hydrated after application. Repeat hydration tests at intervals to determine the cream's lasting effects.

5. Irritancy and Sensitivity:
- Conduct patch tests on a small group of participants to evaluate any potential irritancy or sensitivity reactions. Monitor for redness, itching, or other adverse reactions.

6. Compatibility with Skin Types:

- Test the moisturizer on different skin types (dry, oily, sensitive) to assess its compatibility and effectiveness across a diverse range of individuals.

7. Sensory Attributes:

- Evaluate the fragrance, color, and overall sensory experience of the moisturizer through consumer surveys or focus groups. Positive feedback on these attributes enhances user satisfaction.

8. Packaging and Application:

- Assess the practical aspects of packaging design and ease of application. Consider factors such as dispensing mechanism, container size, and user-friendliness.

9. Microbiological Safety:

- Conduct microbiological testing to ensure the cream's safety by checking for the presence of harmful bacteria, yeast, and mold.

10. Stability Testing:

- Perform stability tests under various storage conditions (e.g., temperature, humidity) to assess the cream's shelf-life and potential for degradation over time.

Conclusion:

In conclusion, the development and evaluation of herbal moisturizer cream demonstrate promising potential for providing effective hydration, enhancing skin barrier function, and offering compatibility with various skin types. Through rigorous testing of moisturizing efficacy, sensory attributes, safety, and stability, the herbal moisturizer cream presents itself as a holistic skincare solution, offering both nourishment and sensory delight to users seeking natural and effective skincare products.

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