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Review Paper

Formulation and Evaluation of Herbal Cold Cream: A review

Mandeep Singh*, Manisha Rani, Vishakha Thakur

Aakash Institute of Medical Sciences, Nalagarh

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ABSTRACT

Herbal cold creams are semi-solid topical preparations formulated to hydrate and protect the skin, particularly in dry or cold weather. With growing consumer interest in plant-based and chemical-free cosmetics, herbal cold creams have gained popularity. These formulations combine natural emollients, humectants, and plant extracts known for their skin-beneficial properties. This review discusses the formulation aspects, common herbal ingredients, evaluation parameters, and recent advancements in herbal cold cream development. It also emphasizes the advantages of herbal ingredients over synthetic components and highlights the challenges in achieving product stability and consumer acceptance.

INTRODUCTION

Cosmetic formulations play a crucial role in daily skin care. Among them, cold creams are widely used as moisturizers and protective agents during winter or in dry conditions. Traditionally, cold creams are water-in-oil (W/O) emulsions that help retain moisture by forming an occlusive layer on the skin's surface [(1)]. The incorporation of herbal ingredients into cold creams offers therapeutic benefits and appeals to the increasing demand for natural skincare products [(2)]. These creams utilize extracts, oils, and powders from medicinal plants that exhibit properties such as antimicrobial, antioxidant, anti-inflammatory, and healing effects [(3,4)].

1. Advantages of Herbal Cold Cream

Herbal cold creams have gained prominence due to the following advantages:

2.1 Biocompatibility

Plant-based products are generally well-tolerated and less likely to cause skin irritation or allergies compared to synthetic compounds

2.2 Multifunctional Benefits

***Corresponding Author:** Mandeep Singh
Address: *Aakash Institute of Medical Sciences, Nalagarh*
Email ✉: mandeeprajput8379@gmail.com
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Herbal ingredients often provide antioxidant, antimicrobial, and wound-healing activities, contributing to skin rejuvenation and protection [4,6].

2.3 Eco-friendly and Sustainable

Natural ingredients are biodegradable, renewable, and typically less harmful to the environment than synthetic chemicals.

2.4 Market Demand

There is increasing consumer preference for natural, organic, and chemical-free cosmetic products [7]. This has led to rapid growth in the herbal cosmetics industry.

2. Common Herbal Ingredients in Cold Creams

Herbs are chosen based on their active constituents and skin benefits:

Herb	Constituents	Benefits	References
Aloe vera	Polysaccharides, glycoproteins	Moisturizer, healing	[8]
Neem (*Azadirachta indica*)	Nimbin, azadirachtin	Antibacterial, antifungal	[9]
Turmeric (*Curcuma longa*)	Curcumin	Anti-inflammatory, antioxidant	[10]
Calendula (*Calendula officinalis*)	Flavonoids, triterpenoids	Wound healing, soothing	[11]
Coconut oil	Lauric acid	Emollient, antibacterial	[12]
Sandalwood oil	Santalol	Astringent, cooling	[13]
Almond oil	Oleic acid, vitamin E	Emollient, anti-aging	[14]

These herbs are usually used in the form of aqueous or ethanolic extracts, essential oils, or infusions depending on the formulation requirement.

3. Formulation of Herbal Cold Cream

4.1. Basic Composition

A typical cold cream contains:

- **Oil phase**: Stearic acid, beeswax, cetyl alcohol, almond oil, coconut oil, herbal oils
- **Aqueous phase**: Herbal extracts, glycerin, water
- **Emulsifiers**: Borax, lecithin
- **Preservatives**: Grapefruit seed extract or other natural preservatives

4.2. Procedure

- **Oil Phase Preparation**: Melt the oil-soluble components.
- **Aqueous Phase Preparation**: Heat the aqueous components separately.
- **Emulsion Formation**: Add the aqueous phase to the oil phase with continuous stirring.
- **Cooling and Additions**: Add heat-sensitive herbal extracts and essential oils at ~40°C.
- **Homogenization and Packaging**: Homogenize to obtain a uniform cream, and store in airtight containers [2].

5. Evaluation of Herbal Cold Cream

Herbal cold creams are evaluated for various physical, chemical, and microbiological parameters.

5.1. Organoleptic Properties

Colour, fragrance, consistency, and appearance are evaluated visually [5].

5.2. pH Measurement

The pH should lie between 5.5–6.5 to match skin's natural pH and avoid irritation [6].

5.3. Spread ability

Measured by the amount of cream spread between two glass plates under specified weight and time. Indicates ease of application [15].

5.4. Stability Studies

Samples are stored under different conditions (room temp, refrigerated, accelerated) and checked for phase separation, colour change, or rancidity [16].

5.5. Viscosity

Determined using a viscometer to assess texture and consistency [3].

5.6. Microbial Load Test

Ensures the product is free from contamination and suitable for topical use [4].

5.7. Irritancy Test

Patch test conducted on human volunteers or lab animals to evaluate skin reaction [7].

6. Recent Developments and Trends

6.1. Nano-herbal Creams

Use of nanotechnology enhances penetration of active herbal compounds into deeper skin layers for better effectiveness (13).

6.2. Ayurvedic Integration

Formulations inspired by Ayurveda use classical combinations such as turmeric-sandalwood, neem-basil, etc. for synergy [14].

6.3. Clean Label and Green Cosmetics

Formulations now aim for full transparency with eco-friendly ingredients, minimal preservatives, and sustainable packaging [17].

7. Challenges and Limitations

- **Standardization Issues**: Herbal extracts vary based on source and processing, making standardization difficult [18].
- **Preservation**: Risk of microbial contamination in water-containing herbal formulations without effective preservatives.
- **Stability**: Herbal actives may degrade under light or temperature over time.
- **Regulatory Constraints**: Lack of harmonized global standards for herbal cosmetics.

8. CONCLUSION

Herbal cold creams are innovative cosmetic formulations that blend traditional plant-based knowledge with modern formulation science. With increasing demand for natural and safe skin care products, the use of herbal extracts in cold creams is both relevant and commercially viable. However, standardization, quality control, and regulatory approval remain major hurdles. Continuous research into newer herbs, advanced delivery systems, and sustainable practices will help shape the future of herbal cold creams.

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