ISSN- 2230-7346
Journal of Global Trends in Pharmaceutical Sciences

HERBAL CREAMS: AN OVERVIEW

Rangu Srinivas, Thangellapalli Siddu, Puli Nagaraju, G Tulja Rani, Divya Balne*

Malla Reddy Pharmacy College, Maisammaguda, Dhulapally, Secunderabad, Telangana, India.

*Corresponding author E-mail: divya.balne444@gmail.com

ARTICLE INFO

Key words:
Cosmetics, herbal creams, semisolid dosage forms, Turmeric, Aloe vera.

Access this article online Website:
https://www.jgtps.com
Quick Response Code:

ABSTRACT

Semisolid dosage forms that are usually applied topically on the skin are called creams. This study mainly focuses on the preparation and evaluation of herbal creams along with some of the common herbs utilized in these types of formulations. The herbal cream is a water-in-oil type of emulsion. The natural ingredients chosen for the preparation of herbal cream are Turmeric, Papaya, Aloe vera, Tulsi, Amla, Cucumber, Neem, etc. The choice of these ingredients is based on their individual properties. The preparation of the cream is done by using the cream base, i.e., liquid paraffin, beeswax, borax, and methyl paraben. These formulations can be evaluated by various parameters like pH, viscosity, irritancy, spreadability, microbial growth, thermal stability, homogeneity, acid value, saponification value, accelerated stability studies, patch test, smear test, after feel, washability, physical properties, dye test, after feel, *in vitro* diffusion study, etc. Chemical-based cosmetics are harmful to the skin, and an increased awareness among consumers for herbal products triggered the demand for natural products and natural extracts in cosmetics preparations. The increased demand for the natural product has created new avenues in the cosmeceutical market. The natural content in the botanicals does not cause any side effects on the human body; instead enriches the body with nutrients and other useful minerals.

INTRODUCTION

Herbs have always been the principal form of medicine in India. Medicinal plants have curative properties due to the presence of various complex chemical substances of different composition, which are found as secondary plant metabolites in one or more parts of these plants [1]. Cream is defined as a semisolid emulsion, which is oil in water (o/w) or water in oil (w/o) type, and these semisolid emulsions are intended for external application. It is applied on the outer part or superficial part of the skin, and its main ability is to remain for a longer period at the site of application. The function of a cream is to protect the skin against different environmental conditions, weather, and give a 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 an herbal cream that can give a multipurpose effect, like moisturizer, reduce acne and skin irritation, reduce skin diseases like eczema, psoriasis, dry skin, wrinkles, rashes, etc [2,3].

Types of herbal creams: They fall into two categories: **Oil-in-water (O/W) creams:** Creams that consist of small oil droplets dispersed across the aqueous phase are referred to as an oil-in-water (O/W) emulsion, **Water-in-oil (W/O) creams:** Creams that consist of small water droplets dispersed across the oil phase are referred to as water-in-oil (W/O) emulsions [4-6].

Formulation methods for herbal cream

Slab Method (Spatulation Method):

Purpose: To prepare creams without applying heat, preserving heat-sensitive ingredients and achieving mechanical mixing using a slab and spatula.

Equipment Needed: Glass or marble slab, Stainless steel spatula, Weighing balance, Beakers. Ingredients: Cream base (oil-in-water or water-in-oil). Active ingredient(s) (e.g., niacinamide, salicylic acid) Additives (e.g., preservatives, humectants, essential oils)

Table 1: Common herbs used in herbal creams [2, 7-9]

Plant name	Image	Synonym	Biological Source	Chemical Constituents	Use
Ruta		Garden Rue, Herb of grace, Sadab	Aerial parts of *Ruta graveolens* Rutaceae	Rutin, psoralein, bergapten, graveoline, rutarin.	Dermatitis, Rheumatism, Vitiligo, Psoriasis
Aloe vera		Kumari, Aloe Indica	Fresh leaves of *Aloe barbadensis* Liliaceae	Anthraquinone Glycosides: Aloin, Aloe emodin, Aleo Resin.	Clear plaques and lower patient Psoriasis Area and Severity Index (PASI) scores
Fenugreek		Methi	Dried seeds of *Trigonela foenum-graecum* Fabaceae	Galactomannan, sapogenin, Quercetin, trigonelline,4-hydroxyisoleucine	Remove dry red patches on the skin, prevent the formation of pus, and help to reduce itching
Turmeric		Haldi	Dried rhizomes of *Curcuma longa* Zingiberaceae	Curcumin, Volatile oil Resin	Anti-inflammatory, anti-microbial and Colouring agent
Vinca		Chandrika, Periwinkle	Leaves and roots of *Catharanthus Roseus* Apocynaceae	Serpentine, Vincristine, Vinblastine, Ajamaline,	Acne, pimples and painful lumps on the skin
Jojoba oil		Jojoba Seed Oil, Californica Oil	Seeds of the *Simmondsia chinensis* Simmondsiacea e	Wax esters, along with small amounts of free fatty acids, alcohols	Moisturizing, Pain reliever, prevents dryness, flaking, and itching
Neem		Azedarach deleteria, Medik	Leaves of the *Azadirachta Indica* Meliaceae	Azadirachtin, nimbin, nimbidin	Acne, Fungal infection
Lavender		Lavandula	Flowering tops of *Lavandula angustifolia* Lamiaceae	Essential oils (linalool, linalyl acetate), flavonoids	Calming, soothing, and relaxing skin

Calendula		Marigold	Flowers of *Calendula officinalis* Asteraceae	Flavonoids, triterpenoid saponins, carotenoids	Anti-inflammatory, antimicrobial, wound healing
Tea Tree		Melaleuca	Leaves of *Melaleuca alternifolia* Myrtaceae	Terpinen-4-ol, cineole, alpha-terpineol	Antiseptic, acne treatment, antifungal, used for oily or acne-prone skin
Liquorice		Mulethi	Stolons, roots, stems of *Glycyrrhiza glabra* Fabaceae	Glycyrrhizin, glabridin, liquiritin, flavonoids	Skin lightening, anti-inflammatory, helps with eczema, psoriasis, and hyperpigmentation
Rosemary		Rosmarinus	Leaves of *Rosmarinus officinalis* Lamiaceae	Rosmarinic acid, camphor, cineole, alpha-pinene	Antioxidant, antimicrobial, improves blood circulation, used in anti-aging and toning creams
Peppermint		Mentha	Leaves of *Mentha piperita* Lamiaceae	Menthol, menthone, menthyl acetate	Cooling, anti-itch, soothing for irritated or inflamed skin
Cucumber		Kheera	Fruits of *Cucumis sativus* Cucurbitaceae	Ascorbic acid, silica, cucurbitacins	Cooling, hydrating, and reducing puffiness and irritation, used in under-eye and soothing creams
Tulasi		Holy Basil, Sacred Basil	Leaves of *Ocimum sanctum* Labiateae	Linalol, eugenol, methylchavicol, methyl cinnamate, linolen, ocimene, pinene, cineol, anethol, estragol, thymol, citral, and	Helps to brighten the complexion, reduce blemishes, and provide a natural glow

Procedure:

1. Weigh Ingredients: Accurately weigh all components of the cream formulation.

2. Prepare Active Mix (if needed): If you're using powders, you may first levigate them with a small amount of suitable vehicle (e.g., glycerine or propylene glycol) to form a smooth paste.

3. Initial Spreading: Place the cream base on the slab. Spread and work the base with the spatula to soften it.

4. Incorporate Actives: Add actives or levigated mixture slowly to the cream base in small portions using geometric dilution.

Spread and fold the mixture repeatedly until it becomes uniform.

5. Add Volatile/Heat-Sensitive Ingredients: Once the cream is uniform, incorporate sensitive additives (e.g., essential oils or vitamins).

6. Final Homogenization: Scrape and fold the cream multiple times until the texture is consistent and smooth.

7. Transfer and Package: Scrape the final cream into a clean container, seal, and label appropriately.

Fusion Method

Purpose: To produce stable emulsions (oil-in-water or water-in-oil) by melting and blending the oil and aqueous phases at elevated temperatures. Equipments: Water bath or hot plate, two beakers (for oil and aqueous phases), Thermometer, Stirring rod or homogenizer, Scale, Clean container for final product. Ingredients: Divided into two main phases:

Oil Phase (Heated): Emulsifying agents (e.g., stearic acid, emulsifying wax) Oils (e.g., mineral oil, coconut oil)

Fatty alcohols (e.g., cetyl or stearyl alcohol)

Aqueous Phase (Heated): Water or aqueous solution (e.g., purified water, floral waters)

Humectants (e.g., glycerine, propylene glycol)

Preservatives (if water-soluble) Cooling Phase (Optional): Heat-sensitive actives (e.g., vitamins, essential oils) Fragrances, pH adjusters (e.g., triethanolamine**)**

Procedure:

1. Weigh and Prepare Phases: Accurately weigh all oil-phase and water-phase ingredients separately.

2. Heat Both Phases: Heat both phases separately to 70–75°C in a water bath until all solids are melted and dissolved.

3. Combine Phases: Slowly add the aqueous phase into the oil phase (or vice versa depending on emulsion type), with continuous stirring to form an emulsion.

4. Stir during Cooling: Continue stirring while the mixture cools to room temperature to ensure uniformity and prevent separation. Use a homogenizer if available for better emulsion stability.

5. Add Heat-Sensitive Ingredients: Once the cream reaches around 40°C, add heat-sensitive ingredients such as vitamins, essential oils, or fragrances.

6. Final Mix and Packaging: Stir until fully homogeneous. Transfer into sterile containers and label.

Trituration Method: Materials Needed: Active pharmaceutical ingredient (API) or active cosmetic agent, Base cream (e.g., oil-in-water or water-in-oil base), Mortar and pestle or slab and spatula, measuring tools (spatula, balance, etc.)

Procedure:

1. Weigh the Ingredients: Accurately weigh the API and cream base according to the formulation.

2. Initial Trituration: Place the API into a mortar (or on a slab) and triturate using a pestle (or spatula) to break up agglomerates and reduce particle size.

3. Geometric Dilution: Add a small amount of the cream base to the triturated powder and mix thoroughly until uniform**.** Continue adding the cream base in gradually increasing amounts using geometric dilution. This ensures even distribution of the API throughout the base.

4. Final Homogenization: Once fully mixed, continue trituration for a few more minutes to achieve a smooth, uniform cream.

5. Transfer and Packaging: Transfer the finished cream to a clean container and label appropriately [4,6,10,11].

Evaluation of cream

Physical evaluation: In this test, the cream was observed for colour, odour, texture, and state

Irritancy: Mark the area (1 cm^2) on the left-hand dorsal surface. Then the cream was applied to that area and the time was noted. Then it is checked for irritancy, erythema, and edema if any for an interval up to 24 h and reported.

Washability: A small amount of cream was applied on the hand, and it is then washed with tap water.

Viscosity: Viscosity of cream was done by using a Brookfield viscometer at a temperature of 25^{o} using spindle No. 63 at 2.5rpm.

Phase separation: Prepared cream was kept in a closed container at a temperature of $25\text{-}100^{O}$ away from light. Then phase separation was checked for 24 h for 30 days. Any change in the phase separation was observed/checked.

Spreadability: The spreadability 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 spreadability. Two sets of glass slides of standard dimension were taken. Then 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 formulation. 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 adhering 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.

$$\textbf{Spread ability} = m \times L/t$$

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.

pH: A digital pH meter can be used to measure the pH of the produced herbal cream. After preparing the cream solution with 100 milliliters of distilled water, it should be left for two hours. For the answer, pH should be measured three times, and the average value of the solution must be computed.

Irritancy test: On the left dorsal surface, mark an area of one square centimeter. Cover the designated area with cream and record the time. For up to 24 h, irritability, erythema, and edema must be monitored and reported at regular intervals [3,12-16].

CONCLUSION: In conclusion, herbal creams in India offer a viable and increasingly popular alternative to synthetic cosmetics due to their perceived safety and fewer side effects. They are used for a variety of purposes, including moisturizing, nourishing, whitening, and treating skin conditions, with a growing demand for natural products in the personal care market.

Conflicts of interest: - None -

REFERENCES

1. Manisha Yogesh Sonalkar, Sachin Annasaheb Nitave. Formulation and evaluation of polyherbal cosmetic cream. World J Pharm Pharm Sci. 2016;5:772-779.
2. T Reynolds, AC Dweck. Aloe vera leaf gel: a review update. J Ethno Pharmacol. 1999;68:3-37.
3. Priyanka Sharma, Amit C Kharkwal, Harsha Kharkwal, MZ Abdin, Ajit Varma. A review on the pharmacological properties of Aloe Vera. Int J Pharm Sci Rev Res. 2014;29:3-7.
4. Sharma Pankaj, Tomar Lokeshwar, Bachwani Mukesh, Bansal Vishnu. Review on neem (*Azadirachta indica*): thousand problems one solution. Int Res J Pharm. 2011;2:97-102.
5. KP Sampath Kumar, Debjit Bhowmik, Biswajit, Chiranjib, Pankaj, KK Tripathi. Margret Chandira. Traditional Indian herbal plants Tulsi and its medical importance: a review. Res Rev: J Pharmacogn Phytochem.2010; 2:103-108.
6. Christaki EV, Florou-Paneri PC. Aloe vera: A plant for many uses. J Food Agric Environ. 2010;8(2):245-249.
7. Rani S, Singh N, Gautam SP. Formulation, Evaluation Optimization and Evaluation of Dendricream for wound healing activity of Artemisia Indica. World journal of pharmacy and pharmaceutical sciences. 2016; 5(8):1483-1497.
8. Esimone CO, Ibezim EC, Chah KF. Factors affecting wound healing. Journal of Pharma Allied Sciences. 2005; (1):294-299.
9. Kompelly A, Kompelly S, Vasudha B, Narender B. *Rosmarinus officinalis* L.: an update review of its phytochemistry and biological activity. Journal of Drug Delivery and Therapeutics. 2019; 9(1):323-330.
10. Avinash G, Priyanka B. Wound healing potential of Indian medicinal plants. International Journal of

Pharmacy Review & Res. 2013; 2:75-87.
11. Enjamoori Vijay Kumar, Nampalli Avinash, Vasudha Bakshi, Gangarapu Kiran, Boggula Narender. A Review on *Leucas aspera* for Phytopharmacological Studies. INNOSC Theranostics and Pharmacological Sciences. 2019; 2(1):1-5.
12. Parveen Ruhil, VivekKumar, Neha Minochi. Formulation and evaluation of herbal cream used in the treatment of arthritis research. Indian J Res. 2018; 7:356-357.
13. Gidwani, RN Alaspure, NJ Duragkar, V Singh, SP Rao, SS Shukla. Evaluation of a novel herbal formulation in the treatment of eczema with *Psoralea corylifolia*. Iran J Dermatol. 2010;13:122-127.
14. Navindgikar N, Kamalapurkar KA, Chavan PS. Formulation and evaluation of multipurpose herbal cream. Int J Curr Pharm Res. 2020; 12(3):25-30.
15. Aswal A, Kalra M, Rout A. Preparation and evaluation of polyherbal cosmetic cream. Der Pharmacia Lettre. 2013; 5(1):83–88.
16. Dhase AS, Khadbadi SS, Saboo SS. Formulation and evaluation of vanishing herbal cream of crude drugs. AJ Ethno. 2014; 1(5):313–318.