International Journal of Web of Multidisciplinary Studies
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
website: *http://ijwos.com*
Vol.02 No.12.
OPEN ACCESS
E-ISSN : 3049-2424
DOI: https://doi.org/10.71366/ijwos

A Review on formulation and evaluation of polyherbal cream

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Article Info

Article History:

Published:23 Dec 2025

Publication Issue:
Volume 2, Issue 12
December-2025

Page Number:
442-450

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Abstract:

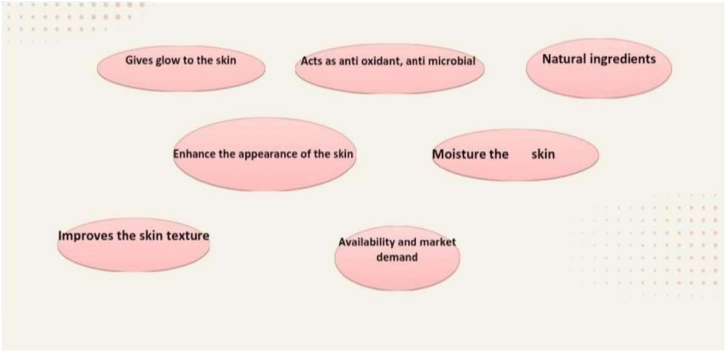
This current research deals with the development and assessment of a polyherbal cream involving Natural extracts of carrot (Daucus carota), beetroot (Beta vulgaris), and neem (Azadirachta indica),Which have been known to exhibit antioxidant, anti-inflammatory, and antimicrobial activities. The Cream was prepared based on a standard oilin-water emulsion base that included stearic acid, cetyl Alcohol, rose water, potassium hydroxide, glycerin, sodium carbonate, triethanolamine, and purified Water. The main aim was to create a stable, skin-compatible herbal cream with possible dermatological Activity. A polyherbal cream abstract details developing a topical cream with multiple plant extracts (like Neem, Aloe vera, Turmeric) for synergistic skin benefits (antioxidant, anti-inflammatory) using an oil-inwater base, then evaluating its physical (pH, viscosity, spreadability, stability) and safety (non-irritant) properties, confirming good stability and skin compatibility, suitable for acne or general skin care.

Keywords: Polyherbal cream, formulation, evaluation, extraction, herbal cosmetics, plant based Formulation

1. Introduction

Herbs are the plants that are used for culinary, medicinal or fragrant properties since ancient Times. In spite of the recent advances seen in modern medicine the plant are having important Contribution to health care. As per Drug and Cosmetic Act (1940) and Rules (1945), Cosmetics can be defined as any article intended to be rubbed,The Ayurvedic system of medicine was one of the most important system that uses herbal plants and extracts for the treatment of various diseases. Cosmetic products are used to protect skin against exogenous and endogenous harmful agents and enhance the beauty and attractiveness of skin.application. The cream formulations were prepared by using various herbal extracts, herbal oils, and various excipients. There are two main types of cream formulation, such as oil in water (O/W) type of emulsion and water in oil (W/O) type of emulsion. The present formulation was oil in water (O/W) type of emulsion. The cream formulation was various other classes like foundation cream, cleansing cream, cold cream, pain-relieving cream, night and massage cream, head and body cream, vanishing cream and shaving cream[1]. The Ayurvedic system of medicine was one of the most important system that uses herbal plants and extracts for the treatment of management of various diseases and diseased states [2]. Eugenia caryophyllus was the aromatic plant, flo The wer buds of the plants are used for various The Eugenia caryophyllus belongs to family Myrtaceae. tree of the clove is evergreen and grow up to 8-12 m. The flower buds are firstly pale in color and gradually become after which they develop into dark brown or dusty red. Eugenia caryophyllus were traditionally used as antiinflammatory and pain-relieving activity, also dental analgesic, used in the preparation of various marketed formulations like

cream paste etc. clove oil specifically used as a pain reliving ingredient present in cream. This plants were show antibacterial, antimicrobial, antifungal and anticancer properties [3, 4]. Zingiber officinale (Ginger) is traditional medicinal plant belongsto family Zingiberaceae. The part of the plant roots and rhizomes having antiinflammatory and pain reliving activity. The fresh rhizomes are used for the extraction purpose; extract were used for the preparation of cream. Ginger were used for various purposes like antioxidant, anti-cancer, antimicrobial, skinnourishing properties. Ginger is primarily used to treat nausea, but it is also used as an anti-inflammatory, a pain remedy, a warming remedy and a cholesterol-lowering herb [5]. The extraction process was done by using



2. MATERIALS AND METHODS

Typesofskincreamstheyaredivided into two types Oil-in-Water (O/W) creams which are composed of small Droplets of woil dispersed in a continuous phase, and an Emulsion in which the oil is dispersed as droplets throughout The aqueous phase is termed an oilinwater (O/W) Emulsion.

Water-in-Oil (W/O) creams which are composed of small Droplets of water dispersed in a continuous oily phase.

When water is the dispersed phase and an oil the dispersion Medium, the emulsion is of the water-in oil (W/O) type [2-4]

Classificationofcreams Allthe skincreamscanbeclassifiedon differentbasis:-

1. According to function. e.g. cleansing, foundation, Massage, etc.

2. According to characteristics properties, e.g. cold Creams, vanishing creams, etc.

3. Accordingtothenatureortypeofemulsion.

4. Types of creams according to function, characteristic Properties and type of emulsion:

5. Make-up cream (o/w emulsion): a) Vanishing cream
6. b) Foundation cream
7. Cleansing cream, cleansing milk, cleansing lotion (w/o Emulsion)

8. Winter cream (w/o emulsion): Cold cream or Moisturizing creams.

9. All-purpose cream and general creams.
10. Night cream and massage creams.
11. Skin protective cream.
12. Hand and body creams.

Skin cream

A Cream is a topical preparation for application to the skin. They are considered Pharmaceutical products as even cosmetic creams are based on techniques developed bypharmacy and unmedicated creams are highly used in a Variety of skin conditions. They are semi-solid emulsions That is mixtures of oil and water.They are broadly divided Into two types

Barrier cream, that locks moisture in the skin over a Period of time, such as a"protective cream, a healing

Cream, a night cream, a cleansing cream, a sunscreen Cream"

etc. They should be used for short periods of Time.

Daily moisturizer cream, which acts as a daily

Moisturizer for skin like lotions. This type of cream Allows the skin to breathe while drawing moisture to the Skin so it does not become dehydrated during the Daytime. This cream functions as good foundation

Under make-up, a daily moisturizer after your bath, a Facial day cream, or a spot cream for dry skin areas [1]

Collectionofplantmaterial

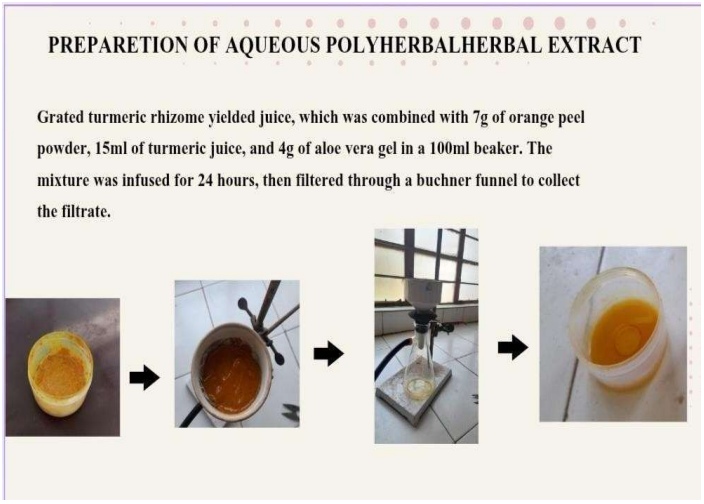
Neem Azadirachta indica leaves and Tulsi leaves Ocimum sanctum were collected from local area from Tirupati. The plants were identified by Prof. N.

Yasodamma, S.V. University, Tirupati. Specimen no: K.H-01 (Azadirachta indica) and Specimen no: K.S.-01 (Ocimum sanctum) Chemicals and Reagents Almond oil was obtained from Dabur India limited, Mentha oil was obtained from Himalaya herbals Pvt Ltd. Stearic acid, Lecithin, Poly Ethylene Glycol, Sodium Laurel Sulphate,

Triethanol amine, were obtained from Sigma Aldrich Mumbai. All the other chemicals were obtained from

Preparationofaqueous polyherbalextract

The preparation of an aqueous polyherbal cream involves two main stages: preparation of the aqueous herbal extracts and the subsequent formulation of the cream using the fusion method to combine the aqueous and oily phases.



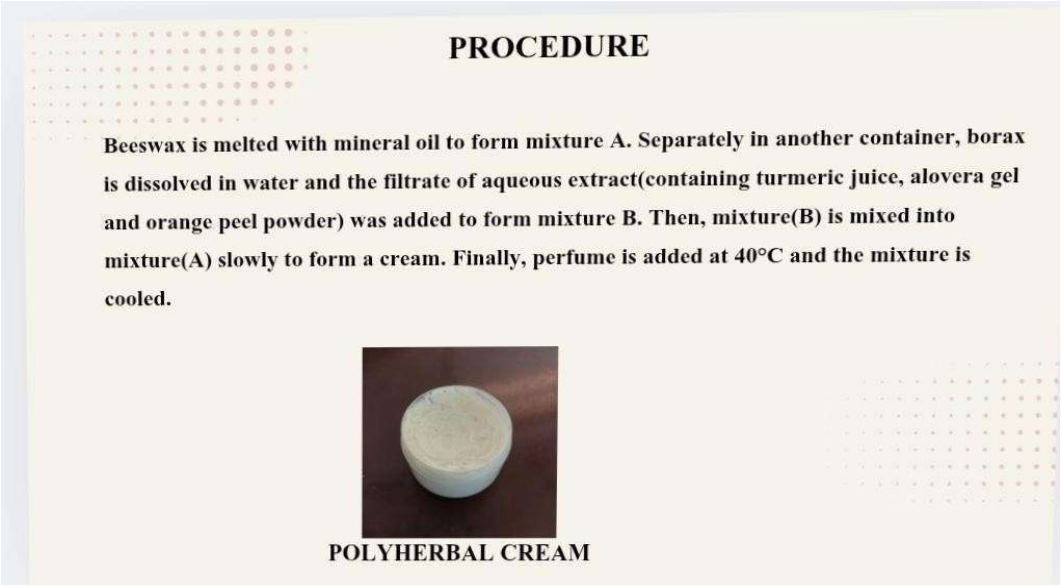
- MaterialCollectionandPreparation:

  Collect fresh or dried plant parts (leaves, flowers, roots, etc.). Wash thoroughly to remove dirt, then shade-dry and grind them into a coarse or fine powder.

- Extraction Method

  (Maceration/Soxhlet):

  Maceration Cold method): Place the powdered herbal material in a gc container and immerse in a solvent, such as distilled water or a water/ethanol mixture (aqueous solvent). Allow it to stand at room temperature for several days (e.g., 3 to 5 days) with frequent stirring or shaking. This process allows the soluble active ingredients to dissolve into the solvent.



General Procedure for PolyherbalCream

- Prepare Extracts (if needed): First, create your herbal extracts (e.g., Aloe Vera, Neem, Tulsi) by crushing, blending, or using a soxhlet extractor, and filter to get concentrated liquid or gel.
- Form Oil Phase (Part A): Heat oil-soluble ingredients like beeswax, petroleum jelly, cetyl alcohol, and mineral oil in one beaker to around 75-80°C.
- Form Aqueous Phase (Part B): In a separate beaker, dissolve water-soluble components such as borax, emulsifiers (like stearic acid), preservatives (parabens), and water, also heating to 75-80°C.
- Emulsify: Slowly add the heated aqueous phase (B) to the oil phase (A) while stirring continuously and vigorously (often with a glass rod or mechanical stirrer) to form a uniform emulsion.
- Incorporate Extracts C Fragrance: Once the emulsion forms and starts cooling (around 45°C), add your prepared herbal extracts and essential oils (like rose oil for fragrance), mixing well to ensure even distribution.
- Final Mixing C Packaging: Continue mixing until the cream is smooth, then transfer to clean containers, label, and store.

RAW MATERIALS

1) Beeswax

- It helps water and oil ingredient in cream mix together and stay stable.
- Act as Humectant.

2)Liquid Paraffin

- It acts as an emollient, which soften and smoothen the skin.
- It traps moisture.

3) Borax

- It acts as an Emulsifying agent.
- It prevent or slow bacterial growth.

4) Methylparaben

- It is used as a preservative which increases the shelf life of the product.

5) Rose oil

- Rose oil adds a pleasant aroma to the cream.

FORMULATION TABLE

1.	Bees wax	2gm	4gm	4gm
2.	Liquid paraffin	5ml	8ml	10ml
3.	Methyl paraben	1gm	2gm	2gm
4.	Rose oil	2ml	2ml	4ml
5.	Turmeric extract	10ml	5ml	15ml
6.	Orange peel powder	5gm	3gm	5gm
7.	Aloe vera gel	2gm	4gm	5gm

1. PhysicalCOrganolepticTests
    a. Appearance: Check color, consistency (smooth, gritty), and state (semi-solid).
    b. Homogeneity: Verify no separation or lumps by touch and sight.
    c. pH: MeasurepHusingacalibratedmeter;ideallyclosetoskin's pH (4-6).
    d. Viscosity: Useaviscometertodetermineflowproperties (e.g., centipoise, cP).
    e. Spreadability: Measurehoweasilyitspreads (e.g., g.cm/sec).
    f. Washability: See if it easily washes off with water (for O/W emulsions).

2. Stability Tests
    a. Accelerated Stability: Store at high temps
3. (e.g., 40±2°C/75±5% RH) for weeks/months to check for color, pH, viscosity changes, and phase separation.
4. SafetyCEfficacyTests(InVivo/InVitro)

Irritancy/PatchTest: Applytoskinarea, observefor24hrs forredness, swelling, or irritation.

Antimicrobial Activity: Test against common skin microbes if intended for infections.

Sun Protection Factor (SPF): Measure UV absorption if it's a sunscreen cream.

Chemical Tests (Optional, for IngredientAnalysis)

Total Phenolic/Flavonoid Content: Quantify beneficial plant compounds.

Acid Value/Saponification Value: For quality control of fats/oils.

4. Conclusion

The polyherbal face cream was prepared by using o/w Emulsion method combining the mixture of alcoholic and Water extract of crude drugs including neem extract, carrot Extract, beetroot extract; further the formulation was Developed and evaluated. The polyherbal cream Demonstrated significant efficacy in addressing common mSkin concerns. The neem extract, known for its antimicrobial And anti-inflammatory properties, effectively reduced acne And inflammation. The beetroot extract, rich in antioxidants, Exhibited notable benefits in reducing hyperpigmentation And promoting skin brightness. Carrot extract, renowned for Its vitamin A content,played a key role in enhancing skin

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