

Formulation and Evaluation of Herbal Cream

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Abstract: The following study dives into the formulation and performing evaluation test of an herbal cream using, *Hibiscus rosa-sinensis* and *Chrysanthemum indicum* extracts, which renowned for having antioxidant, anti-aging, anti-inflammatory, and skin-soothing benefits. The purpose of this preparation was to develop a stable, pH-balanced cream suitable for cosmetic and therapeutic use, with a strong emphasis on skin nourishment and safety. The cream base was prepared with standard emulsifiers, blending with the herbal extracts. The formulation was evaluated for physicochemical properties, including pH, spreadability, skin irritation and penetration test. The pH was maintained at approximately 5.0, making it ideal for application on the skin. Results confirmed that the cream had desirable organoleptic and rheological properties, remaining stable for longer time. The combination of hibiscus and chrysanthemum extracts exhibited synergistic effects in improving skin texture and hydration, suggesting the potential and capability of this formulation for natural skincare products.

Keywords: Herbal cream, Herbal drug extract, Hibiscus, Chrysanthemum




I. INTRODUCTION

The increase in demand for natural skincare has spurred research into herbal formulations because of their gentle yet compelling properties. Unlike synthetic products, herbal cosmetics are known to have gentle properties and are free from harsh chemicals. They stand out for their unique combination of beauty enhancing properties, which makes them suitable for using longer period of time. *Hibiscus rosa-sinensis* (hibiscus) and *Chrysanthemum indicum* (chrysanthemum) are two traditionally used medicinal plants for their skin beneficial properties. Hibiscus is rich in natural alpha-hydroxy acids (AHAs), flavonoids, and antioxidants, that enhance skin elasticity, and reduce signs and symptoms of aging. Chrysanthemum offers cooling, anti-inflammatory, and antimicrobial effects, which helps to reduce irritation and provide protect against infections. This herbal cream, made from the potent extracts of hibiscus and chrysanthemum, employed by the power of nature to nourish, soothe, and rejuvenate the skin. With their great history in traditional medicine and proven properties, these two flowers offer a holistic approach to improving skin health, making this cream an desirable choice for those seeking radiant and healthy skin through natural means. [1, 2]

THERAPEUTIC USES AND ROLE OF INGREDIENTS IN CREAM:

S. No	Components	Therapeutic Uses
1.	Hibiscus:	Hibiscus is an incredible component employed in skincare because it has natural anti-aging and exfoliating properties. Rich in antioxidants such as vitamin C as well as anthocyanins, hibiscus is helpful in improving skin elasticity, providing even skin tone, and also promote brighter complexion. Where its natural acids also gently exfoliate, making it a popularly used



		ingredient in masks, serums, and cleansers. [2, 3]
2.	Chrysanthemum : 	Chrysanthemum is another widely used flower for skincare due to its skin-soothing, anti-inflammatory, and antioxidant benefits. It helps to calm irritated skin, minimize redness, and protect against environmental stress. It is rich in flavonoids and vitamins. Chrysanthemum also help in keeping skin hydrated and promotes a healthy, radiant glow. [4,5]
3.	Rosewater: 	Rose water is widely incorporated for its hydration, soothing, and toning effects. It helps balance the skin's pH, calming redness, and refresh tired or irritated skin. Rich in antioxidants, rose water also supports skin regeneration and imparts a natural, dewy glow. Also acts as fragrance in the formulation. [6]
4.	Citric acid:	Helps in maintaining pH of cream near to skin pH (5.0-5.2) It is safe to use on skin and lowers the pH of cream to make it acidic without irritating. Also works well with hibiscus and chrysanthemum, which are acidic plants.
5.	White bees wax:	Acts as Emulsifier and thickening agent. Helps blend water and oil phase and make sure that the cream has nice consistent texture.
6.	Liquid Paraffin	Acts as Emollient. Softens and moisturizes skin by forming an occlusive layer to lock in moisture.
7.	Borax (Sodium Borate)	Co-emulsifier and pH buffer. Reacts with beeswax and help in formation of a stable w/o type of emulsion; also raises pH slightly (mildly alkaline) and stabilizes the preparation.
8.	Methyl paraben	Preservative. Inhibits the growth of microbes to extend shelf life; it is effective in pH in range of 4-8

II. METHODOLOGY

COLLECTION OF MATERIAL

The fresh hibiscus and chrysanthemum flowers were collected from SNVPMV premises in Hyderabad, Telangana. Rose water, beeswax, and liquid paraffin, borax, methyl paraben were also used which were available in the laboratory.



PREPARATION OF HERBAL EXTRACT

Collect the flowers (hibiscus and chrysanthemum). Weigh them. Wash them to remove dust and dry until the water is lost. Then remove the sepals or calyx. Extraction is carried out by grinding them in a mixing jar by addition of water slowly.

Now filter this extract using strainer filter. This extract is heated until it reaches half of its original concentration by constant mixing. The concentrated filtrate is kept aside for cooling.

FORMULATION TABLE:

S. No.	Constituents	Quantity(ml)/(g)		
		Formula I	Formula II	Formula III
1	Herbal extract	10ml	10ml	10ml
2	White bees wax	5g (4.58 ml)	4.8g	4.8g
3	Liquid paraffin	7ml	6.72ml	7ml
4	Borax	2g	1.92g	1g
5	Water	5ml	5ml	5ml
6	Rose water	0.1ml	0.1ml	0.2ml
7	Methyl paraben	0.02g	0.04g	0.03g
8	Citric acid 10%	0.05ml	0.05ml -0.1ml	0.2ml

METHOD OF PREPARATION HERBAL CREAM:

Melt the bees wax at 70°C on a water bath followed by addition of liquid paraffin until both melt. Mix the Herbal juice and stir it continuously only in 1 direction (unidirectional constant stirring). **Prepare a separate borax water mixture.** Then combine prepared mixture into borax water mixture and heat to the same temperature. When both reach same temperature (at 70°C) aqueous phase is introduced while stirring rapidly and constantly until it reach normal temperature to form homogenous mixture. A creamy like consistency must be formed. Filter this into a clean container and label it with details like name of preparation, uses, date.etc



Figure 4: Herbal cream

EVALUATION TESTS:

Appearance: The appearance of the cream was visually examined and found to be pleasant and creamy. [7]

Color: The cream's color was visually examined.

Odour: The odour was examined by inhaling.

PH: 1gm of the cream was added to 9ml of boiled and cooled water to prepare a suspension. P^H was measured with the help of both PH paper & digital PH meter.



Spreadability: To measure Spreadability of cream we placed 1gm sample in between 2 glass plates and in order to get uniform thickness we compressed it by placing a 100g weight and excess formulation sticking to slides was scrapped off. 1 slide was fixed and duration in which in upper slide would move over the lower plate was taken, so as to measure the spreadability and calculation was done using

Formula:

$$S = m \cdot l/t$$

Where: S = spreadability

M = weight of cream on slide

L = length moved on the slide

T = time taken

Skin Irritation test: Small amount of cream was applied on a certain area of skin for 4 hrs, was observed for any signs of redness, allergy, and weeping of scabs.

Penetration Test: 0.5g of prepared cream was applied to a specific area of the skin for a set amount of time afterwards unabsorbed cream was collected from skin and weighed.

EVALUATION TABLE:

S. No.	Tests	Observations		
		Formula I	Formula II	Formula III
1.	Appearance	Creamy	Creamy	Creamy
2.	Color	Pale yellow	Pale yellow	Pale yellow
3.	Odour	Soft floral	Soft floral	Soft floral
4.	pH	5.9	5.5	5.5
5.	Spreadability	Easily spreadable.	Easily spreadable.	Easily spreadable.
6.	Skin Irritation Test	Not irritable	Not irritable.	Not irritable.
7.	Penetration test	Well absorbed	Well absorbed	Well absorbed

III. RESULT AND DISCUSSION

The Herbal cream was formulated and tested for different parameters [8]. The prepared herbal cream was pale yellow color. The pH initially was alkaline but was adjusted using citric acid and maintained at 5-6 which falls within the standard pH range of the skin and the cream has not caused any irritation after being applied to the skin. Three different formulations of herbal cream Formula I, II & III, were made. Among these, Formula II is the best formulation after subjecting to all the evaluation test. Slight oil separation was seen upon storage of F1 but was corrected in F2 and F3 by adjusting oil water ratio. The penetration test was carried out and observed to be well absorbed. The preparation was found to be stable at normal storage condition. This showed that the herbal preparation is useful in inflammation, and anti-aging [7, 9] It also treats acne (antimicrobial), has antioxidant properties.

IV. CONCLUSION

During this research, the herbal cream was formulated and also evaluation test were carried out. It has shown promising results in terms of its stability. The natural properties of both the plants contributed to the cream's effectiveness, making it a viable option for skincare, particularly soothing and nourishing the skin. This particular formulation is good for skin



as it blends the properties of both the flowers and decrease aging signs, also treating acne as it has antimicrobial benefits.

This proves that the herbal extracts aid for providing healthy skin. The herbal creams and preparations formulated with plant-based ingredients offer a natural alternative for skincare. When properly formulated, these creams can provide effective, gentle care for the skin with minimal side effects and rejuvenate skin health.

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