



Research Article

Formulation and Evaluation of Multipurpose Herbal Cream by *Hibiscus Rosa Sinensis* Flower

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The growing demand for natural and plant-based cosmetic formulations has led to increased interest in herbal products with multifunctional benefits. The present study focuses on the formulation and evaluation of a multipurpose herbal cream using *Hibiscus rosa-sinensis* flower extract, known for its rich content of flavonoids, antioxidants, and mucilage. The cream was formulated using suitable excipients to obtain a stable and aesthetically acceptable product for topical application. The prepared formulations were evaluated for various physicochemical parameters such as pH, viscosity, spreadability, homogeneity, and stability. In addition, the cream was assessed for its antimicrobial activity, antioxidant potential, and skin compatibility. The results indicated that the formulation exhibited good consistency, appropriate pH suitable for skin, and satisfactory spreadability. Stability studies confirmed that the cream remained stable under different storage conditions without significant changes in its properties. Furthermore, the presence of bioactive compounds in *Hibiscus rosa-sinensis* contributed to notable antioxidant and antimicrobial activities, making the cream effective for multiple skin applications such as moisturizing, anti-aging, and protection against microbial infections. Skin irritation tests revealed that the formulation was safe for topical use. In conclusion, the developed multipurpose herbal cream using *Hibiscus rosa-sinensis* flower extract demonstrated promising potential as a natural, safe, and effective cosmetic product, offering an alternative to synthetic formulations.

Keywords: Hibiscus, ethnobotanica, anthocyanins, Anti-fungal, Anti-inflammatory, Hibiscus Rosa Sinensis.

INTRODUCTION

Hibiscus is a genus of flowering plants in the family Malvaceae, comprising over 300 species that are native to warm temperate, subtropical, and tropical regions around the globe. These plants are widely recognized for their large, colourful, and showy flowers, which have made them popular in both natural landscapes and cultivated gardens. Commonly referred to as "hibiscus," some species are also known by the name rose mallow. Modern pharmacological research has further validated the health benefits of *hibiscus*, highlighting its antioxidant, and anti-inflammatory, antihypertensive, and antimicrobial properties. The genus includes a wide variety of growth forms, ranging from annual and perennial

herbaceous plants to woody shrubs and small trees. This botanical diversity allows *hibiscus* species to thrive in a broad spectrum of environmental conditions. Among the most widely cultivated ornamental species are *Hibiscus syriacus* and *Hibiscus rosa-sinensis*, both celebrated for their striking blooms and ease of cultivation. Beyond their ornamental value, many *hibiscus* species possess significant ethnobotanica and medicinal relevance. In traditional medicine systems such as Ayurveda, Unani, and Traditional Chinese medicine *hibiscus* has been used to treat ailments ranging from digestive disorders and respiratory conditions to skin diseases and menstrual irregularities. The flowers, leaves, and calyces are rich in bioactive compounds including

flavonoids, anthocyanins, tannins, and organic acids, which contribute to their therapeutic potential.



Fig. no 1. Plant of Hibiscus rosa

1.2 Disease: -

- Anti-fungal
- Anti-inflammatory
- Wound healing

1.2.1. Anti-Fungal:

Antifungal activity refers to the capacity of a substance—whether a drug, natural extract, or nanoparticle to inhibit the growth or destroy fungal pathogens. This activity is essential for treating both superficial infections (like athlete's foot) and life-threatening systemic diseases such as candidiasis.



Fig. no 2. Fungal infection

1.2.2 Anti-inflammatory:

Anti-inflammatory substances work by reducing the body's inflammatory response specifically swelling,

redness, and pain often by blocking chemical mediators like prostaglandins.



Fig. no.03. Inflammation

1.3 plant Profile:**1.3.1. Hibiscus rosa:**

- **Common Name** : Shoe Black Plant, Rose Mallow, China Rose.
- **Kingdom** : Plantae
- **Division** : Magnoliophyta
- **Class** : Magnliopsida
- **Order** : Malvales
- **Family** : Malvaceae
- **Genus** : Hibiscus
- **Species** : Rosa-Sinensis



Fig. no.04 Flower of Hibiscus rosa

Hibiscus Rosa Sinensis is a traditional medicinal plant popularly known as Chinese hibiscus, China rose & shoeblack plant. The hibiscus is an evergreen shrub or small tree to a height of 1.2-3 meters (4-10 feet) & width of 1.5-2.4 m (5-8 feet) Hibiscus Rosa Sinensis is the national flower of Malaysia. Leaves are ovate, simple & 8 to 10.5 cm long. They are spirally arranged around a long stalk. The flowers are bisexual, large & showy, grow up to 25 cm wide stalked & arising

singly from the upper leaf axiles. The five free petals joined at the base may be white, yellow or red. Fruit (very rarely formed) is a capsule about 3cm long. Hibiscus Rosa Sinensis is a traditional medicinal plant whose parts have possess various pharmacologically beneficial effects. Different parts of plants in various traditional systems like siddha, Unani, ayurveda, are claimed to possess anti-diabetic, anti-bacterial, anti-fungal, oral contraceptive, laxative, antioxidant, and other activities.



Fig. no.05 Magnified Image

1.4 Pharmacological Activity:

- **Antioxidant:**

Hibiscus rosa-sinensis is rich in antioxidants, which help neutralize harmful free radicals in the body, potentially protecting against cell damage and various diseases.

- **Anti-inflammatory:**

The plant has shown anti-inflammatory effects, which can be beneficial in managing inflammatory conditions and related diseases.

- **Antimicrobial:**

Hibiscus extracts, particularly from the leaves and flowers, exhibit antimicrobial activity against both bacteria and fungi, suggesting potential applications in fighting infections.

- **Hair Growth Promotion:**

The plant is traditionally used to promote hair growth and prevent hair loss, with some studies supporting its effectiveness when combined with other herbs like amla and Brahmi.

- **Other Activities:**

The plant also shows potential in areas like antifertility, antifungal, and gastroprotective activities.



Fig. no. 06 Hibiscus rosa

MATERIALS AND METHODS

3.1. MATERIALS:

- **Glycerine**

Glycerine acts as a humectant, which helps to retain moisture in the skin. It keeps the skin soft, smooth, and hydrated, and also improves the consistency of the cream.

Aloe vera

Aloe vera works as a natural soothing and healing agent. It provides cooling effect, reduces irritation, and promotes skin hydration and repair.

Rose Water

Rose water acts as a natural solvent and mild preservative. It helps in dissolving active constituents, gives a pleasant fragrance, and maintains the pH of the cream.

Beeswax

BeesWax acts as a natural thickening agent in the cream. It helps in improving consistency and texture, making the cream smooth and stable. It also functions as an emulsifying agent, helping oil and water phases to mix properly.

3.2 Method of Preparation:

3.2.1. Process Of Extraction

Extraction refers to the process of separating desired components (active ingredients) from plant or animal tissues using a suitable solvent. This involves isolating medicinally active portions from inert or inactive material.

- Key methods include:
- maceration,
- percolation,

- Soxhlet extraction
- Decoction
- Infusion
- Supercritical Fluid Extraction

Each utilizing different principles and techniques to achieve efficient extraction.

3.2.2. Maceration:

Involves soaking the powdered drug in a solvent for a specific time, allowing the soluble constituents to dissolve.

3.2.3 Percolation:

A continuous process where a solvent (menstruum) slowly passes through the powdered drug, extracting the active components layer by layer.

3.2.4. Soxhlet Extraction:

A continuous, hot extraction method using a Soxhlet apparatus, where the solvent is repeatedly vaporized, condensed, and dripped over the powdered drug to extract soluble components, according to Canaan.

3.2.5. Decoction:

Boiling the drug material in water for a specific time, suitable for extracting water-soluble, heat-stable components



Fig. no.07 Process of extraction

➤ Maceration:

Types of maceration:

- double maceration,
- triple maceration,
- cold maceration,
- hot maceration,

- Maceration with specific solvents like acetone or ethanol.

➤ Process:

Preparation:

Plant material (leaves, stems, roots, etc.) is typically crushed or coarsely powdered to increase the surface area for solvent contact.

Soaking:

The prepared plant material is placed in a container and covered with the chosen solvent.

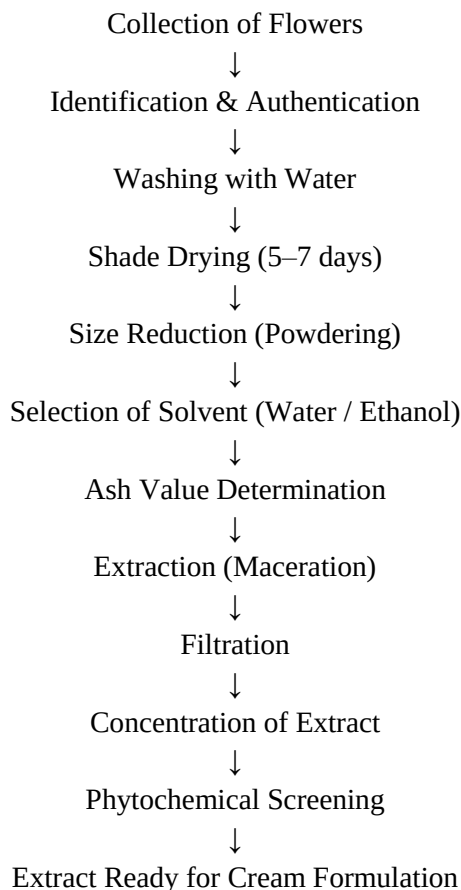
Time:

The mixture is left to soak at room temperature for a period, usually 24-48 hours or even longer, with occasional stirring or agitation.

Filtration:

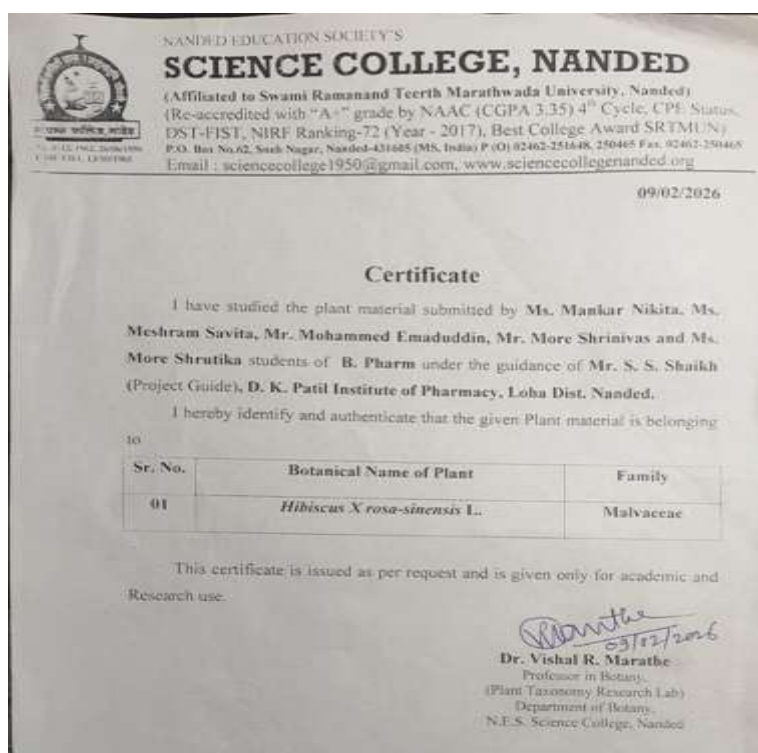
After the soaking period, the mixture is filtered to separate the plant material (the marc) from the liquid extract.

3.3. Procedure :



RESULT AND DISCUSSION:

Authentication Letter: The sample was authenticated by Dr. Marathe, HOD (botany dept.) of NES Science College, Nanded.



4.1 Preformulation study:

Parameter	Batch 1	Batch 2
Bulk Density (g/ml)	0.78	0.82
Tapped Density (g/ml)	0.88	0.91
Carr's Index (%)	11.36	9.89
Hausner's Ratio	1.12	1.10
Angle of Repose (θ)	28°	26°
Ash Value (%)	1.5	1.3
Solubility	Miscible in water, soluble in alcohol	Miscible in water, soluble in alcohol

4.2 Chemical Test:

Sr. No.	Phytochemical Test	Name of the Test	Observation	Inference (Presence/Absence)	Ethanol Extract	Aqueous Extract
1	Alkaloids	(a) Mayer's Test	Cream or white precipitate	Alkaloids present	+	-
		(b) Wagner's Test	Reddish-brown precipitate	Alkaloids present	+	-
2	Flavonoids	Shinoda Test (Mg + HCl)	Pink/Red coloration	Flavonoids present	+	+
3	Glycosides	Keller-Killiani Test	Reddish-brown ring at interface	Glycosides present	+	+
4	Proteins	Biuret Test	Violet coloration	Proteins present	-	-
5	Carbohydrates	Molisch's Test	Violet ring at junction	Carbohydrates present	+	+

Symbols:

(-) Absent

(+) Present



Fig.no. 11&12 Chemical Test

CONCLUSION:

The study on "Formulation and Evaluation of Multipurpose Herbal Cream using Hibiscus rosas-sinensis Flower" concludes that the prepared herbal

cream showed satisfactory physicochemical and functional properties. The formulation was found to be smooth in texture, easily spreadable, and exhibited good homogeneity without any phase separation, indicating stability of the cream base.

Evaluation parameters such as pH were within the acceptable skin range, confirming its safety for topical application. The cream also demonstrated good consistency, washability, and non-irritant behaviour on the skin. The presence of *Hibiscus rosa-sinensis* contributed beneficial properties like moisturizing, antioxidant, and mild antimicrobial effects, making the formulation suitable for multipurpose skin care. Among the batches, the optimized formulation showed better stability and performance in terms of spreadability and overall acceptability. Hence, it can be concluded that the developed herbal cream is safe, effective, and can be used as a natural alternative to synthetic cosmetic products. Further studies can be carried out for long-term stability and clinical evaluation.

REFERENCES

- Sanjay Singh Bhandari carried out study on evaluation of anxiolytic activity of thymol, Science Direct, Journal of Acute Diseases (2014); 136–140.
- S. K. Bhatt and G. Santhkumari. The antifertility effect of *Ocimum sanctum* and *Hibiscus rosa-sinensis*. Indian Journal of Medical Research (1970); 59: 777–781.
- S. Randhava and Atul Kabra, Human Anatomy and Physiology-I, S. Vikas Medical Publishers; p.270.
- F. S. K. Barar, Essentials of Pharmacotherapeutics, S. Chand and Company Ltd., New Delhi (2000); 83–90.
- H. Gerhard Vogel, Drug Discovery & Evaluation: Pharmacological Assays, 2nd Edition (2002); 401–442.
- The Ayurvedic Pharmacopoeia of India, Part 1, Volume 2, Government of India, Ministry of Health and Family Welfare, Department of AYUSH; 57-60.
- K. R. Khandelwal, Practical Pharmacognosy, 20th Edition (2010), Nirali Prakashan; 25.1–25.9.
- K. D. Tripathi, Essentials of Medical Pharmacology, 5th Edition (2003), Jaypee Brothers Medical Publishers; 391, 399–402.
- B. S. Thippeswamy, carried out anxiolytic activity of *Nymphaea alba* Linn. in mice, Indian Journal of Pharmacology, Wolters Kluwer-Medknow Publication.
- N. Shimizu, M. Tomoda, T. Suzuki, K. Takada. Plant mucilages: A representative mucilage with biological activity from the leaves of *Hibiscus rosa-sinensis*. Biological and Pharmaceutical Bulletin (1993); 16: 735–739.
- The Wealth of India: A Dictionary of Indian Raw Materials and Industrial Products, Volume 5, CSIR, New Delhi.
- A. C. Leon, L. Portera, M. M. Weissman. The social cost of anxiety disorders. Dr. J. Psychiatry Suppl. (1995); (27): 19–22.
- Harborne, J. B. Phytochemical Methods: A Guide to Modern Techniques of Plant Analysis, 3rd Edition, Chapman and Hall, London (1998); 120–126.
- Kokate, C. K. Practical Pharmacognosy, Vallabh Prakashan, New Delhi (2008); 107–111.
- Trease, G. E. and Evans, W. C. Pharmacognosy, 15th Edition, Saunders Publishers, London (2002); 176–180.
- Sofowora, A. Medicinal Plants and Traditional Medicine in Africa, 2nd Edition, Spectrum Books Ltd., Ibadan (1993); 150–153.
- Pandey, B. P., Plant Anatomy and Physiology, S. Chand and Company Ltd. (2012); 185–192.
- Raj Kapoor, B. et al. Anti-inflammatory activity of *Hibiscus rosa-sinensis* flowers. Fitoterapia (2003); 74: 97–99.
- Mahadevan, N., Kamboj, P. Phytochemistry and pharmacology of *Hibiscus rosa-sinensis*: A review. Journal of Chinese Integrative Medicine (2009); 7(8): 683–689.
- Devi, B. P., Boominathan, R., Mandal, S. C. Anti-inflammatory, analgesic and antipyretic properties of *Hibiscus rosa-sinensis* Linn. Indian Journal of Experimental Biology (2003); 41(12): 1250–1253.
- Chatterjee, A. and Pakrashi, S. C. The Treatise on Indian Medicinal Plants, Volume 2, CSIR, New Delhi (1995); 203–205.
- Tiwari, P., Kumar, B., Kaur, M., Kaur, G., Kaur, H. Phytochemical screening and extraction: A review. Intern. Pharm. Sci. Review & Research (2011); 1(1): 98–106.
- Sinha, S., Dixit, P., Bhargava, S., Gupta, A. K. Antimicrobial activity of *Hibiscus rosa-sinensis* flower extracts. Indian Journal of Natural Products and Resources (2013); 4(4): 362–365.

24. Singh, R. and Sharma, P. Hibiscus rosa-sinensis: A review on its medicinal properties. *International Journal of Pharmaceutical Sciences and Research* (2018); 9(2): 417–424.
25. Patel, J. D., and Shrivastava, N. Antioxidant activity of flower extract of Hibiscus rosa-sinensis. *Research Journal of Chemical Sciences* (2013); 3(1): 82–85.
26. Dutta, A. C., *Botany for Degree Students*, Oxford University Press, New Delhi (2009); 215–220.

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