



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 11, Issue 5, May 2022

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.118

Formulation and Evaluation of Anti-Inflammatory Moringa Oleifera Seed Oil Cream

Reeba Parkar¹, Nazneen Nithore², Maryam Mulla³, Sana Attar⁴

U.G. Student, Allana College of Pharmacy, Pune, Maharashtra, India¹

U.G. Student, Allana College of Pharmacy, Pune, Maharashtra, India²

U.G. Student, Allana College of Pharmacy, Pune, Maharashtra, India³

Associate Professor, Allana College of Pharmacy, Pune, Maharashtra, India⁴

ABSTRACT: *Moringa Oleifera* has been found to have numerous skin benefits, including anti-inflammatory and antibacterial properties. It has also been discovered to be high in antioxidants and fatty acids. The goal of this study was to create and test a cream made from genuine *Moringa oleifera* oil. This cream was created using the vanishing cream formula. An oil-in-water cream was developed for its antibacterial activity in the prevention of blemishes and pimples, as well as an anti-aging agent. The formulated cream was tested for physicochemical properties such as color, odour, PH, spreadability, solubility, irritation, and stability. Because the cream caused no skin irritation, it was determined to be safe for pharmaceutical and cosmetic applications.

KEYWORDS: Moringa oleifera, seed oil, antibacterial, antiageing, formulation, evaluation.

I. INTRODUCTION

Moringa Oleifera has been proven to offer numerous skin advantages. Anti-inflammatory, anti-bacterial, and anti-aging properties. Acne outbreaks, blemishes, dark patches, and pimples can all be prevented using *M.oleifera*. It has also been discovered to have protective properties. *M.Oleifera* has a nutty odour and is pale yellow in color. It is a member of the *Moringaceae* family.

Creams are designed to keep the skin hydrated and moisturized. They aid in the skin's natural moisture retention. Creams aid in the healing of a variety of skin problems. Cream is a semisolid substance that is applied topically to treat various ailments.

The cream must be evaluated in order to ensure the quality of the medications being manufactured. Different assessing characteristics such as PH, viscosity, and stability tests were used to evaluate cream.

Moringa Oleifera seeds, leaves, and roots are high in vitamins and minerals, which help maintain bones healthy. *M.oleifera* is also beneficial in the treatment of pigmentation.

II. MATERIALS

Collection of Plant Material

Moringa Oleifera Seed was obtained from B-34, 2nd floor, Lawrence Road Industrial Area, Delhi. Cold pressed Moringa Oleifera seeds were employed in the extraction process. The extracted oil is discovered to be completely pure, real, and natural. Alvia Cosmeceuticals Pvt. Ltd. produces the oil. The extracted oil is kept in an amber-colored bottle in an airtight container.

**Figure 1:** Materials used for Formulation of Cream

Properties	Specifications
Appearance	Pale yellow to bright golden colored liquid
Odour	Characteristic mild, Pleasant Odour
Refractive Index	1.460-1.474 @ 20° C
Specific gravity (g/mL)	0.900 - 0.922 @ 20° C
Saponification value (mgKOH/g)	176-196
Peroxide value (meq O ₂ /kg)	Less than 5.0
Iodine value(g I ₂ /100g)	57-77
Acid Value (mgKOH/g)	Less than 1.0
Solubility	Soluble in cosmetic esters and fixed oils; Insoluble in water

II. METHODOLOGY

Formulation of cream containing *Moringa Oleifera* seed Oil :

Table 1 shows the formulation of an oil in water cream containing *M. Oleifera*. The oily and aqueous phases were both heated to 70° C. The oily and aqueous phases were combined. This mixture was then homogenized for about 3 minutes with a homogenizer after the addition of parabens and fragrance. The seed oil of *M. Oleifera* was gradually added. When a viscous and creamy consistency was observed, cream was formed.

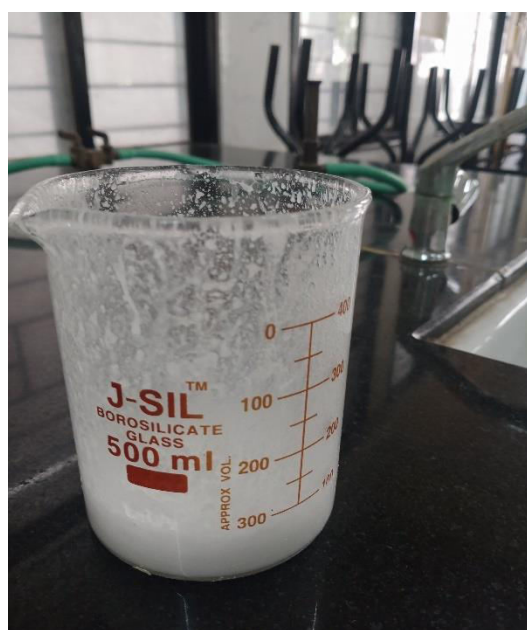
**Figure 2:** Final product of cream containing *M. Oleifera* **Figure 3:** Homogenized Cream

Table 1: Formula for *Moringa Oleifera* Cream (For 30 gm)

Phase	Ingredients	Quantity (% w/w)	Use
Oil	<i>Moringa oleifera</i> oil	1 %	Active ingredient
	Stearic Acid	10 %	Stiffening Agent
	Cetyl Alcohol	60 %	Stiffening Agent
	Liquid Paraffin	66%	Emollient
Water	Glycerin	5 %	Humectant
	Methyl paraben	0.05 %	Preservative
	Propylene Glycol	30 %	Humectant
	Purified water	q.s.	Vehicle

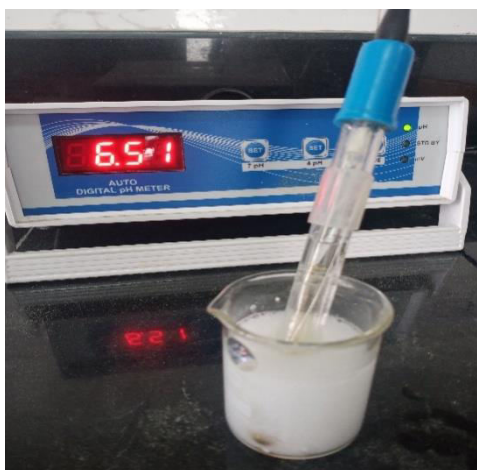
IV. EVALUATION OF CREAM CONTAINING *MORINGA OLEIFERA*.

The following parameters were taken into consideration for the evaluation of the cream. Evaluation of all the parameters was done by the standard procedures.

Color and Odour : The prepared cream had a smooth texture and was glossy white in color. The cream has a lovely aroma and a shimmering sheen to it.

Homogeneity: The homogeneity of the cream was tested by visual appearance and touch.

PH of the Cream: A digital PH meter was used to determine the PH of the prepared *M. Oleifera* cream. The PH meter was calibrated using the standard buffer solution. The PH of 1 g of produced cream was tested after it was diluted with 100 ml of distilled water. Three average readings were used to calculate the PH value. The prepared cream's PH was found to be 6.5.

**Figure 4:** PH determination of Cream.

Spreadability: To test the spreadability of the prepared cream, it was sandwiched between two slides and compressed to a consistent thickness using a preset weight for a certain period of time. The time necessary to separate the two slides determines the spreadability. The cream's spreadability improves as the time required decreases. The formula for calculating spreadability can be found here.

$$S = M \times L/T$$

Where,

S= Spreadability of the cream

M= Weight applied to the upper slide

L= Length of the slide

The spreadability of the cream containing *M.oleifera* was found to be good.

Solubility : The cream was found to be water insoluble but soluble in cosmetic esters and fixed oils.

Washability : The ease of the removal of the cream is done by washing the applied cream on the skin by using tap water. The cream showed good washability.

Irritancy test: The irritancy of the cream is tested by putting the prepared cream to the human volunteer's left hand dorsal surface. It is recorded when and where the cream is applied. Irritation, edema, and erythema were assessed after 24 hours. The lotion did not cause any irritation and was determined to be safe to use.

Stability Studies : The cream was divided into two parts, and stability testing was carried out at 25° C and 40° C at weekly intervals for four weeks. Physically, the cream was stable.

Viscosity: Brookfield viscometer was used to check the viscosity of the moringa seed oil cream. The model CAP 2000+ was used for the evaluation of viscosity of the prepared cream.



Figure 5 : Brookfield viscometer for determination of Viscosity

VI. EXPERIMENTAL ANALYSIS

For the creation and evaluation of an anti-inflammatory cream containing *Moringa Oleifera*, the following experiment was conducted. To achieve the best benefits, the cream was made using natural and 100 percent pure certified oil.

The vanishing cream formula was used to create an oil in water cream with a smooth texture and iridescent effect without any fine particles.

After testing the cream for physicochemical characteristics such as solubility, spreadability, irritancy, and washability, satisfactory findings were discovered.

The findings of the stability tests were equally positive, with no change in the cream's consistency or stability.

Table 2: Physicochemical Evaluation of Formulated Cream

Parameter	Observation
Color	White
Odour	Good
Homogeneity	Smooth
PH	6.5
Spreadability	Good
Washability	Easy
Irritancy	Non-irritant
Stability	Stable

V. CONCLUSION

M.oleifera seed oil cream was developed effectively. The cream did not cause skin irritation after application, indicating that it is safe to use on the skin. It is also suitable for usage as a medicinal and cosmetic product. To assess the quality and efficacy of the cream, many physicochemical characteristics were considered. Because *M. Oleifera* is an antibacterial agent, this cream can be used to treat blemishes and pimples. As a consequence of the cream's evaluation, the overall findings were determined to be successful.

REFERENCES

1. Athikomkulchai, Sirivan, Prakairat Tunit, Sarin Tadtong, Pensak Jantrawut, Sarana Rose Sommano, and Chuda Chittasupho, "Moringa oleifera seed oil formulation physical stability and chemical constituents for enhancing skin hydration and antioxidant activity.", *Cosmetics* 8, no. 1 (2020): 2.
2. Aimi Muneerah Shamsuddin et al, "Formulation and evaluation of antiaging cream containing Mangerferin", *Int. Res. J. Pharm.*, 9(6):55-59, 2018.
3. Ogunsina, B.S., Indira, T.N., Bhatnagar, A.S., Radha, C., Debnath, S., Gopala Krishna, A.G., "Quality characteristics and stability of Moringa oleifera seed oil of Indian origin". *J. Food Sci. Technol.*, 51, 503–510, 2014.
4. Barakat, H.; Ghazal, G.A., "Physicochemical Properties of Moringa oleifera Seeds and Their Edible Oil Cultivated at Different Regions in Egypt", *Food Nutr. Sci.*, 07, 472–484, 2016.
5. Aswal A, Kalra H, Rout A., "Preparation and evaluation of polyherbal cosmetic cream", *Scholars Res Library*; 5:83-88, 2013.
6. Suryadevara, Vidyadhara, Sandeep Doppalapudi, Sasidhar Reddivallam LC, Ramu Anne, and Mounika Mudda. "Formulation and evaluation of anti-inflammatory cream by using Moringa oleifera seed oil." *Pharmacognosy Research* 10, no. 2 (2018).
7. Sekar, M. and Jalil, N.S.A., "Formulation and evaluation of novel antibacterial and anti-inflammatory cream containing Muntingia calabura Leaves extract", *Asian Journal of Pharmaceutical and Clinical Research*, pp.376-379, 2017.
8. Dhase, A.S., Khadbadi, S.S. and Saboo, S.S., "Formulation and evaluation of vanishing herbal cream of crude drugs", *AJEthno*, 1, pp.313-8, 2014.
9. Lalas, S. and Tsaknis, J., 2002 "Characterization of Moringa oleifera seed oil variety" "Periyakulam 1". *Journal of food composition and analysis*, 15(1), pp.65-77, 2002.
10. Ghazali, H.M. and Mohammed, A.S., "Moringa (Moringa oleifera) seed oil: composition, nutritional aspects, and health attributes" In *Nuts and seeds in health and disease prevention* (pp. 787-793). Academic Press, 2011.



INNO SPACE
SJIF Scientific Journal Impact Factor
Impact Factor: 8.118



ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

 **9940 572 462**  **6381 907 438**  **ijirset@gmail.com**



www.ijirset.com

Scan to save the contact details