

# **International Journal of Research Publication and Reviews**

Journal homepage: www.ijrpr.com ISSN 2582-7421

# Formulation and Characterization of Herbal Antiseptic Cream Containing Azadirachta Indica for Topical Application.

# Miss. Roshani Yogesh Bodre<sup>1</sup>, Mr. Chetan Aatamaram Borse<sup>2</sup>, Dr. Jaswant J. Lamale<sup>3</sup>, Prof. Kiran Hiralal Patil<sup>4</sup>

<sup>1</sup>Student of Final Year Bachelor of Pharmacy, Prof. Ravindra Nikam College of Pharmacy Gondur Dhule. <sup>2</sup>Student of Final Year Bachelor of Pharmacy, Prof. Ravindra Nikam College of Pharmacy Gondur Dhule. <sup>3</sup>Department of Pharmacognosy, Prof. Ravindra Nikam College of Pharmacy Gondur Dhule. <sup>4</sup>Department of Pharmaceutics, Prof. Ravindra Nikam College of Pharmacy Gondur Dhule. Email – khpatil2410@gmail.com

#### ABSTRACT:

The goal of this study was to develop and test the properties of a herbal antibacterial cream derived from neem (Azadirachta indica). Neem is a medicinal plant known for its antibacterial, antifungal, and therapeutic effects. In this project, neem leaf extract was combined with a cream base. The cream underwent physical testing for color, texture, appearance, pH, Spreadability, and stability. The results showed that the cream was smooth, had a skin-friendly pH, spread easily, and remained stable for a month. It also proved helpful against common infections. This means that neem antiseptic cream can help treat minor skin infections naturally. These goods are free of chemicals and do not hurt humans.

Keywords: Antifungal, antibacterial, formulation, Topical, characterization, Topical, Azadirachta indica.

#### **1. Introduction:**

The availability of herbal cosmetics is primarily driving up the demand for cosmetics. Herbal formulations are gaining popularity in the public due to their high-quality characteristics and low adverse effects. It also nourishes the skin with vital vitamins and minerals and hydration.

Concerns about the harmful consequences of synthetic products have sparked a renewed interest in natural and plant-based alternatives to cosmetics and pharmaceutical therapies in recent years. Traditional remedies based on herbal and organic compounds have demonstrated considerable therapeutic benefits, capturing the attention of both researchers and consumers. This study looks into a formulation that contains Neem (Azadirachta indica) extract, honey, olive oil, beeswax, borax, and rose water, all of which are known for their medicinal and dermatological benefits.

Topical drug delivery has become commonplace because it allows for the regulated transfer of a drug with minimal side effects, high efficacy, and the continued absorption of a therapeutic dose throughout the application process. These formulations that are which deliver the drug via the skin to achieve systemic therapeutic effect, avoid the challenges associated with first-pass metabolism because the circulation throughout the body is accomplished without being influenced by the existence of the effect of the first pass.

Topical medication administration is a method of delivering drugs to specific areas of the body, such as the skin, vagina, or eyes. Skin is one of the most accessible organs on the human body for topical administration, and it serves as the major route of topical medicine delivery. Topical treatments are applied to the skin to accomplish either surface, local, or systemic results.

## 2. Main Ingredients for Herbal Antiseptic Cream:



Fig No. 1 Neem extract, Honey, Olive oil, Beeswax, Borax, Rose water.

# 3. Benefits of Herbal Antiseptic Cream:

- 1. Natural antiseptic and antiseptic.
- 2. It's anti-inflammatory and soothing.
- 3. Effective against fungus infections.
- 4. Improves wound healing, moisture, and skin nourishment.
- 5. Free of harmful chemicals.

# 4. Formulation Profile of Herbal Antiseptic Cream:

Table No. 1 Formulation of Herbal Antiseptic Cream.

| Sr. No | Ingredients  | Quantity |
|--------|--------------|----------|
| 1.     | Neem Extract | 10 gm.   |
| 2.     | Honey        | 8 ml.    |
| 3.     | Olive Oil    | 5 ml.    |
| 4.     | Bees wax     | 12 gm.   |
| 5.     | Borax        | 10 gm.   |
| 6.     | Rose Water   | Q. S     |

#### 5. Prepared Sample of Herbal Antiseptic Cream:



Fig No. 2 Prepared Sample of Herbal Antiseptic Cream.

## 6. Physical Evaluation Parameter and Results of Herbal Antiseptic Cream.

Table No. 2 Evaluation Parameter of Herbal Antiseptic Cream.

| Sr. No | Parameter            | Observation          |
|--------|----------------------|----------------------|
| 1.     | Color                | White in color       |
| 2.     | Oduors               | Fragrant             |
| 3.     | Appearance           | Soft                 |
| 4.     | Texture              | Smooth               |
| 5.     | рН                   | 7.9                  |
| 6.     | Spread ability       | Uniform              |
| 7.     | Stability            | Stable at Room Temp. |
| 8.     | Consistency          | Semisolid            |
| 9.     | Homogenecity         | Good                 |
| 10.    | Skin Irritation Test | No Skin Irritation   |

# 7. Conclusion:

In this study, a herbal antiseptic cream was successfully made with Azadirachta indica (neem) extract and other natural ingredients such as honey, olive oil, beeswax, borax, and rose water. The formulation technique resulted in a stable cream with appropriate physicochemical qualities, such as texture, Spreadability, and pH for topical use.

Neem extract, which is recognized for its strong antibacterial and anti-inflammatory properties, combined well with honey and olive oil to boost the cream's overall antiseptic strength. Beeswax provided structural stability, borax acted as an emulsifier, and rose water provided skin soothing and smell.

The outcome of the research demonstrated remarkable potential as a natural alternative to synthetic antiseptic lotions, with benefits such as skin compatibility, minimal adverse effects, and excellent germ inhibition. More study, including in vivo testing and stability studies over extended time periods, is required to verify its long-term usefulness and protection.

#### 8. Conflict of Interests:

The researchers acknowledge no commercial or personal motivations that may have impacted the subject matter contained in this study.

#### 9. Acknowledgment:

The authors are grateful to Prof. Ravindra Nikam College of Pharmacy Gondur Dhule. The necessary facilities and support to carry out this work.

#### 10. References:

- Zingue S, Kamga Silihe K, Fouba Bourfane I, et al. Potential of Regular Consumption of Cameroonian Neem (Azadirachta indica L.) Oil for Prevention of the 7,12-Dimethylbenz(a)anthracene-Induced Breast Cancer in High-Fat/ Sucrose-Fed Wistar Rats. Evid Based Complement Alternat Med. 2019; 2019:2031460.
- Campos EV, de Oliveira JL, Pascoli M, de Lima R, Fraceto LF. Neem Oil and Crop Protection: From Nowto the Future. Front Plant Sci. 2016; 7:1494
- Aslam F, Rehman KU, Asghar M, Sarwar M. Antibacterial activity of various phytoconstituents of Neem. Pak J Agri Sci. 2009;46(3):209-213.
- 4. Banerjee S, Kim LM, Shariff M, Khatoon H, Yusoff SM. Antibacterial activity of neem (Azadirachta indica) leaves on Vibrio spp. Isolated from cultured shrimp. Asian J Animal Veterinary Adv, 2012;3923:1-7.
- Divya Kumari P, Shenoy SM, Khijmatgar S, Chowdhury A, Chowdhury CR. Antibacterial activity of new atraumatic restorative treatment materials incorporated with Azadirachta indica (Neem) against Streptococcus mutans. J Oral Biol Craniofac Res. 2019;9(4):321-5.
- Mafou-Sonhafouo V, Kana JR, Nguepi-Dongmo K. Effects of graded levels of Azadirachta indica seed oil on growth performance and biochemical profiles of broiler chickens. Vet Med Sci. 2019;5(3):442-50.
- 7. Shah FM, Razaq M, Ali A, Han P, Chen J. Comparative role of neem seed extract, moringa leaf extract and midacloprid in the management of wheat aphids in relation to 11.
- Alzohairy MA. Therapeutics Role of Azadirachta indica (Neem) and Their Active Constituents in Disease Prevention and Treatment. Evid Based Complement Alternat Med. 2016; 2016;7382.
- 9. Paula AR, Ribeiro A, Lemos FJA, Silva CP, Samuels RI. Neem oil increases the persistence of the entomopathogenic fungus Metarhizium anisopliae for the control of Aedes aegypti (Diptera: Culicidae) larvae. Parasit Vectors. 2019;12(1):163.
- Mahmoud DA, Hassanein NM, Youssef KA, Zeid A. Antifungal activity of different neem leaf extracts and the nimonol against some important human pathogens. Braz J Microbiol. 2 011;42(3):1007-16.
- Bohnen Stengel FI, Wray V, Witte L, Srivastava RP, Proksch P. Insecticidal medicarpins (C-seco limonoids) from Melia azedarach. Phytochemistry. 199;50(6):977-82. Cowan MM. Plant products as antimicrobial agents. Clin Microbiol Rev. 1999;12(4):564-82.
- 12. Debjit B, Jitender Y, Tripathi KK, Kumar KS. Herbal remedies of Azadirachta indica and its medicinal application. J Chem Pharm Res. 2010;2(1):62-72.
- 13. Dharmani P, Palit G. Exploring Indian medicinal plants for antiulcer activity. Indian J Pharmacol. 2006;38(2):95.
- 14. Dholi SK, Raparla R, Mankala SK, Nagappan K. In vivo Antidiabetic evaluation of Neem leaf extract inalloxan induced rats. J Appl Pharm Sci. 2011;1(4):100-5.
- 15. Dua VK, Nagpal BN, Sharma VP. Repellent action of neem cream against mosquitoes. Indian J Malariol. 1995;32(2):47-53.
- 16. Khan AV, Ahmed QU, Mir MR, Shukla I, Khan AA. Antibacterial efficacy of the seed extracts of Melia azedarach against some hospital isolated human pathogenic bacterial strains. Asian Pac J Trop Biomed. 2011;1(6):452-5.
- 17. Asthana RK, Srivastava A, Singh AP, Singh SP, Nath G, Srivastava R, et al. Identification of an antimicrobial entity from the cyanobacterium Fischerella sp. isolated from bark of Azadirachta indica (Neem) tree. J Appl Phycol. 2006;18(1):33-9.
- Barua DR, Basavanna JM, Varghese RK. Efficacy of Neem Extract and Three Antimicrobial Agents Incorporated into Tissue Conditioner in Inhibiting the Growth of C. Albicans and S. Mutans. J Clin Diagn Res. 2017;11(5): ZC97–101.
- 19. Jerobin J, Makwana P, Kumar RS, Sundaramoorthy R, Mukherjee A, Chandrasekaran N.
- 20. Antibacterial activity of neem nano emulsion and its toxicity assessment on human lymphocytes in

- 21. Vitr Kelmanson JE Jäger, AK, van Staden J. Zulu medicinal plants with antibacterial activity. J
- 22. Ethnopharmacol. 2000;69(3):241