WWW.IJRPR.COM

International Journal of Research Publication and Reviews

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

Review on Antifungal Activity of Medicinal Plants

Khursheed Ahmad Najar[1], Ms. Tanya Sharma[2]

[1]Student, Department of Pharmaceutical Science, Mewar University, Chittorgarh Rajasthan
[2]Assistant Professor of Department of Pharmaceutical Science, Mewar University, Chittorgarh Rajasthan India
Email _ njaqib1469@gmail.com, 28taney@gmail.com

ABSTRACT

Global growth in antifungal-resistant pathogens demands immediate exploration of alternative remedies. Medicinal plants, with their diverse phytochemical profiles and historical use in traditional medicine, provide a viable solution. This review examines major plants, their action mechanisms, benefits and antifungal properties of challenges. By integrating dynastic knowledge with modern research, we emphasize their ability to address drug resistance by advocating permanent practices to remove scalability issues. [Referee 9,14]

1. Introduction

Fungi infections, once considered to be minor diseases, now threatens millions of people due to immunosuppressive therapy, antibiotic overweight and climate-operated pathogen proliferation. With resistance reported in Candida and Aspergillus species, traditional antifungal efficacy such as fluconazole is losing efficacy. Plants such as OCMUM SanCTum (Holy Tulsi) and Syzygium Aromaticum (Clove) have been used to treat infections for centuries, which offers a reserves of understanding bioactive compounds. This article bridges traditional knowledge and scientific verification to highlight his role in modern medicine. [Ref 3,7]

2. The Rise of Fungal Infections

Over 1.5 million people die each year from fungal illnesses, which include invasive aspergillosis and candidiasis. Immunocomized patients, including people with HIV or cancer, are particularly weak. Emerging pathogens such as Candida Oris oppose many drugs, while agricultural fungi such as Fusarium destroys crops. Climate change expands the habitals of the fungi, increases zoonotic spillover risks. These factor novels underline the requirement of novel antifungal strategies. [Referee 5,12]

3. Medicinal Plants: A Natural Solution

Plants synthesize secondary metabolites as a defense system against pathogens, making them ideal antifungal candidates. For example, indigenous community in Africa uses cryptolepis songoinolanta for wound infection, while Ayurveda depends on Curcuma Longa (turmeric). Multiritat effects of these plants reduce synthetic drugs-resistance development development. Recent studies confirm extracts from alium sativam (garlic) and azadirchata indica (neem), which prevent biofilm formation in resistant strains. [Referee 2,8]

4. Key Medicinal Plants with Antifungal Activities

□ Neem (Azadirchta Indica) _ Azadirchtin decomposes fungal cell wall synthesis, which is effective against Trichophofon SPP. [Referee 10].

□ Garlic (Ellium Cativum) _ Ellicin cysteine blocks protease activity, suppresses Cryptococcus neofarms [Ref 15].

□ Curcuma Longa _curcumin inspires apoptosis in Candida albicans through ROS generation [ref 6].

□ Clove (Syzygium Aromaticum) _ Usenol completely destabilizes the fungal membrane, prevents aspergillus flavs [ref 1].

5.Ragano (Origanum Vulgare) _ Carvacrol impedes mitochondrial function, targets drug-resistant phusarium [ref 11].

5. Mechanisms of Antifungal Action

Through the fungus of plant compounds:-

□ membrane dissolving: Panax makes holes from ginseng to saponin fungal membrane [Ref 4].

□ Oxidative stress: Flavonoids in Camellia Sinensis (Green Tea) elevate intracellular ROS, damaging fungal DNA [Ref 13].

□ Enzyme Prohibition: Alcaloids from Catheriths Rosas stop ergosterol biosynthesis [ref 7].

These multi-dimensional approach obstruct resistance development.

6. Advantages of Medicinal Plants

□ Broad -spectrum activity: -Barberis from Vulgaris -like barberin -Capines target many fungal species [Referee 2].

□ Eco -friendly: -Bodigardable extracts reduce environmental toxicity compared to synthetic fungi [referee 5].

□ Cost-effective:-Locally grown plants have low production costs, especially in resource-limit areas [referee 9].

□ Synergy:- The combination of Zingber Office (Ginger) and Honey increases antifungal potency [ref 12].

□ Minimum Side Effects:- Plant-based treatments often lack hepatotoxicity associated with Ezole [Ref 14].

7. Challenges and Limitations

□ variability: Soil pH and climate Aloe Vera [Ref 3] change bioactive compound concentrations in plants.

□ extraction disability: Polar solvents may fail to separate non-polar terpenoids from Rosmrinus Office of Rosmrinus Office [Ref 8].

□ Regulatory Obstacles: Some clinical tests meet FDA standards for plant-reputed antifungal [Referee 10].

□ Cultural erosion: indigenous knowledge about plants like Artemisia Enua is disappearing [Referee 1].

8. Future Prospects

CRISPR-based bio-engineering can increase phytochemical yields in plants such as Nicotiana Bentamiana. Nanoparticle encapsulation can improve the biological and quarasetin's bioavailability. Documentary database of traditional remedies, such as Amazonian Anarkaria Tettingosa (Cat of CAT), may accelerate the discovery of medicine. Public health policies should prioritize funds for ethnography research. [Referee 4,11,15]

9. Conclusion

Medicinal plants are a foundation stone in the fight against antifungal resistance, providing ecological and mechanical benefits. Interdisciplinary cooperation is required to address challenges such as standardization and regulatory approval. By merging state-of-the-art knowledge with state-of-the-art science, a plant-based antifungal can redefine global healthcare strategies. [Referee 4,13]

10. References

1. Calexto, J.B. (2005). Herbal medicines: challenges in research. Medicinal Research, 52 (1), 1-10.

2. Coven, M. M. (1999). Plant antimicrobial in clinical practice. Clinical Microbiology Review, 12 (4), 564-582.

3. Gupta, P. D., and Burdy, T. J. (2017). Neem: A medical gem for infection. Journal of Applied Microbiology, 122 (6), 1408–1421.

4. Leva-Lopez, N., et al. (2016). Essential oil: weapons against fungi biofilms. Molecule, 21 (7), 1-15.

5. Brown, G. D., et al. (2012). The global burden of fungus diseases. Science translational therapy, 4 (165), 1-10.

6. Kushni, t. P., and Lamb, A. J. (2011). Flavonoids in the form of antimicrobial agents. International Journal of Antimicrobial Agents, 38 (2), 99–107.

7. Rios, J. L., and Recio, M. C. (2012). Medicinal plants and antimicrobial activity. Phytochemistry Review, 4 (2), 117-135

8. Polakini, c. R., et al. (2006). The method of action of azadirachtin. Phytomedicine, 13 (5), 310–317.

9. Ban, L., et al. (2014). Garlic: Review of medical capacity. Evisena Journal of Fightomedicine, 4 (1), 1–14.

10. Martins, c. V., et al. (2020). The antifungal system of curcumin. Frontiers in Microbiology, 11, 1–12.

11. Ahmed, A., et al. (2015). Antifungal properties of clove oil. Journal of Applied Microbiology, 119 (6), 1453–1461.

12. Nekube, B., et al. (2012). Quality control in ethnology. Journal of Athenofarmcology, 142 (3), 513–520.

13. Fax, š., Et al. (2009). Saponin in antifungal therapy. Phytochemistry, 70 (15–16), 1795–1803.

14. Anki, S., and Miralman, D. (1999). Affiliation properties of alicin. Microbi and infection, 1 (2), 125–129.

15. Fisher, M. C., et al. (2022). WHO fungal priority pathogens. Lancet infectious diseases, 22 (8), 1–12.