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Antifungal Activity of *Senna alata* Leaves extract against Pathogenic Fungi

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Structured Abstract

Background: *Senna alata*, known for its resistance and medicinal properties, has been used traditionally to treat skin ailments and other conditions due to its antifungal, antibacterial, laxative, hypoglycaemic, and diuretic activities. The plant contains compounds like anthraquinones, flavonoids, and stilbenes, which contribute to its antifungal properties. The focus of the study is to determine the antifungal activity of *S. alata* leaves extract and to evaluate the antifungal efficacy of *S. alata* extracts against pathogenic fungi, specifically *Candida albicans, Candida utilis, and Cryptococcus neoformans*, which are known to cause various infections and exhibit resistance to conventional antifungal treatments.

Methods: *Senna alata* leaves were dried, powdered, and extracted using solvents to obtain crude extracts. The antifungal activity was tested against *Candida albicans, Candida utilis,* and *Cryptococcus neoformans* using agar well diffusion and disc diffusion methods. The zones of inhibition were measured to assess the antifungal effect. The Minimum Inhibitory Concentration (MIC) and Minimum Fungicidal Concentration (MFC) were determined to evaluate the effectiveness of the extracts compared to standard antifungal agents.

Results: This study shows that phytochemical was successfully extracted from *Senna alata* leaf's, which produces crude extract using ethanolic. 7.36%. The antifungal efficacy was assessed using agar well diffusion, disc diffusion assays, and the measurement of the Minimum Inhibitory Concentration (MIC) and Minimum Fungicidal Concentration (MFC). The results showed that the *S. alata* leaf extracts had strong antifungal activity, with significant inhibition zones against the investigated fungi. *Candida albicans, Candida utilis,* and *Cryptococcus neoformans* each had an MFC/MIC ratio of 0.13.

Conclusion: The study concludes that *S. alata* has potential as a natural antifungal agent. The extracts showed promising activity against the tested fungi, indicating the presence of bioactive compounds that could serve as alternatives to synthetic antifungal drugs. Further research, including clinical trials, is necessary to fully understand the safety and efficacy of *S. alata* extracts in treating fungal infections in humans. The findings contribute to the growing body of knowledge on natural antifungal agents and their possible applications in medicine.

Keywords: *Senna alata*, antifungal activity, ethanolic extract, pathogenic fungi, MIC & MFC

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