



Evaluation of Selected Sri Lankan Medicinal Plants for Selective Anticandidal Properties: Implications for Herbal Oral Care Formulations

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Oral candidiasis is a common opportunistic fungal infection, particularly among immunocompromised individuals such as cancer patients. The emerging resistance of *Candida* species to conventional antifungals highlights the urgent need for effective and holistic alternatives. This study evaluated the in vitro anticandidal activity of aqueous extracts of *Aegle marmelos* (leaf and fruit), *Lawsonia inermis* (leaf), and *Cinnamomum zeylanicum* (leaf) and their effects on oral commensal microorganisms. The minimum inhibitory concentrations (MICs) and minimum fungicidal concentrations (MFCs) of the extracts were determined against eleven clinically isolated *Candida* species, including fluconazole-resistant isolates, using the broth microdilution method. The effect on oral commensals was assessed using the agar well diffusion method with mixed cultures from oral rinse samples from cancer patients and healthy individuals. All four plant extracts demonstrated notable anticandidal activity, with *C. zeylanicum* showing the most potent and consistent inhibition, followed by *A. marmelos* leaf extract, while *L. inermis* exhibited moderate activity. MIC values of the plant extracts ranged between 0.016–1.000 mg/mL, comparable in some cases to fluconazole, and all extracts effectively inhibited *Candida krusei* and *Candida glabrata*, known for intrinsic fluconazole resistance. Importantly, none of the aqueous extracts produced inhibitory zones against oral commensal bacteria, indicating selective antifungal activity without disturbing the beneficial oral microbiota. Phytochemical screening revealed the presence of alkaloids, glycosides, tannins, terpenoids, saponins, and flavonoids, which may contribute synergistically to the observed anticandidal activity. These findings highlight the significance of *A. marmelos*, *L. inermis*, and *C. zeylanicum* as promising plant-based alternatives, making them promising candidates for developing a safe, natural herbal mouthwash to manage oral candidiasis without disrupting the oral microbial balance.

Keywords: Antifungal resistance, Ethnomedicine, Herbal mouthwash, Oral candidiasis