ABSTRAK

MUHAMMAD NAJWAN KUSUMA. 2026. **POTENSI ANTIFUNGAL AIR SADAPAN BATANG KAPULAGA JAWA (*Wurfbainia compacta* (Sol. ex Maton) Skornick. & A.D. Poulsen) TERHADAP PERTUMBUHAN *Candida albicans*: STUDI *IN VITRO* SEBAGAI SUPLEMEN BAHAN AJAR BIOLOGI.** Jurusan Pendidikan Biologi, Fakultas Keguruan dan Ilmu Pendidikan. Universitas Siliwangi, Tasikmalaya.

Meningkatnya resistensi *Candida albicans* terhadap antifungal sintetis menuntut pengembangan alternatif berbasis bahan alam yang memiliki dasar ilmiah kuat. Penelitian ini bertujuan untuk menguji potensi antifungal air sadapan batang *Wurfbainia compacta* terhadap pertumbuhan *C. albicans* secara *in vitro* serta menganalisis pengaruh variasi konsentrasi terhadap diameter zona hambat. Metode yang digunakan adalah eksperimen dengan Rancangan Acak Lengkap (RAL), melibatkan kontrol negatif, kontrol positif (azole), serta konsentrasi 25%, 50%, 75%, dan 100% dengan 4 kali ulangan. Aktivitas antifungal diuji menggunakan metode difusi cakram pada media *Sabouraud Dextrose Agar* dan dianalisis secara statistik. Data berdistribusi normal namun tidak homogen, sehingga digunakan uji Welch's ANOVA yang menunjukkan perbedaan signifikan antar perlakuan ($p < 0,001$). Uji lanjut Games–Howell menegaskan bahwa terbentuknya zona hambat yang konsisten dibandingkan kontrol negatif merupakan bukti empiris yang valid bahwa air sadapan memiliki aktivitas antifungal. Konsentrasi 100% menghasilkan zona hambat tertinggi sebesar 11,03 mm yang termasuk kategori kuat. Dengan demikian, penelitian ini menunjukkan bahwa pendekatan metodologis yang digunakan telah tepat dan memberikan pembuktian ilmiah bahwa air sadapan batang Kapulaga Jawa (*W.* compacta) memiliki potensi sebagai antifungal alami yang layak dikembangkan.

Kata kunci: Air sadapan, antifungal, *Candida albicans*, studi *in vitro*, *Wurfbainia compacta*

ABSTRACT

MUHAMMAD NAJWAN KUSUMA. 2026. ***Antifungal Potential of Javanese Cardamom (Wurfbainia compacta (Sol. ex Maton) Skornick. & A.D. Poulsen) Stem Sap Against the Growth of Candida albicans: An In Vitro Study as a Supplementary Biology Teaching Material.*** Jurusan Pendidikan Biologi, Fakultas Keguruan dan Ilmu Pendidikan. Universitas Siliwangi, Tasikmalaya.

The increasing resistance of Candida albicans to synthetic antifungal agents necessitates the development of alternative approaches based on natural products with strong scientific evidence. This study aimed to evaluate the antifungal potential of stem sap from Wurfbainia compacta against the growth of C. albicans in vitro and to analyze the effect of different concentrations on the diameter of the inhibition zone. The study employed an experimental method using a Completely Randomized Design (CRD), involving a negative control, a positive control (azole) as an indicator of inhibition zone formation, and treatment concentrations of 25%, 50%, 75%, and 100%, each with four replications. Antifungal activity was assessed using the disc diffusion method on Sabouraud Dextrose Agar and analyzed statistically. The data were normally distributed but not homogeneous; therefore, Welch's ANOVA was applied and revealed significant differences among treatments ($p < 0.001$). The Games–Howell post hoc test confirmed that the consistent formation of inhibition zones compared to the negative control constituted valid empirical evidence that the stem sap possessed antifungal activity. The highest inhibition zone diameter was observed at the 100% concentration, measuring 11.03 mm, which was categorized as strong. Therefore, this study demonstrates that the methodological approach used was appropriate and provides scientific evidence that the stem sap of Javanese cardamom (W. compacta) has potential as a natural antifungal agent worthy of further development.

Keyword: *Antifungal, Candida albicans, in vitro study, stem sap, Wurfbainia compacta*