

ABSTRACT

Aufa Mar'atuzakiyah. 24020122140165. *In Vitro* Antifungal Activity Test of Red Shoot Leaf Extract (*Syzygium myrtifolium*) against *Candida albicans*. Supervised by Agung Suprihadi and Wijanarka.

Candida albicans is an opportunistic fungus that causes oral candidiasis, which remains prevalent and has the potential to develop resistance to synthetic antifungal agents. Red shoot leaves (*Syzygium myrtifolium*) are known to contain secondary metabolites with potential as natural antifungal agents. This study aimed to evaluate the in vitro antifungal activity of *S. myrtifolium* leaf extract at various concentrations against the growth of *C. albicans* and to identify its secondary metabolite compounds. This experimental study employed the Kirby-Bauer disk diffusion method on Mueller Hinton Agar (MHA). The treatments consisted of 10% DMSO (C_0) as the negative control, nystatin (C_1) as the positive control, and *S. myrtifolium* leaf extract at concentrations of 25% (C_2), 50% (C_3), 75% (C_4), and 100% (C_5). A Completely Randomized Design (CRD) was applied, and the data were analyzed using One-Way ANOVA followed by Tukey's HSD test at a 5% significance level. Phytochemical screening was performed qualitatively, while compound identification was carried out using GC-MS based on the NIST database. The results showed inhibition zone diameters of 15.20 mm (C_1), 8.15 mm (C_2), 10.30 mm (C_3), 12.10 mm (C_4), and 10.75 mm (C_5). The variation in extract concentrations did not demonstrate a consistent increase in antifungal activity, as the inhibition zone at 100% concentration was lower than that at 75%. Statistical analysis indicated that different extract concentrations significantly affected the inhibition of *C. albicans* growth ($p < 0.05$), resulting in significant differences in inhibition zone diameters among treatments. Tukey's HSD test revealed no significant difference between C_3 and C_5 , indicating comparable inhibitory effectiveness, whereas the other treatments differed significantly. GC-MS analysis identified several secondary metabolites, including flavonoids, phenolics/tannins, and terpenoids. The leaf extract of *S. myrtifolium* exhibited in vitro antifungal activity against *C. albicans* and has potential as a natural source of antifungal agents.

Keywords : *Candida albicans*, antifungal, *Syzygium myrtifolium*