ABSTRACT

Agrica Yoanita Wulaningtyas. 24020122130111. **Antifungal Activity Test and Gas Chromatography - Mass Spectrometry Analysis of Methanol Extract of *Cassia alata* Leaves against *Candida albicans* ATCC 10231**. Under the guidance of Agung Suprihadi and Dwi Retno Fatmawati.

Fungal infections, such as oral candidiasis caused by *Candida albicans*, are commonly found in Indonesia. Long-term use of synthetic antifungal agents may lead to adverse effects and resistance, highlighting the need for alternative antifungal agents derived from natural sources. The leaves of *Cassia alata* are known to contain various secondary metabolites with potential antifungal activity. This study aimed to evaluate the antifungal activity of methanolic extract of *C. alata* leaves against *C. albicans* ATCC 10231 and to identify bioactive compounds with potential antifungal activity using GC-MS analysis. A completely randomized design (CRD) was employed with a negative control (10% DMSO), a positive control (nystatin 1 mg/mL), and methanolic extract concentrations of 50 mg/mL, 100 mg/mL, 150 mg/mL, and 200 mg/mL. Antifungal activity was evaluated using the disk diffusion method, while the data were analyzed using one-way ANOVA followed by Tukey's HSD test at a 95% confidence level. The results showed significant differences in inhibition zone diameters among the treatment groups ($p < 0.001$), with inhibition zones ranging from 9.30 to 12.19 mm for the extract. No significant difference was observed between the 150 and 200 mg/mL concentrations. GC-MS analysis identified four compounds with potential antifungal activity, namely *2-Methoxy-4-vinylphenol*, *n-Hexadecanoic acid*, *phytol*, and *Oleic acid*. The methanolic extract of *C. alata* leaves exhibited antifungal activity against *C. albicans* ATCC 10231 at concentrations ranging from 50 to 200 mg/mL. The antifungal activity of the extract at all tested concentrations remained lower than that of the positive control, nystatin (1 mg/mL).

Keywords: Antifungal, Candida albicans, Cassia alata, GC-MS