

## INTISARI

*Candida albicans* adalah fungi yang merupakan flora normal yang ada di rongga mulut. Saat homeostasis rongga mulut terganggu, *C. albicans* dapat bersifat patogen. Daun stevia mengandung zat-zat aktif antijamur seperti tanin, flavonoid, saponin, dan steviosida yang memiliki kemampuan untuk merusak matriks EPS (*Extracellular Polymeric Substance*) dan mengganggu jalannya *quorum sensing* di dalam biofilm. Tujuan dari penelitian ini untuk mengetahui pengaruh ekstrak daun stevia terhadap destruksi biofilm *C. albicans* ATCC 10231 *in vitro*.

Dilakukan uji *Minimum Inhibitory Concentration* (MIC) dan didapatkan konsentrasi MIC sebesar 10,71%. Pembentukan biofilm diawali dengan mencampurkan 40 µl media *Saboraud Dextrose Broth* dengan 10 µl suspensi *C. albicans* ATCC 10231 pada 96-wells microtiter plate, kemudian diinkubasi selama 24 jam pada suhu 37°C. Ke dalam sumuran yang sudah terbentuk biofilm, ditambahkan ekstrak daun stevia dengan konsentrasi 5,36%, 10,71%, dan 21,43% (kelompok perlakuan), klorheksidin glukonat 0,1% (kontrol positif), dan PBS (kontrol negatif) sebanyak 50 µl. Sumuran diinkubasi kembali selama 24 jam pada suhu 37°C. Biofilm kemudian diwarnai dengan *crystal violet* 0,1% dan absorbansinya diukur menggunakan *microplate reader* dengan panjang gelombang 450 nm. Data yang diperoleh kemudian dianalisis secara statistik dengan *One-Way ANOVA* dan *Post-Hoc LSD*.

Hasil uji *One-Way ANOVA* menunjukkan adanya perbedaan signifikan antar kelompok uji ( $p < 0.05$ ). Hasil uji *Post-Hoc LSD* menunjukkan bahwa terdapat perbedaan signifikan antara konsentrasi 5,36% dengan 10,71% dan 21,43%, namun tidak terdapat perbedaan signifikan antara konsentrasi 21,43% dengan klorheksidin glukonat 0,1%. Dengan demikian, konsentrasi 21,43% memiliki kemampuan yang setara dengan klorheksidin glukonat 0,1% dalam mendestruksi biofilm *C. albicans* ATCC 10231.

**Kata kunci:** Ekstrak daun stevia, destruksi biofilm, *Candida albicans*.

## ABSTRACT

*Candida albicans* is a fungus that is a normal flora present in the oral cavity. When oral homeostasis is disrupted, *C. albicans* can be pathogenic. Stevia leaves contain antifungal active substances such as tannins, flavonoids, saponins, and steviosides that have the ability to damage the EPS (Extracellular Polymeric Substance) matrix and disrupt the quorum sensing inside biofilm. The purpose of this study was to determine the effect of stevia leaf extract on the biofilm destruction of *C. albicans* ATCC 10231 *in vitro*.

The Minimum Inhibitory Concentration (MIC) tests conducted and the MIC concentration was obtained at 10.71%. The formation of the biofilm began by mixing 40 µl of Saboraud Dextrose Broth media with 10 µl of *C. albicans* ATCC 10231 suspension on a 96-well microtiter plate, then incubated for 24 hours at 37°C. To the wells that have already formed biofilms, stevia leaf extracts are added with concentrations of 5.36%, 10.71%, and 21.43% (treatment group), chlorhexidine gluconate 0.1% (positive control), and PBS (negative control) as much as 50 µl. The wells were re-incubated for 24 hours at a temperature of 37°C. The biofilm was then stained with 0.1% crystal violet and its absorbance was measured using a microplate reader with a wavelength of 450 nm. The data obtained were then statistically analyzed with One-Way ANOVA and Post-Hoc LSD.

The results of the One-Way ANOVA test showed significant differences among the test groups ( $p < 0.05$ ). The results of the Post-Hoc LSD test showed that there was a significant difference between the concentrations of 5.36% and 10.71% and 21.43%, but there was no significant difference between the concentration of 21.43% and the chlorhexidine gluconate of 0.1%. Thus, the concentration of 21.43% has the ability equivalent to 0.1% chlorhexidine gluconate in destructing the *C. albicans* ATCC 10231 biofilm.

**Keywords:** Stevia leaf extract, biofilm destruction, *Candida albicans*.