RINGKASAN

Streptomyces merupakan bakteri Gram positif Familia Streptomycetaceae yang membentuk spora dan banyak ditemukan pada tanah yang alami. *Streptomyces* sangat menarik perhatian para ahli bakteriologi karena kemampuannya dalam mensintesis metabolit sekunder berupa senyawa antimikroba atau antibiotik. *Streptomyces* sp. SAC4536 merupakan actinomycetes yang terbukti mampu menghambat pertumbuhan *Candida albicans*. Jamur *C. albicans* bersifat patogen dan menyebabkan infeksi jamur yang disebut kandidiasis yaitu penyakit pada selaput lendir, mulut, vagina dan saluran pencernaan. Zat antijamur yang dihasilkan oleh *Streptomyces* sp. SAC4536 belum diketahui golongan senyawanya dan mekanisme antibiosisnya terhadap *C. albicans*. Penelitian ini bertujuan untuk mengetahui golongan senyawa antijamur yang dihasilkan oleh *Streptomyces* sp. SAC4536 berdasarkan metode kromatografi lapis tipis (KLT) dan mengetahui mekanisme penghambatan zat antijamur yang dihasilkan oleh *Streptomyces* sp. SAC4536 terhadap *C. albicans* melalui deteksi kebocoran sel.

Penelitian dilakukan menggunakan metode survey dan analisis secara deskriptif. Variabel bebas berupa isolat *Streptomyces* sp. SAC4536 dan variabel tergantung yang diamati senyawa antijamur *Streptomyces* sp. SAC4536. Parameter yang diamati, yaitu golongan senyawa antijamur, nilai Rf, nilai *Optical Density* (OD), asam nukleat dan protein, nilai *Minimum Inhibitory Concentration* (MIC) dan diameter zona hambat.

Hasil penelitian menunjukkan bahwa *Streptomyces* sp. SAC4536 memproduksi senyawa metabolit golongan senyawa flavonoid. Ekstrak kasar senyawa antijamur yang dihasilkan oleh *Streptomyces* sp. SAC4536 dapat menghambat *C. albicans* dengan diameter zona hambat tertinggi 14 mm. mekanisme penghambatan melalui pelemahan sel, sehingga *C. albicans* mengalami kebocoran asam nukleat dan protein

Kata kunci: *Candida albicans, mekanisme penghambatan, senyawa antijamur, Streptomyces SAC4536*

SUMMARY

Streptomyces is a Gram positive bacteria of the Streptomycetaceae family that forms spores and is commonly found in natural soils. Streptomyces has attracted the attention of bacteriologists because of its ability to synthesize secondary metabolites in the form of antimicrobial or antibiotic compounds. *Streptomyces* sp. SAC4536 is an actinomycetes which is proven to be able to inhibit the growth of *Candida albicans*. The fungus *C. albicans* is pathogenic and causes a fungal infection called candidiasis, which is a disease of the mucous membranes, mouth, vagina and digestive tract. The antifungal substance produced by *Streptomyces* sp. SAC4536 is not yet known the class of compounds and the mechanism of their antibiosis against *C. albicans*. This study aims to determine the class of antifungal compounds produced by *Streptomyces* sp. SAC4536 based on thin layer chromatography (TLC) method and knowing the mechanism of inhibition of antifungal substances produced by *Streptomyces* sp. SAC4536 against *C. albicans* via cell leak detection.

The research was conducted using survey methods and descriptive analysis. The independent variable was *Streptomyces* sp. SAC4536 and the dependent variable observed was antifungal compound of *Streptomyces* sp. SAC4536. Parameters observed were antifungal compound group, Rf value, Optical Density (OD) value of nucleic acid and protein, value of Minimum Inhibitory Concentration (MIC) and diameter of inhibition zone.

The results showed that *Streptomyces* sp. SAC4536 produced flavonoid compound. Crude extract of antifungal compound inhibited *C. albicans*. with the highest inhibition zone diameter was 14 mm. The mechanism of inhibition was through weakening of the cell wall, therefore *C. albicans* leaks nucleic acid and protein.

Keywords: *Candida albicans, mechanism of inhibition, antifungal compounds, Streptomyces SAC4536*