Potensi aktivitas antimikroba streptomyces sp. BCy hasil isolasi dari lamun (cymodocea rotundata) = Antimicrobial potential of streptomyces sp. BCy isolated from seagrass (cymodocea rotundata)

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Abstrak

Actinomycetes BCy berhasil diisolasi dari lamun Cymodocea rotundata, Pantai Prapat Agung Bali Barat, Indonesia. Identifikasi dengan 16S rRNA menunjukkan isolat termasuk marga Streptomyces. Penelitian bertujuan untuk mengkaji potensi aktivitas antimikroba Streptomyces sp. BCy yang ditumbuhkan pada medium Bushnell-Haas BH dengan penambahan glukosa 0,1 dan yeast extract 0,05 . Isolat diinokulasikan ke dalam 400 mL medium BH Broth lalu diinkubasi pada suhu 30oC selama 1 dan 2 minggu secara statis. Percobaan dilakukan sebanyak dua batch. Medium difiltrasi dan biomassa diukur.
Filtrat diekstraksi dengan etil asetat 1:1, v/v lalu ekstrak kasar ditimbang. Ekstrak disuspensikan dengan DMSO dan akuades 1:6, v/v untuk uji antimikroba dengan metode Kirby Bauer pada konsentrasi 5 dan 15 mg/mL. Mikroba uji yang digunakan adalah Escherichia coli NBRC 3301, Staphylococcus aureus NBRC 100910, dan Candida albicans UICC Y-29. Biomassa kering meningkat dari minggu kesatu 469,9 mg ke minggu kedua 667,2 mg . Namun, berat ekstrak kasar menurun dari minggu kesatu 24,7 mg ke minggu kedua 17,05 mg . Aktivitas antimikroba dari ekstrak kasar hanya mampu menghambat Staphylococcus aureus NBRC 100910 serta ukuran zona bening meningkat pada konsentrasi 15 mg/mL.
.....Actinomycetes BCy has been isolated from seagrass Cymodocea rotundata, Prapat Agung Coastal Bali Barat, Indonesia. Identification by 16S rRNA showed that isolate belongs to genus Streptomyces. The objective of this study is to analyze antimicrobial potential of Streptomyces sp. BCy which was grown in Bushnell Haas BH medium added with 0.1 glucose and 0.05 yeast extract. The isolate was inoculated into 400 mL BH Broth then incubated at 30oC for 1 and 2 weeks using static fermentation. The experiment was carried out in two batches. Medium was filtered and dry weight of biomass was measured.
Filtrate was extracted using ethyl acetate 1 1, v v and also measured for dry weight. The dried crude extract was resuspended in DMSO and aquades 1 6, v v and used for antimicrobial testing using Kirby Bauer method in 5 and 15 mg mL. The target microbes are Escherichia coli NBRC 3301, Staphylococcus aureus NBRC 100910, and Candida albicans UICC Y 29. Biomass increased from first 469.9 mg to second week 667.2 mg. However, crude extract decreased from first 24.7 mg to second week 17.05 mg. The antimicrobial activity of crude extract was able to inhibit Staphylococcus aureus NBRC 100910 and also had larger clear zone in 15 mg mL.