

# **Uji aktivitas antimikroba ekstrak kasar beta-glukan dari khamir Aureobasidium pullulans terhadap Escherichia coli ATCC 25922 dan Bacillus cereus ATCC 14579 = Screening for antimicrobial activity of beta-glucan crude extract from yeast Aureobasidium pullulans against Escherichia coli ATCC 25922 and Bacillus cereus ATCC 14579**

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## **Abstrak**

Telah dilakukan penelitian yang bertujuan untuk mengekstraksi, menganalisis secara FTIR, dan mengetahui aktivitas antimikroba ekstrak kasar -glukan dari khamir Aureobasidium pullulans. -glukan berhasil diekstraksi sebanyak 1,3 g per 1 L kultur khamir dalam bentuk bubuk berwarna krem. Uji kualitatif dengan FTIR menunjukkan komposisi ekstrak berupa -glukan, hemiselulosa, protein, dan karbonat. Kadar -glukan dalam ekstrak diukur secara enzimatis dengan kit Megazyme dan didapatkan tingkat kemurnian 49,65% (b/b). Aktivitas antimikroba ekstrak diuji terhadap bakteri Escherichia coli ATCC 25922 dan Bacillus cereus ATCC 14579 pada konsentrasi 0,1% (b/v) dan 0,2% (b/v). Produk komersial krestin dengan kemurnian -glukan 52% (b/b) digunakan sebagai kontrol pembanding terhadap ekstrak. Uji aktivitas antimikroba dilakukan dengan metode turbiditas dan total plate count pada suhu inkubasi 37oC dan agitasi 150 rpm. Uji turbiditas dan total plate count menunjukkan bahwa ekstrak -glukan dan krestin pada konsentrasi 0,1% (b/v) dan 0,2% (b/v) tidak memberikan efek bakteriostatik dan bakterisidal. Persentase hambat oleh ekstrak -glukan tidak mencapai nilai minimal 50% sehingga dinyatakan tidak memiliki aktivitas antimikroba terhadap E. coli dan B. cereus.

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A study to extract, analyze based on FTIR, and determine antimicrobial activity of -glucan crude extract from yeast Aureobasidium pullulans has been carried out. An amount of 1,3 g -glucan has been extracted from 1 L of yeast culture in the form of cream-colored powder. Qualitative test with FTIR showed that the extract consists of -glucan, hemicelulose, protein, and carbonate. Purity of the compound was measured enzymatically using Megazyme kit and the result was 49,65% (w/w). Antimicrobial activity of the extract was tested against Escherichia coli ATCC 25922 and Bacillus cereus ATCC 14579 at 0,1% (w/v) and 0,2% (w/v). Krestin as commercial product of -glucan with purity of 52% (w/w) was used as comparison control of -glucan crude extract. Antimicrobial activity was tested using turbidity and total plate count method at incubation temperature 37oC and agitation 150 rpm. Turbidity and total plate count test showed that -glucan crude extract and krestin at 0,1% (w/v) and 0,2% (w/v) have no bacteriostatic and bactericidal effect. The percentage of inhibition from -glucan crude extract was less than 50%. Based on these result, -glucan extract has no antimicrobial activity against E. coli and B. cereus.