

## Lampiran 6. Contoh abstrak

**ABSTRAK****Peranan Enzim  $\beta$ -1,3-Glukanase pada Efektivitas Sediaan Antijamur terhadap Biofilm *Candida Albicans* Secara In Vitro**

Penelitian ini bertujuan mempelajari peranan  $\beta$ -1,3-glukanase pada efektivitas sediaan antijamur terhadap biofilm *Candida albicans* secara in vitro. Biofilm dibuat dengan cara menumbuhkan sel *C. albicans* pada membran selulosa nitrat yang diletakkan di atas medium SDA yang mengandung 500 mM dekstrosa dan diinkubasi pada suhu 37<sup>0</sup>C selama 48 jam, kemudian dipindahkan ke medium yang mengandung antijamur dan atau enzim  $\beta$ -1,3-glukanase, diinkubasi kembali selama 24 jam. Pertumbuhan biofilm diamati berdasarkan berat biofilm, SEM dan pengukuran viabilitas sel secara spektrofotometrik menggunakan reagen XTT. Hasil analisis SEM menunjukkan bahwa biofilm tersusun atas lapisan tebal sel khamir, *budding-yeast* dan hifa yang dilapisi matriks ekstraseluler. Hasil penelitian menunjukkan bahwa penambahan enzim  $\beta$ -1,3-glukanase dalam medium dapat meningkatkan efektivitas antijamur nistatin dan VCO. Penambahan 1,25 unit/ml enzim  $\beta$ -1,3-glukanase dalam medium dapat menghambat pertumbuhan biofilm *C. albicans* sebesar 65,1%. Penambahan 80 unit/ml nistatin dalam medium dapat menghambat pertumbuhan biofilm sebesar 36,3%. Sedangkan penambahan 80 unit/ml nistatin dan 1,25 unit/ml enzim  $\beta$ -1,3-glukanase dalam medium dapat menghambat pertumbuhan biofilm sebesar 53,3%. Penambahan VCO 25% (v/v) dalam medium dapat menghambat pertumbuhan biofilm *C. albicans* sebesar 44,4%, sedangkan penambahan 1,25 unit/ml enzim  $\beta$ -1,3-glukanase dan VCO dalam medium dapat menghambat pertumbuhan biofilm *C. albicans* sebesar 78,6%.

Kata Kunci : *Candida albicans*, biofilm, VCO, nistatin,  $\beta$ -1,3-glukanase

Lampiran 7. Contoh *abstract***ABSTRACT****Role of  $\beta$ -1,3 Glucanase Enzyme on Antifungal Effectivity to *Candida albicans* Biofilm In Vitro**

This research aimed to study the role of  $\beta$ -1,3-glucanase to antifungal effectivity to *Candida albicans* biofilm in vitro. The biofilms were prepared by growing *C. albicans* cell on cellulose nitrate membrane that placed onto SDA medium containing 500 mM dextrose, and incubated at 37<sup>0</sup>C for 48 hours. The mature biofilm was then placed on medium containing antifungal and/or  $\beta$ -1,3-glucanase reincubated for 24 hours. The biofilm growth was observed based on biofilm weight, SEM and measurement of cell viability using XTT reagent. SEM analysis showed that the biofilm components were thick layer of planctonic cells, *budding-yeast* and hifa covered by extracellular matrix. This research showed that the addition of  $\beta$ -1,3-glucanase enzyme in the medium could improve the effectivity of antifungal nystatin and VCO. Addition of 1,25 unit/ml  $\beta$ -1,3-glucanase enzyme in medium inhibited biofilm growth by 65.1%. Addition of 80 unit/ml nystatin in the medium inhibited biofilm growth by 36.3%, whereas addition of 80 unit/ml nystatin and 1.25 unit/ml  $\beta$ -1,3-glucanase in the medium inhibited biofilm growth by 53.3%. The addition of 25% (v/v) VCO in medium inhibited biofilm *C. albicans* growth by 44.4%, whereas addition of 1,25 unit/ml  $\beta$ -1,3-glucanase enzyme and VCO in medium inhibited biofilm growth by 78.6%.

Kata Kunci : *Candida albicans*, biofilm, VCO, nystatin,  $\beta$ -1,3-glucanase