

Qudri, F.S., 2014, Kajian Inhibisi dan Aktivasi oleh Flukonazol, Kanamisin dan Kation Logam Terhadap Kitinase dan β -1,3-Glukanase dari Ekstrak Kelenjar Pencernaan *Achatina fulica*, skripsi, dibawah bimbingan Prof. Dr. Afaf Baktir, M.S., Apt. dan Prof. Dr. Ni Nyoman Tri Puspaningsih, M.Si. Departemen Kimia, Fakultas Sains dan Teknologi, Universitas Airlangga.

ABSTRAK

Ekstrak dari saluran kelenjar pencernaan *Achatina fulica* memiliki campuran atau konsorsium enzim . Konsorsium enzim *Achatina fulica* telah terbukti potensial untuk mendegradasi polimer matriks ekstraseluler pada wujud penambahan flukonazol meningkatkan aktivitas enzim kitinase tetapi menurunkan aktivitas enzim β -1,3-glukanase sama seperti penambahan campuran flukonazol dan kanamisin. Kation logam yang dapat meningkatkan aktivitas ebiofilm *Candida albicans*. Enzim kitinase yang terdapat pada konsorsium enzim tersebut mampu menghidrolisis kandungan kitin pada dinding sel dan biofilm *Candida* dan enzim β -1,3-glukanase dapat menghidrolisis glukon yang merupakan penyusun utama dinding sel dan matriks ekstraseluler biofilm *Candida albicans*. Penelitian ini bertujuan untuk mengkaji inhibisi dan aktivasi oleh flukonazol, kanamisin dan kation logam terhadap kitinase dan β -1,3-glukanase dari ekstrak kelenjar pencernaan *Achatina fulica*. Berdasarkan analisis dengan menggunakan spektrofotometri UV-VIS, enzim kitinase adalah Zn^{2+} dan Mg^{2+} pada konsentrasi 1 mM, Ca^{2+} dan Fe^{3+} pada konsentrasi 1 mM dan 10 mM sedangkan yang dapat meningkatkan aktivitas enzim β -1,3-glukanase adalah Ca^{2+} dan Mg^{2+} pada konsentrasi 1mM.

Kata kunci : *enzim bekicot, kitinase, Candida, biofilm, inhibisi, aktivasi, flukonazol, kanamisin, ion logam.*

Qudri, FS, 2014, Study Inhibition and Activation by Fluconazole, Kanamycin and Metal Cations against chitinase and β -1,3-glucanase from digestive gland extract of *Achatina fulica*, thesis, under the guidance of Prof. Dr. Afaf Baktir, M.S., Apt. and Prof. Dr. Ni Nyoman Tri Puspaningsih, M.Sc. Department of Chemistry, Faculty of Science and Technology, University of Airlangga.

ABSTRACT

The extracts from the digestive gland of *Achatina fulica* has a mixture of enzyme or enzyme consortium. This enzyme consortium of *Achatina fulica* has been proven to be potential to degrade the extracellular matrix polymer in the biofilm of *Candida albicans*. Chitinase in the enzyme consortium is able to hydrolyze chitin in *Candida's* biofilms while β -1,3-glucanase can hydrolyze glucan which is the main composition of the extracellular matrix in the cell wall and the biofilm of *Candida albicans*. The purpose of this research is to assess inhibition and activation by the addition of fluconazole, kanamycin and metal cations in chitinase and β -1,3-glucanase that is contained in the digestive gland extract of *Achatina fulica*. Based on the analysis using UV-VIS spectrophotometric, the addition of fluconazole increased chitinase activity but decreases the activity of the β -1,3-glucanase and the addition of fluconazole and kanamycin increased chitinase activity but decreases the activity of β -1,3-glucanase. Metal cations which can increase the activity of the enzyme chitinase are Zn^{2+} and Mg^{2+} at a concentration of 1 mM, Ca^{2+} and Fe^{3+} at a concentration of 1 mM and 10 mM while the cation that can increase the activity of the β -1,3-glucanase are Ca^{2+} and Mg^{2+} at a concentration of 1 mM.

Keywords: *snail enzyme, chitinase, Candida, biofilms, inhibition, activation, fluconazole, kanamycin, metal ions.*