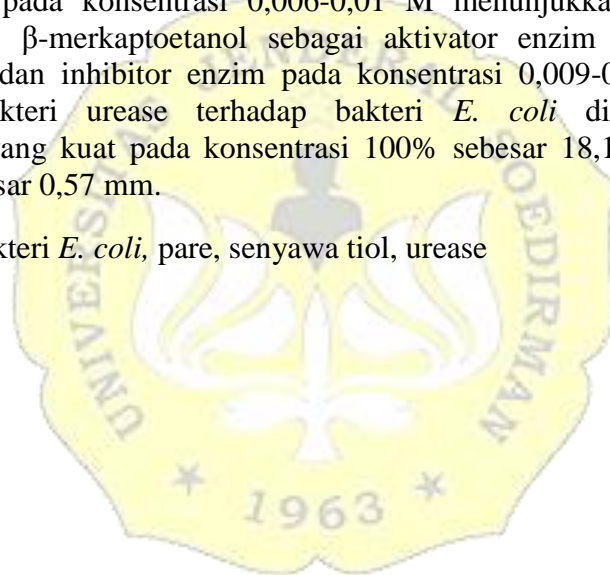


ABSTRAK

Enzim urease merupakan metalloenzim yang mengandung nikel yang berfungsi untuk mengkatalisis hidrolisis urea menjadi amonia dan karbon dioksida. Enzim urease dalam penelitian ini diisolasi dari biji pare (*Momordica charantia* L.). Penelitian ini bertujuan untuk ekstraksi dan karakterisasi enzim urease dari biji pare serta uji antibakteri terhadap bakteri *Escherichia coli*. Enzim urease diekstrak dari biji pare kemudian ditentukan aktivitasnya menggunakan metode Nessler dan diukur menggunakan spektrofotometer UV-Vis pada panjang gelombang 500 nm. Ekstrak kasar enzim selanjutnya diuji aktivitasnya terhadap bakteri *E. coli* menggunakan metode difusi sumuran. Hasil karakterisasi enzim urease dari biji pare diperoleh aktivitas optimumnya sebesar 68,705 U/mL pada konsentrasi 0,25 M; pH 7; suhu inkubasi 35 °C. Laju maksimum (V_{maks}) dan konstanta Michaelis-Menten (K_M) yang diperoleh sebesar 123,457 M/menit dan 0,23 M. Uji aktivitas enzim terhadap penambahan senyawa tiol sistein dan β -merkaptotanol pada konsentrasi 0,006-0,01 M menunjukkan sistein sebagai inhibitor enzim, β -merkaptotanol sebagai aktivator enzim pada konsentrasi 0,006-0,008 M dan inhibitor enzim pada konsentrasi 0,009-0,01 M. Hasil uji aktivitas antibakteri urease terhadap bakteri *E. coli* diperoleh aktivitas penghambatan yang kuat pada konsentrasi 100% sebesar 18,165 mm dan nilai KHTM 1% sebesar 0,57 mm.

Kata kunci : bakteri *E. coli*, pare, senyawa tiol, urease



ABSTRACT

*The urease enzyme is a nickel-containing metalloenzyme that functions to catalyze the hydrolysis of urea into ammonia and carbon dioxide. The urease enzyme in this study was isolated from the seeds of bitter melon (*Momordica charantia* L.). This study aimed to extract and characterize the urease enzyme from bitter melon seeds as well as antibacterial test against *Escherichia coli* bacteria. The urease enzyme was extracted from bitter melon seeds and then its activity was determined using the Nessler method and measured using a UV-Vis spectrophotometer at a wavelength of 500 nm. The crude extract of the enzyme was then tested for its activity against *E. coli* bacteria using the agar well diffusion method. The results of the characterization of the urease enzyme from bitter melon seeds obtained the optimum activity of 68.705 U/mL at a concentration of 0.25 M; pH 7; incubation temperature 35 °C. The maximum rate (V_{max}) and Michaelis-Menten constant (K_M) obtained were 123.457 M/min and 0.23 M. Enzyme activity test on addition of thiol cysteine and β -mercaptoethanol at a concentration of 0.006-0.01 M showed cysteine as an inhibitor. An enzyme, β -mercaptoethanol as an enzyme activator at a concentration of 0.006-0.008 M and an enzyme inhibitor at a concentration of 0.009-0.01 M. The results of the antibacterial activity of urease against *E. coli* bacteria obtained a strong inhibitory activity at a concentration of 100% of 18.165 mm and a value of MIC 1% is 0.57 mm.*

Keywords: *escherichia coli, bitter melon, thiol compounds, urease*

