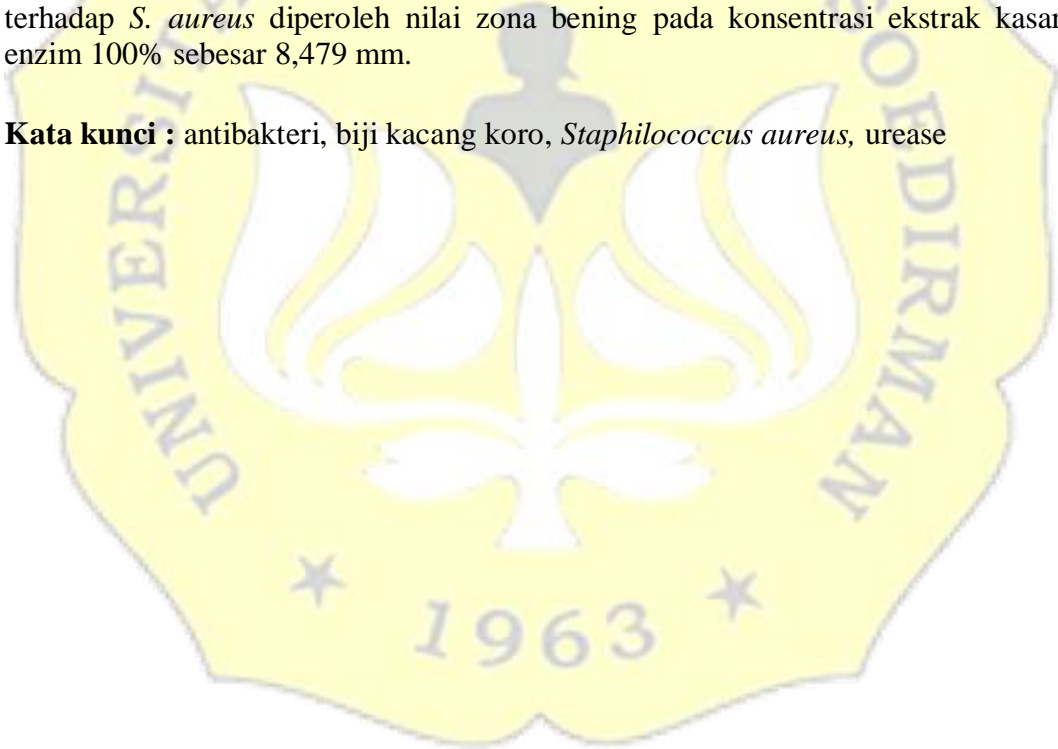


ABSTRAK

Urease merupakan enzim yang berperan sebagai katalis hidrolisis urea menjadi karbondioksida dan amonia. Enzim urease mempunyai banyak manfaat sehingga perlu dilakukan eksplorasi. Penelitian ini bertujuan untuk ekstraksi dan karakterisasi enzim urease dari biji kacang koro dan mengetahui aplikasinya sebagai antibakteri terhadap *Staphylococcus aureus*. Enzim urease diekstrak dari biji kacang koro sehingga diperoleh ekstrak kasar enzim urease. Karakterisasi enzim urease meliputi variasi pH, suhu inkubasi, konsentrasi substrat, dan pengaruh ion logam Ba^{2+} dan Ni^{2+} terhadap aktivitas enzim urease dari biji kacang koro. Aktivitas urease diuji dengan metode Nessler dan diukur menggunakan spektrofotometer UV-Vis pada panjang gelombang 500 nm. Ekstrak kasar enzim kemudian diuji aktivitasnya terhadap *S. aureus* menggunakan metode difusi cakram. Hasil penelitian diperoleh enzim urease dari biji kacang koro optimum pada pH 7; suhu inkubasi 35 °C; konsentrasi substrat 12.000 ppm dengan aktivitas sebesar 8,188 U/mL. Laju maksimum 17,762 ppm/menit dan konstanta Michaelis-Menten yang diperoleh sebesar 15409,059 ppm. Hasil uji aktivitas antibakteri terhadap *S. aureus* diperoleh nilai zona bening pada konsentrasi ekstrak kasar enzim 100% sebesar 8,479 mm.

Kata kunci : antibakteri, biji kacang koro, *Staphylococcus aureus*, urease



ABSTRACT

Urease is an enzyme that acts as a catalyst for the hydrolysis of urea into carbon dioxide and ammonia. The urease enzyme has many benefits so it needs to be explored. This study aims to extract and characterize urease enzyme from C. ensiformis seeds and determine its application as an antibacterial against Staphylococcus aureus. The urease enzyme was extracted from C. ensiformis seeds to obtain crude extract of urease enzyme. The characterization of urease enzyme includes pH variation, incubation temperature, substrate concentration, and the effect of Ba^{2+} and Ni^{2+} metal ion on the activity of urease enzyme from C. ensiformis seeds. The urease activity was tested using the Nessler method and measured using a UV-Vis spectrophotometer at a wavelength of 500 nm. The enzyme crude extract was then tested for its activity against S. aureus using the disc diffusion method. The results showed that urease enzyme from C. ensiformis seeds was optimum at pH 7; incubation temperature 35 °C; substrate concentration 12,000 ppm with activity of 8.188 U/mL. The maximum rate was 17.762 ppm/minute and the Michaelis-Menten constant obtained was 15409.059 ppm. The results of antibacterial activity test against S. aureus obtained at 100% enzyme crude extract concentration of 8.479 mm.

Keywords: antibacterial, C. ensiformis seeds, Staphylococcus aureus, Urease

