Extraction and Characterization of Urease from Durio zibethinus L

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Abstract	Urease is a biocatalyst that serves to hydrolyze urea into ammonia and carbon dioxide. Since it is an imported product, the price of urea is still high. Urease can be found in grains. One of the grains that has not been explored for its urease content is durian (Durio zibethinus L.) seeds. This study aims to determine the effect of germination time on the activity of urease from durian seeds and its characteristics including the effect of pH, incubation temperature, enzymatic reaction time, addition of EDTA and metals, and storage time on the activity of urease from durian seeds. The first step of this study was seed germination which was carried out in the dark for 0, 3, 5, 7, and 9 days. Durian seed sprouts were extracted by mashing them using a mortar and pestle. They were then homogenized using a stirrer and centrifuged in a cold state. The crude urease extract obtained was then tested for its activity using the Nessler method. The acquired data was tested statistically using ANOVA. The results showed that the activity of urease from durian seeds was optimum at 3-day germination time, pH 7, incubation temperature at 30 Ã‚Â°C, and 15-minute enzymatic reaction time with an activity of 163.6 U/mL. Urease is a metalloenzyme with its inhibitor being the Cu2+ and Na+ metal ions and its activator being Ba2+ metal ion. Tukey's test analysis showed that the effect of urease storage time at 4 Ã‚Â°C resulted in a stable urease activity for 8 days while at room temperature it decreased its activity significantly to 72.8%.
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