

Determination of Cu and Pb concentrations based on urease activity inhibition of Durio zibethinus L. seeds

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Abstract	<p>The determination of heavy metal concentrations has been carried out using sophisticated instruments, and therefore a simple and reliable alternative method is needed as a comparison. The study aimed to determine Cu and Pb concentration of standard solution using the urease activity inhibition method of <i>Durio zibethinus</i> L. seeds. The research started with urease extraction from <i>Durio zibethinus</i> L. seeds. The activity of the obtained extract was determined using the Nessler method. The optimum substrate concentration was also determined. Urease activity inhibition was carried out using various metal solution concentrations, which continued by plotting a log graph of urea concentration vs. %inhibition. The obtained graph would then determine the metal concentration in a synthetic water sample. The data was then compared to the measurement, determined by the Atomic Absorption Spectrophotometry (AAS) method. Results of the study showed that the urease activity of <i>D. zibethinus</i> L. seeds was 296.774 U/mL. Urease activity was optimum at a urea concentration of 0.3 M. The comparison Cu, and Pb concentration determination using the urease inhibitory activity and AAS methods showed no significant difference at 95% confidence level. This research showed that urease of <i>D. zibethinus</i> L. seed could be used to determine Cu and Pb's concentration based on its inhibiting activity.</p>
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