

Green Chemistry Glucose Biosensor Development using *Etlingera elatior* Extract

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Abstract	Glucose biosensor development is one of the important strategies for early detection of diabetes mellitus disease. This study was aimed to explore the flower extract of <i>Etlingera elatior</i> for a green-analysis method of glucose biosensor. Flowers were extracted using ethanol: HCl and tested its performances as an indicator of glucose biosensor using glucose oxidase enzyme. The glucose oxidase react with glucose resulted hydrogen peroxide that would change the color of the flower extract. Furthermore, the extract was also studied including their stability to pH, oxidizing and reducing, temperature, and storage. The results showed that the <i>Etlingera elatior</i> extract had high correlation between color change and glucose concentration with regression equation of $y = -0.0005x + 0.4724$ and R-2 of 0.9965. The studied biosensor showed a wide linear range to detect glucose sample of 0 to 500 mM. The extract characterization showed a more stable in low pH (acid), reducing agent addition, heating treatment and storage.
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