

## Natural reagent from Secang (*Caesalpinia sappan* L.) heartwood for urea biosensor

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<b>First Author</b>	Fatoni, Amin; Anggraeni, Mekar Dwi; Zufahair; Zulhidayah, Lely Zikri;
<b>Last Author</b>	
<b>Authors</b>	Fatoni, A; Anggraeni, MD; Zufahair; Zulhidayah, LZ;
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<b>Abstract</b>	<p>A simple and environmental friendly method have been developed for urea biosensor development. Secang ( <i>Caesalpinia sappan</i> L.) heartwood has been extracted using pure water and ethanol-HCl. The extracts were then characterized their properties and stability for further application. The urea biosensor detection was based on the reaction of urea with urease resulted in ammonium ion which could change the colour of <i>Caesalpinia sappan</i> L extract. The colour changes with the urea concentration were determined using spectrophotometer UV-Vis. The results the water and ethanol-HCl extract of <i>Caesalpinia sappan</i> L extract were stable at pH 6 and the addition of reducing agent. The ethanol-HCl was more stable on the heat treatment ( 40 degrees C, and 60 degrees C) compare to water extract. Furthermore, the correlation between colour change and urea concentration using extracts showed the ethanol-HCl extract has higher sensitivity ( <math>y = 106,01x - 0,264</math> with value <math>R^2 = 0,962</math>) than that of water extract ( <math>y = 96,957x + 0,482</math> with value <math>R^2 = 0,955</math>).</p>
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<b>Author</b>	ZUSFAHAIR, S.Si, M.Si