

<b>Title (3)</b>	:	<b>Influence of Deep Eutectic Solvent (DES) on Cleavage Specificity of Lignin-Derived Oil Palm Biomass [Pengaruh Pelarut Eutektik Dalam Terhadap Kespesifikan Lignin Terbitan Biojisim Kelapa Sawit]</b>
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<b>Abstract</b>	:	<p>Carbon fibre is widely used in industry, but its high cost limits its use. Interestingly, lignin has the potential to serve as a carbon fibre precursor with properties similar to those of polyacrylonitrile (PAN) and pitch-based precursors. Oil palm frond (OPF), lignocellulosic biomass composed of cellulose, hemicellulose and lignin, is an attractive source of biomass for lignin extraction. This study proposes lignin extraction from OPF using a deep eutectic solvent (DES). DESs are eutectic mixtures of hydrogen bond acceptors (HBAs) and donors (HBDs) with much lower melting points than their constituents. This study used choline chloride (ChCl) and glycerol as HBA and HBD because they are easy to prepare, have low toxicity and are biodegradable and ecologically benign. Lignin extraction from OPF was conducted in a batch reactor at different reaction temperatures (130 °C–170 °C) and reaction times (3–6 h) using a 1:3 molar ratio of ChCl:Glycerol. The results show that DES can extract lignin with low particulate matter content (4.53%) at a higher reaction temperature (170 °C) and longer reaction time (6 h). However, extracted lignin with low ash and volatile matter contents was obtained at a lower reaction temperature (130 °C) and shorter reaction time (3 h). The carbon content of the extracted lignin was significantly influenced by the reaction temperature and reaction time, with a lower reaction temperature and moderate reaction time capable of producing lignin with a carbon content of &gt;50%.</p>