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Abstract	:	The interest in converting biomass into value-added products has increased dramatically. Oil palm industries generate approximately 75% of solid waste from palm trunks and fronds accessible on plantations. The remaining 25% are available at mills as empty fruit bunches, mesocarp fibres, and palm kernel shells. In plantations, a significant amount of biomass is typically discarded. As a result, this scenario demonstrates the substantial underutilisation of lignocellulosic feedstock. Lignocellulosic biomass is frequently used to produce biofuels, biochemicals, and other high-value products because of its low cost, abundance, and renewability. Despite the widespread usage of carbon fibre in industry, its applicability is restricted due to the expensive cost of the material. Interestingly, lignin has the potential to be utilised as a carbon fibre precursor with properties similar to those of polyacrylonitrile and pitch-based precursors. Deep eutectic solvents (DESs) are eutectic combinations of hydrogen bond acceptors (HBA) and hydrogen bond donors (HBD) with much lower melting points than those of their components. DESs are versatile green solvents that can be chemically tailored to meet the requirements of various applications. The β–O–4 bond is the primary linkage in the chemical structure of lignin and is frequently targeted during lignin breakdown and pretreatment. DESs have an outstanding ability to break the β–O–4 bonds and extract lignin with high purity. Therefore, this review aims to determine the feasibility of using DESs as carbon fibre precursors to extract lignin from oil palm biomass.