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## A grand avenue to integrate deep eutectic solvents into biomass processing (Review)

Elgharbawy, A.A.M.<sup>a</sup> ✉, Hayyan, M.<sup>b,c</sup> ✉, Hayyan, A.<sup>b,d</sup> ✉, Basirun, W.J.<sup>e</sup>, Salleh, H.M.<sup>a</sup>, Mirghani, M.E.S.<sup>a</sup>

<sup>a</sup>International Institute for Halal Research and Training (INHART), International Islamic University Malaysia, PO Box 10, Kuala Lumpur, 50728, Malaysia

<sup>b</sup>University of Malaya Centre for Ionic Liquids (UMCIL), University of Malaya, Kuala Lumpur, 50603, Malaysia

<sup>c</sup>Chemical Engineering Program, Faculty of Engineering and Technology, Muscat University, P.O. Box 550, Muscat, P.C. 130, Oman

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### Abstract

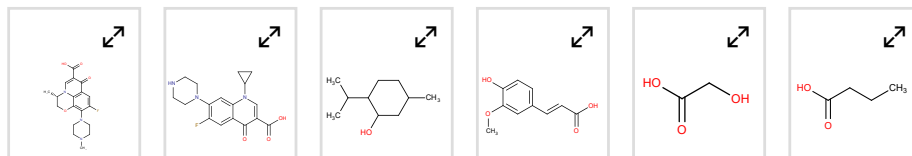
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Deep eutectic solvents (DESs) are green solvents that are developing rapidly, used in many types of applications as well as fundamental investigations. The physicochemical properties of DESs are one of the most important factors which led to their increased interest in science and technology. DESs are thermally and chemically stable, non-flammable and have a negligible vapor pressure. Furthermore, most of the newly formulated DESs are liquids at room temperature. DESs are more economical and less expensive compared to ionic liquids. DESs are frequently prepared from renewable and non-toxic precursors, in addition, there are wide selections of biocompatible and biodegradable DESs. Hence, DESs have been used in many applications and processes such as biorefinery, lignocellulose dissolution, bioactive compound extraction and electrochemical applications. In this review, an update of the application of DESs in biomass processing as renewable sources is presented. This review aims to cover as much as possible the ongoing research and applications of DES and invite opinions to broaden the applications of DESs, rather than concentrating on the physicochemical fundamentals of new DESs. The future of these solvents is bright but require further investigations and efforts for a better understanding and future for sustainable resources. © 2020 Elsevier Ltd

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