

Application of Deep Eutectic Solvent in the Extraction of Ferulic Acid from Palm Pressed Fibre

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Abstract : Extraction of ferulic acid from palm pressed fiber using deep eutectic solvent (DES) of choline chloride-acetic acid (ChCl-AA) and choline chloride-citric acid (ChCl-CA) are reported. Influence of water content in DES on the extraction efficiency was investigated. ChCl-AA and ChCl-CA experienced a drop in viscosity from 9.678 to 1.429 and 22.658 ± 1.655 mm²/s, respectively as the water content in the DES increased from 0 to 50 wt% which contributed to higher extraction efficiency for the ferulic acid. Between $41,155 \pm 940$ mg/kg ferulic acid was obtained after 6 h reflux when ChCl-AA with 30 wt% water was used for the extraction compared to $30,940 \pm 621$ mg/kg when neat ChCl-AA was used. Although viscosity of the DES could be improved with the addition of water, there is a threshold where the DES could tolerate the presence of water without changing its solvent behavior. The optimum condition for extraction of ferulic acid from palm pressed fiber was heating for 6 h with DES containing 30 wt% water.

Keywords : deep eutectic solvent, extraction, ferulic acid, palm fibre

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