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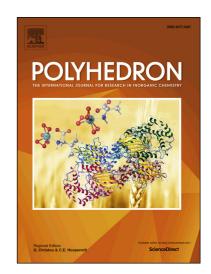
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Syntheses, crystal structures and knoevenagel condensation reactions of three coordination polymers assembled with Lewis basic ligand

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ABSTRACT

Three functional coordination polymers (CPs), [(CH₃)₂NH₂]₂[Cd₃L₂(H₂O)₂]·6H₂O (1), $[Ba_4L_2(H_2O)_8] \cdot H_2O$ **(2)** $[Zn(H_2L)(H_2O)_2] \cdot H_2O$ **(3)** $(H_4L$ 3,5-bis(3',5'-dicarboxylphenyl)-1H-1,2,4-triazole), were synthesized under solvothermal conditions. Structures of 1-3 were confirmed by crystallography and further physically characterized by elemental analysis, IR and TG 1-3 exhibit fascinating multi-dimensional framework structures. Knoevenagel condensation reactions were systematically investigated by using 1-3 as heterogeneous catalysts under solvent-free conditions. Among them, 1 as a recyclable catalyst shows highly efficient catalytic performance in respect to 2 and 3, which may be attributed to the open Lewis base sites and Lewis acid Cd(II) sites in the open channel of 1.

Keywords: Coordination polymers · Knoevenagel condensation · Heterogeneous catalyst · Crystal structure

1

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