Title:	A Microporous Metal–Organic Framework Catalyst for Solvent-free Strecker Reaction and CO2 Fixation at Ambient Conditions
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Abstract:	The self-assembly of zinc(II) acetate tetrahydrate, a flexible tetrapyridyl ligand, tetrakis(3-pyridyloxymethylene)methane (3-tpom), a bent dicarboxylic acid, and 4,4′-(dimethylsilanediyl)bis-benzoic acid (H2L) under solvothermal conditions has resulted in the formation of a microporous zinc(II)–organic framework, {[Zn2(3-tpom)(L)2]·2H2O}n (1). The framework exhibits very good thermal stability as evident from the thermogravimetric analysis, which is further supported by variable temperature powder X-ray diffraction analysis. The microporous nature of the framework has been established by the gas adsorption analysis. The framework exhibits exceptionally selective carbon dioxide adsorption in contrast with other gases having comparatively larger kinetic diameters (3.64 Å for N2 and 3.8 Å for CH4) under ambient conditions (298 K and 1 bar pressure). Further, the framework decorated with catalytically active unsaturated metal sites acts as a good catalyst toward the cycloaddition reaction of CO2 with epoxides and the three-component Strecker reaction at ambient conditions and without the requirement of any solvent. The heterogeneous nature along with good catalytic activity at ambient and solvent-free conditions entitles 1 as an excellent catalyst for these organic transformations.
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