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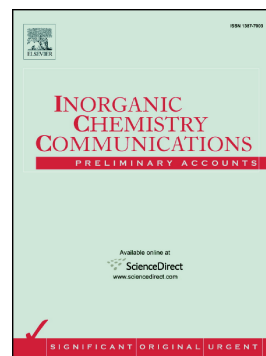
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Stable Pyrazolate-Based Metal-Organic Frameworks for Drug Delivery

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Abstract.

To explore materials stable in alkaline solution, a linear ligands 1,4-benzenedi(4'-pyrazolyl), in which the pyrazolate group was considered as a soft Lewis base, was used to reacted with two relative soft Lewis acid Ni(II) and Zn(II) metal ions, to constructed stable MOFs structure. Since the metal pyrazolate clusters resemble with metal carboxylate clusters performing the same connection mode during self-assembly, the obtained materials PFC-6 and PFC-7 exhibit same topologies with classic carboxylate-based MOFs UiO-66 and MIL-53, respectively. Due to the strong coordination bond between soft Lewis base and soft Lewis acid, PFC-6 and PFC-7 exhibit high porosity and excellent stability from pH=2 to pH=13. Inspired by these features, PFC-6 was used as a drug carrier and the DCF drug uptake/release behavior were investigated. This work presented here demonstrates that the pyrazolate-based ligands are capable of constructing MOFs structure possessing same topologies with carboxylate ligands but high stability in alkaline solution.

Keywords: Metal-Organic Frameworks, Drug delivery, Structural stability, Porosity

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