Title:	Use of Ferrocene Derivatives as Linkers in Forming Metal Organic Frameworks (MOFs): Synthesis, Structural Characterization and Properties
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Abstract:	Based on ferrocene derivatives as linkers, new metal organic frameworks (MOFs) with a general formula [M4(tpxn)2(FcDC)2(H2O)4]4+ (FcDC = 1,1′-ferrocenedicarboxylate; tpxn = tppn, tpbn, tppen where tppn = N,N′,N″,N‴-tetrakis-(2-pyridylmethyl)-1,3-diaminopropane, tpbn = N,N′,N″,N‴-tetrakis-(2-pyridylmethyl)-1,4-diaminobutane, tppen = N,N′,N″,N‴- tetrakis-(2-pyridylmethyl)-1,5 diaminopentane, M2+ = Cu2+ (1, 2, 3), Cd2+ (4), Co2+ (6) and Mn2+ (7)) are reported. These are heterometallic MOFs. When Fe3+is chosen as the metal ion a homometallic MOF, {[Fe2(μ-O)(tpbn)(FcDC)](ClO4)2·4H2O}n (5), is the product. Use of 1,1′-ferrocene disulphonate (FcDS) as the linker provides [Cu2(tpbn)(FcDS)2]n.4CH3CN.2H2O (8a) and {[Fe2(μ-O)(tpbn)(FcDS)](ClO4)2·4H2O}n (9). All complexes were characterised by elemental analysis, FTIR spectroscopy, UV-visible spectroscopy, mass spectometry, thermal gravimetric analysis, differential scanning calorimetry, single crystal and powder X-ray diffractometry. 1, 2, 3, 4, 6 and 7 are found to be discrete rectangular MOFs, 9 is a 1D coordination polymer, 5 is a 2D coordination polymer while 8a is a 2D MOF
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