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Topology, magnetism and dye adsorption properties of metal organic frameworks (MOFs) synthesized from bench chemicals

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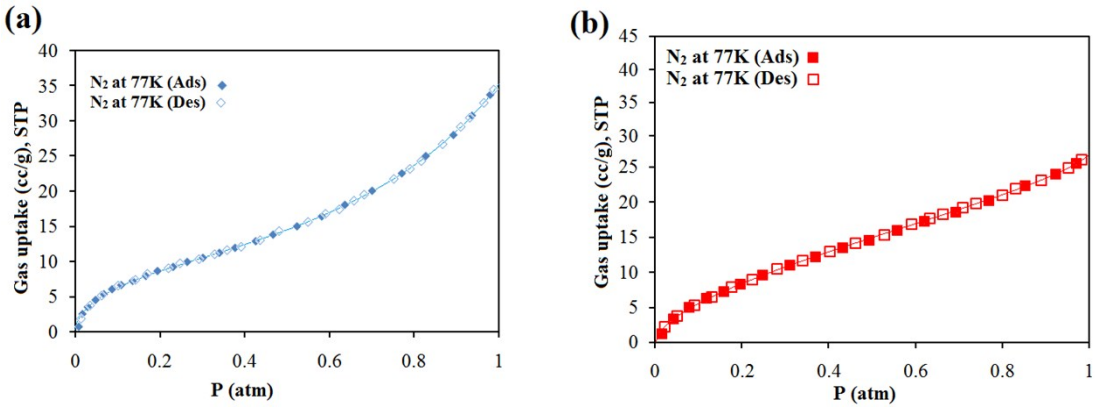

Fig. 1S. N_2 adsorption/desorption isotherms for CuMOF-1 (a) and CoMOF-2 (b) showing no noticeable porosity.

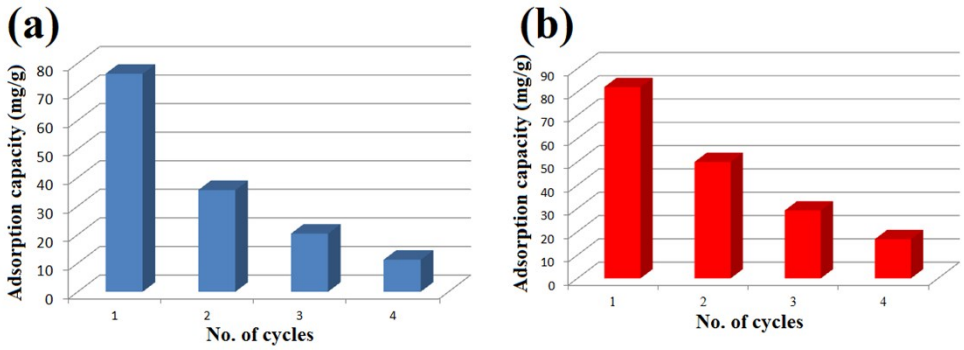

Fig 2S. Desorption plot of MB from CuMOF-1 (a) and CoMOF-2 (b) for four cycles.

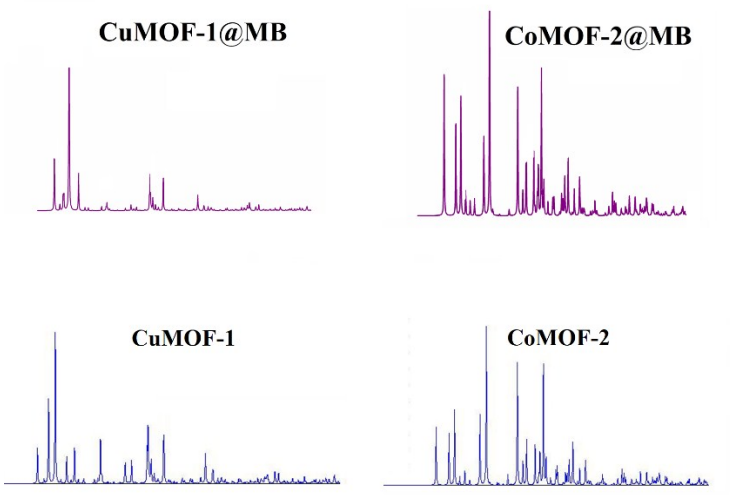

Fig 3S. PXRD patterns of CuMOF-1 and CoMOF-2 before and after the adsorption of MB.

Table 1S: Selected bond lengths for CuMOF-1 and CoMOF-2.

CuMOF-1		**CoMOF-2**	
Cu1- O2	2.1327(18)	Co1- O1	2.0355(11)
Cu1 -O3	2.1711(17)	Co1- O1	2.0355(11)
Cu1 -O5	2.0007(18)	Co1- O2	2.1763(11)
Cu1 -O6	2.1375(17)	Co1- O2	2.1763(11)
Cu1 -N1	2.159(2)	Co1- N1	2.1180(13)
Cu1 -N2	2.1579(19)	Co1- N1	2.1180(13)
Cu2 -O1	2.0370(17)	Cl1- O2	1.4609(11)
Cu2 -O4	2.0752(17)	Cl1- O3	1.4408(13)
Cu2 -O5	1.9250(18)	Cl1- O4	1.4314(13)
Cu2 -N3	2.1829(19)	Cl1- O5	1.4317(12)
Cu2 -N4	2.1999(19)	O1- H1a	0.837(14)
O1- C21	1.261(3)	O1- H1b	0.815(14)
O2 -C2	1.247(3)	N1- C1	1.341(2)
O3 -C23	1.253(3)	N1- C5	1.347(2)
O4 -C23	1.280(3)	C1- H1	0.9500
O5 -H5	0.82(4)	C1- C2	1.382(2)
O6 -H6a	0.866(16)	C2- H2	0.9500
O6 -H6b	0.868(16)	C2- C3	1.394(2)
N1 -C1	1.337(3)	C3- C3	1.487(3)

Table 2S: Selected bond angles for CuMOF-1 and CoMOF-2.

CuMOF-1		**CoMOF-2**	
O3- Cu1-O2	89.66(14)	O1 -Co1 -O1	180.02
O5- Cu1- O2	97.15(8)	O2 -Co1- O1	82.64(4)
O5- Cu1-O3	173.15(15)	O2- Co1- O1	97.36(4)
O6 -Cu1- O2	174.60(7)	O2 -Co1- O1	82.64(4)
O6 -Cu1- O3	85.03(7)	O2- Co1 -O1	97.36(4)
O6- Cu1- O5	88.15(7)	O2- Co1 -O2	180.0
N1 -Cu1- O2	88.15(7)	N1- Co1- O1	90.39(5)
N1- Cu1- O3	88.44(7)	N1 -Co1 -O1	89.61(5)
N1- Cu1- O5	92.24(7)	N1 -Co1- O1	89.61(5)
N1- Cu1- O6	90.49(7)	N1- Co1 -O1	90.39(5)
N2- Cu1- O2	91.44(7)	N1 -Co1 -O2	90.01(5)
N2- Cu1- O3	86.79(7)	N1 -Co1- O2	89.99(5)
N2- Cu1- O5	92.52(7)	N1 -Co1- O2	90.01(5)
N2- Cu1- O6	89.25(7)	N1 -Co1 -O2	89.99(5)
N2- Cu1- N1	175.23(8)	N1- Co1 -N1	180.02
O4- Cu2- O1	149.19(7)		
O5- Cu2- O1	107.42(7)		
O5- Cu2- O4	103.38(7)		
N3- Cu2- O1	87.93(7)		
N3 -Cu2 -O4	87.78(7)		
N3- Cu2- O5	99.78(7)		
N4- Cu2- O1	87.10(7)		
N4- Cu2- O4	88.22(7)		
N4- Cu2- O5	97.17(7)		
N4- Cu2- N3	163.05(8)		

Table 3S: Summary of maximum adsorption capacity (q_{max}) of various MOFs towards MB and/or MO.

MOF	**Adsorption capacity q_{max} (mg g^{-1})**		**References**
	MB	**MO**	
MOF-235	187	477	a
Fe-MIL-101	124.07	505.05	b
Cu-BDC	-	86.71	c
$[Cd_2(L)(DMF)_3].0.5DMF\}_n$	68.5	-	d
Ce(III)-doped UiO-66	145.1	-	e
Fe_3O_4@ZIF-8	20.2	-	f
HKUST-1	15.3	-	g
UiO-66-P composite	91.1	-	h
CuMOF-1	110	46.80	This work
CoMOF-2	158	25.50	This work

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