Electronic Supplementary Information

Four MOFs with 2,2'-Dimethoxy-4,4'-biphenyldicarboxylic Acid: Syntheses, Structures, Topologies, and Properties

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Table S1 Selected bond lengths (Å) and angles (°) for **1-4**

		1	
Mn1-O1^{i}	2.123(3)	Mn1-O4	2.252(4)
Mn1-O2	2.133(3)	Mn1-O4^{iv}	2.258(4)
O1^{i}-Mn1-O1^{ii}	95.98(12)	O2-Mn1-O2^{iii}	92.16(19)
O1^{i}-Mn1-O2	178.05(15)	O2-Mn1-O4^{iv}	93.01(12)
O1^{i}-Mn1-O2^{iii}	85.92(11)	O4-Mn1-O4^{iv}	175.79(14)
O1^{i}-Mn1-O4^{iv}	87.46(11)	Mn1-O4-Mn1^{i}	112.57(13)
		2	
Ni1-O4^{i}	2.044(2)	Ni2-O1	2.002(2)
Ni1-O7	2.092(2)	Ni2-O2W	2.088(2)
Ni1-O1W	2.110(2)	Ni2-O1W	2.109(2)

O4^{i}-Ni1-O7^{iii}	90.48(16)	O1-Ni2-O1W	89.14(16)
O4^{i}-Ni1-O1W	87.93(16)	O1-Ni2-O2W	91.83(17)
O4^{ii}-Ni1-O1W	92.07(16)	O1-Ni2-O2W^{iv}	88.16(17)
O7-Ni1-O1W	91.03(16)	O2W-Ni2-O1W^{iv}	91.00(17)

3

Cu1-O1	1.959(2)	Cu1-O1W	2.120(4)
Cu1-O2^{iii}	1.966(2)	Cu1⋯Cu1^{iii}	2.5910(11)
O1-Cu1-O1^{i}	89.33(17)	O1-Cu1-O1W	95.63(14)
O1-Cu1-O2^{ii}	89.80(12)	O2^{ii}-Cu1-O2^{iii}	88.95(15)
O1-Cu1-O2^{iii}	168.98(11)	O2^{ii}-Cu1-O1W	95.39(14)

4

Cd1-O1	2.370(4)	Cd2-O4^{ii}	2.302(4)
Cd1-O2	2.404(4)	Cd2-O8	2.302(4)
Cd1-O3^{ii}	2.361(4)	Cd2-O10^{i}	2.211(3)
Cd1-O4^{ii}	2.537(4)	Cd3-O13	2.302(6)
Cd1-O7	2.382(4)	Cd3-O14	2.501(7)
Cd1-O8	2.431(4)	Na1-O1	2.301(5)
Cd1-O9^{i}	2.181(4)	Na1-O7	2.369(5)
Cd1⋯Cd2	3.601(4)	Cd1⋯Na1	3.6602(5)
O1-Cd1-O2	55.00(15)	O4^{ii}-Cd2-O4^{iv}	95.88(19)
O1-Cd1-O3^{ii}	110.60(15)	O4^{ii}-Cd2-O8	81.38(13)
O1-Cd1-O4^{ii}	163.09(14)	O4^{ii}-Cd2-O8^{v}	175.06(14)
O1-Cd1-O7	77.20(16)	O4^{ii}-Cd2-O10^{i}	85.24(14)
O1-Cd1-O8	118.71(14)	O4^{ii}-Cd2-O10^{iii}	92.62(14)
O1-Cd1-O9^{i}	103.96(15)	O8-Cd2-O8^{v}	101.6(2)
O2-Cd1-O3^{ii}	86.80(16)	O8-Cd2-O10^{i}	91.25(14)
O2-Cd1-O4^{ii}	114.71(13)	O10^{i}-Cd2-O10^{iii}	176.8(2)
O2-Cd1-O7	128.91(16)	O13-Cd3-O13^{vi}	121.3(3)
O2-Cd1-O8	166.16(14)	O13-Cd3-O13^{vii}	103.88(14)

O2-Cd1-O9^{i}	85.03(15)	O13-Cd3-O14	52.3(2)
O3^{ii}-Cd1-O4^{ii}	53.05(13)	O13-Cd3-O14^{vi}	83.0(2)
O3^{ii}-Cd1-O7	95.04(18)	O13-Cd3-O14^{vi}	152.9(2)
O3^{ii}-Cd1-O8	106.99(15)	O13-Cd3-O14^{viii}	81.1(2)
O3^{ii}-Cd1-O9^{i}	130.49(17)	O14-Cd3-O14^{vi}	82.9(4)
O4^{ii}-Cd1-O7	106.38(15)	O14-Cd3-O14^{vii}	124.2(2)
O4^{ii}-Cd1-O8	74.30(12)	O1-Na1-O1^{ix}	106.9(3)
O7-Cd1-O8	52.68(15)	O1-Na1-O7	78.81(14)
O7-Cd1-O9^{i}	127.04(19)	O1-Na1-O7^{ix}	155.13(17)
O8-Cd1-O9^{i}	84.97(15)	O7-Na1-O7^{ix}	106.5(3)

Symmetry codes: for **1**: i) 1.5-*x*, 2.5-*y*, 0.5+*z*; ii) *x*, 2.5-*y*, 0.5+*z*; iii) 1.5-*x*, *y*, *z*; iv) 1.5-*x*, 2.5-*y*, *z*-0.5. for **2**: i) *x*, *y*-1, *z*-1; ii) 1-*x*, 2-*y*, 3-*z*; iii) 1-*x*, 1-*y*, 2-*z*; iv) -*x*, 1-*y*, 2-*z*. for **3**: i) *x*-0.5, 0.5+*y*, *z*; ii) 0.5-*x*, 0.5-*y*, -*z*; iii) 1-*x*, -*y*, -*z*. for **4**: i) -*x*, -0.5-*y*, *z*-0.25; ii) -0.5-*x*, -1-*y*, 0.25+*z*; iii) *x*-0.5, -0.5-*y*, -1.5-*z*; iv) *x*, -1-*y*, -2-*z*; v) *x*, -0.5-*y*, -1.75-*z*; vi) -*x*, -*y*, *z*; vii) -*x*, *y*, -1-*z*; viii) *x*, -*y*, -1-*z*; ix) -*x*, -1-*y*, *z*.

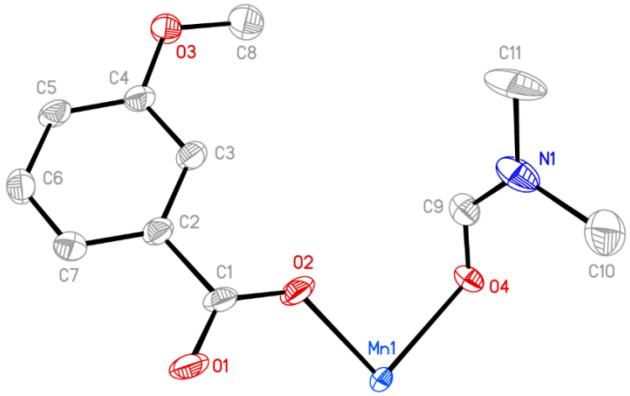

Fig. S1 The asymmetric unit of **1** (Hydrogen atoms are omitted for clarity).

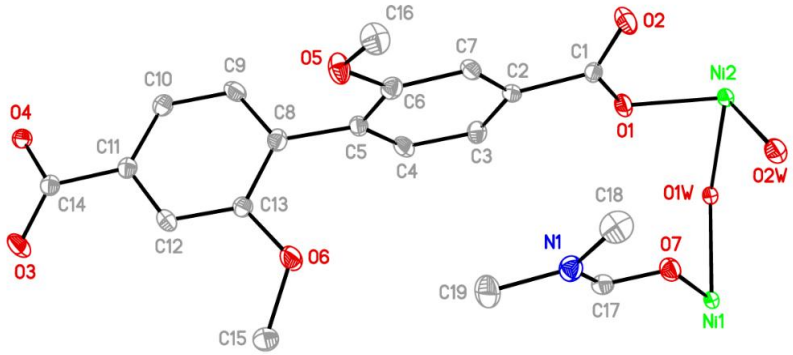

Fig. S2 The asymmetric unit of **2** (Hydrogen atoms are omitted for clarity).

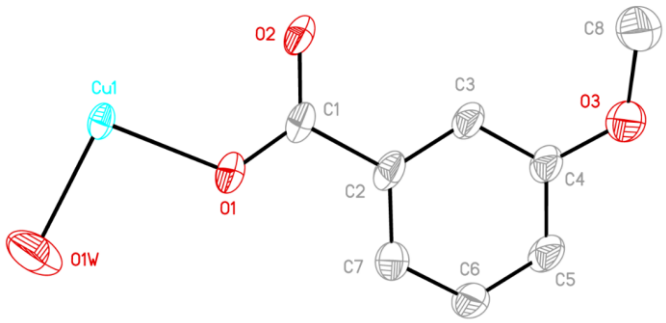

Fig. S3 The asymmetric unit of **3** (Hydrogen atoms are omitted for clarity).

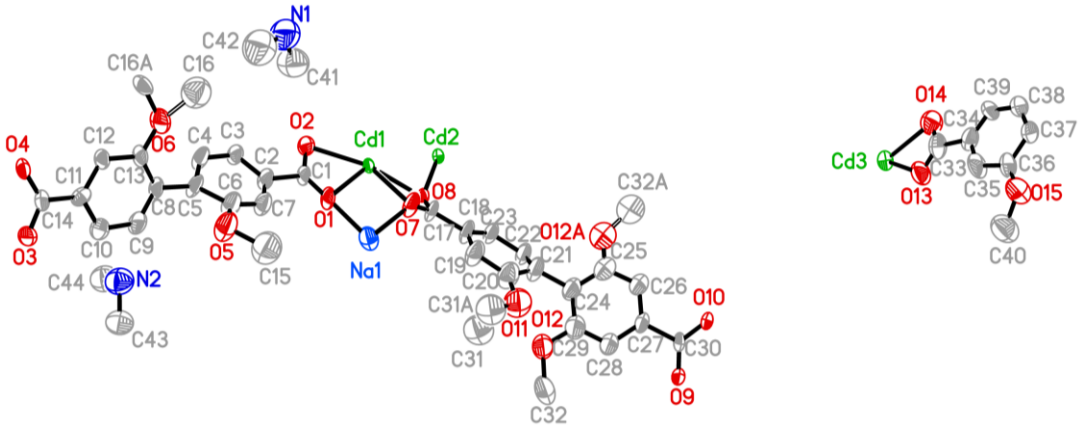

Fig. S4 The asymmetric unit of **4** (Hydrogen atoms are omitted for clarity).

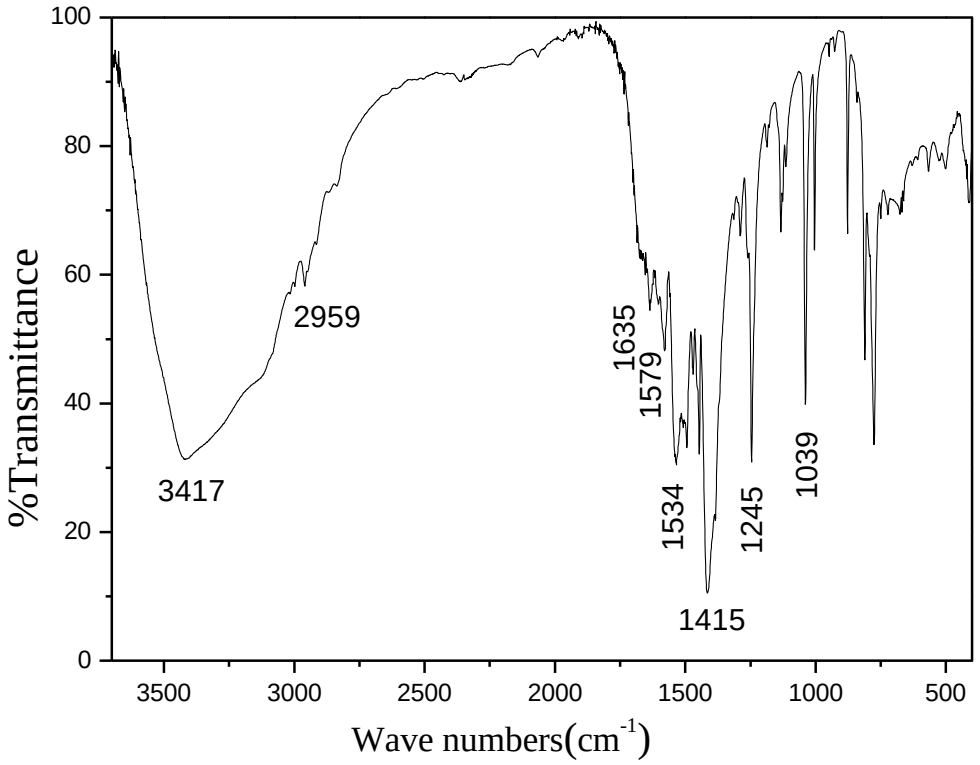

Fig. S5 The IR spectra of **1**.

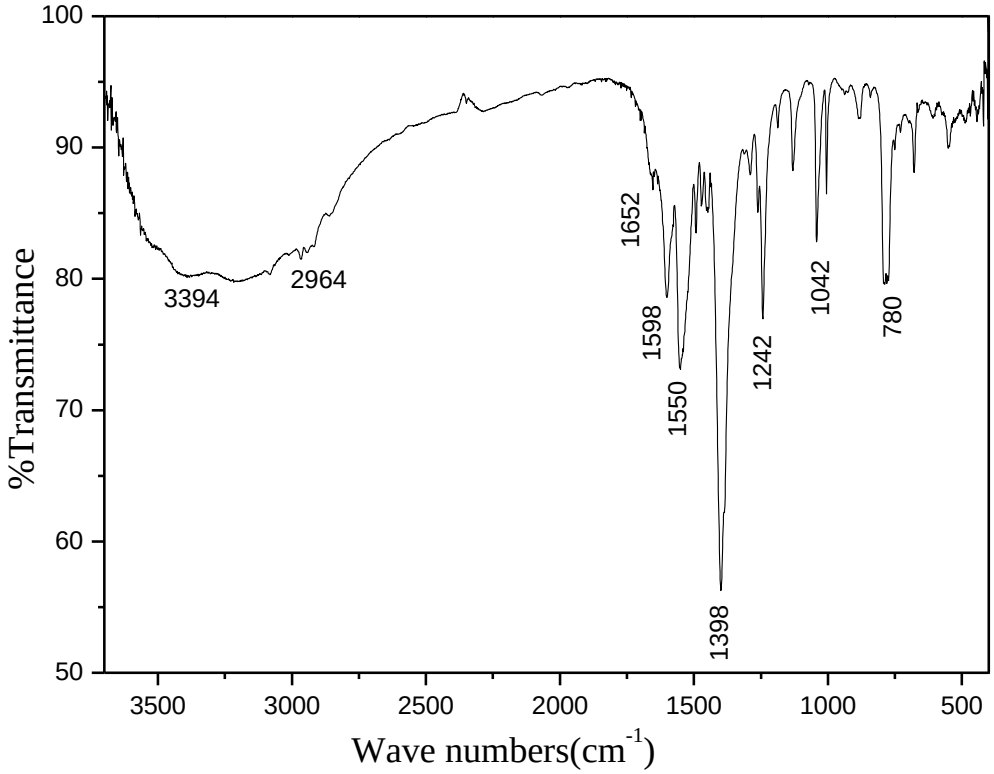

Fig. S6 The IR spectra of **2**.

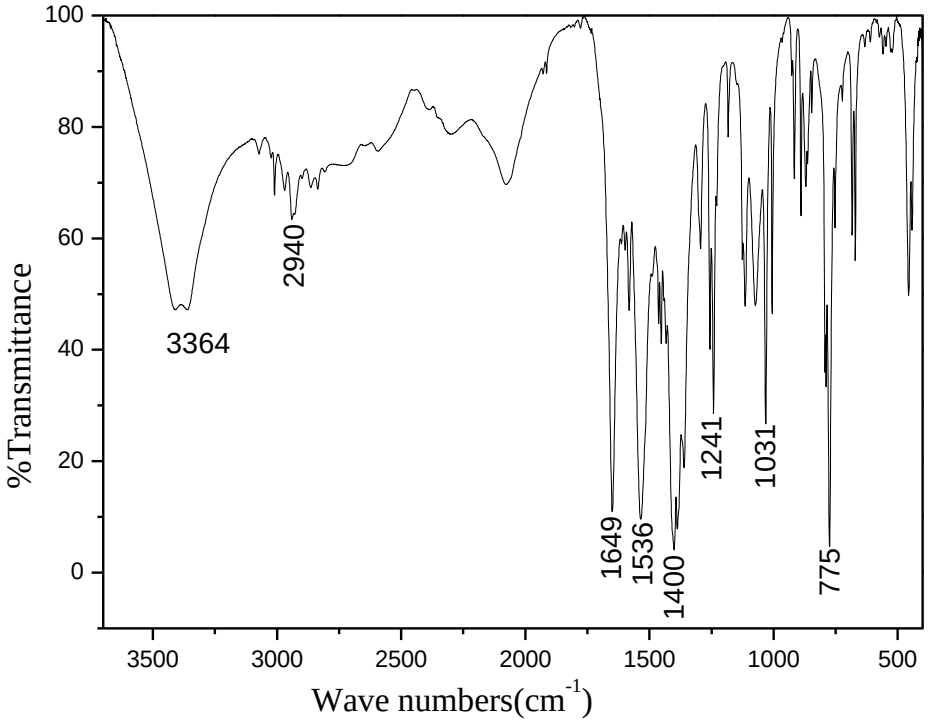

Fig. S7 The IR spectra of **3**.

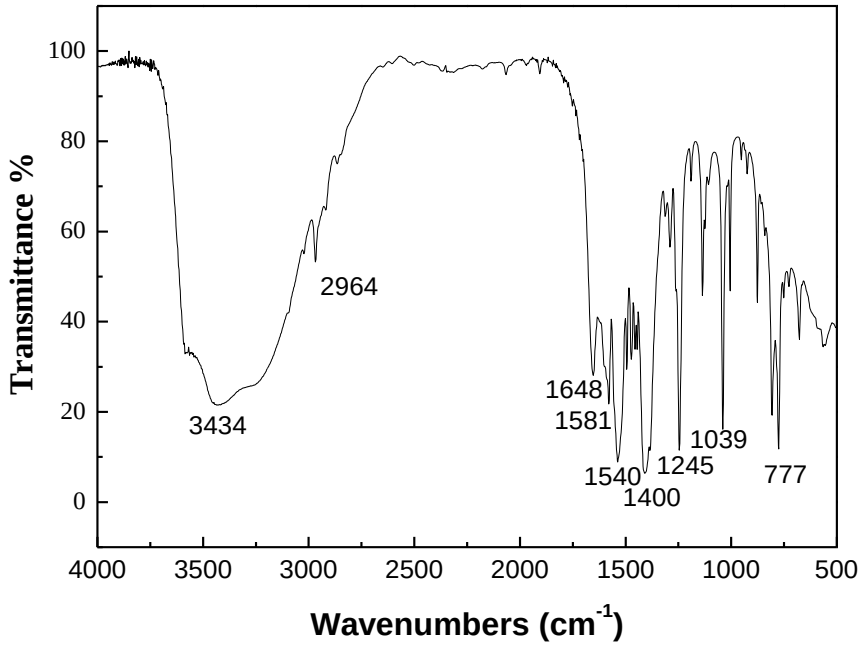

Fig. S8 The IR spectra of **4**.

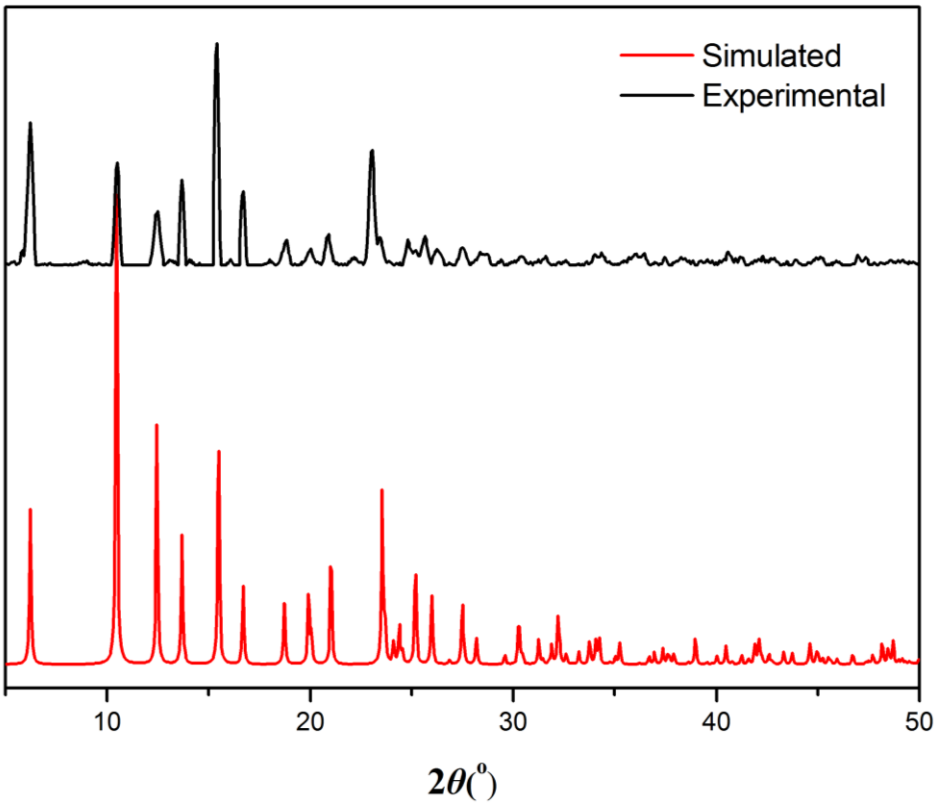

Fig. S9 The P-XRD patterns of **1**.

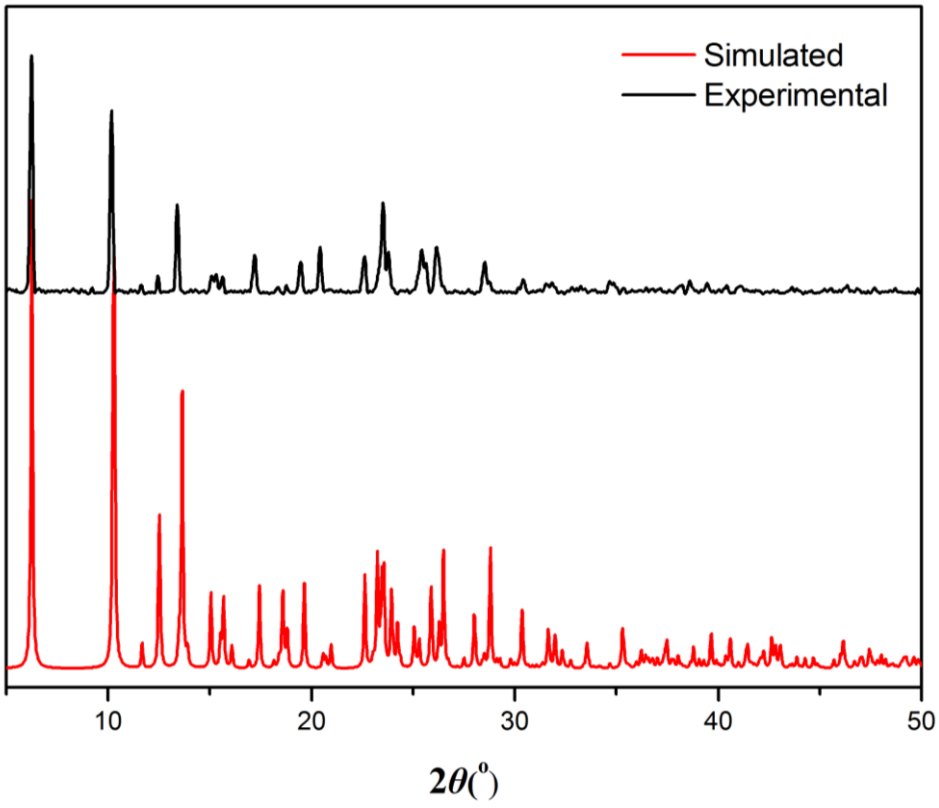

Fig. S10 The P-XRD patterns of **2**.

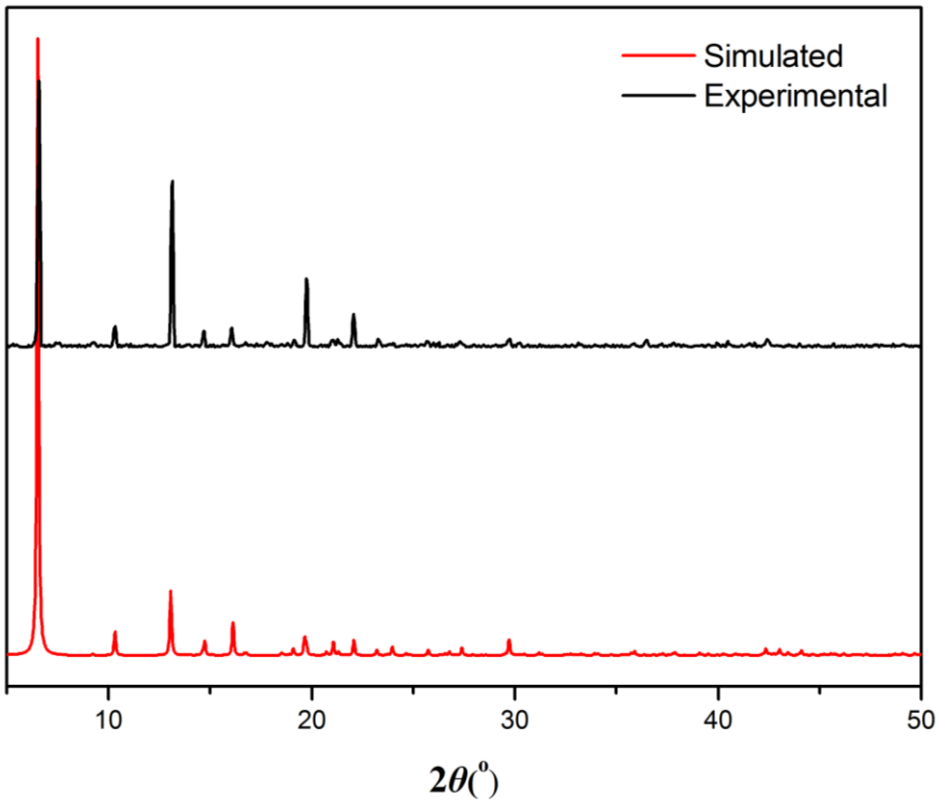

Fig. S11 The P-XRD patterns of **3**.

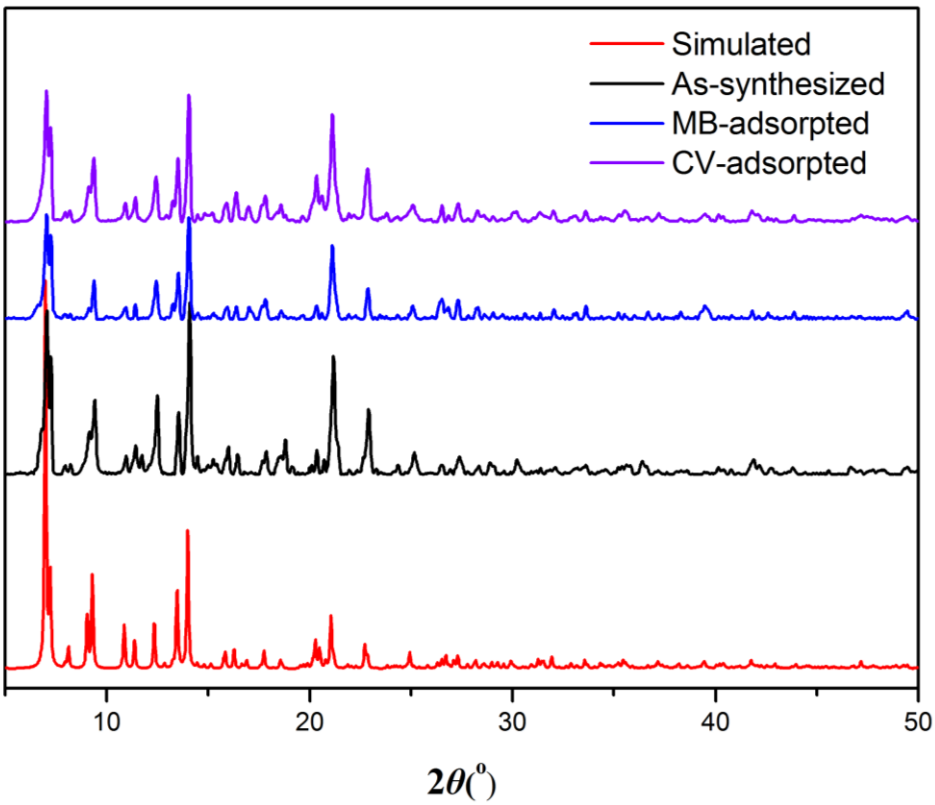

Fig. S12 The P-XRD patterns of **4**.

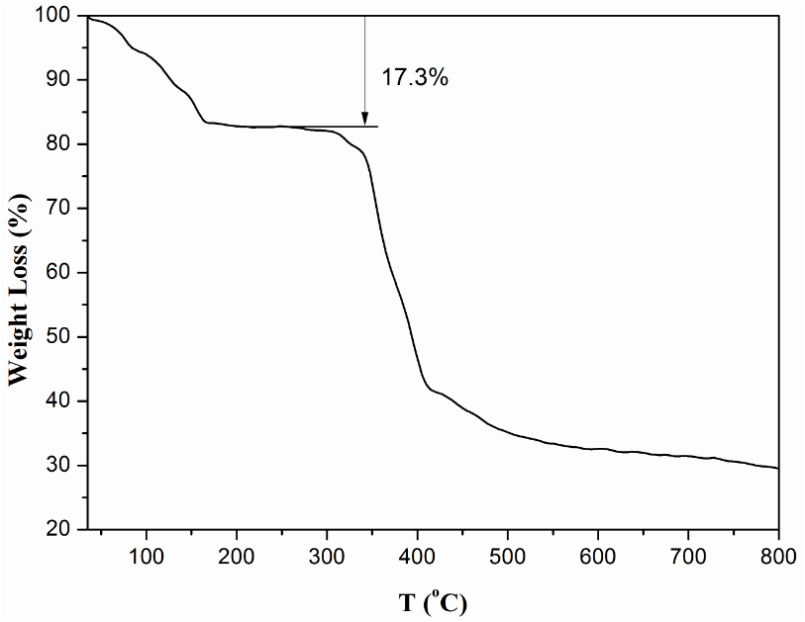

Fig. S13 The TGA curve for **1**.

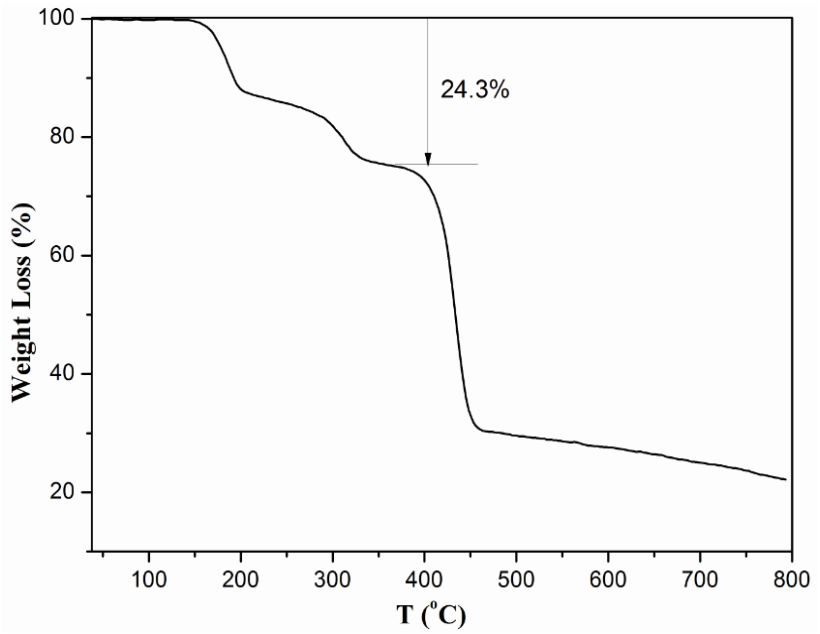

Fig. S14 The TGA curve for **2**.

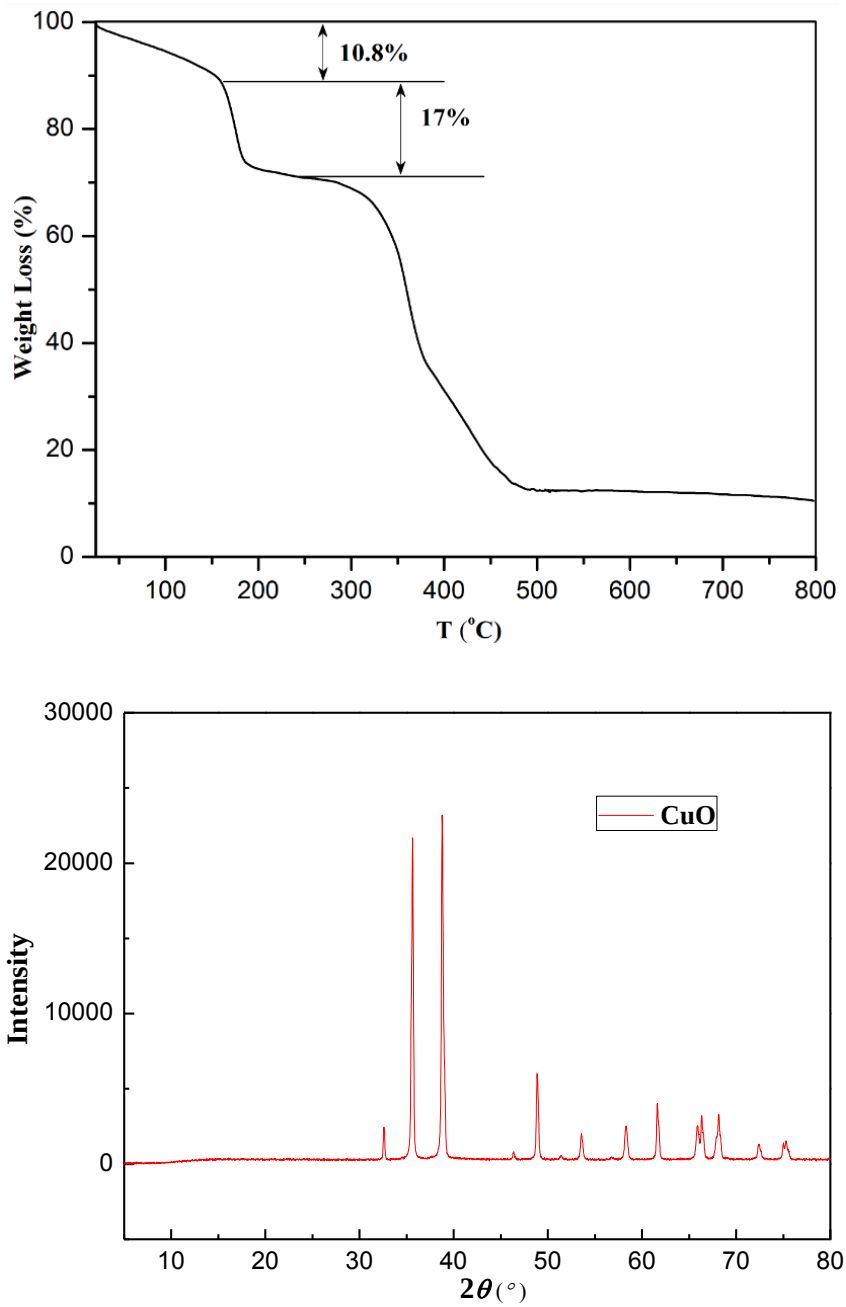

Fig. S15 The TGA curve for **3** (top). The P-XRD patterns of the final residues (bottom).

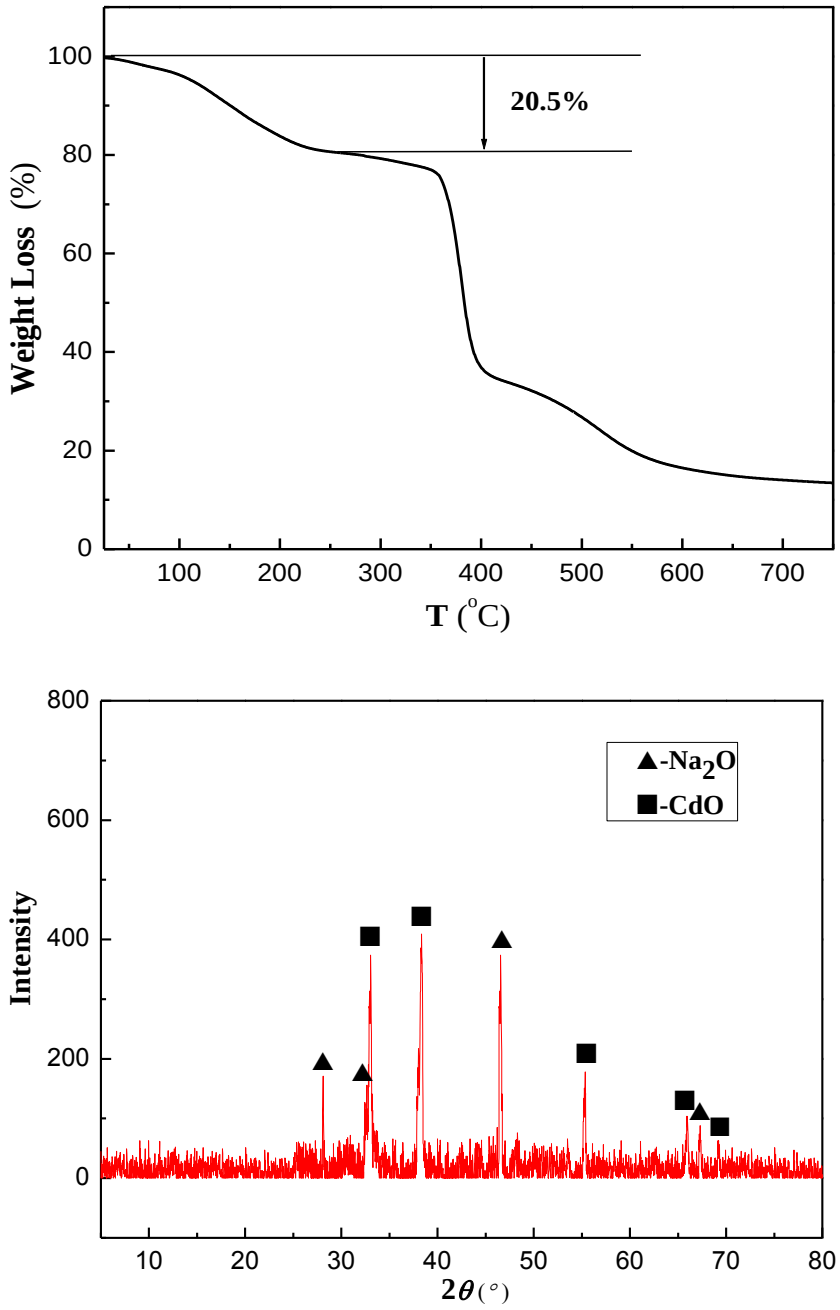

Fig. S16 The TGA curve for **4** (top). The P-XRD patterns of the final residues (bottom).

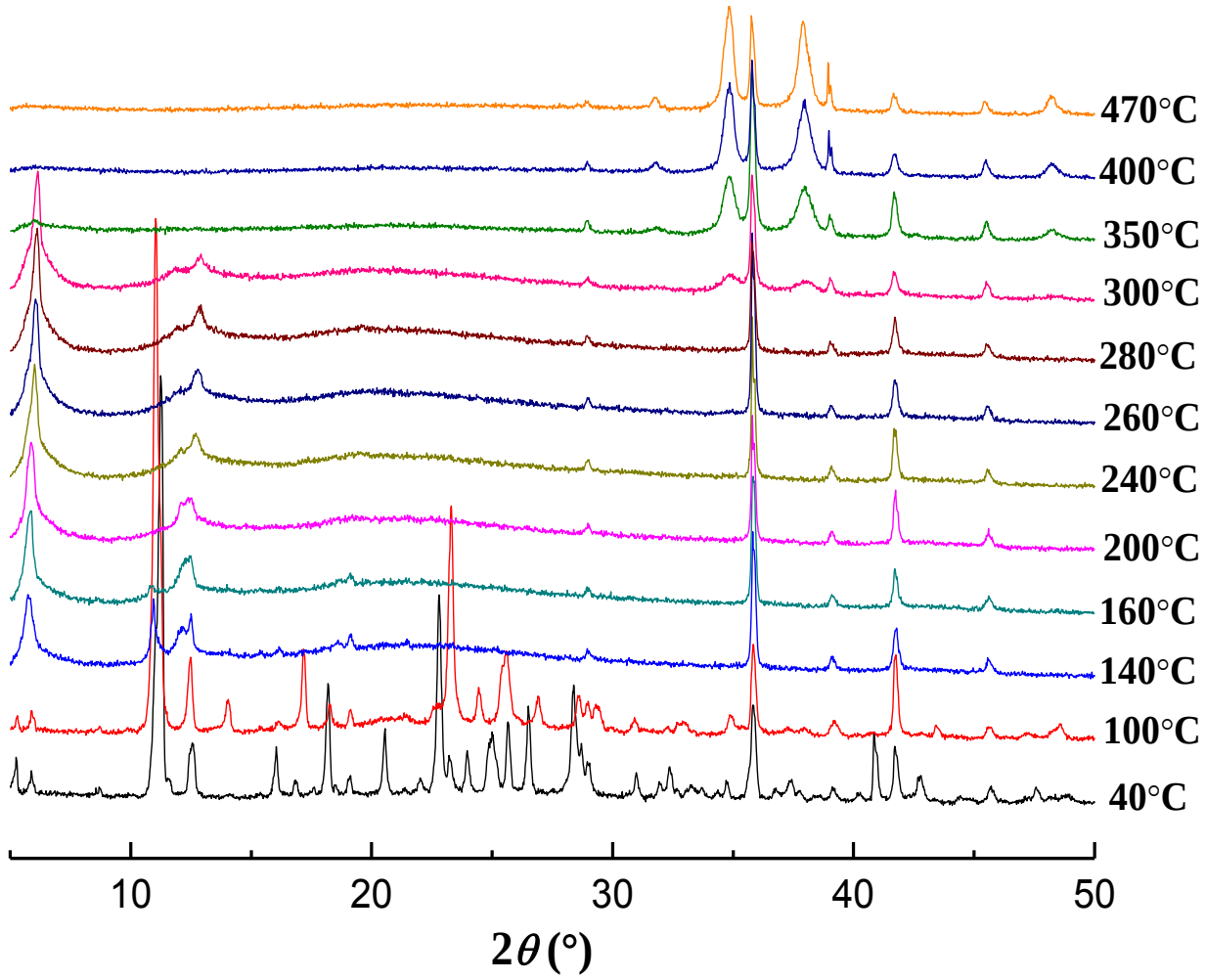

Fig. S17 The variable temperature PXRD patterns of **3**.

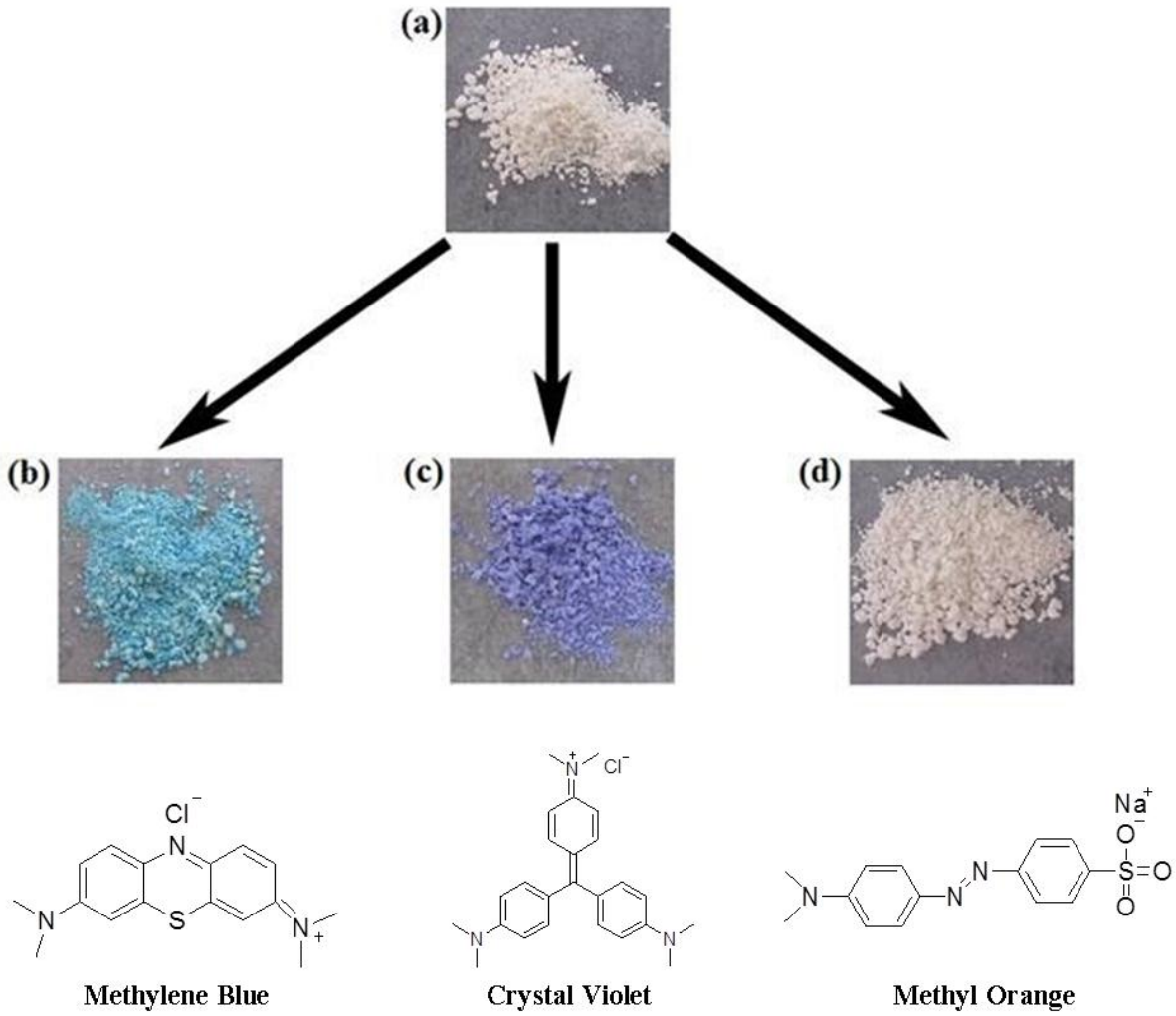

Fig. S18 (a) As-synthesized **4**. (b)-(d) Photos of **4** after soaked in DMF solutions of three kinds of dyes.