Electronic Supplementary Material (ESI) for Dalton Transactions.

Green synthesis of nano scale cobalt(II) based MOFs: highly efficient photo-induced green catalysts for degradation of industrially used dyes

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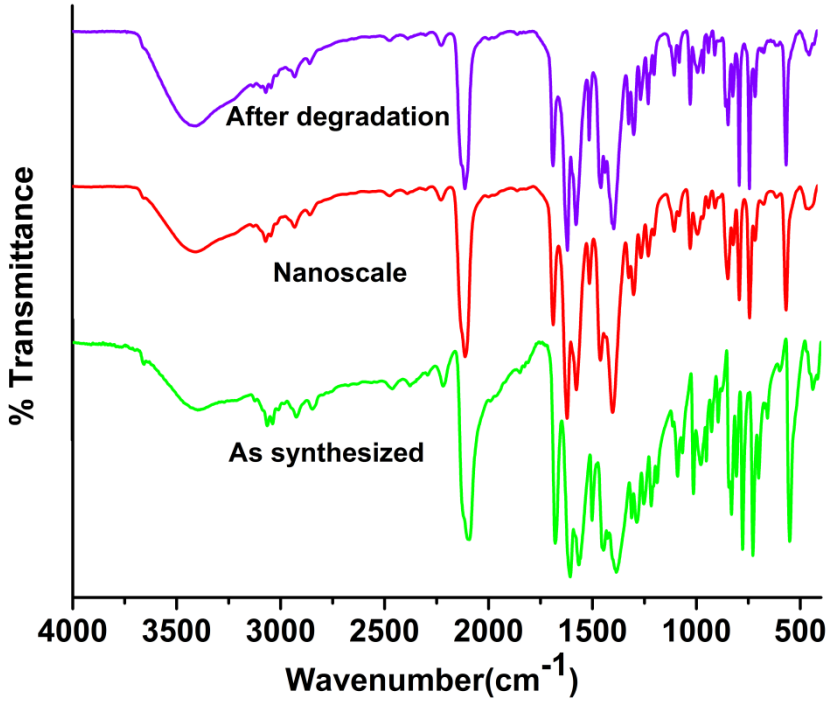


Fig. S1 FTIR spectrum of as synthesized, nanoscale and after degradation of MOF **1** at room temperature.

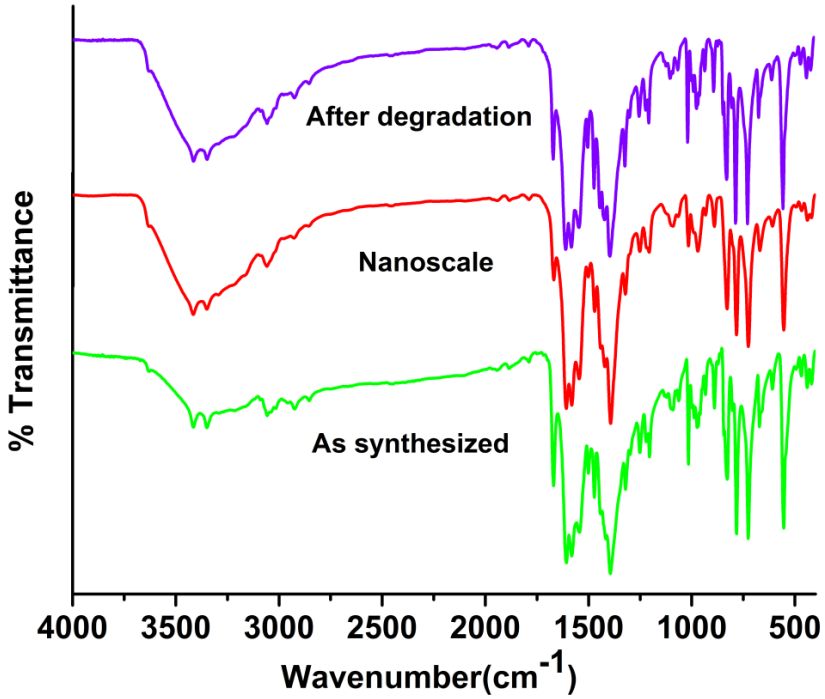


Fig. S2 FTIR spectrum of as synthesized, nanoscale and after degradation of MOF **2** at room temperature.

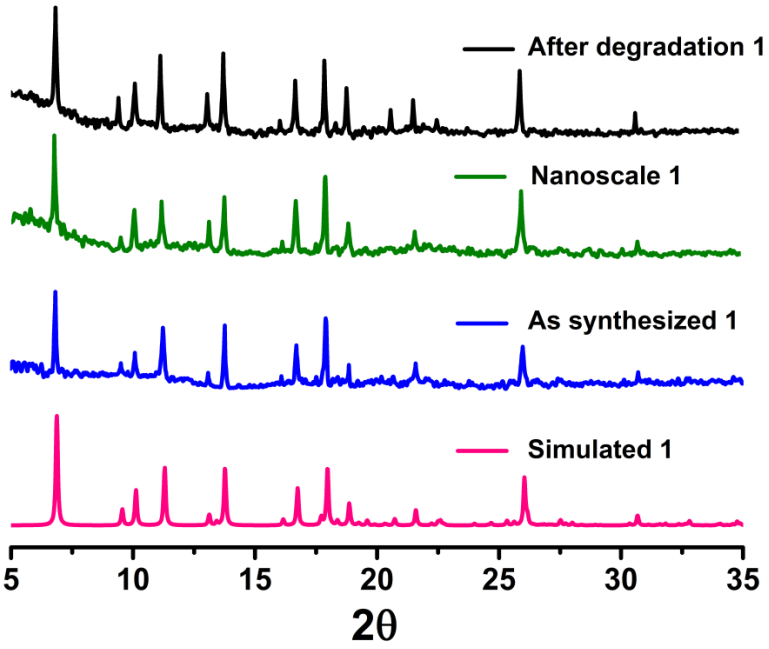


Fig. S3 PXRD patterns of Simulated, as synthesized, nanoscale and after degradation of MOF **1** collected under air.

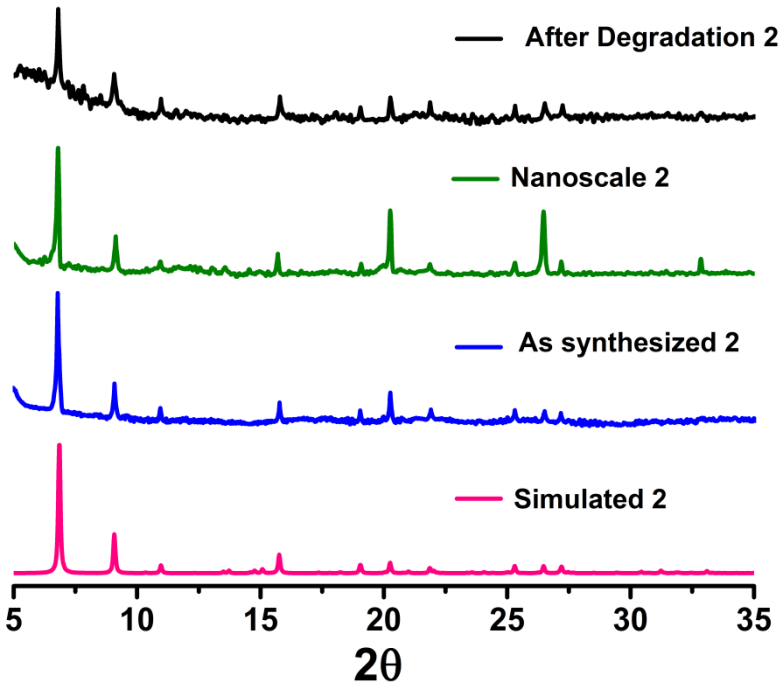


Fig. S4 PXRD patterns of Simulated, as synthesized, nanoscale and after degradation of MOF **2** collected under air.

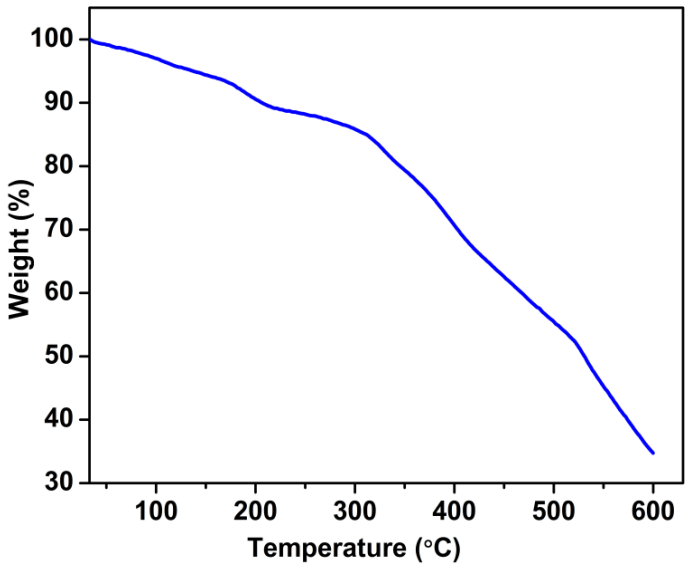


Fig. S5 TGA curve of MOF **1** collected under N_2 atmosphere.

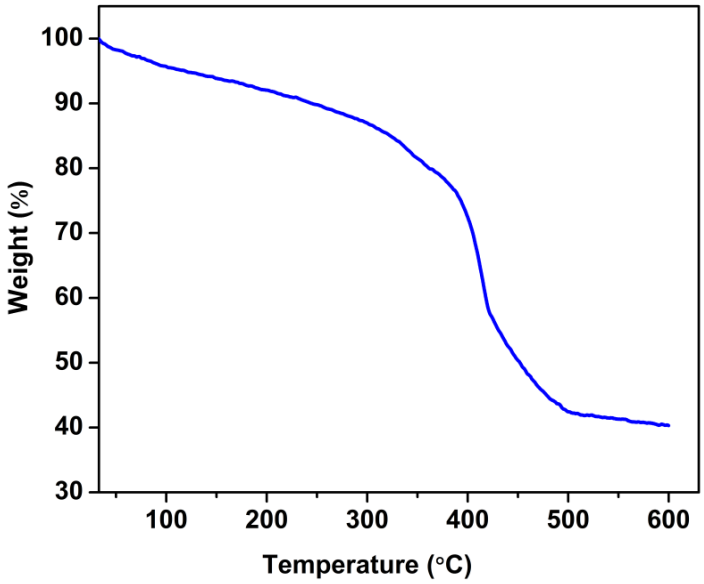


Fig. S6 TGA curve of MOF **2** collected under N_2 atmosphere.

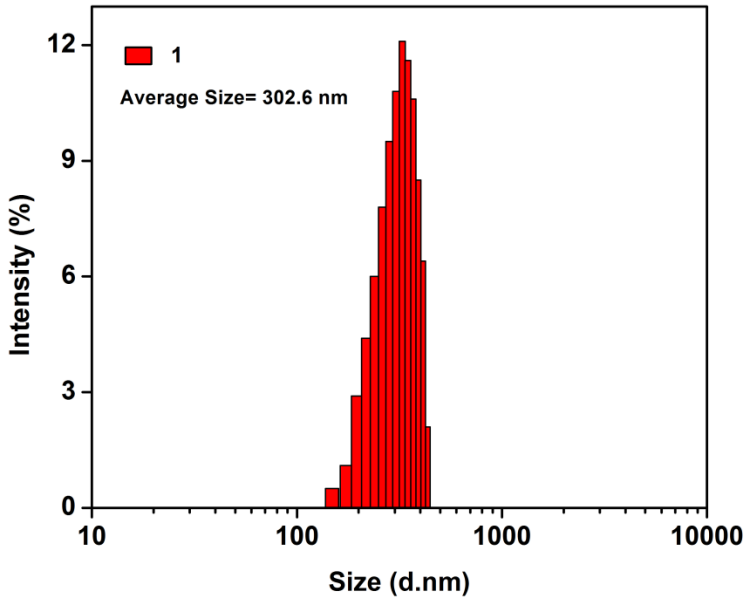


Fig. S7 DLS plot of water dispersed NMOF **1**

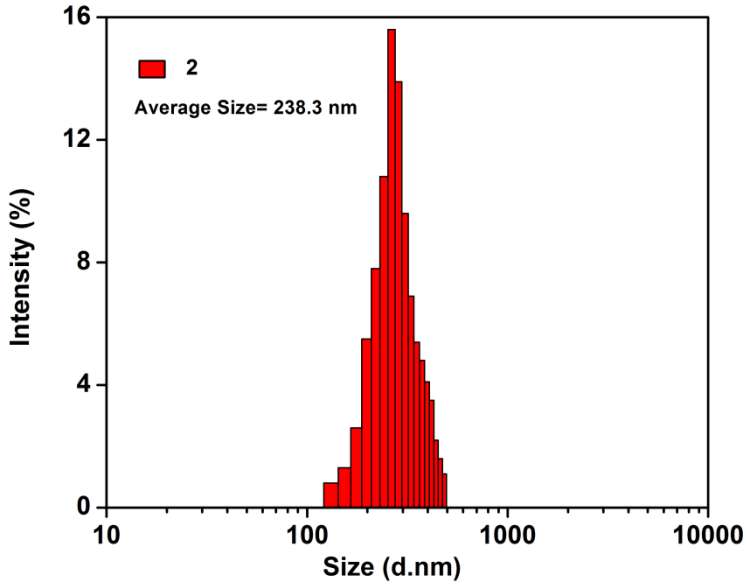


Fig. S8 DLS plot of water dispersed NMOF **2**

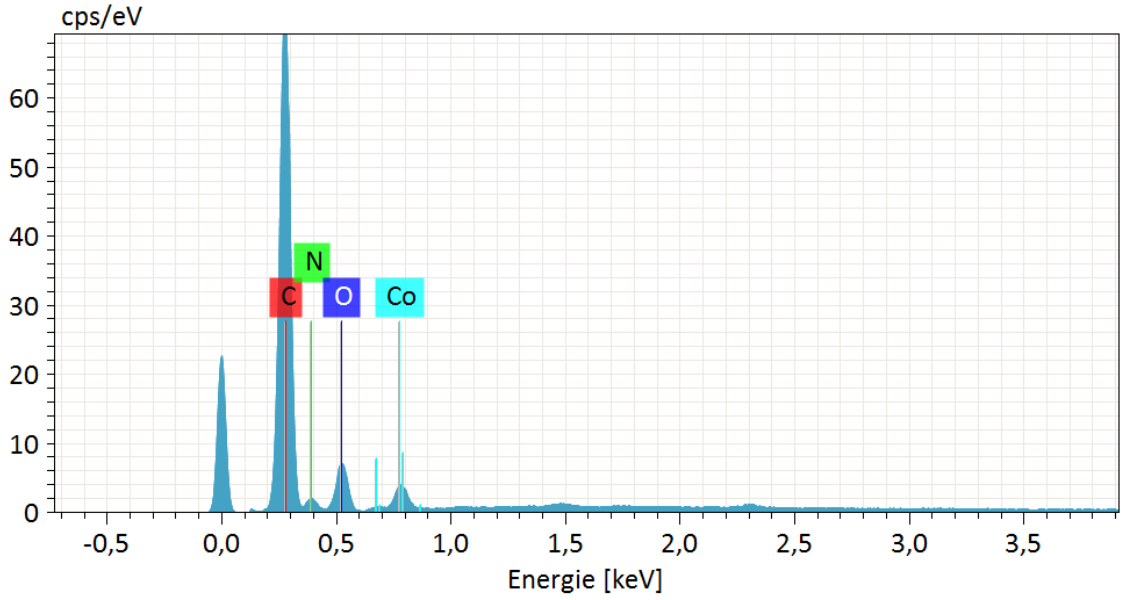


Fig. S9 EDX spectrum of MOF **1**

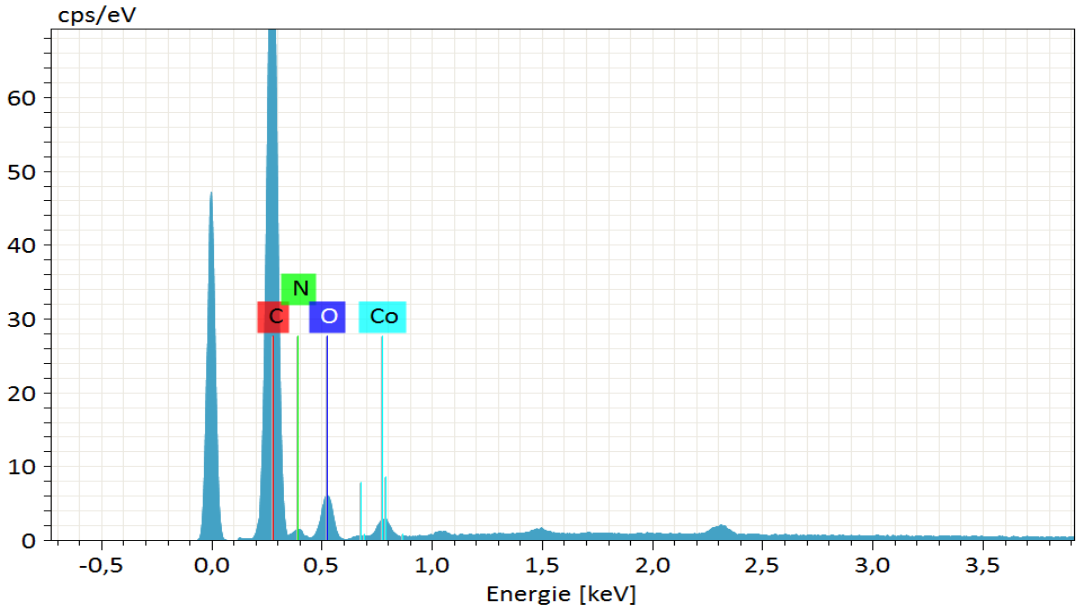
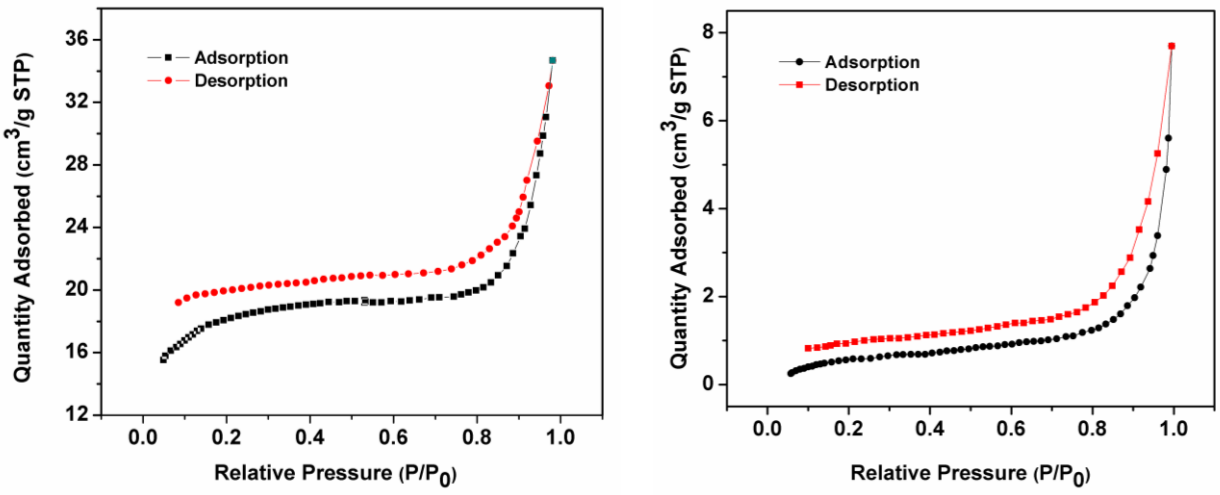


Fig. S10 EDX spectrum of MOF **2**



(a) (b)

Fig. S11 N_2 adsorption isotherm of (a) MOF **1** and (b) MOF **2**

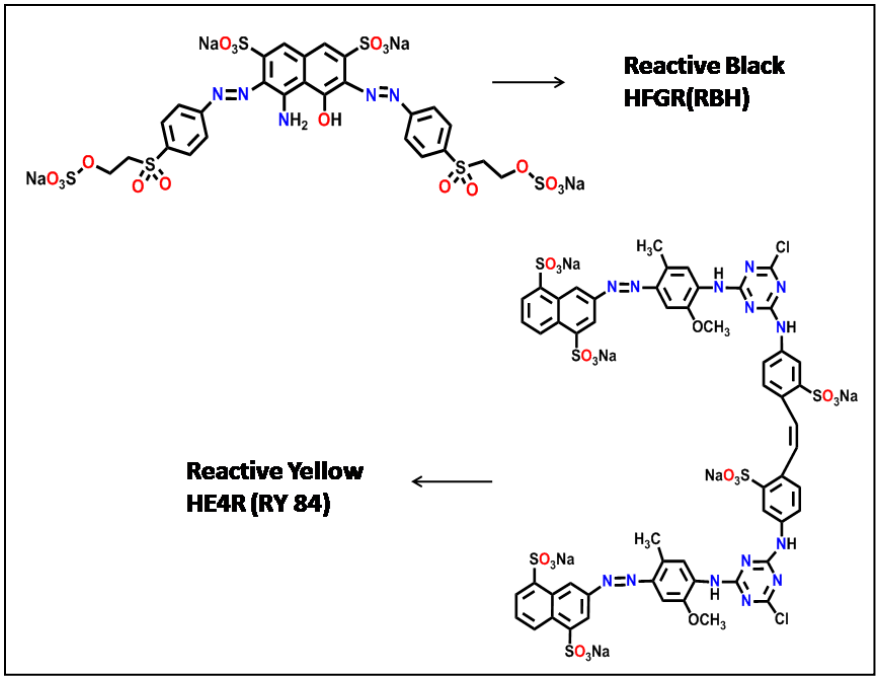
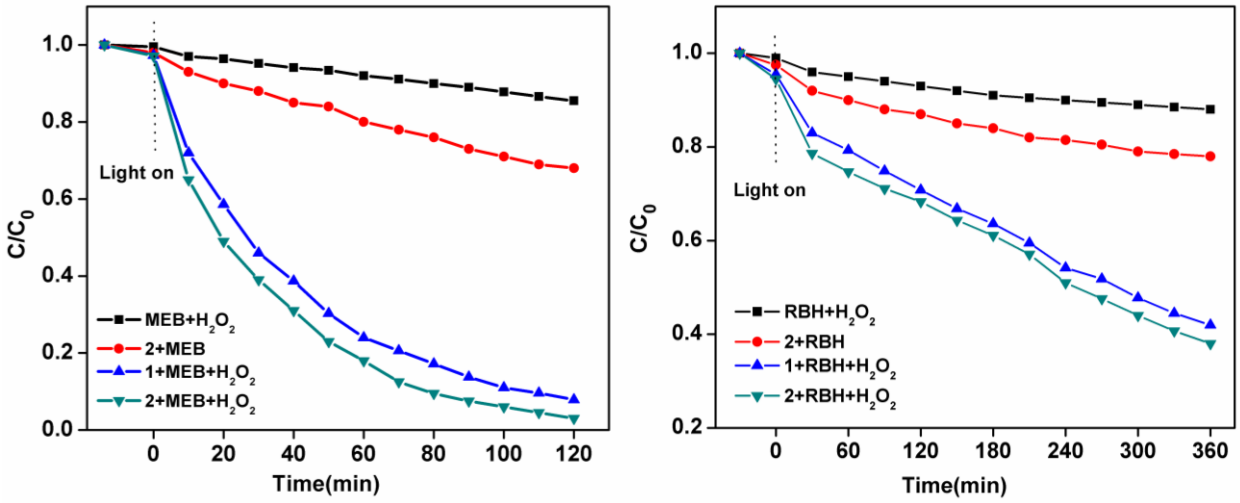
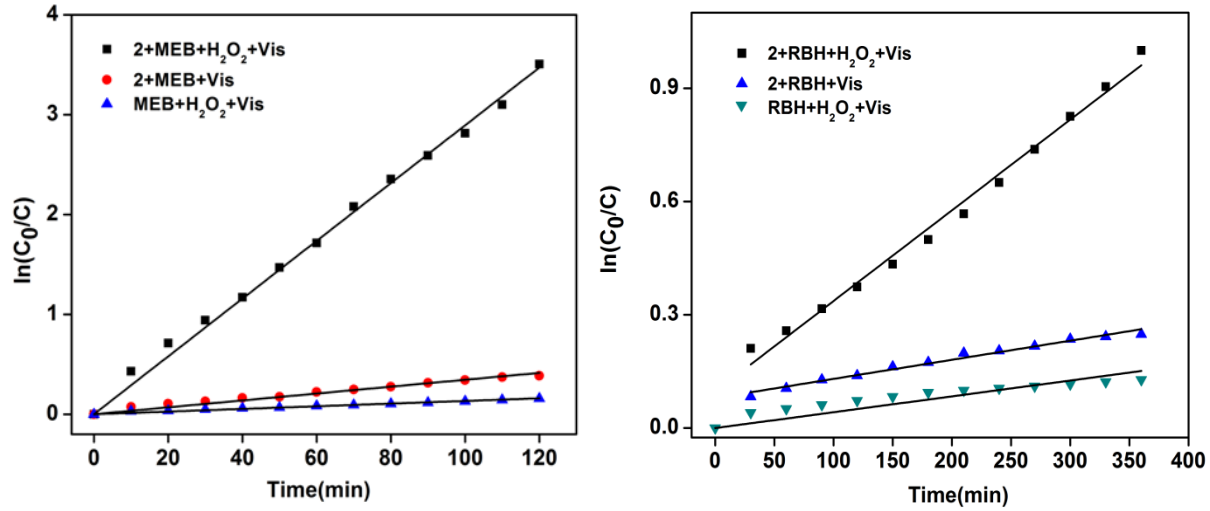


Fig. S12 Structure of the dye RBH and RY84.



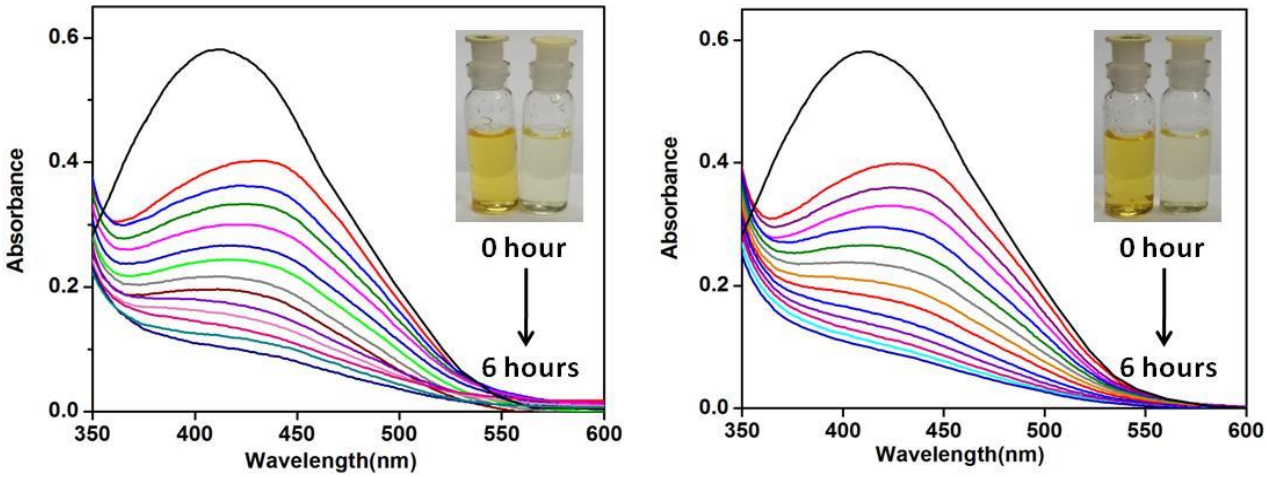
(a) (b)

Fig. S13 Control experiments and the photocatalytic degradation using visible light of the dye (a) MEB and (b) RBH .



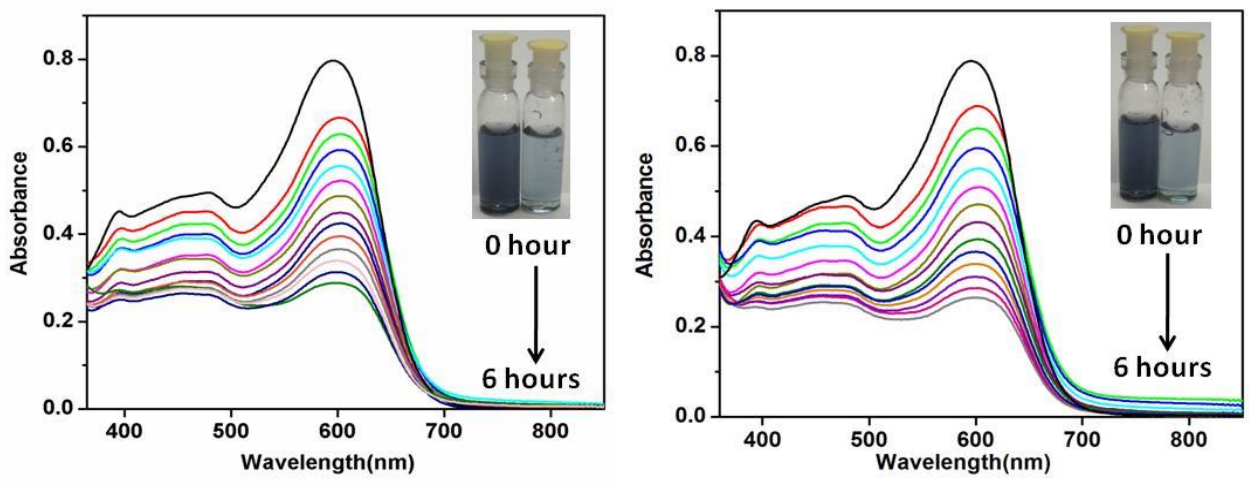
(a) (b)

Fig. S14 Plot of $\ln(C_0/C_t)$ vs time for the pseudo first order kinetics curves of the photocatalytic degradation of (a) MEB and (b) RBH.



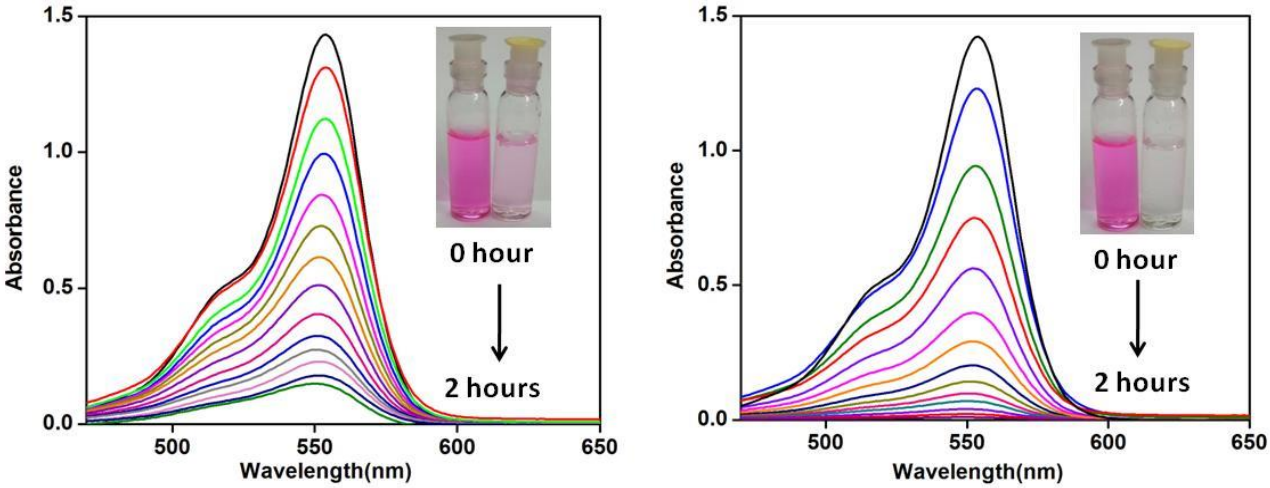
(a) (b)

Fig. S15 Time dependent UV scan for photodegradation of the dye RY84 with (a) NMOF **1** and (b) NMOF **2** at room temperature.



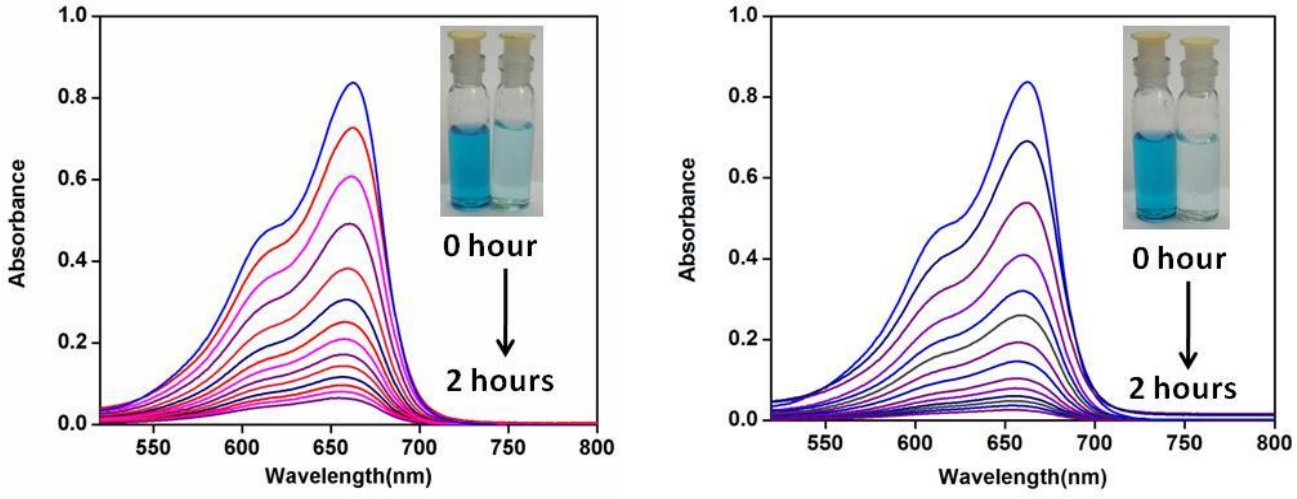
(a) (b)

Fig. S16 Time dependent UV scan for photodegradation of the dye RBH with (a) NMOF **1** and (b) NMOF **2** at room temperature.



(a) (b)

Fig. S17 Time dependent UV scan for photodegradation of the dye RhB with (a) NMOF **1** and (b) NMOF **2** at room temperature.



(a) (b)

Fig. S18 Time dependent UV scan for photodegradation of the dye MEB with (a) NMOF **1** and (b) NMOF **2** at room temperature.

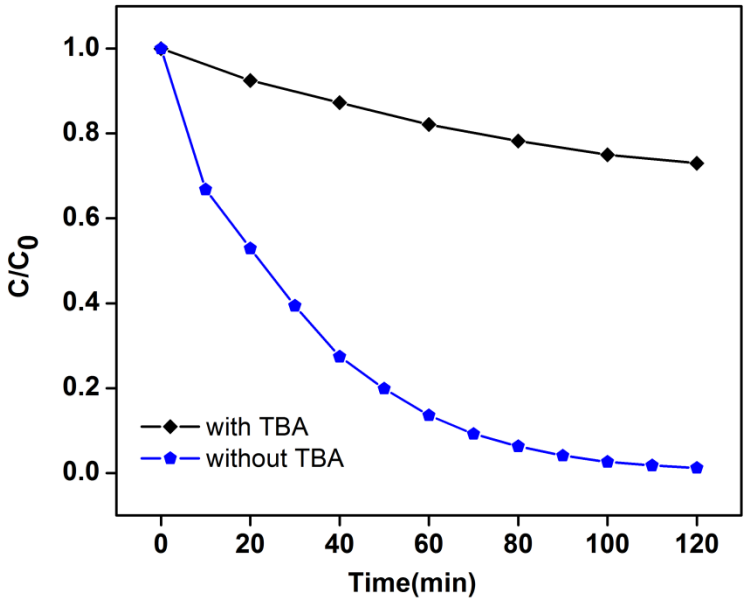


Fig. S19 Photocatalytic degradation of RhB by NMOF **2** with and without TBA.

Table S1 Some Selected Bond Angles (˚) and Bond Lengths (Å) of **1**

Bond distance (Å)		**Bond angle(°)**			
Co1-O1	2.142(3)	O1-Co1-N1	90.52(11)	N1-Co1-N2	177.28(14)
Co1-N1	2.155(4)	O1-Co1-N2	91.57(11)	N1-Co1-N3	88.89(15)
Co1-N2	2.165(4)	O1-Co1-N3	140.26(6)	N2-Co1-N3	88.39(15)
Co1-N3	2.157(4)				

Table S2 Some Selected Bond Angles (˚) and Bond Lengths (Å) of **2**

Bond distance (Å)		**Bond angle(°)**			
Co1-O1	2.209(4)	O1-Co1-O2	59.85(13)	O2-Co1-O4	152.01(13)
Co1-O2	2.132(3)	O1-Co1-O3	147.97(12)	O2-Co1-N1	92.91(15)
Co1-O3	2.023(3)	O1-Co1-O4	92.19(12)	O2-Co1-N2	91.24(15)
Co1-O4	2.033(3)	O1-Co1-N1	88.29(17)	O3-Co1-O4	119.23(12)
Co1-N1	2.138(5)	O1-Co1-N2	95.29(14)	O3-Co1-N1	87.39(18)
Co1-N2	2.112(4)	O2-Co1-O3	88.70(13)	N1-Co1-N2	175.50(16)