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Syntheses, structural diversity and photocatalytic properties of three coordination polymers assembled by different N-heterocyclic ligands

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Table S1 Selected bond lengths (Å) and angles (°) for **1-3**

Complex 1			
Bond	Dist.	Bond	Dist.
Cu(1)-O(4)$^{\#1}$	2.438(15)	Cu(1)-N(1)$^{\#1}$	2.021(15)
Cu(1)-N(6)$^{\#2}$	2.044(2)	Cu(1)-N(6)$^{\#3}$	2.044(2)
Bond	Angle	Bond	Angle
O(4)$^{\#1}$-Cu(1)-O(1)	180.0	N(1)$^{\#1}$-Cu(1)-N(6)$^{\#2}$	89.78(6)
N(1)-Cu(1)-O(1)	87.07(10)	N(1)$^{\#1}$-Cu(1)-N(6)$^{\#3}$	90.22(6)
N(1)-Cu(1)-O(1)	92.93(6)	N(6)$^{\#2}$-Cu(1)-O(1)	88.18(5)
N(1)-Cu(1)-O(1)$^{\#1}$	87.07(6)	N(6)$^{\#3}$-Cu(1)-O(1)	91.82(5)
		N(6)$^{\#2}$-Cu(1)-N(6)$^{\#3}$	180.0
Symmetry codes: #1: 1-x,1-y,-z; #2: 1/2+x,1/2-y,-1/2+z; #3: 1/2-x,1/2+y,1/2-z;			
Complex 2			
Bond	Dist.	Bond	Dist.
Cu(1)-O(2)$^{\#1}$	2.372(4)	Cu(1)-N(4)$^{\#2}$	2.033(3)
Cu(1)-O(3)	1.973(4)	Cu(1)-O(1)	1.978(3)
Cu(1)-N(1)	2.020(3)	N(4)-Cu(1)$^{\#4}$	2.020(4)
Bond	Angle	Bond	Angle
O(1)-Cu(1)-O(2)	85.80(11)	O(3)-Cu(1)-N(1)	90.60(11)
O(1)-Cu(1)-O(3)	170.77(11)	O(3)-Cu(1)-N(4)$^{\#2}$	91.17(18)
O(1)-Cu(1)-N(1)	87.89(12)	N(1)-Cu(1)-O(2)$^{\#1}$	90.40(12)
O(1)-Cu(1)-N(4)$^{\#2}$	93.24(12)	N(4)$^{\#2}$-Cu(1)-O(2)$^{\#1}$	88.75(12)
O(3)-Cu(1)-O(2)$^{\#1}$	85.14(10)	N(4)$^{\#2}$-Cu(1)-N(1)	177.796(12)
Symmetry codes: #1: -*x*+1, *y*-1/2, -*z*+3/2; #2: -*x*+3/2, -*y*+1, *z*+1/2; #3: -*x*+1, *y*+1/2, -*z*+3/2; #4: -*x*+3/2, -*y*+1, *z*-1/2.			
Complex 3			
Bond	Dist.	Bond	Dist.
Cd(1)-O(1)$^{\#1}$	2.301(11)	Cd(1)-O(3)$^{\#3}$	2.273(15)
Cd(1)-O(2)$^{\#2}$	2.281(14)	Cd(1)-N(1)$^{\#5}$	2.298(11)
Bond	Angle	Bond	Angle
O(1)$^{\#1}$-Cd(1))-O(1)	71.7(4)	O(3)$^{\#5}$-Cd(1)-N(1)$^{\#3}$	76.9(5)

$O(2)^{\#2}$-Cd(1)-O(1)	117.0(4)	$O(3)^{\#4}$-Cd(1)-$O(3)^{\#5}$	40.0(7)
$O(2)^{\#2}$-Cd(1)-$O(1)^{\#1}$	171.3(5)	$O(3)^{\#5}$-Cd(1)-$N(1)^{\#3}$	76.9(5)
$O(2)^{\#2}$-Cd(1)-$N(1)^{\#3}$	89.4(3)	$O(3)^{\#4}$-Cd(1)-$N(1)^{\#3}$	116.9(5)
$O(3)^{\#5}$-Cd(1))-O(1)	154.3(4)	N(1)-Cd(1)-O(1)	83.9(3)
$O(3)^{\#5}$-Cd(1)-$O(1)^{\#1}$	80.1(5)	N(1)-Cd(1)-$O(1)^{\#1}$	91.6(3)
$O(3)^{\#5}$-Cd(1)-$O(2)^{\#2}$	171.3(5)	N(1)-Cd(1)-$N(1)^{\#3}$	165.7(5)

Symmetry codes: #1: 1-x,-y,1-z; #2: -1/2+x,1/2-y,1-z; #3: -1+x,+y,+z; #4: -1+x,+y,1-z; #5: +x,+y,1-z;

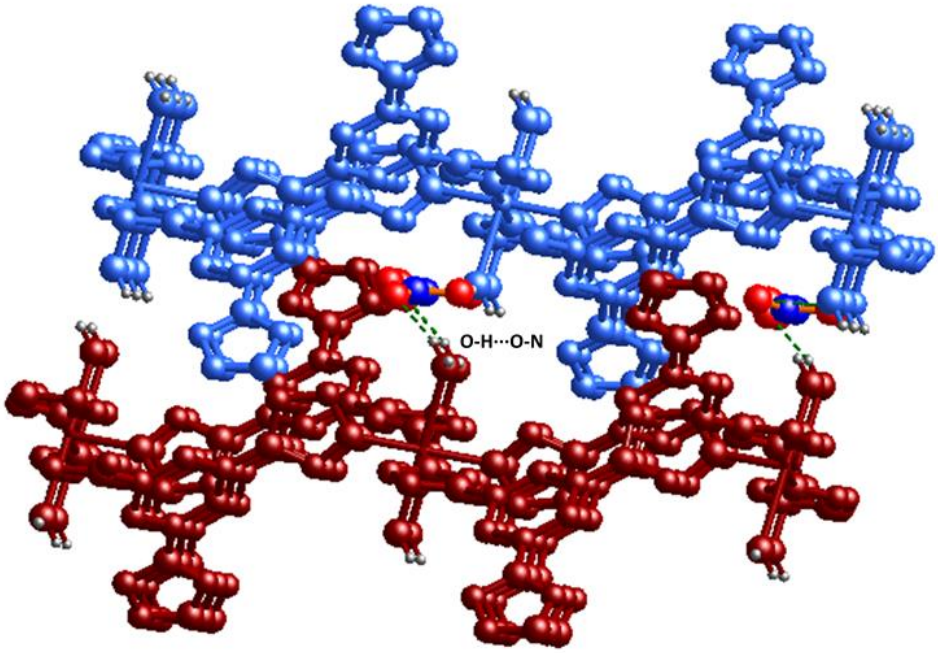

Fig. S1 The H-bonds(O-H···O-N) which interacted two neighbouring 2D layers

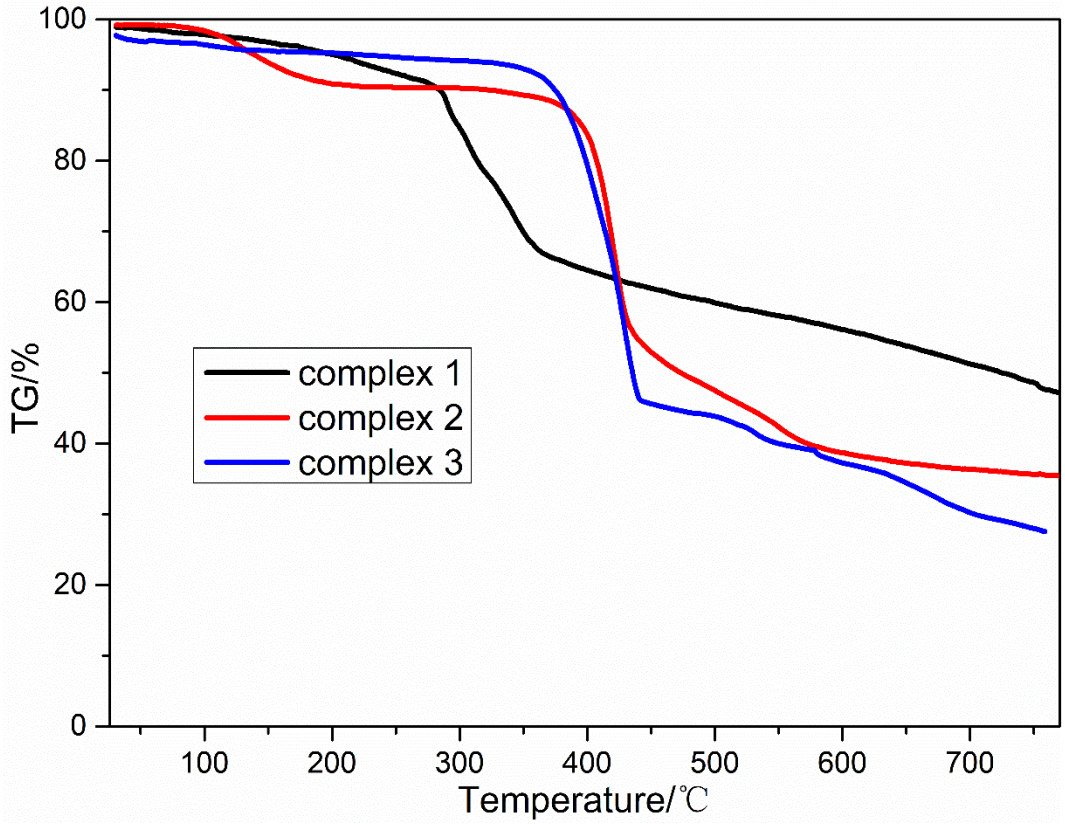

Fig S2. The TG curves of **1- 3**.

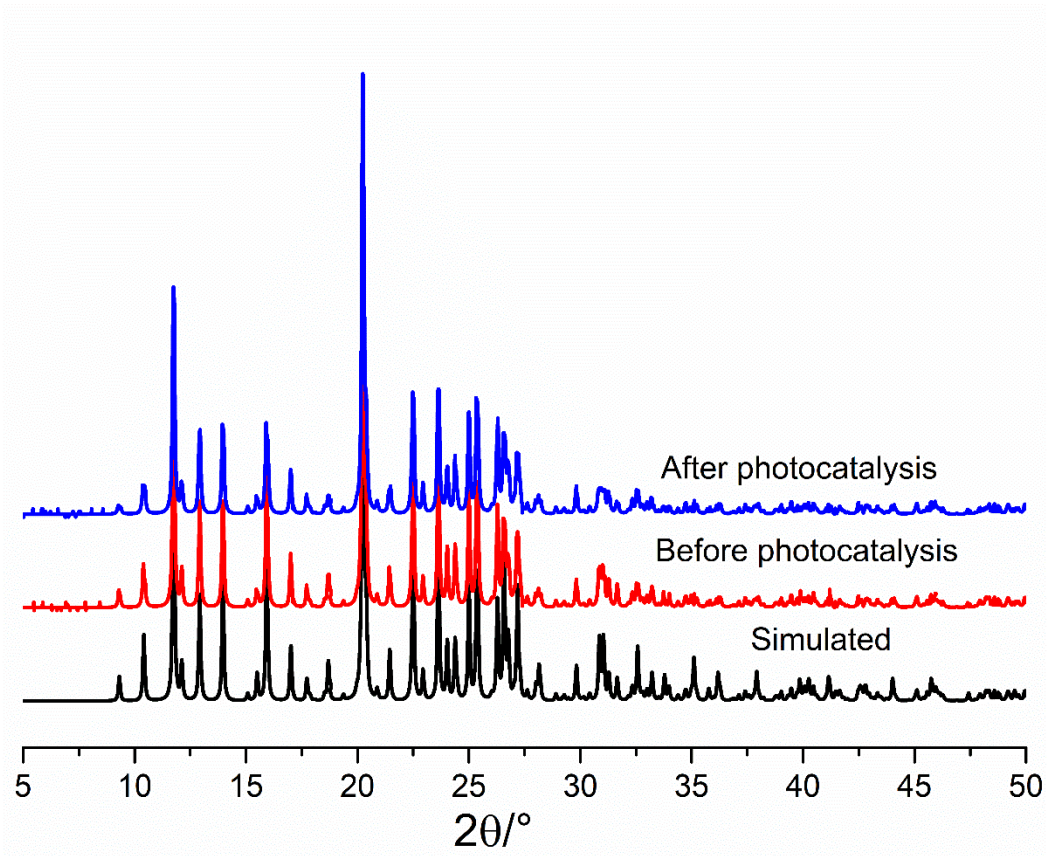

Fig. S3 PXRD patterns of the complex **1** before and after photocatalysis process

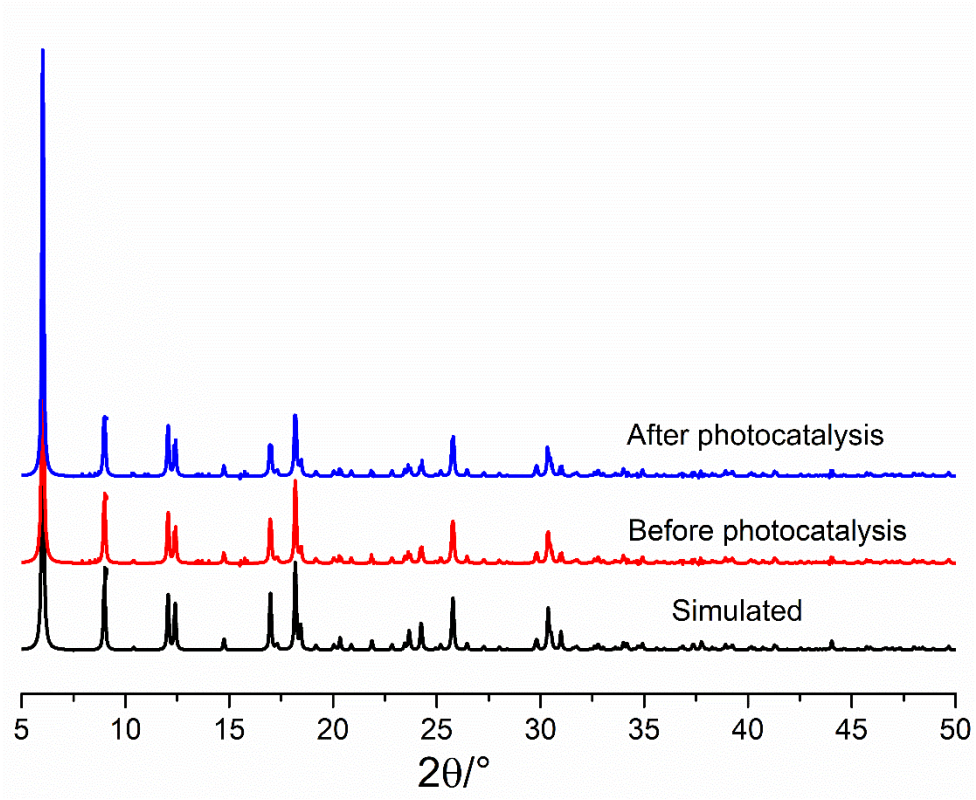

Fig. S4 PXRD patterns of the complex **2** before and after photocatalysis process

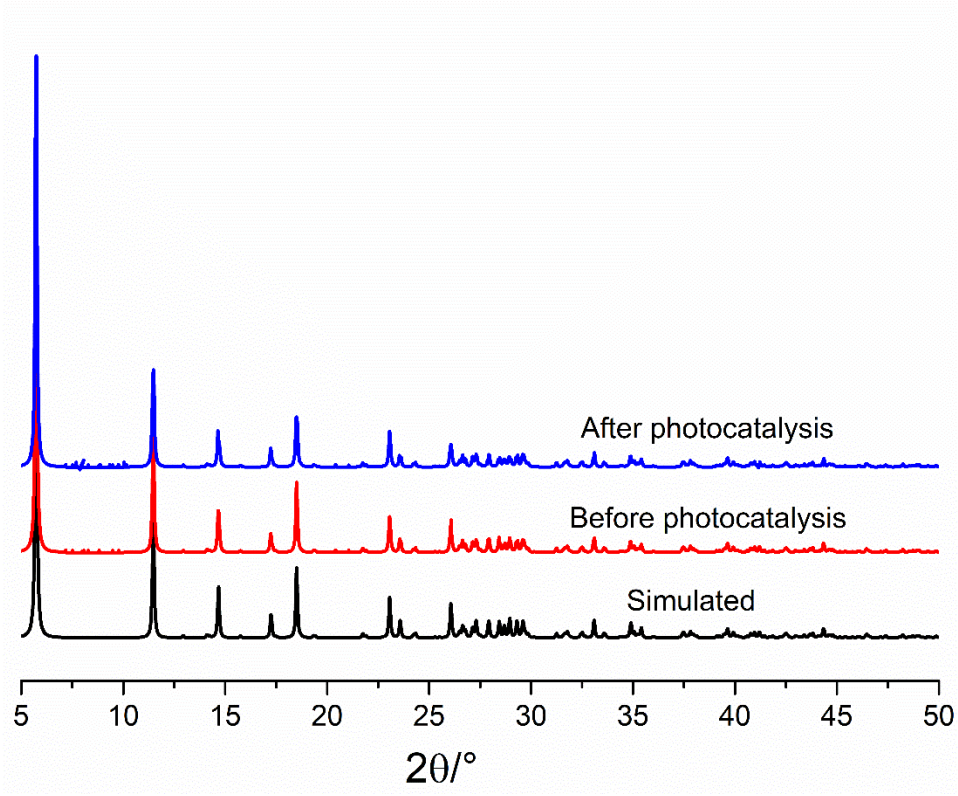

Fig. S5 PXRD patterns of the complex **3** before and after photocatalysis process

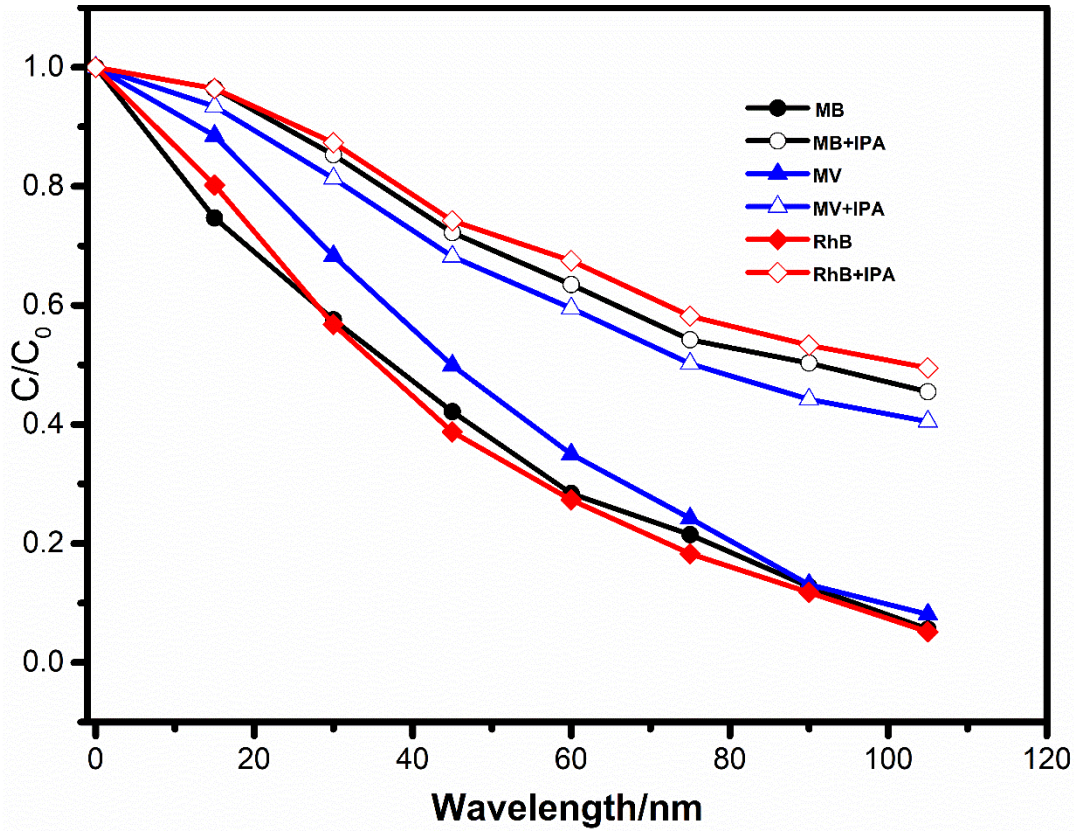

Fig. S6 Change in the three dyes solution with UV light irradiation time in the presence of the complex **1** and different active species scavengers