Supporting Information

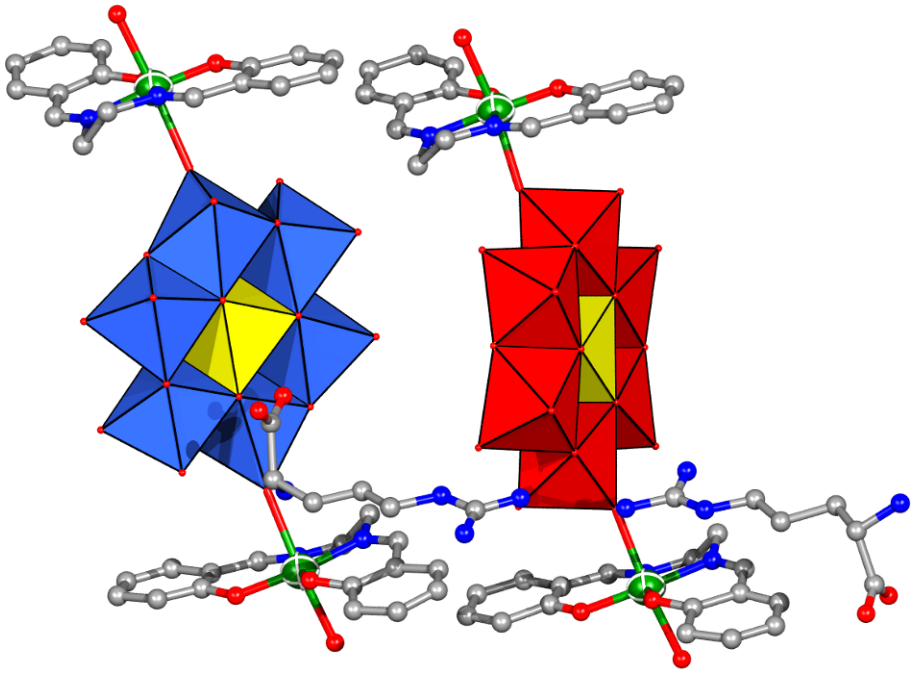
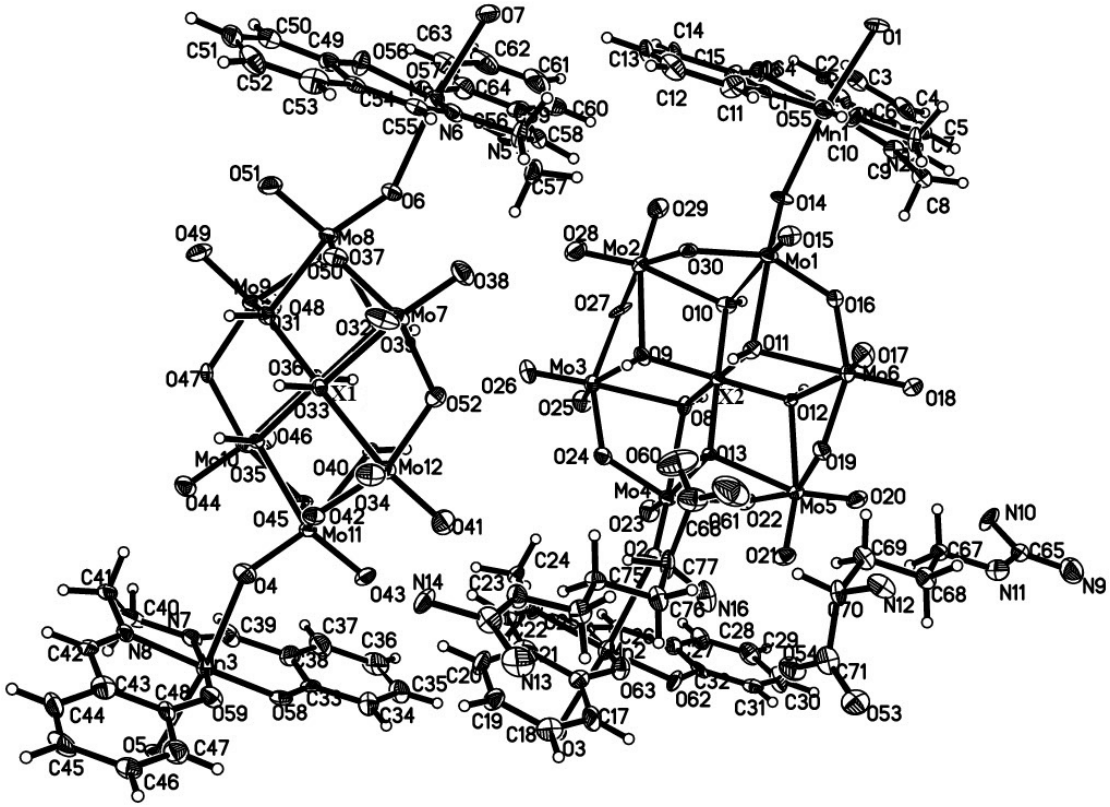


Fig.S1. Polyhedral and ball-and-stick drawing of the asymmetric unit of compound **1**, water molecules have been omitted for clarity.



Scheme 1. ORTEP diagram showing the atom numbering scheme of the asymmetric unit of compound **1** and **2** (X=Al for **1** and Cr for **2**), water molecules have been omitted for clarity

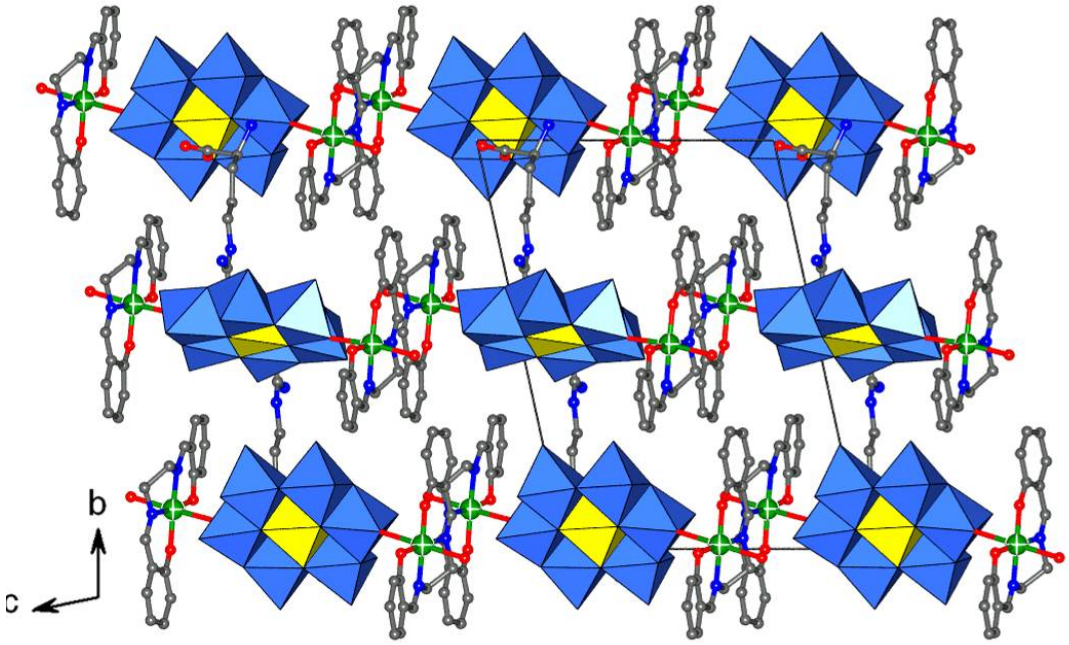


Fig.S2. Polyhedral and ball-and-stick illustrates the packing diagram of compound **1** along a-axis. All the water molecules are omitted for clarity.

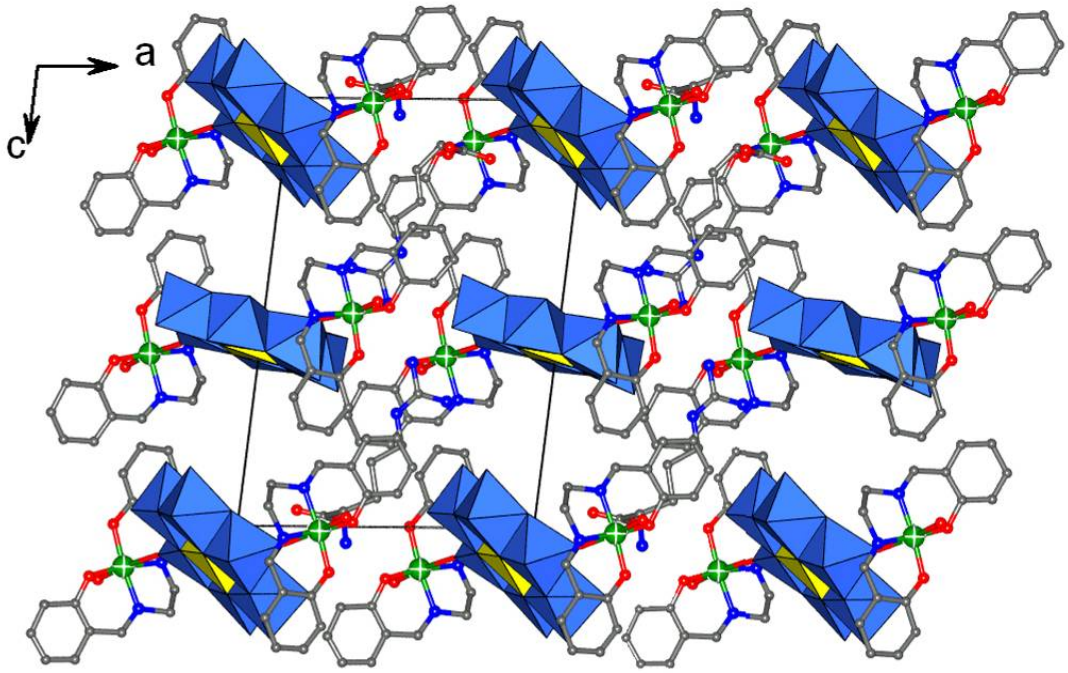


Fig.S3. Polyhedral and ball-and-stick illustrates the packing diagram of compound **1** along b-axis. All the water molecules are omitted for clarity.

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

Mn(1)-O(64)	1.891(9)	Mn(3)-O(59)	1.876(10)
Mn(1)-O(55)	1.890(7)	Mn(3)-O(58)	1.892(9)
Mn(1)-N(2)	1.969(10)	Mn(3)-N(8)	1.974(11)
Mn(1)-N(1)	1.991(12)	Mn(3)-N(7)	2.007(12)
Mn(1)-O(1)	2.261(10)	Mn(3)-O(5)	2.240(9)
Mn(1)-O(14)	2.401(9)	Mn(3)-O(4)	2.301(10)
Mn(2)-O(63)	1.837(8)	Mn(4)-O(57)	1.862(9)
Mn(2)-O(62)	1.882(8)	Mn(4)-O(56)	1.869(9)
Mn(2)-N(3)	1.948(12)	Mn(4)-N(5)	1.949(12)
Mn(2)-N(4)	1.988(10)	Mn(4)-N(6)	2.012(11)
Mn(2)-O(3)	2.285(11)	Mn(4)-O(7)	2.267(11)
Mn(2)-O(2)	2.471(10)	Mn(4)-O(6)	2.291(10)
O(64)-Mn(1)-O(55)	93.9(4)	O(59)-Mn(3)-O(58)	92.9(4)
O(64)-Mn(1)-N(2)	172.4(4)	O(59)-Mn(3)-N(8)	91.2(5)
O(55)-Mn(1)-N(2)	91.9(4)	O(58)-Mn(3)-N(8)	175.7(4)
O(64)-Mn(1)-N(1)	91.8(4)	O(59)-Mn(3)-N(7)	175.0(4)
O(55)-Mn(1)-N(1)	174.3(4)	O(58)-Mn(3)-N(7)	92.0(4)
N(2)-Mn(1)-N(1)	82.6(4)	N(8)-Mn(3)-N(7)	83.9(5)
O(64)-Mn(1)-O(1)	95.8(4)	O(59)-Mn(3)-O(5)	90.4(4)
O(55)-Mn(1)-O(1)	89.9(4)	O(58)-Mn(3)-O(5)	94.1(4)
N(2)-Mn(1)-O(1)	89.1(4)	N(8)-Mn(3)-O(5)	86.9(4)
N(1)-Mn(1)-O(1)	88.7(5)	N(7)-Mn(3)-O(5)	88.1(4)
O(64)-Mn(1)-O(14)	88.9(4)	O(59)-Mn(3)-O(4)	96.3(4)
O(55)-Mn(1)-O(14)	96.8(3)	O(58)-Mn(3)-O(4)	92.1(4)
N(2)-Mn(1)-O(14)	85.5(4)	N(8)-Mn(3)-O(4)	86.4(4)
N(1)-Mn(1)-O(14)	84.1(4)	N(7)-Mn(3)-O(4)	84.6(4)
O(1)-Mn(1)-O(14)	171.5(3)	O(5)-Mn(3)-O(4)	170.6(4)
O(63)-Mn(2)-O(62)	91.7(4)	O(57)-Mn(4)-O(56)	92.7(4)
O(63)-Mn(2)-N(3)	175.3(4)	O(57)-Mn(4)-N(5)	93.0(5)
O(62)-Mn(2)-N(3)	92.9(4)	O(56)-Mn(4)-N(5)	174.0(5)
O(63)-Mn(2)-N(4)	92.7(4)	O(57)-Mn(4)-N(6)	176.5(5)
O(62)-Mn(2)-N(4)	174.1(5)	O(56)-Mn(4)-N(6)	90.6(5)
N(3)-Mn(2)-N(4)	82.6(4)	N(5)-Mn(4)-N(6)	83.7(5)
O(63)-Mn(2)-O(3)	90.9(4)	O(57)-Mn(4)-O(7)	92.0(4)
O(62)-Mn(2)-O(3)	94.8(4)	O(56)-Mn(4)-O(7)	95.5(4)
N(3)-Mn(2)-O(3)	89.8(4)	N(5)-Mn(4)-O(7)	86.2(4)
N(4)-Mn(2)-O(3)	89.0(4)	N(6)-Mn(4)-O(7)	89.2(4)
O(63)-Mn(2)-O(2)	96.6(4)	O(57)-Mn(4)-O(6)	94.1(4)
O(62)-Mn(2)-O(2)	87.0(4)	O(56)-Mn(4)-O(6)	90.4(4)
N(3)-Mn(2)-O(2)	82.6(4)	N(5)-Mn(4)-O(6)	87.4(4)
N(4)-Mn(2)-O(2)	88.6(4)	N(6)-Mn(4)-O(6)	84.4(4)

O(3)-Mn(2)-O(2)	172.3(4)	O(7)-Mn(4)-O(6)	171.4(4)

Table S2 Selected bond lengths (Å) and bond angles (°) for **2**.

Mn(1)-O(55)	1.873(12)	Mn(3)-O(58)	1.860(13)
Mn(1)-O(64)	1.900(12)	Mn(3)-O(59)	1.885(13)
Mn(1)-N(2)	1.971(17)	Mn(3)-N(8)	1.950(14)
Mn(1)-N(1)	1.990(15)	Mn(3)-N(7)	1.972(16)
Mn(1)-O(1)	2.239(14)	Mn(3)-O(5)	2.248(14)
Mn(1)-O(14)	2.388(13)	Mn(3)-O(4)	2.266(14)
Mn(2)-O(62)	1.863(13)	Mn(4)-O(57)	1.875(14)
Mn(2)-O(63)	1.870(13)	Mn(4)-O(56)	1.903(12)
Mn(2)-N(3)	1.953(17)	Mn(4)-N(5)	1.996(17)
Mn(2)-N(4)	1.987(14)	Mn(4)-N(6)	2.014(16)
Mn(2)-O(3)	2.304(15)	Mn(4)-O(7)	2.256(15)
Mn(2)-O(2)	2.435(15)	Mn(4)-O(6)	2.328(14)
O(55)-Mn(1)-O(64)	94.0(6)	O(58)-Mn(3)-O(59)	93.6(6)
O(55)-Mn(1)-N(2)	91.2(6)	O(58)-Mn(3)-N(8)	174.7(7)
O(64)-Mn(1)-N(2)	172.5(6)	O(59)-Mn(3)-N(8)	91.7(6)
O(55)-Mn(1)-N(1)	172.8(6)	O(58)-Mn(3)-N(7)	92.5(6)
O(64)-Mn(1)-N(1)	93.2(6)	O(59)-Mn(3)-N(7)	173.8(6)
N(2)-Mn(1)-N(1)	81.7(6)	N(8)-Mn(3)-N(7)	82.2(7)
O(55)-Mn(1)-O(1)	89.8(6)	O(58)-Mn(3)-O(5)	94.0(6)
O(64)-Mn(1)-O(1)	95.8(6)	O(59)-Mn(3)-O(5)	90.3(5)
N(2)-Mn(1)-O(1)	89.7(6)	N(8)-Mn(3)-O(5)	86.3(6)
N(1)-Mn(1)-O(1)	89.2(6)	N(7)-Mn(3)-O(5)	88.5(6)
O(55)-Mn(1)-O(14)	98.1(6)	O(58)-Mn(3)-O(4)	92.3(6)
O(64)-Mn(1)-O(14)	88.8(5)	O(59)-Mn(3)-O(4)	96.4(6)
N(2)-Mn(1)-O(14)	85.0(6)	N(8)-Mn(3)-O(4)	86.8(6)
N(1)-Mn(1)-O(14)	82.3(6)	N(7)-Mn(3)-O(4)	84.1(6)
O(1)-Mn(1)-O(14)	170.5(5)	O(5)-Mn(3)-O(4)	170.5(5)
O(62)-Mn(2)-O(63)	92.6(6)	O(57)-Mn(4)-O(56)	92.7(6)
O(62)-Mn(2)-N(3)	91.2(6)	O(57)-Mn(4)-N(5)	92.1(7)
O(63)-Mn(2)-N(3)	176.2(6)	O(56)-Mn(4)-N(5)	175.1(7)
O(62)-Mn(2)-N(4)	175.0(6)	O(57)-Mn(4)-N(6)	176.3(7)
O(63)-Mn(2)-N(4)	91.1(5)	O(56)-Mn(4)-N(6)	90.9(6)
N(3)-Mn(2)-N(4)	85.1(6)	N(5)-Mn(4)-N(6)	84.3(7)
O(62)-Mn(2)-O(3)	94.9(6)	O(57)-Mn(4)-O(7)	90.9(6)
O(63)-Mn(2)-O(3)	90.6(6)	O(56)-Mn(4)-O(7)	95.3(6)
N(3)-Mn(2)-O(3)	88.9(6)	N(5)-Mn(4)-O(7)	85.9(6)
N(4)-Mn(2)-O(3)	88.5(6)	N(6)-Mn(4)-O(7)	88.5(6)
O(62)-Mn(2)-O(2)	86.6(6)	O(57)-Mn(4)-O(6)	95.1(6)

O(63)-Mn(2)-O(2)	96.4(6)	O(56)-Mn(4)-O(6)	89.6(5)
N(3)-Mn(2)-O(2)	83.9(6)	N(5)-Mn(4)-O(6)	88.8(6)
N(4)-Mn(2)-O(2)	89.6(6)	N(6)-Mn(4)-O(6)	85.2(6)
O(3)-Mn(2)-O(2)	172.7(5)	O(7)-Mn(4)-O(6)	172.1(5)

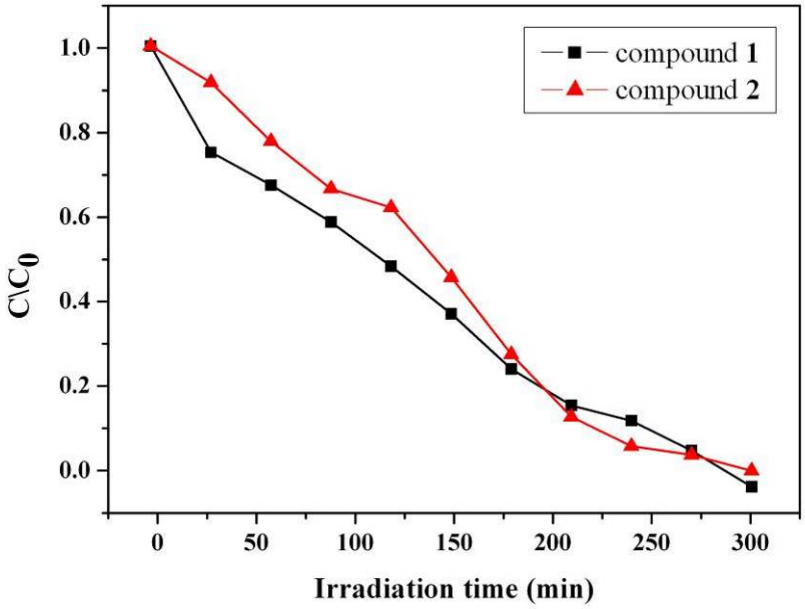


Fig. S4 Changes in C/C_0 plot of RhB solution (2.0×10^{-5} M at a pH of 4.0) versus reaction time in the presence of 2×10^{-5}M compound **1** and 2×10^{-5}M compound **2**.

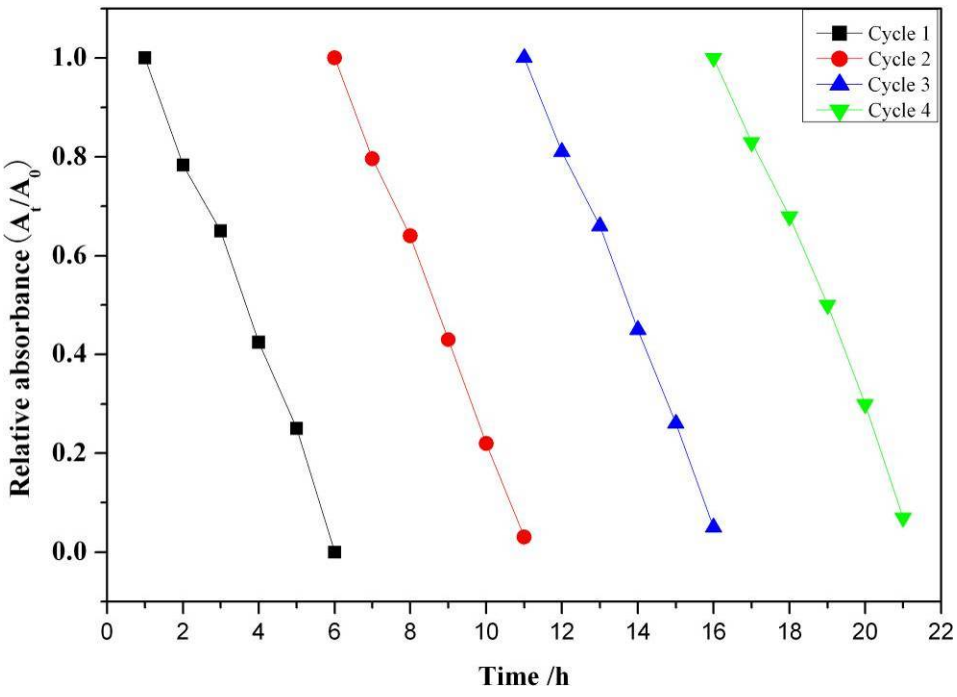


Fig.S5. Four time of RhB degradation test by compound **1**

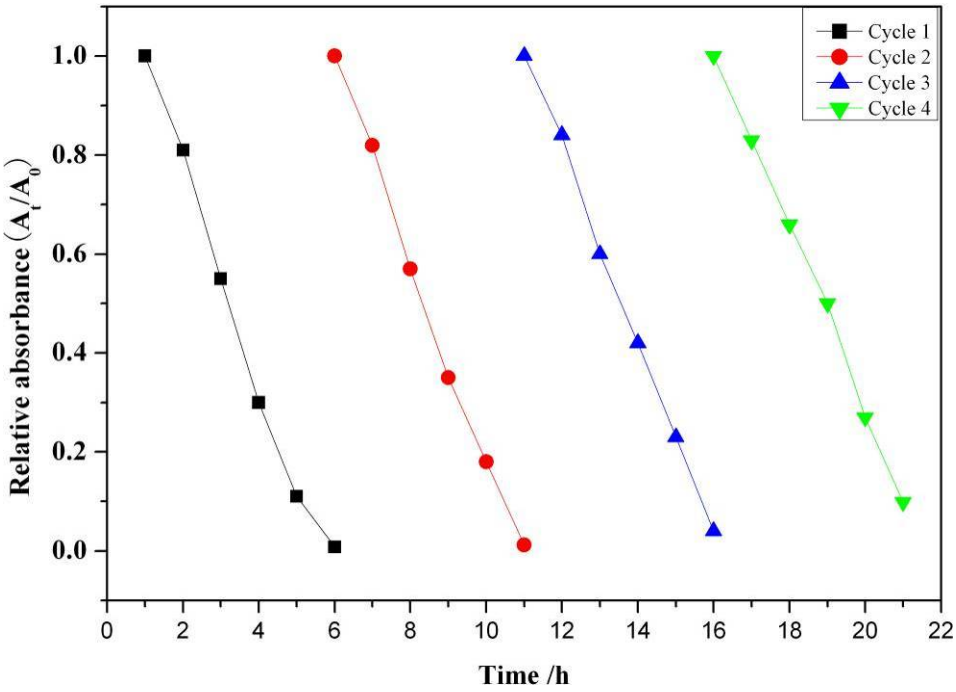


Fig.S6. Four time of RhB degradation test by compound **2**

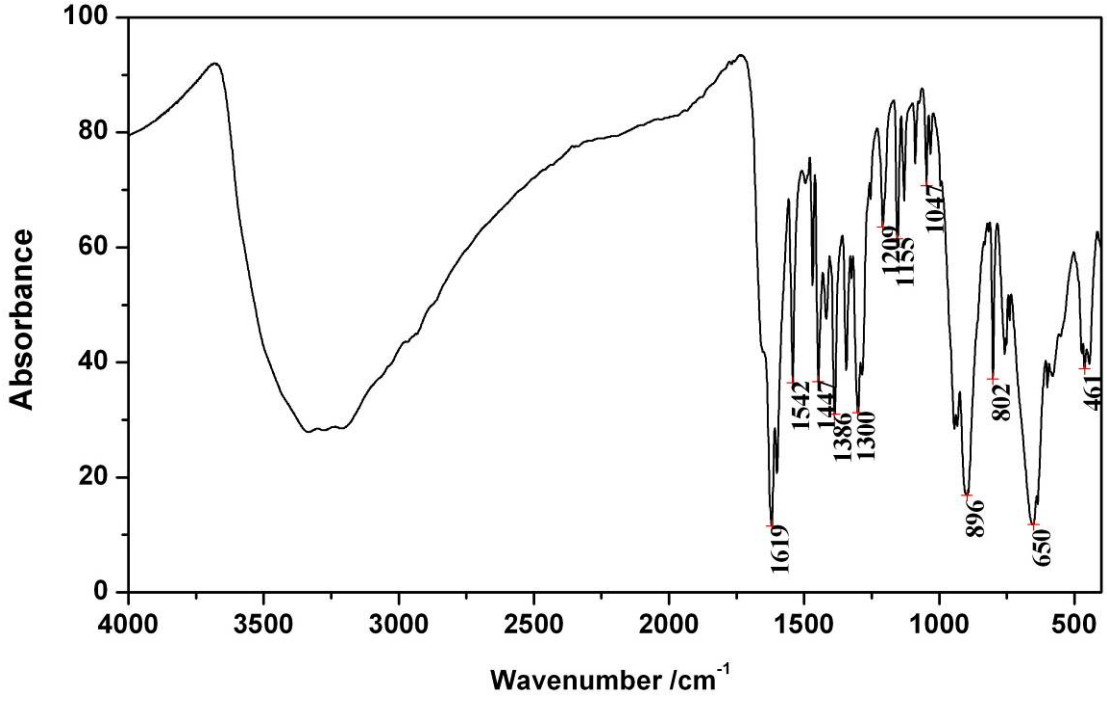


Fig. S7. IR spectrum of **1**

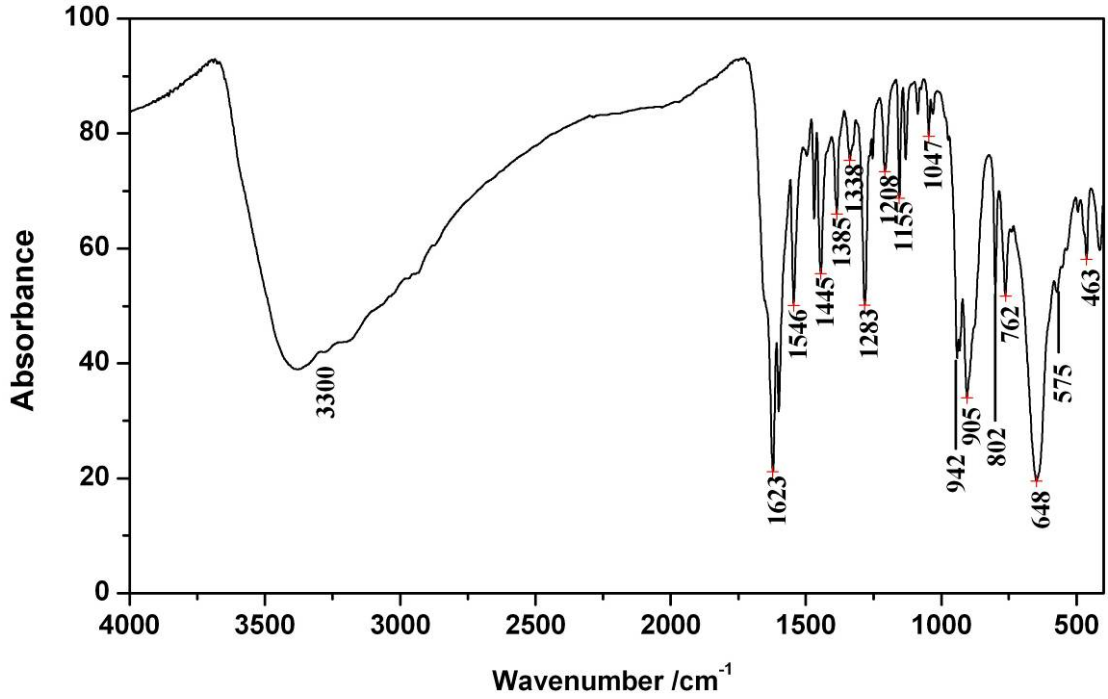


Fig. S8. IR spectrum of **2**

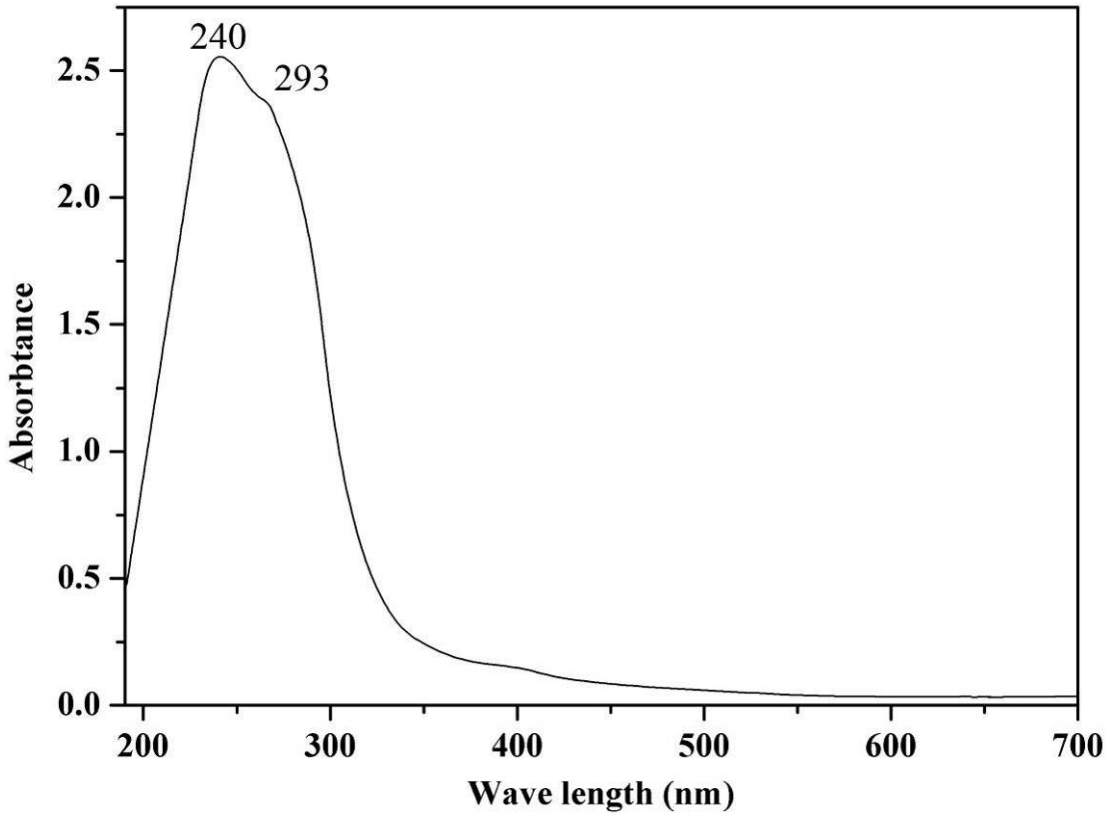


Fig. S9. UV-vis spectrum of **1**

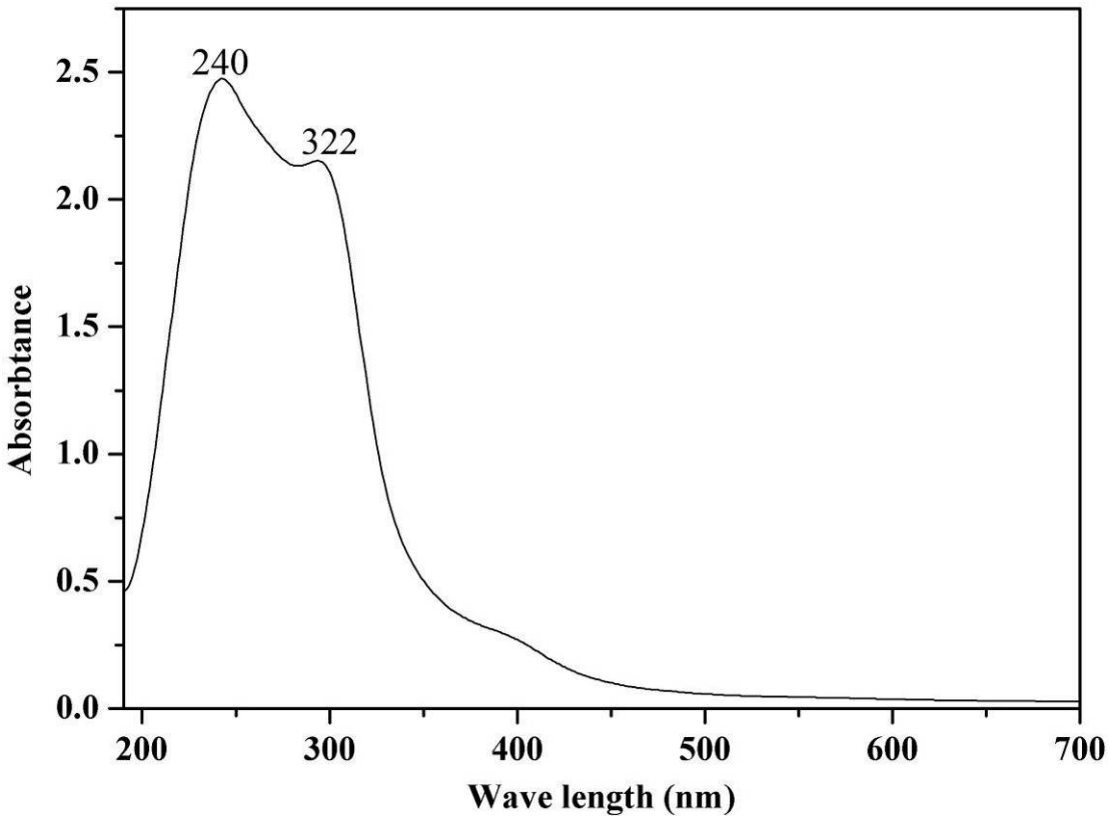


Fig. S10. UV-vis spectrum of **2**

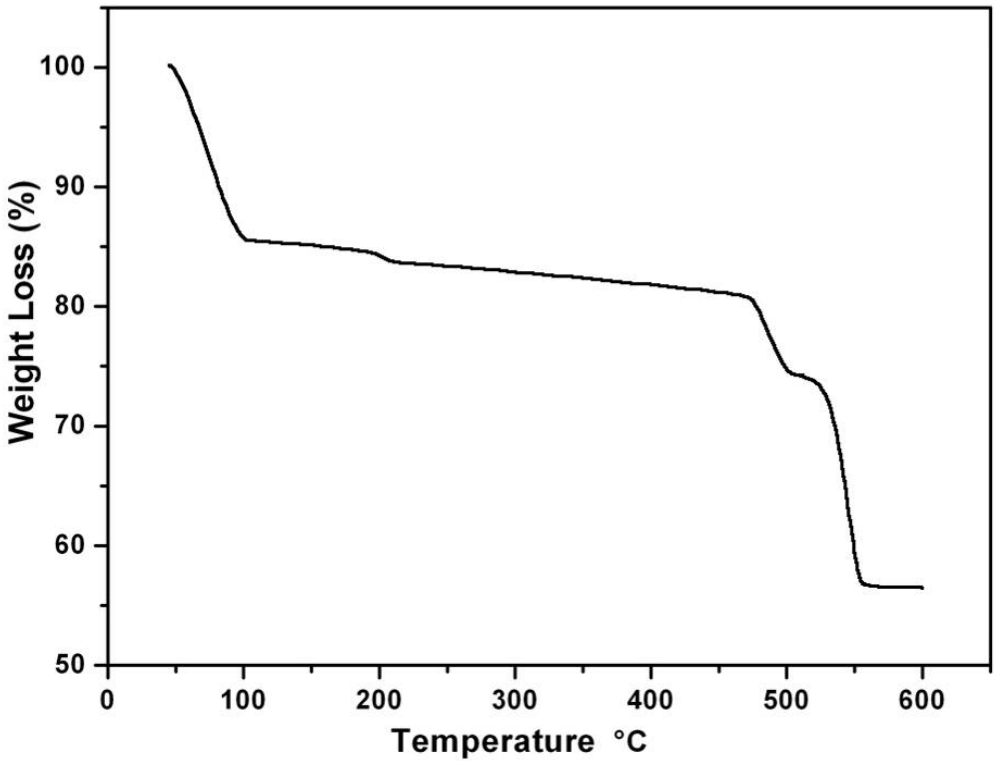


Fig. S11. TG curve of **1**

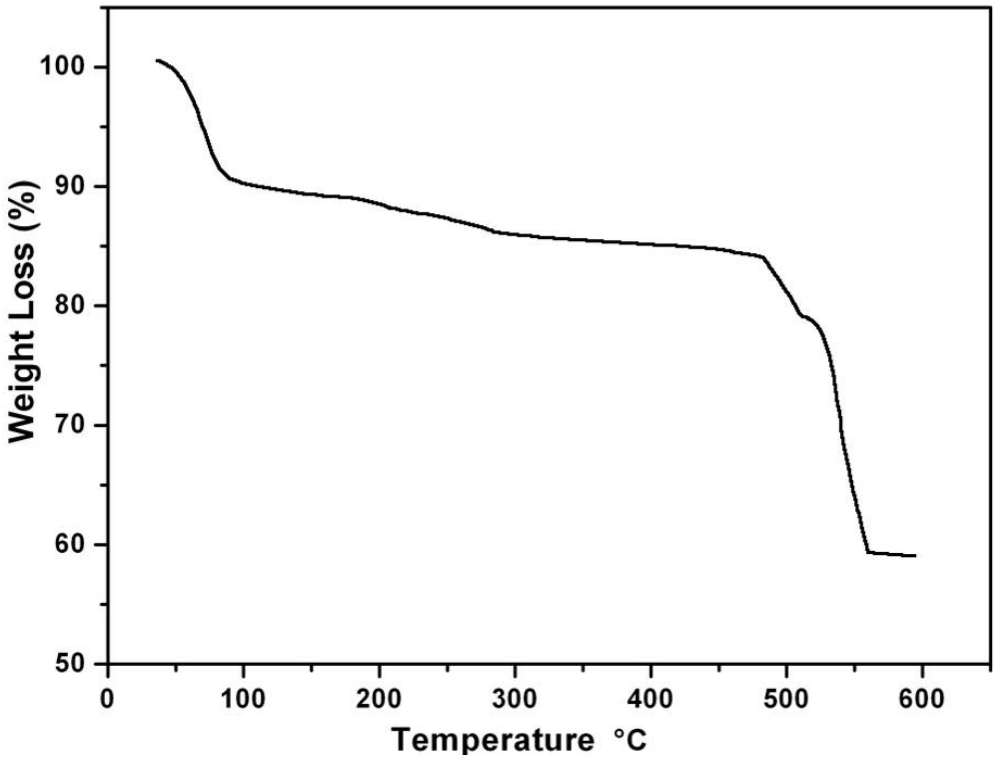


Fig. S12. TG curve of **2**

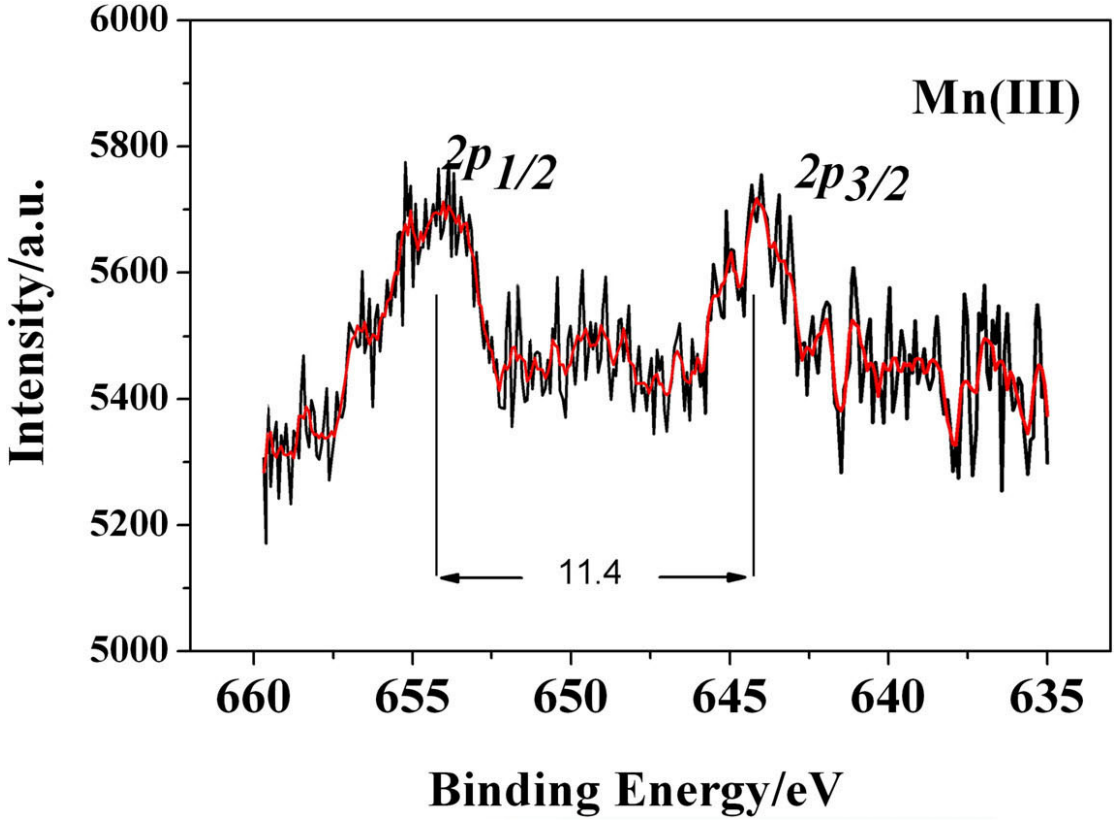


Fig. S13. XPS spectrum of compound **1**