Supporting Information

Synthesis and photocatalytic activities of two homochiral metal-organic frameworks with cages and hydrogen bonding helices

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Single crystal X-ray structural analysis

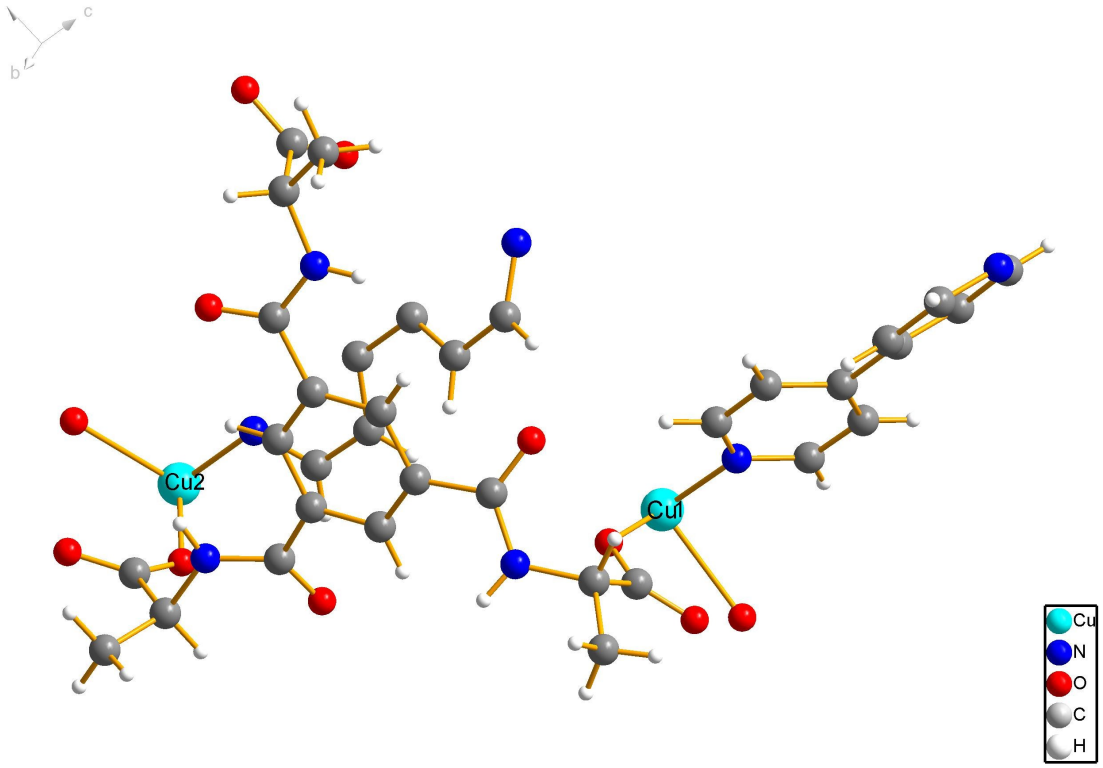

Fig. S1 The asymmetric cell structure of compound **1L**.

Powder X-ray Diffraction Studies

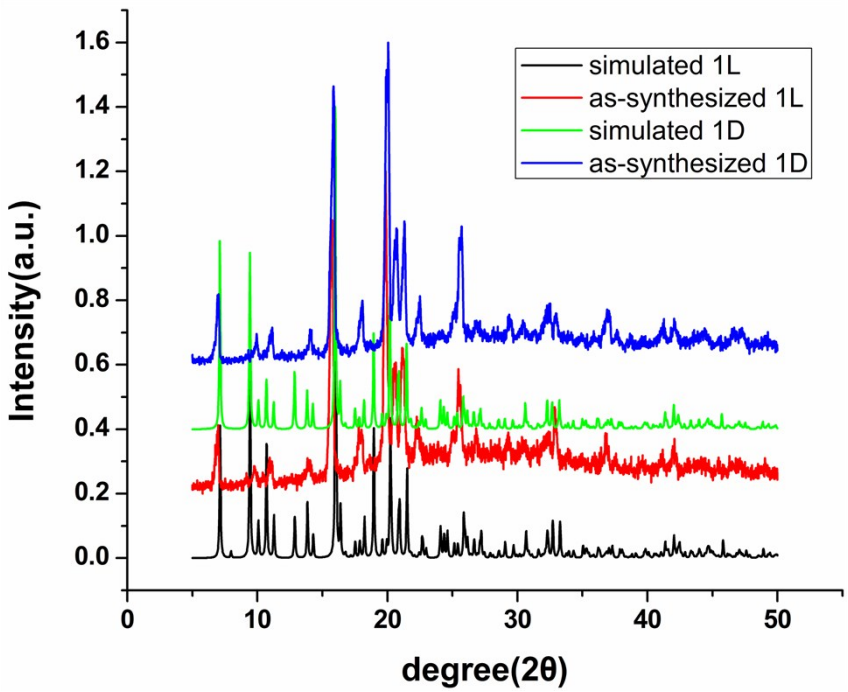

Fig. S2 The PXRD patterns of compound **1L** and **1D.**

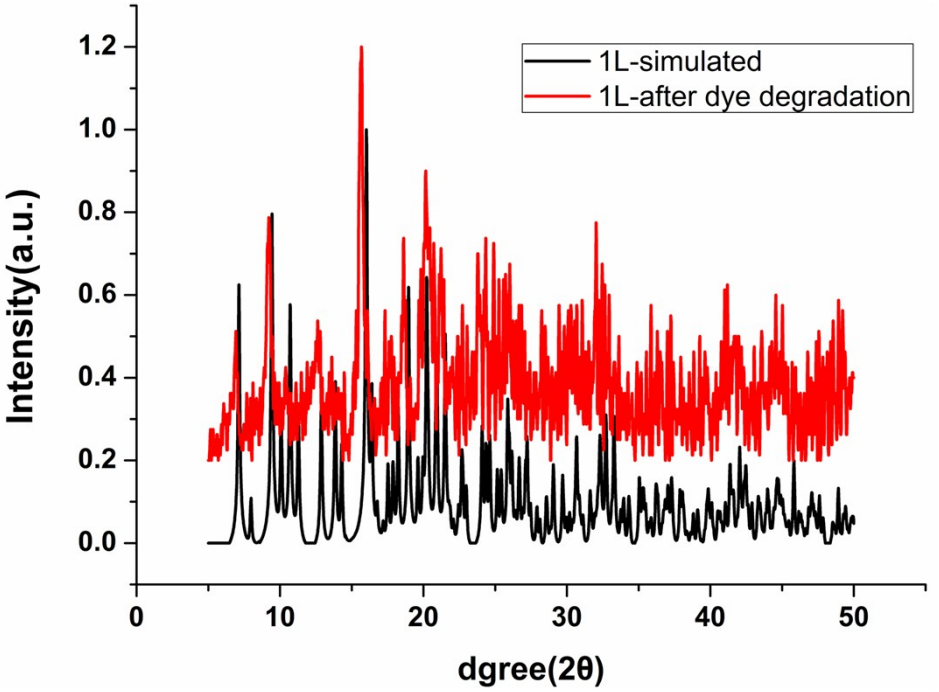

Fig. S3 The PXRD patterns of compound **1L** after dye degradation**.**

Thermogravimetric studies

Thermogravimetric analyses (TGA) were performed using a NETSCHZ STA-449C thermoanalyzer with a heating rate of 10°C/min under a nitrogen atmosphere.

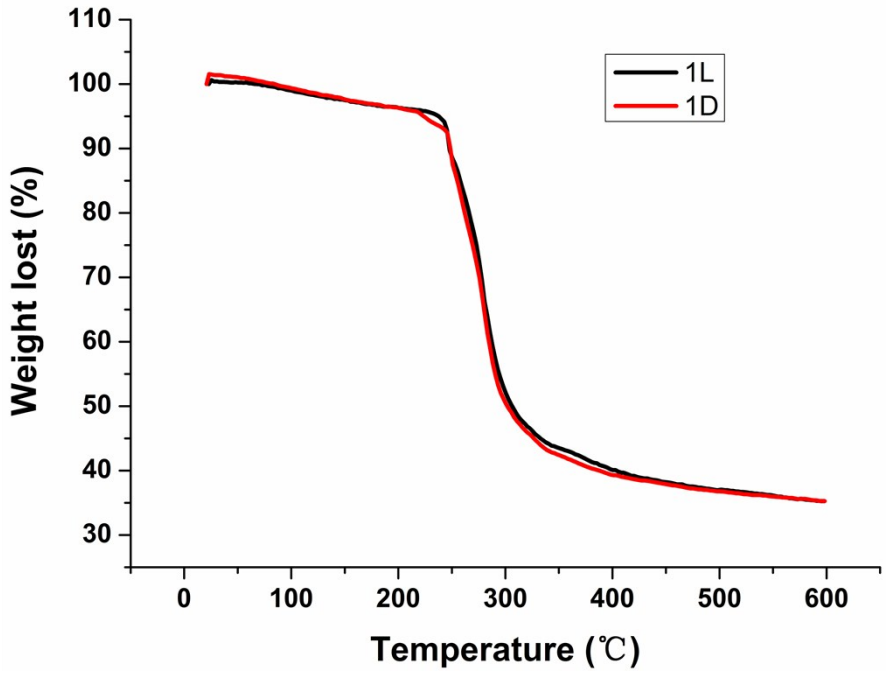

Fig. S4 The TG curves of compound **1L** and **1D.**

Photocatalytic properties

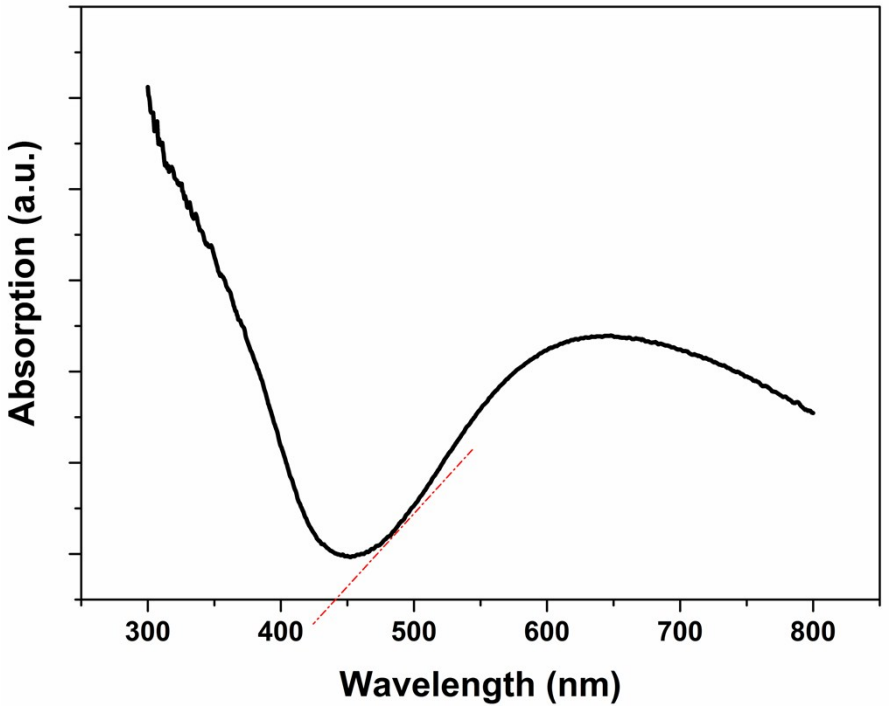

Fig. S5 The solid state UV-Vis reflectance spectrum of compound **1L**.

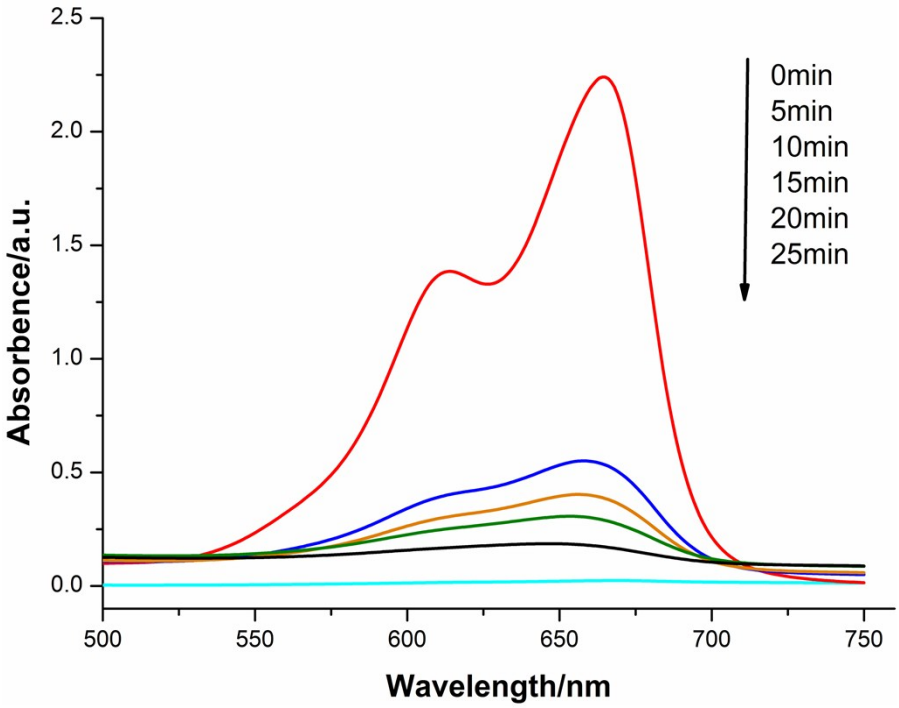

Fig. S6 The temporal UV-Vis absorption spectrum changes of MB aqueous solutions with the photo-degradation catalyzed by **1L** in the presence of H_2O_2 additive.

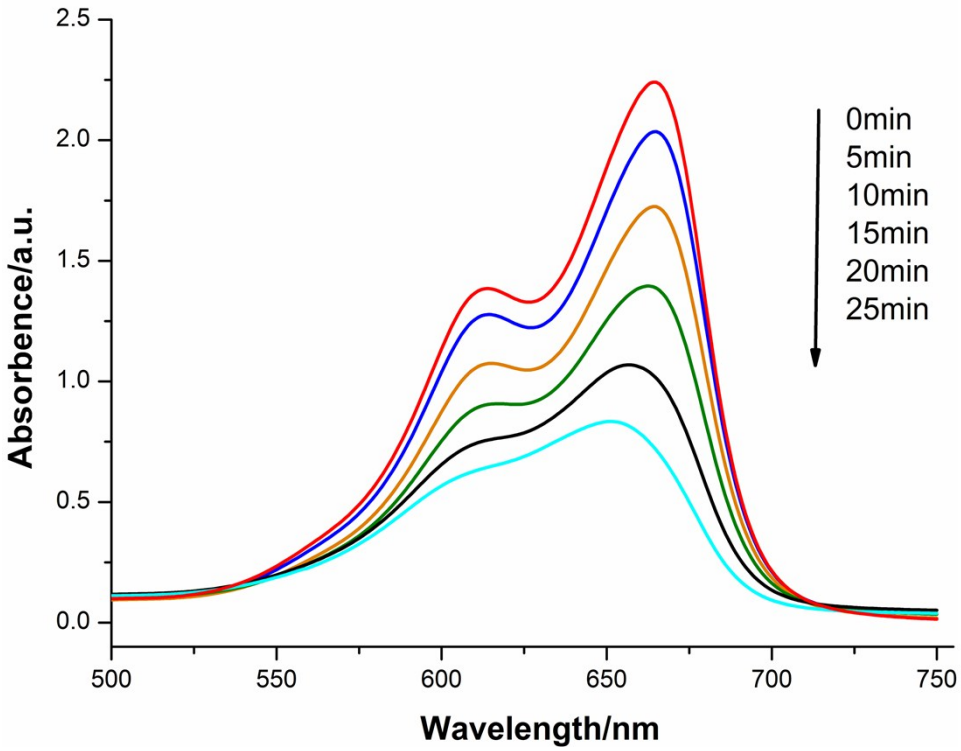

Fig. S7 The temporal UV-Vis absorption spectrum changes of MB aqueous solutions with the photo-degradation catalyzed by **1L**.

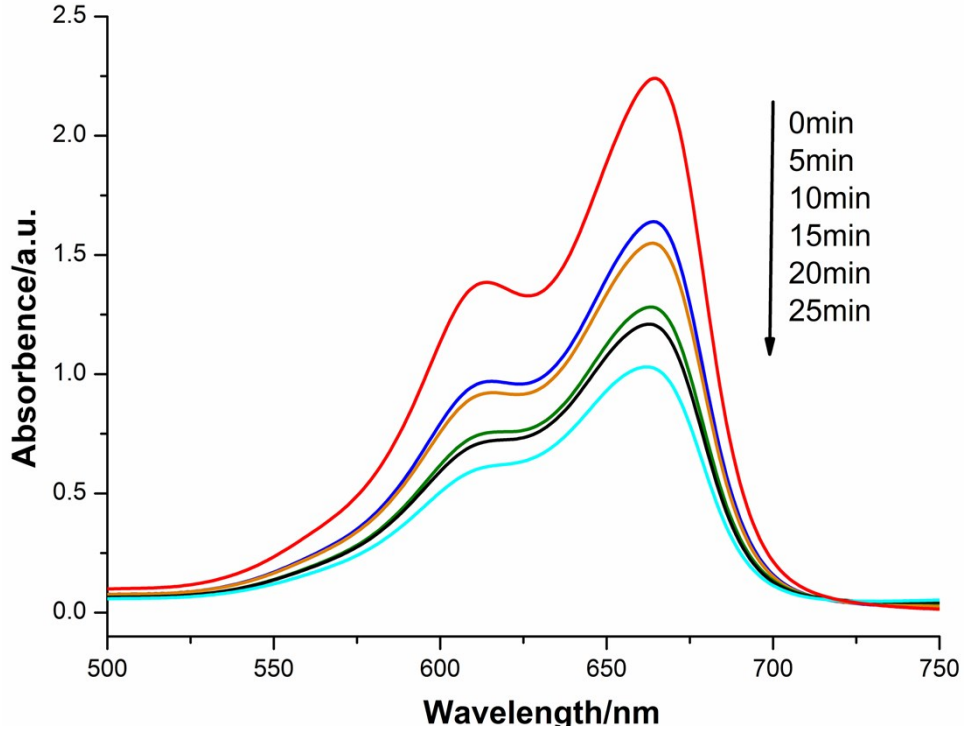

Fig. S8 The temporal UV-Vis absorption spectrum changes of MB aqueous solutions with the photo-degradation catalyzed by H_2O_2.

At room temperature, 0.0207 g crystal of **1L** was added into 20 mL of 4.0×10^{-5} mol L^{-1} methylene blue aqueous solution. Then 0.1 ml H_2O_2 solution (30%) was added in the solution. Afterwards, the suspensions were stirred in the dark for about 30 min and then exposed to the 500 W xenon arc lamp irradiation with visible light. 2 ml reaction solution was taken every 5 minutes until the solution become colourless. Then the solutions were filtered and analyzed by the UV-Vis spectrophotometry (Lambda35). The photo-degradation reaction of MB aqueous solution catalysed by **1L** and H_2O_2 respectively was the same as above except that the catalyst is different.