

Synthesis, structures and physical properties of coordination polymers based on a V-shaped dicarboxylic ligand

Yan-Yan Yang,^{a, b} Zu-Jin Lin,^b Tao-Tao Liu,^{a, b} Jun Liang^{b, c} and Rong Cao^{*b}

^a *College of Chemistry, Fuzhou University, Fuzhou, 350002, China.*

^b *State Key Laboratory of Structural Chemistry, Fujian Institute of Research on the
Structure of Matter, University of Chinese Academy of Sciences, Fujian, Fuzhou,
350002, P. R.*

China. E-mail: rcao@fjirsm.ac.cn

^c *College of Chemistry and Chemical Engineering, Xiamen University, Xiamen,
361005, China*

Contents

1- X-ray Crystallography	S1-S4
2- Powder X-ray diffraction	S5-S8
3- Thermogravimetric analysis	S9-S12
4- IR spectra of 1-4	S13-S16

1. X-ray Crystallography

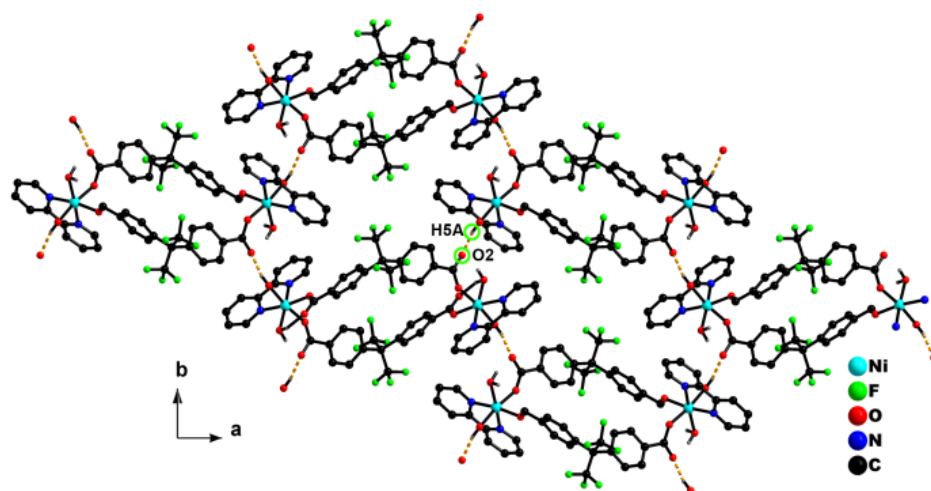


Fig. S1 The metal-organic rings link to each other to form 2D plane paralleling to crystallographic *ab* plane by the hydrogen bonds between O2 and H5A. (H5A means the hydrogen atom in the coordination water molecule around the central nickel atom) in compound **1**

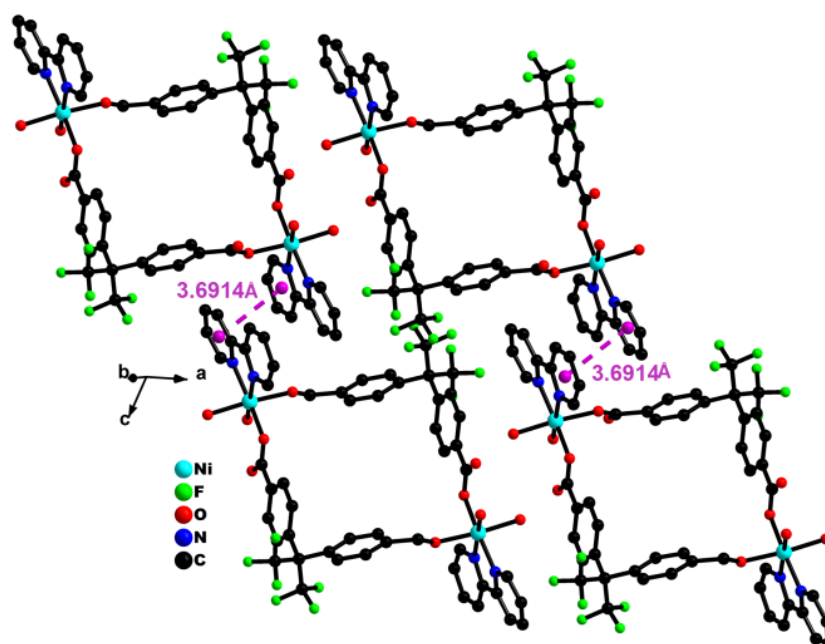


Fig. S2 π - π packing interactions among the separate metal-organic rings in compound **1**

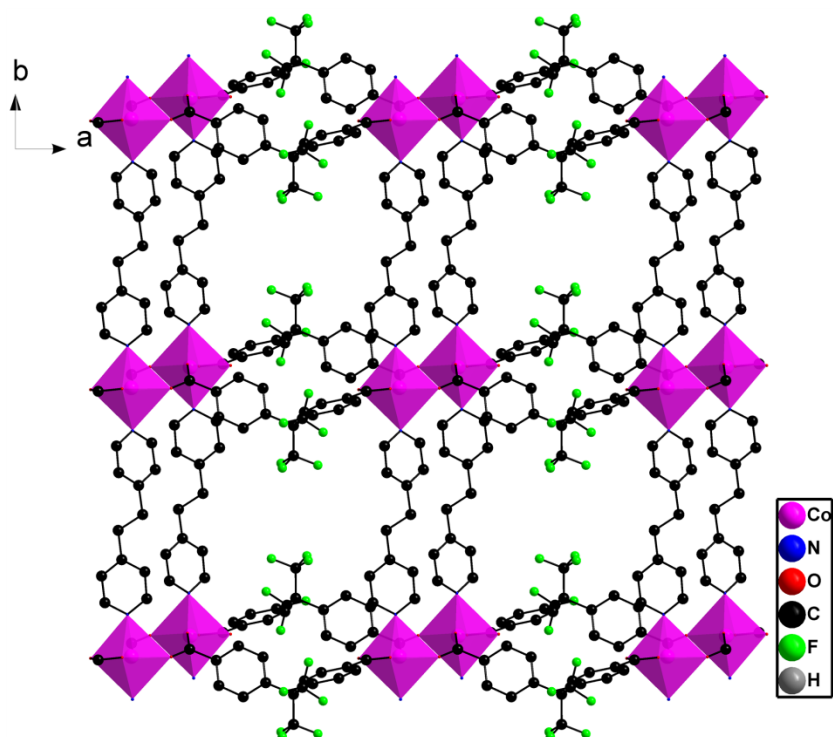


Fig. S3 A view of the structure similar to compound **3** (compound **1** in the article previously reported by our group).

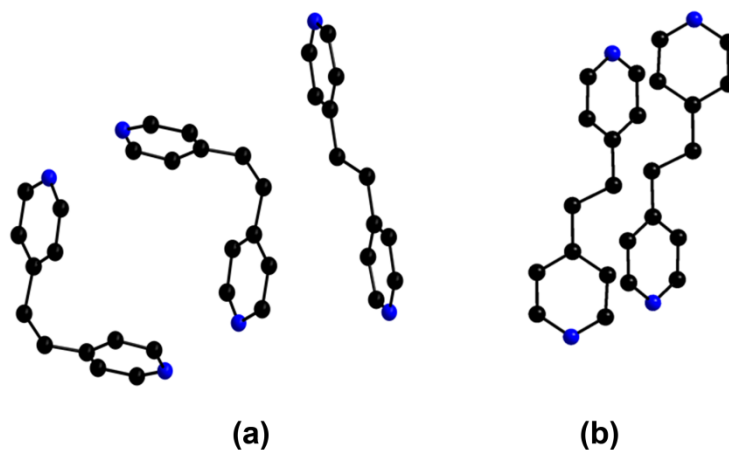


Fig. S4 (a) A view of BPE with cis configuration (in the form of double chain) and with trans configuration (in the form of a single chain) in compound **3**; **(b)** A view of BPE with trans configuration (in the form of parallel double chain) in compound **1** in the article previously reported by our group. Color code: blue, nitrogen; black, carbon.

2- Powder X-ray diffraction

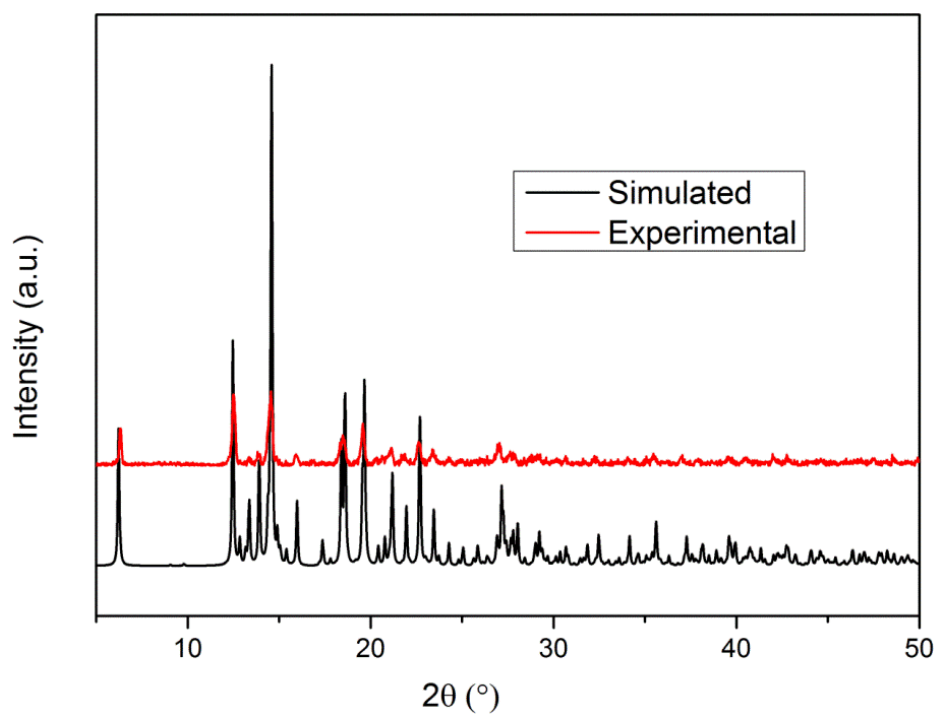


Fig. S5 PXRD pattern of compound **1**

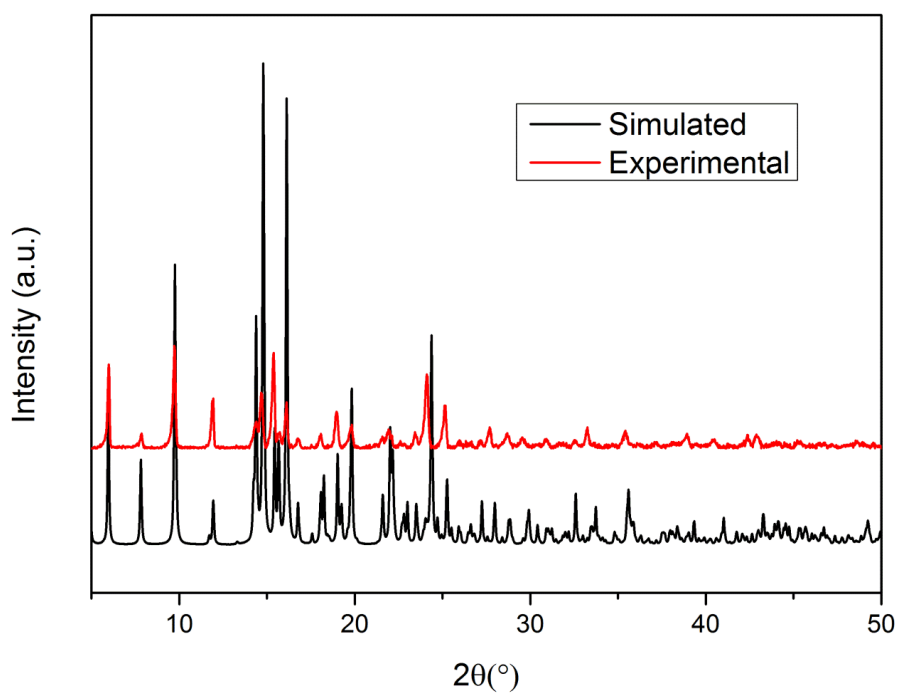


Fig.S6 PXRD pattern of compound **2**

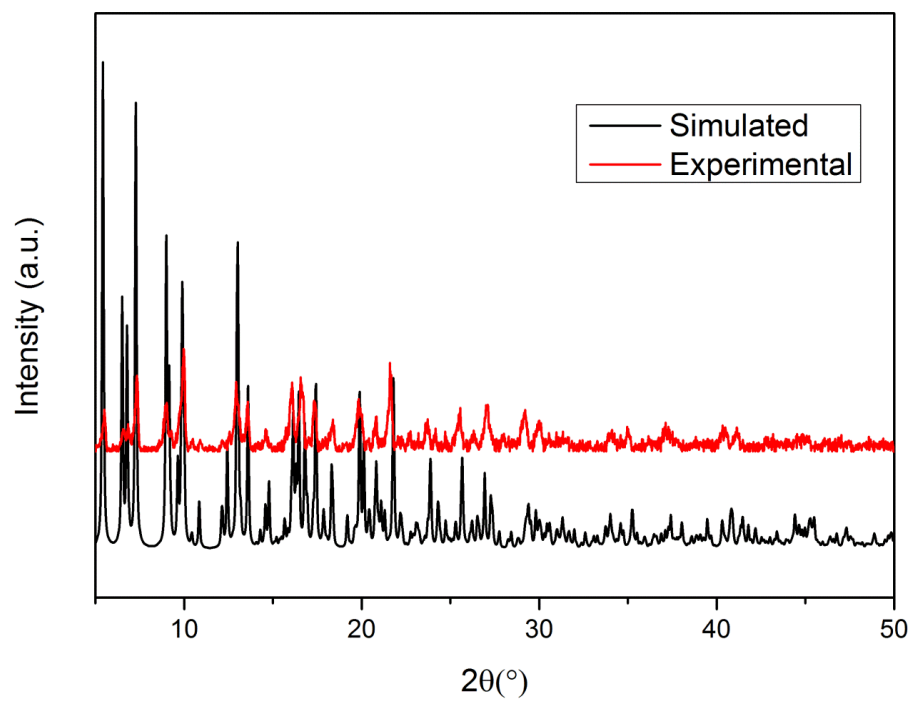


Fig. S7 PXRD pattern of compound **3**

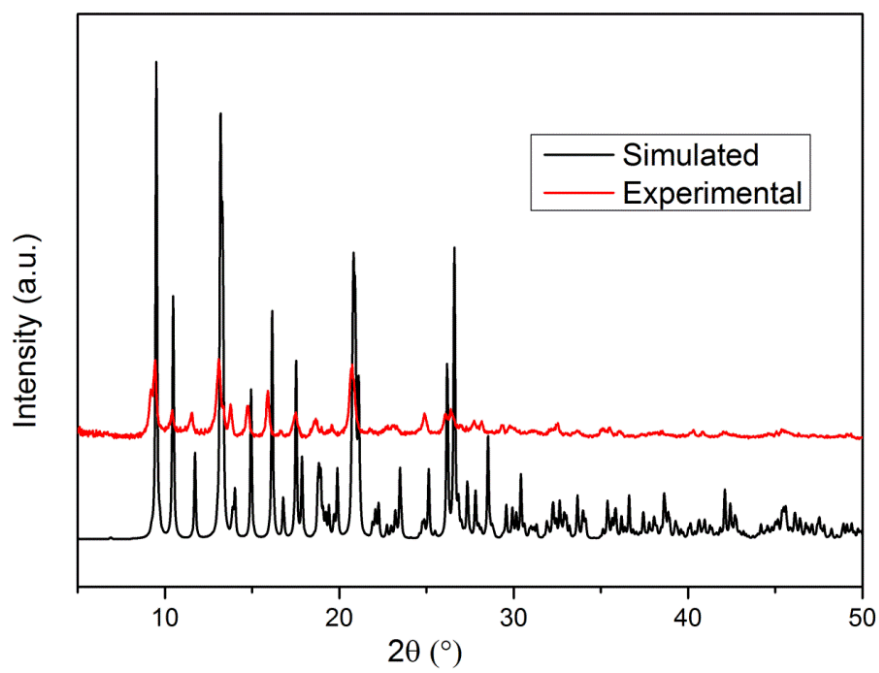


Fig.S8 PXRD pattern of compound **4**

3- Thermogravimetric Analysis

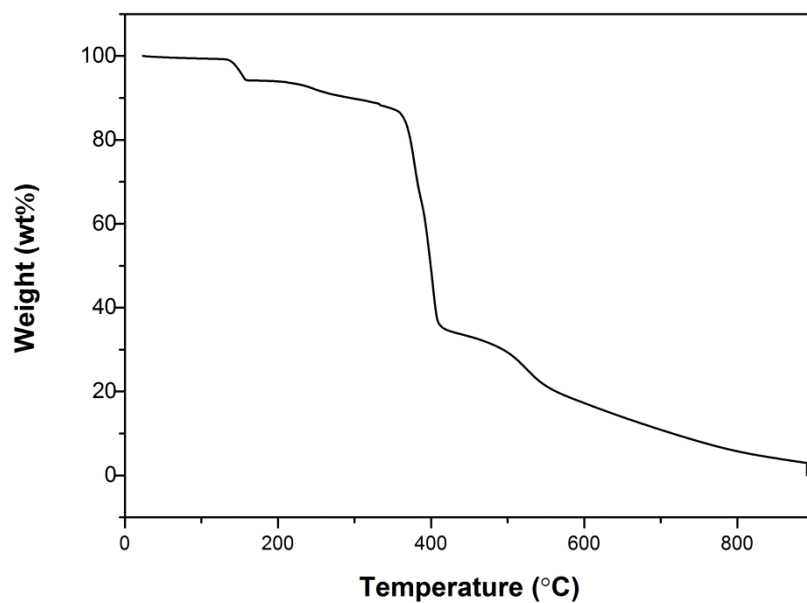


Fig S9 The TGA curves of compound **1**

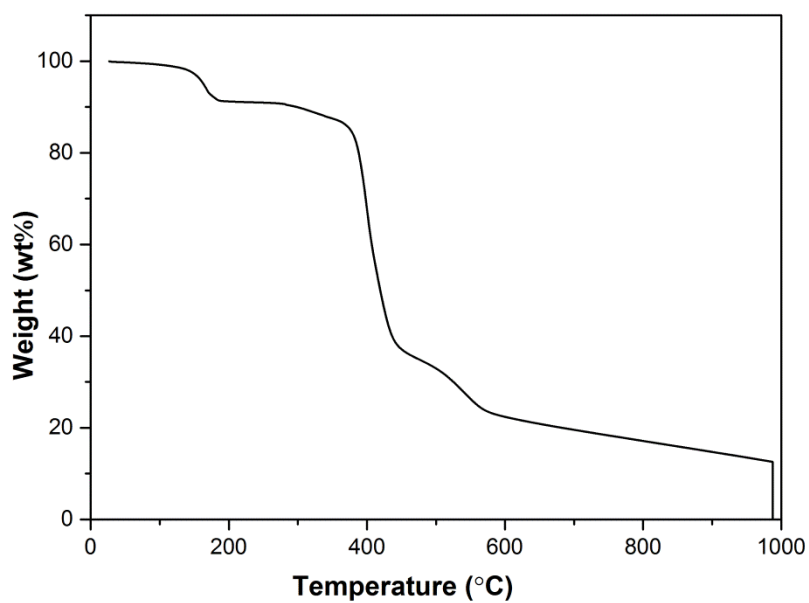


Fig S10 The TGA curves of compound **2**

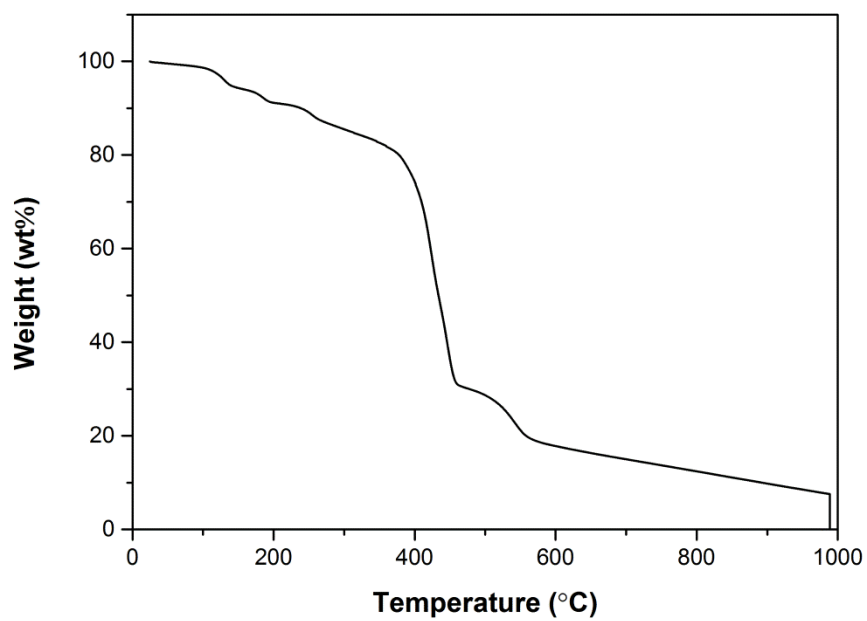


Fig S11 The TGA curves of compound **3**

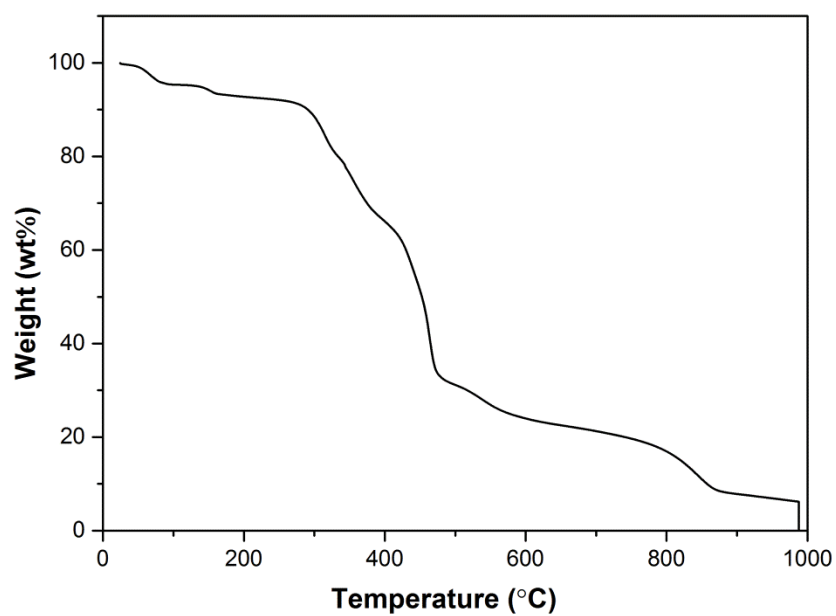


Fig S12 The TGA curves of compound **4**

4- IR spectra of 1-4

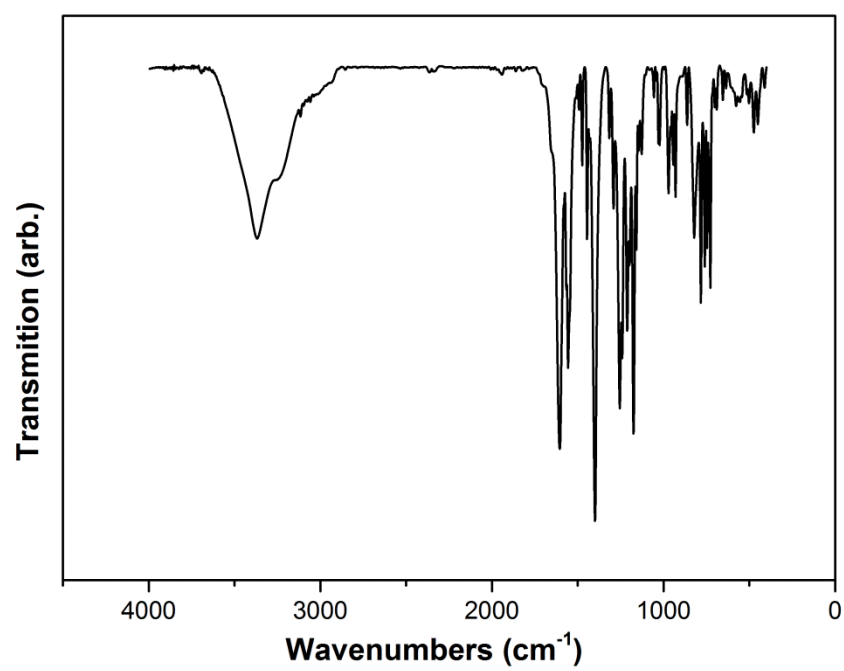


Fig.S13 IR spectra of compound **1**

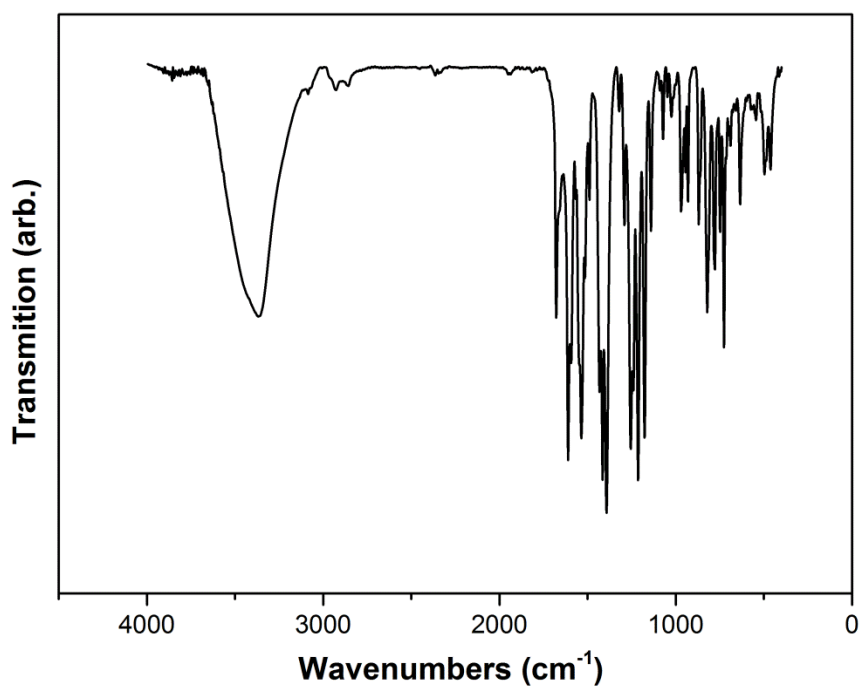


Fig. S14 IR spectra of compound **2**

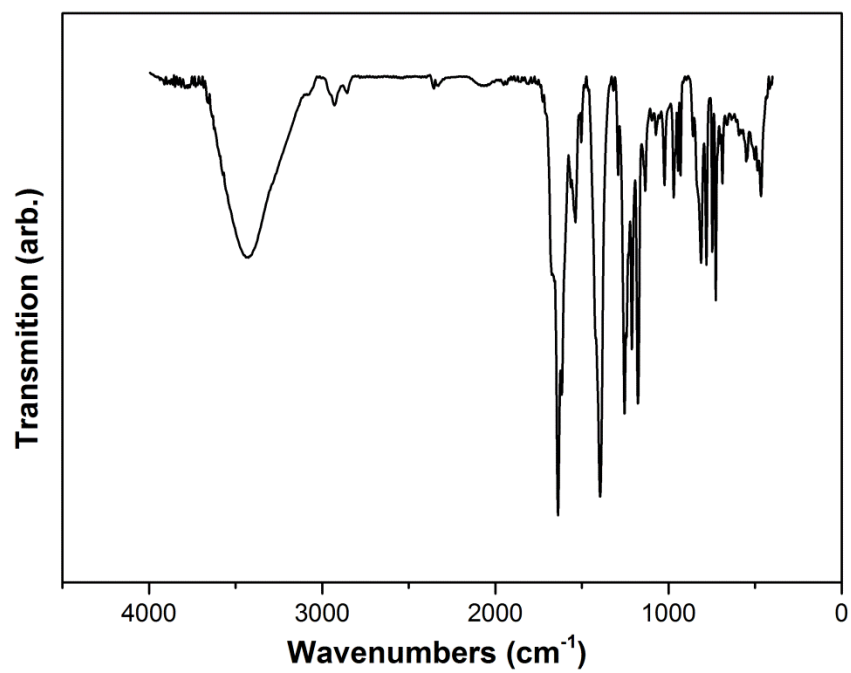


Fig.S15 IR spectra of compound **3**

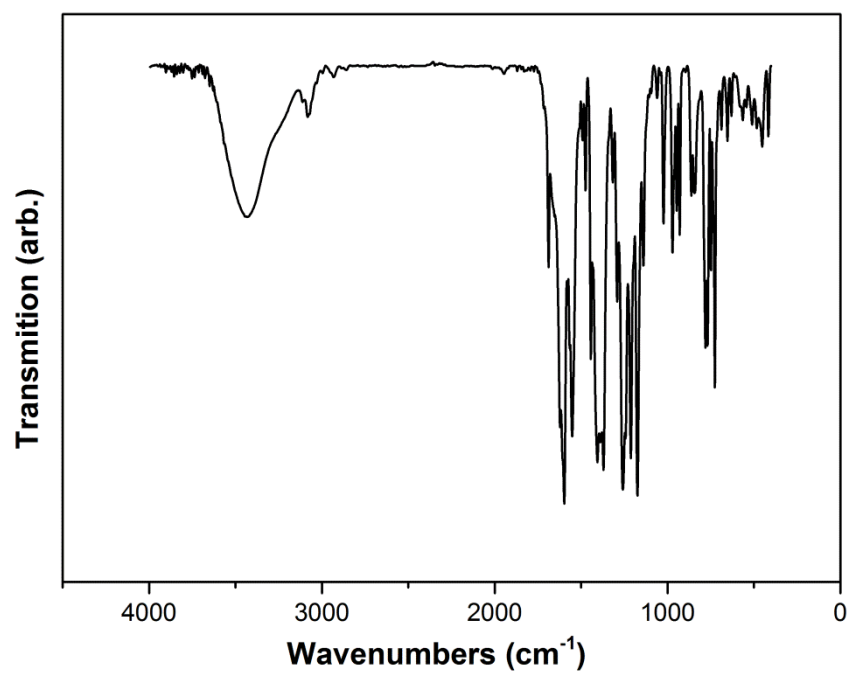


Fig.S16 IR spectra of compound **4**