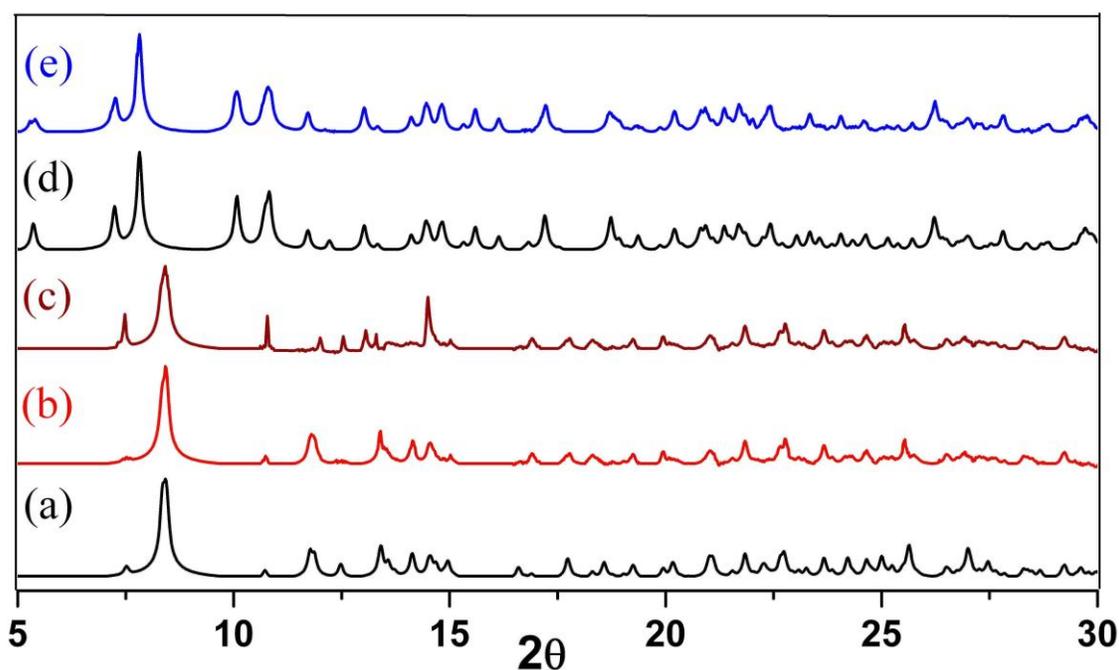


## Supporting information

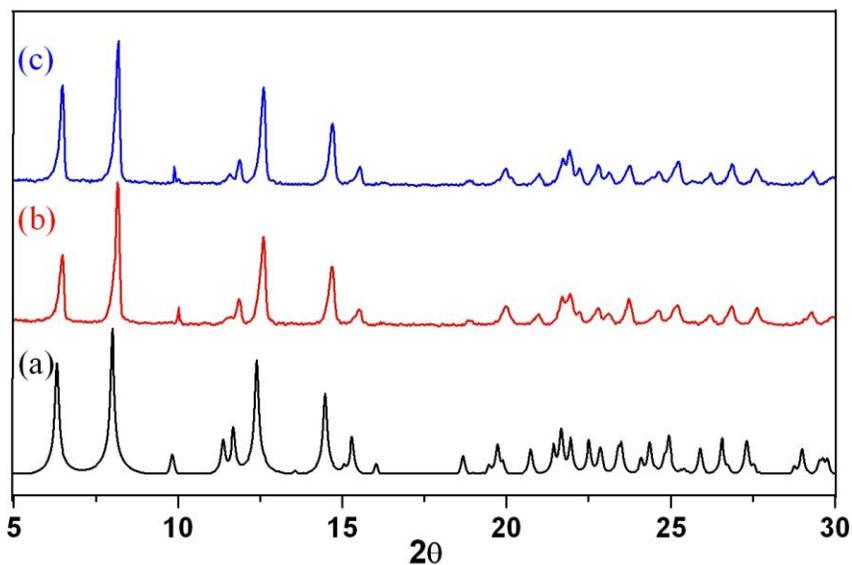
### Structural diversity in the complexes based on a hetero-trimetallic $\text{Cu}_2\text{Cd}$ node and dicyanamide spacer: A hexanuclear cluster, a 1D stair polymer and a 1D zigzag chain as supramolecular isomers, and a 3D network

Lakshmi Kanta Das and Ashutosh Ghosh\*

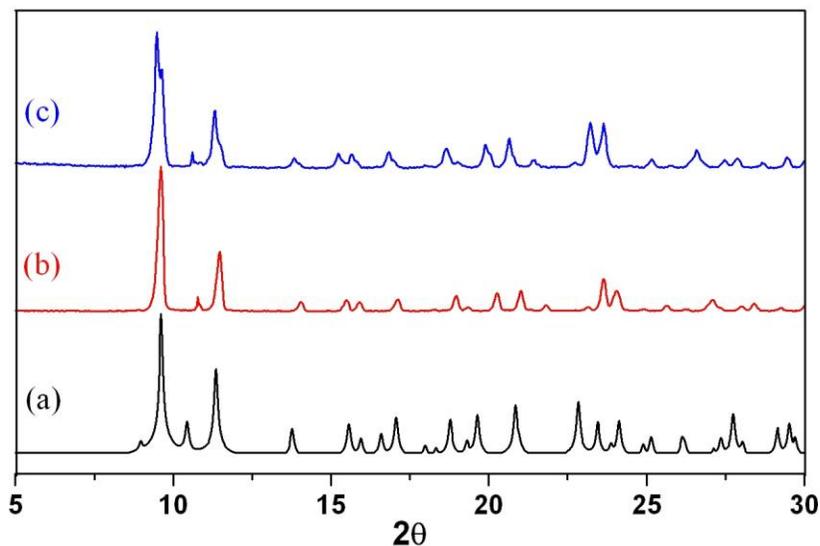
Department of Chemistry, University College of Science and Technology, University of Calcutta, 92, A.P.C. Road, Kolkata-700 009, India; e-mail: [ghosh\\_59@yahoo.com](mailto:ghosh_59@yahoo.com)



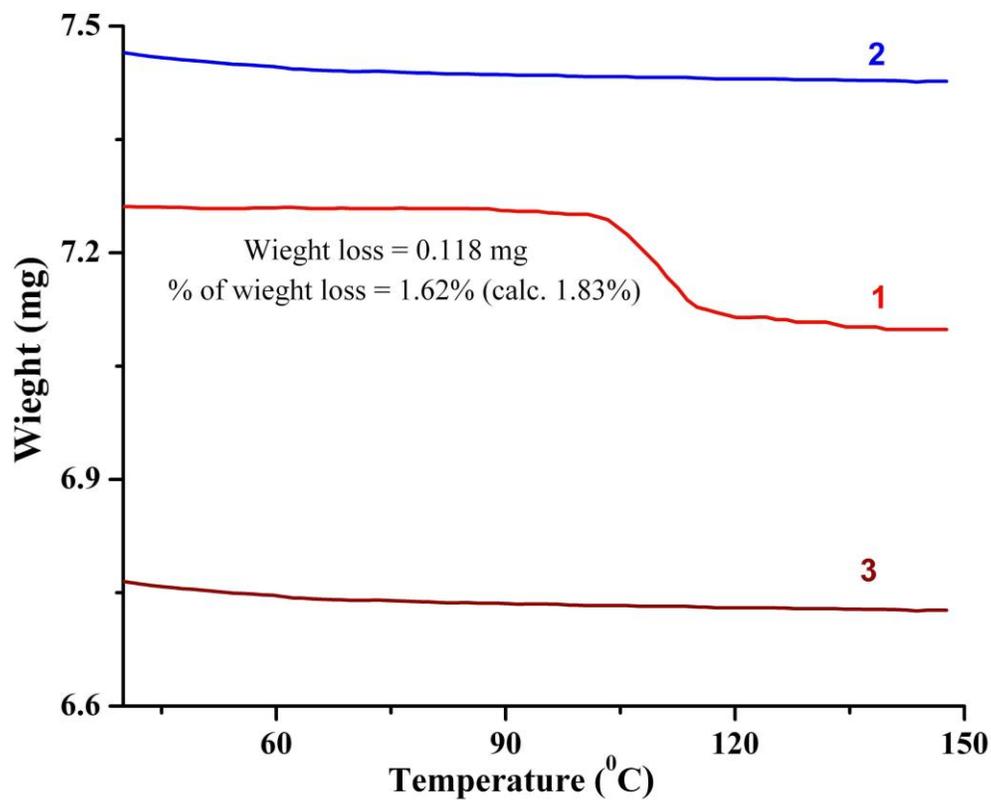
**Fig.S1.** (a) Simulated pattern of complex **1** (b) Experimental pattern of complex **1** obtained from the mixture where the molar ratios of  $[\text{CuL}]$ , cadmium perchlorate and sodium dicyanamide are 2:1:1 at room temperature (c) Experimental pattern of complex **1** after heating  $150^\circ\text{C}$  (d) Simulated pattern of complex **2** (e) Experimental pattern of complex **2** obtained from the mixture where the molar ratios of  $[\text{CuL}]$ , cadmium perchlorate and sodium dicyanamide are 2:1:1 after 10 h reflux.



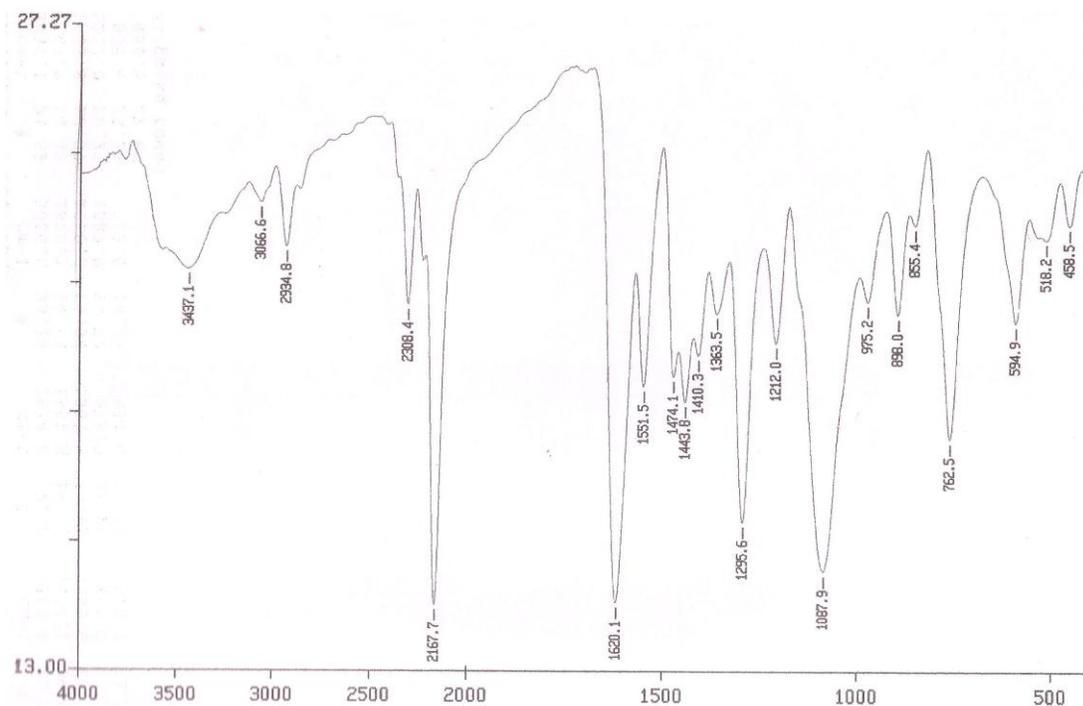
**Fig.S2.** (a) Simulated pattern of complex **3** (b) Experimental pattern of complex **3** obtained from the mixture where the molar ratios of [CuL], cadmium perchlorate and sodium dicyanamide are 2:3:1 at room temperature (c) Experimental pattern of complex **3** obtained from the mixture where the molar ratios of [CuL], cadmium perchlorate and sodium dicyanamide are 2:3:1 after 10 h reflux.



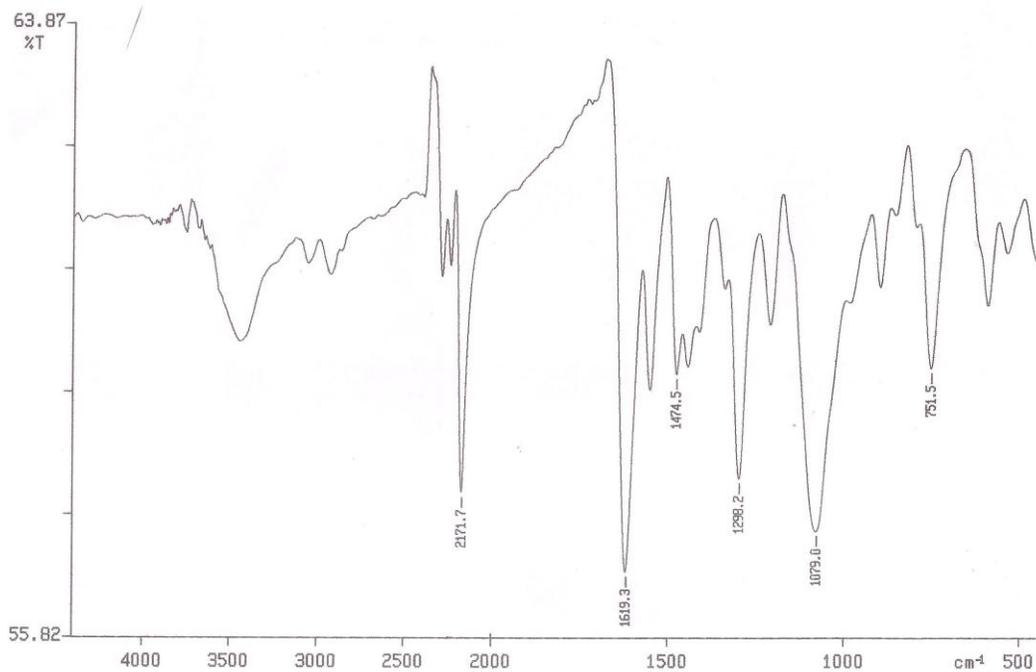
**Fig.S3.** (a) Simulated pattern of complex **4** (b) Experimental pattern of complex **4** obtained from the mixture where the molar ratios of [CuL], cadmium perchlorate and sodium dicyanamide are 2:1:2 at room temperature (c) Experimental pattern of complex **4** obtained from the mixture where the molar ratios of [CuL], cadmium perchlorate and sodium dicyanamide are 2:1:2 after 10 h reflux.



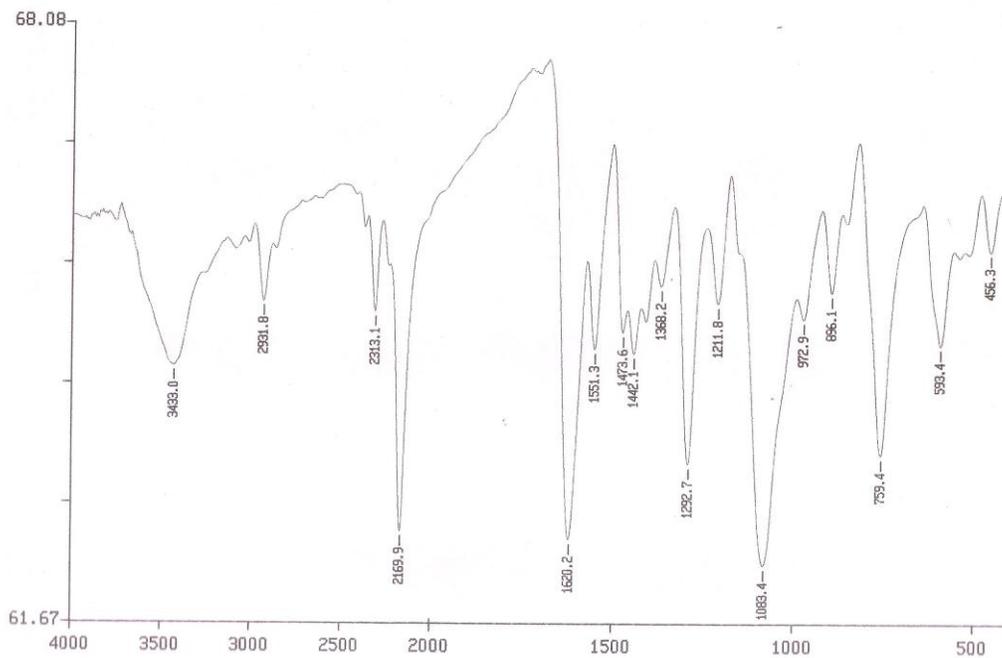
**Fig. S4.** Thermograms of complex 1-3.



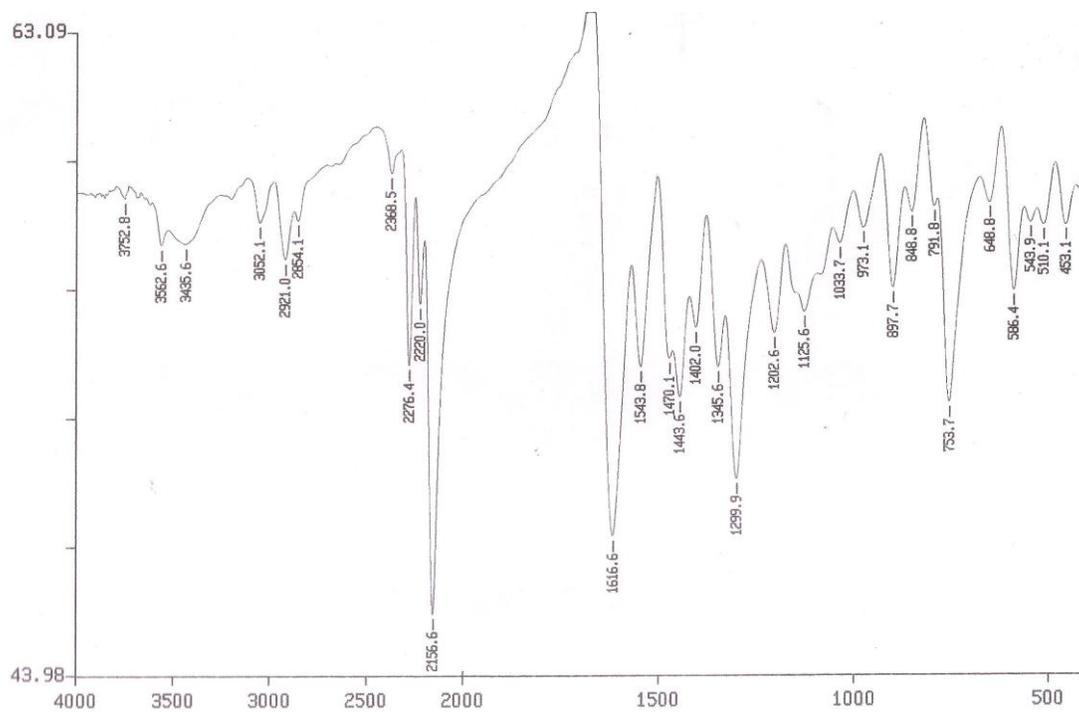
**Fig. S5.** IR spectrum of complex 1.



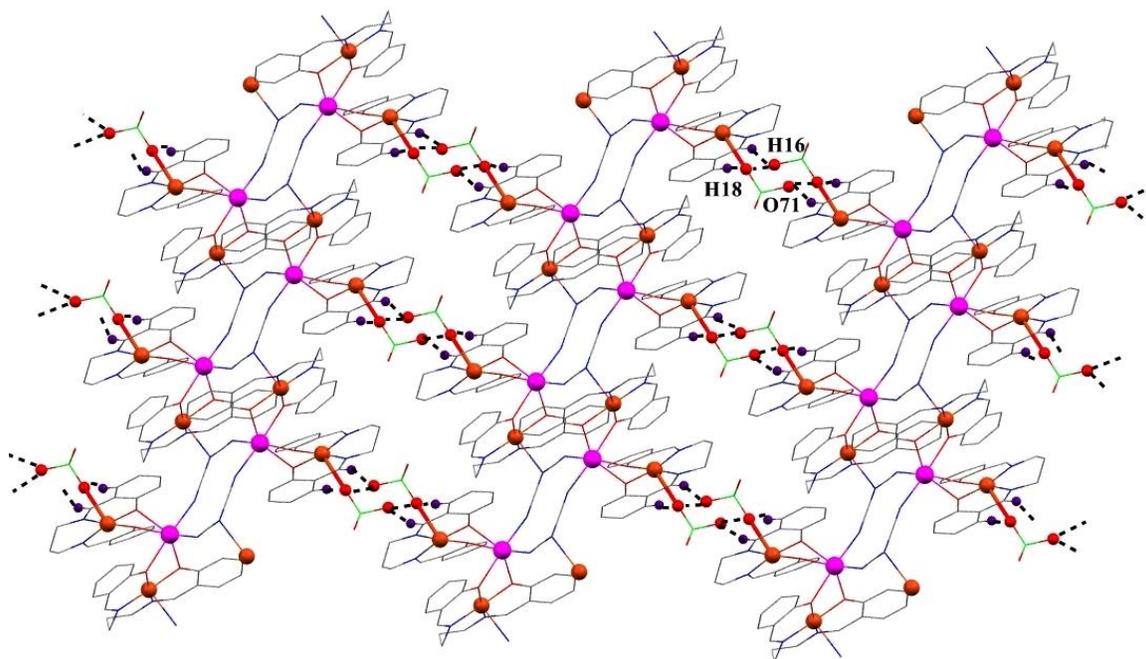
**Fig. S6.** IR spectrum of complex 2.



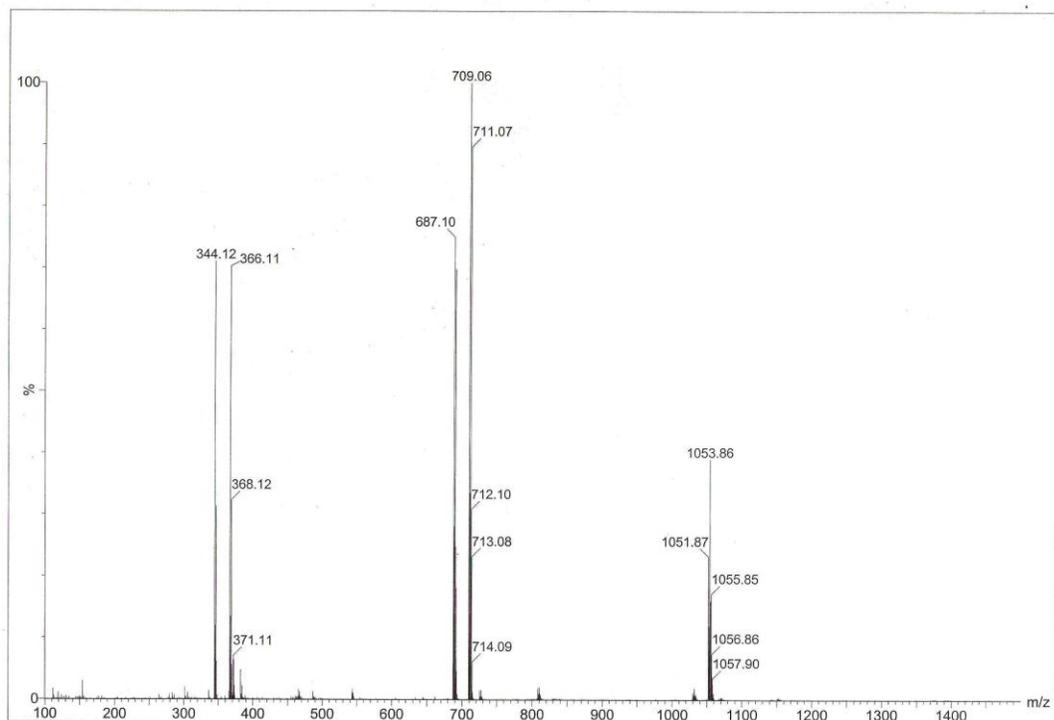
**Fig. S7.** IR spectrum of complex 3.



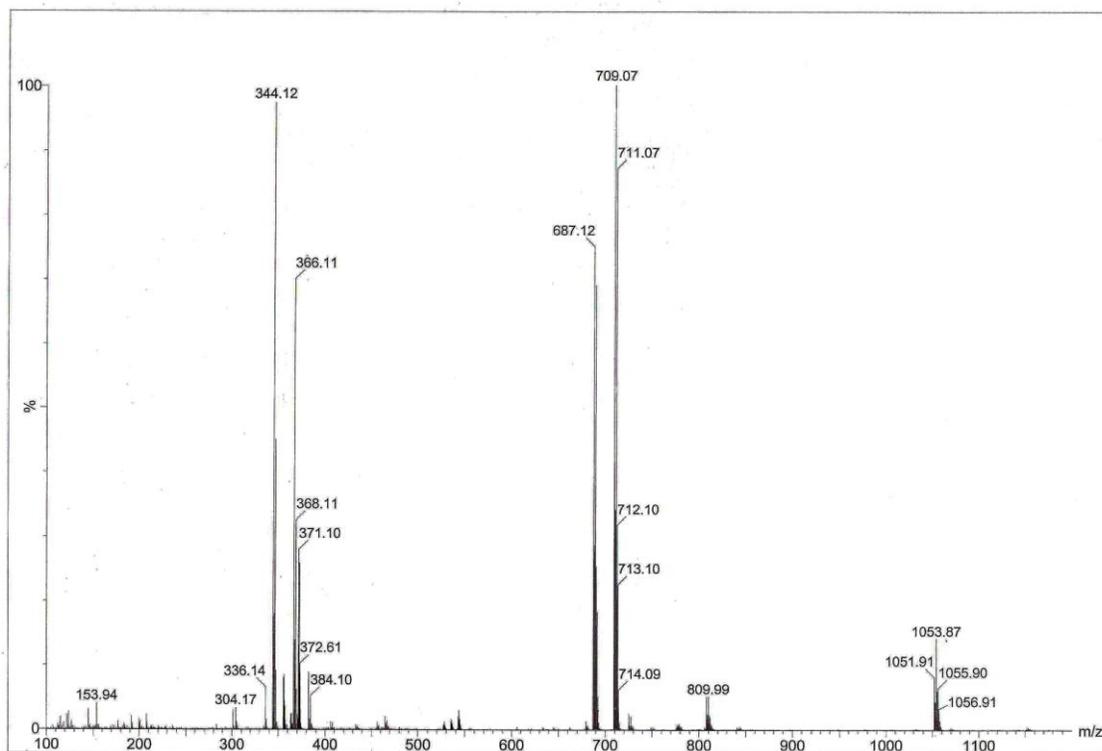
**Fig. S8.** IR spectrum of complex 4.



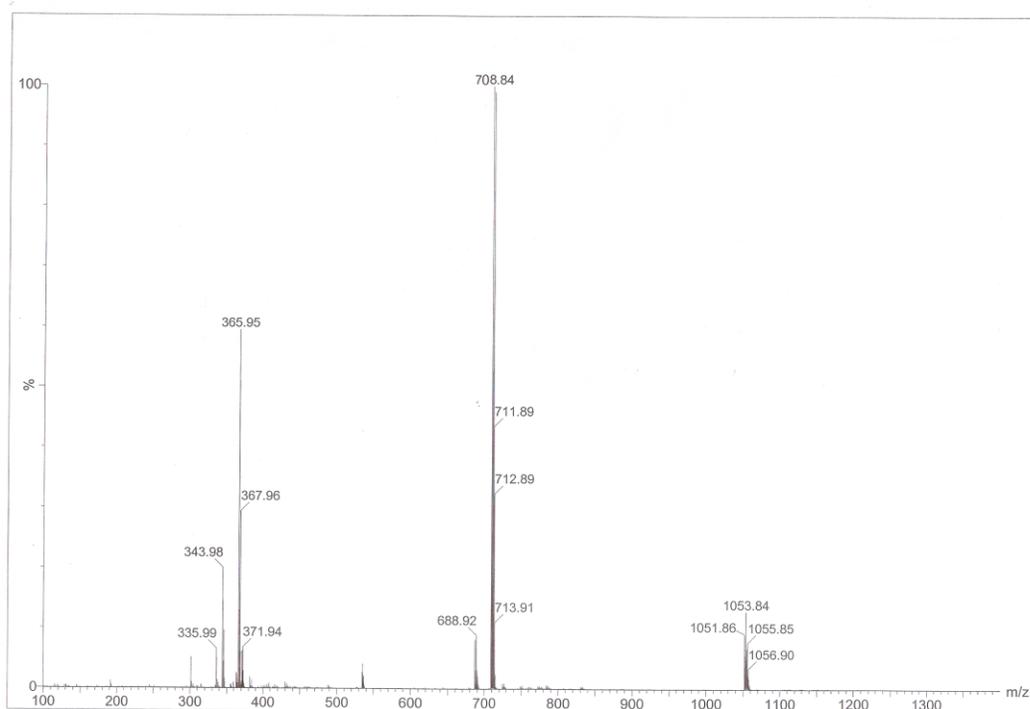
**Fig. S9.** 2D supramolecular structure of complex 2.



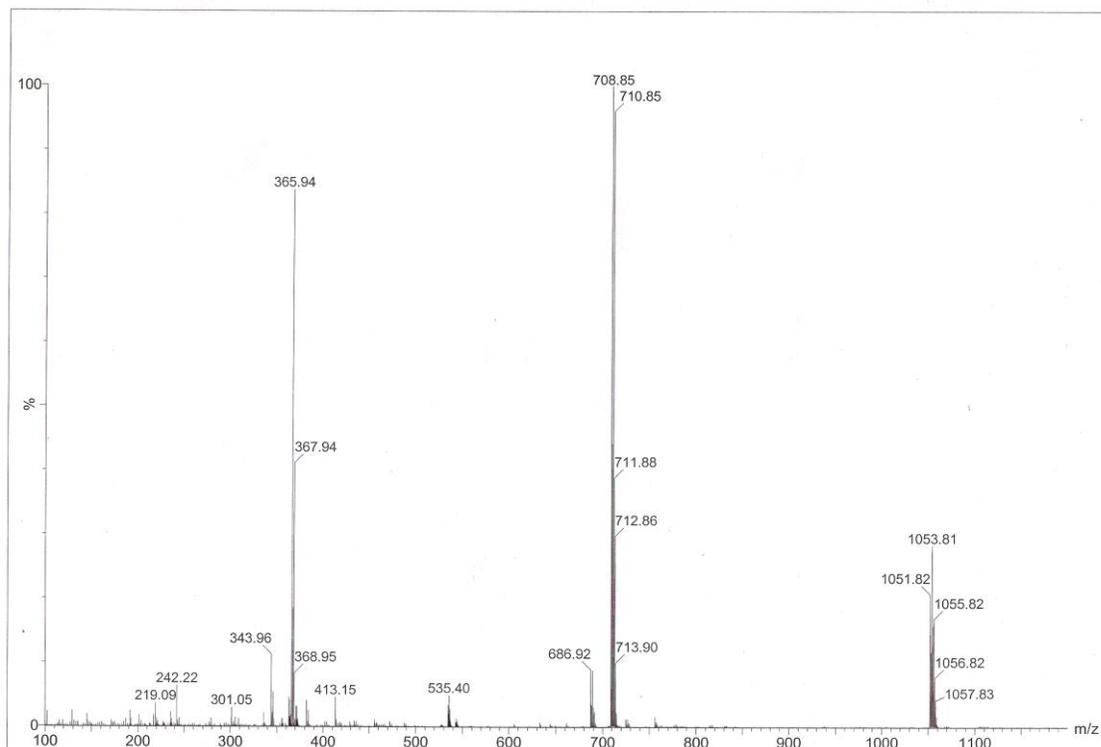
**Fig. S10.** Mass spectrum of complex **1** in methanol.



**Fig. S11.** Mass spectrum of complex **2** in methanol.



**Fig. S12.** Mass spectrum of complex **3** in methanol.



**Fig. S13.** Mass spectrum of complex **4** in methanol.