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Electronic Supplementary Information (ESI)

Crystal-to-Crystal Transformation and Linker Exchange in Cd(II) Coordination Polymers Based on Flexible Bis-pyridyl-bis-amide and 1,4-Naphthalenedicarboxylate

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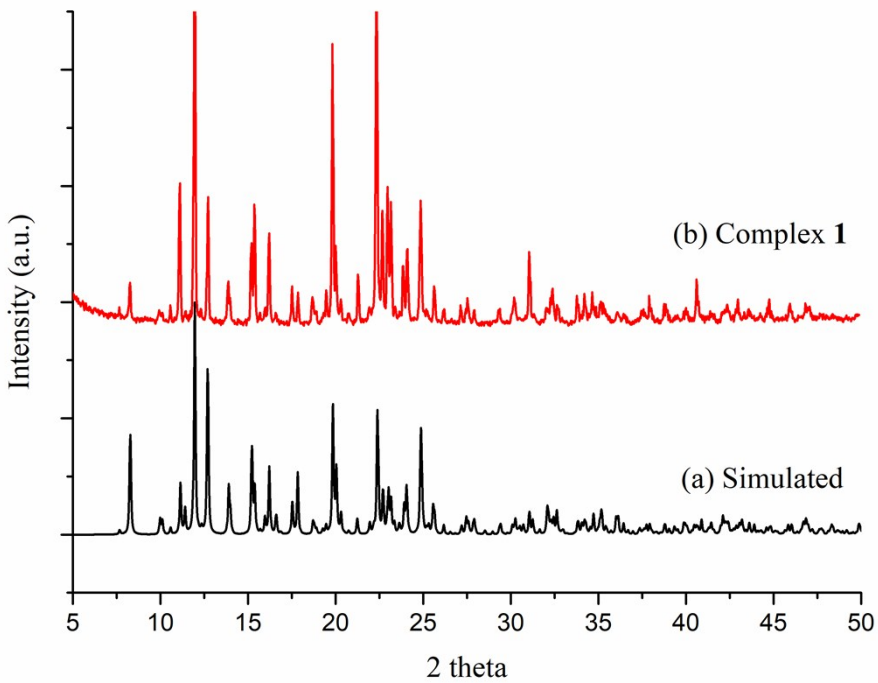

Fig. S1 The PXRD patterns of (a) simulated single-crystal x-ray data and (b) bulk materials as synthesized for complex **1**.

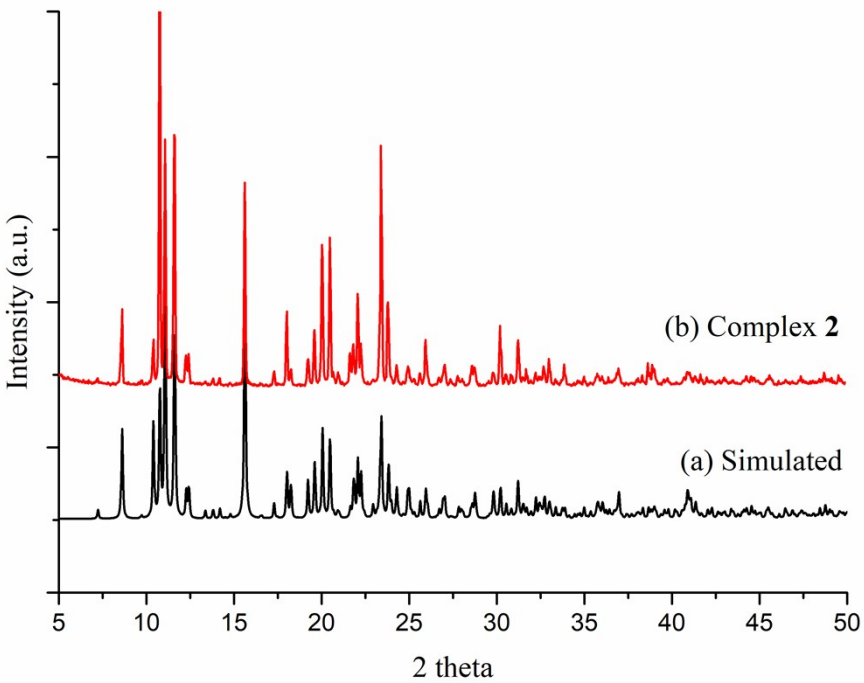

Fig. S2 The PXRD patterns of (a) simulated single-crystal x-ray data and (b) bulk materials as synthesized for complex **2**.

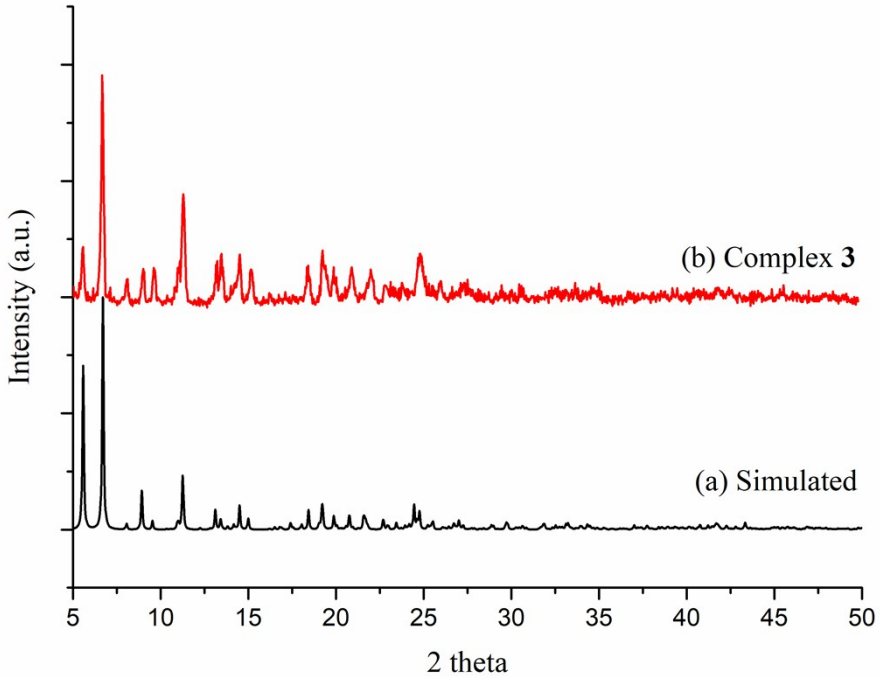

Fig. S3 The PXRD patterns of (a) simulated single-crystal x-ray data and (b) bulk materials as synthesized for complex **3**.

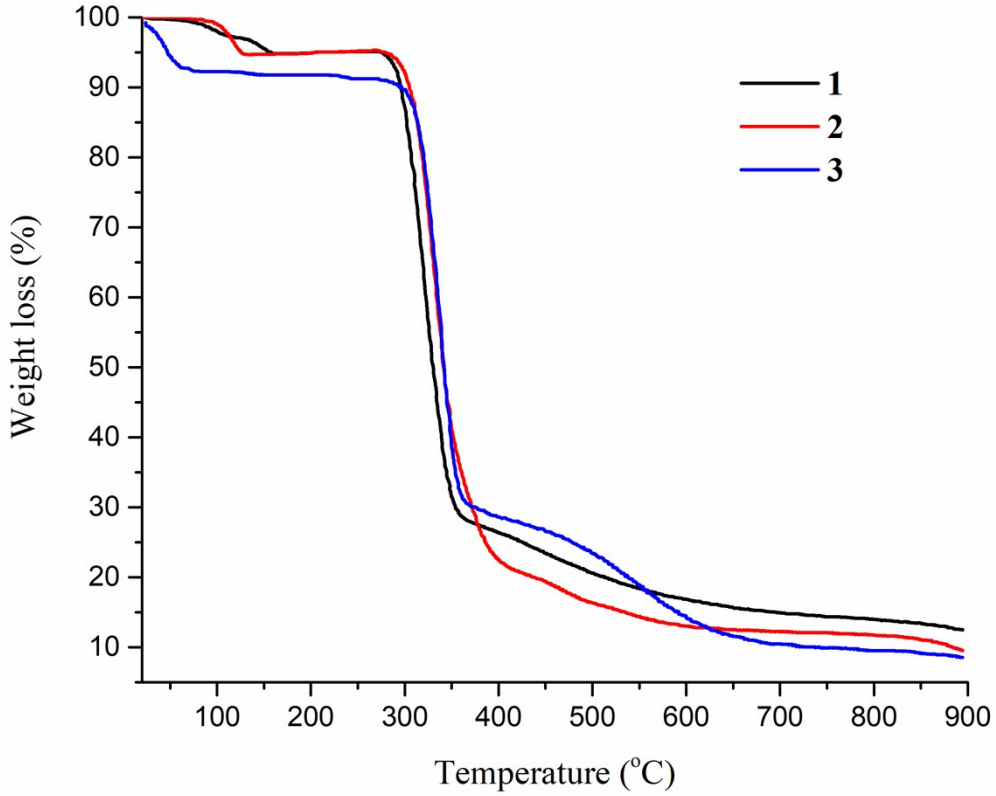

Fig. S4 The thermal gravimetric analysis (TGA) curve for complex **1-3**.

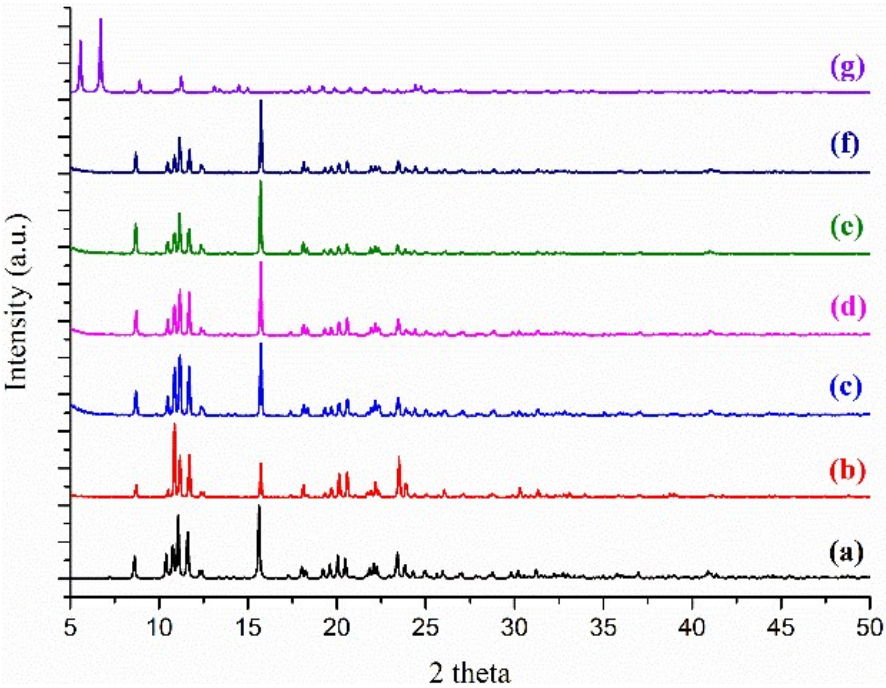

Fig. S5 PXRD patterns of **2** heated with $Cd(OAc)_2{\cdot}2H_2O$ and 1,4-H_2NDC in H_2O. (a) Simulation of **2**, (b) As synthesized, (c) **2** heated for 1day, (d) 3 days, (e) 5 days, (f) 7 days, and (g) Simulation of **3**.

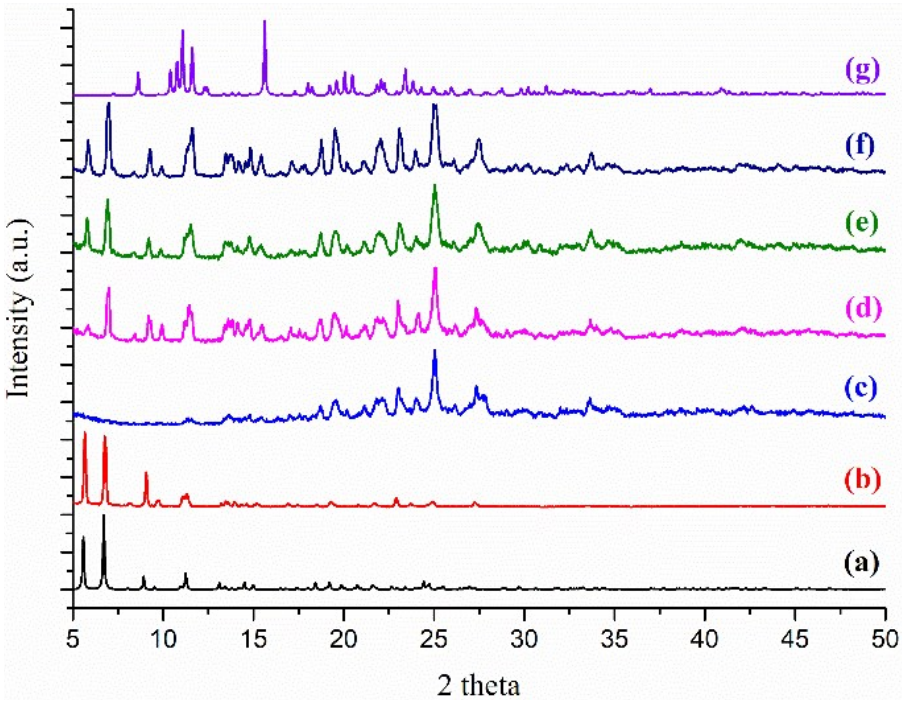

Fig. S6 PXRD patterns of **3** heated with L^2 in EtOH. (a) Simulation of **3**, (b) As synthesized, (c) **3** heated for 1day, (d) 3 days, (e) 5 days, (f) 7 days, and (g) Simulation of **2**.

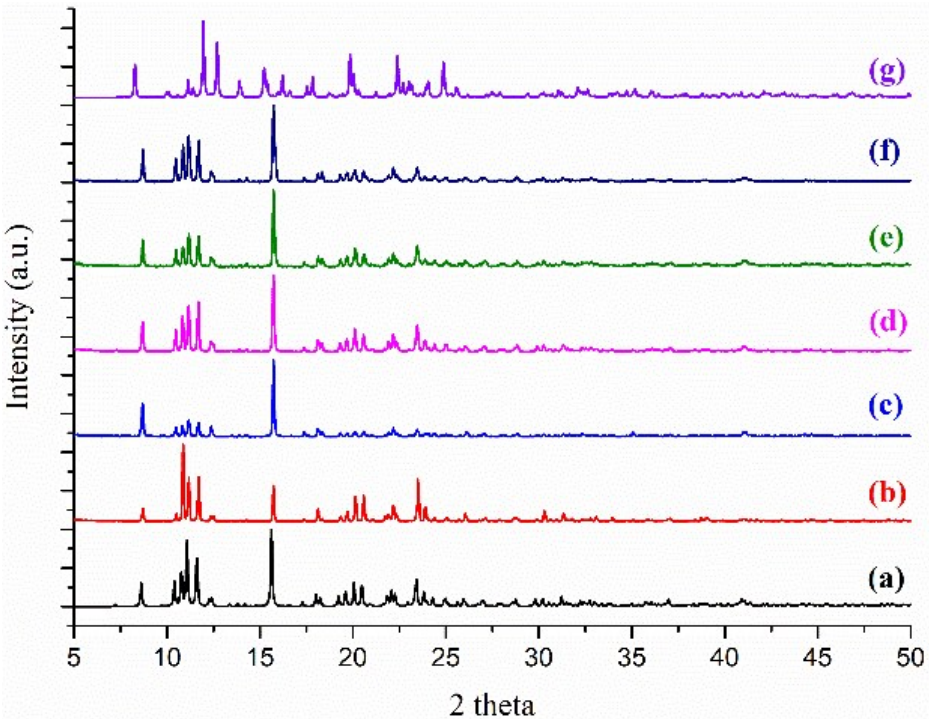

Fig. S7 PXRD patterns of **2** react with **L¹** in H_2O. (a) Simulation of **2**, (b) As synthesized, (c) **2** heated at 100 °C with **L¹** and H_2O for 1day, (d) 3 days, (e) 5 days, (f) 7 days, and (g) Simulation of **1**.

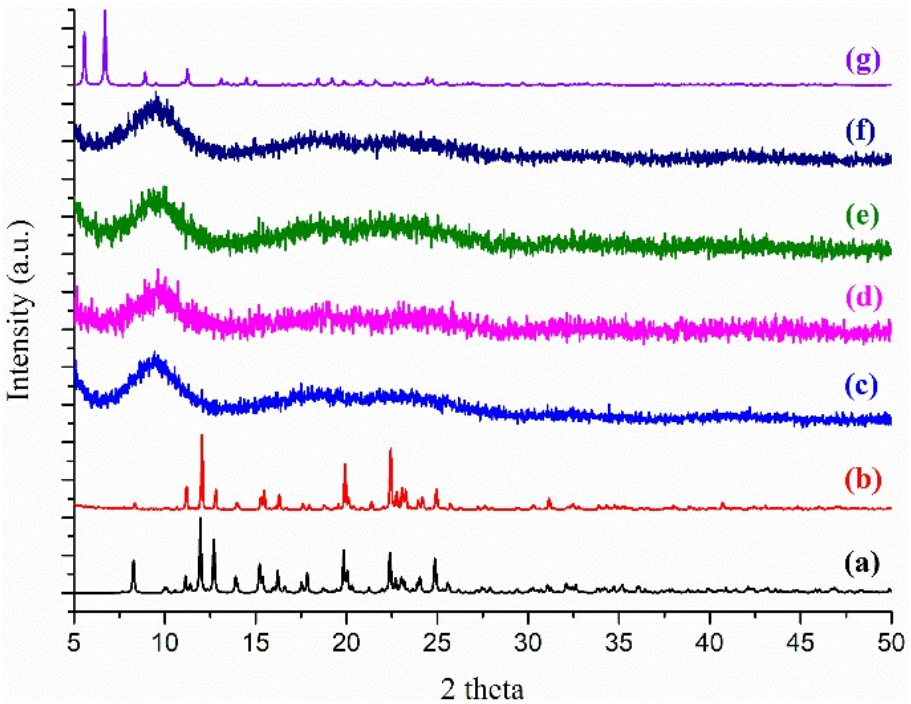

Fig. S8 PXRD patterns of **1** react with **L²** in EtOH. (a) Simulation of **1**, (b) As synthesized, (c) **1** heated at 100 °C with **L²** and EtOH for 1day, (d) 3 days, (e) 5 days, (f) 7 days, and (g) Simulation of **3**.

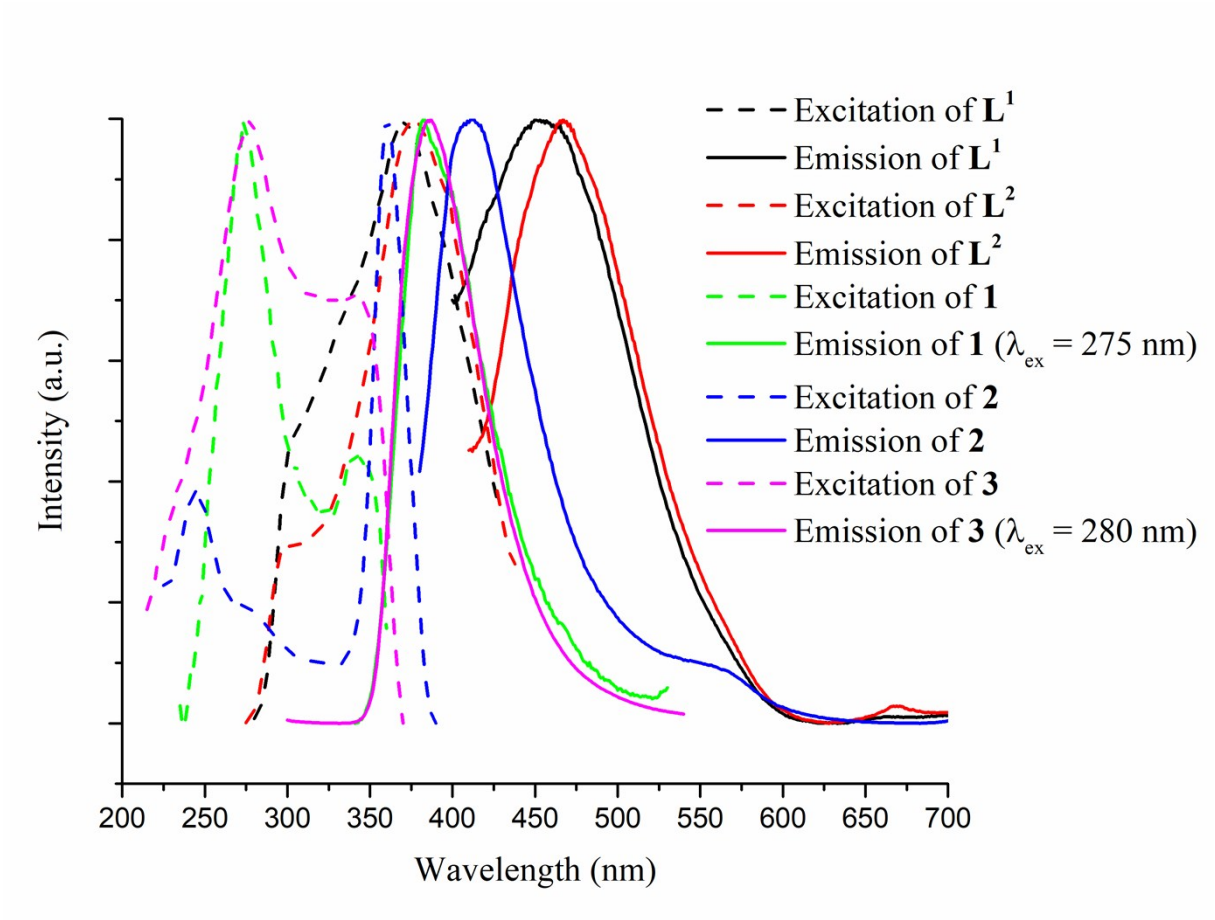

Fig. S9 Solid state excitation and emission spectra of $\mathbf{L^1}$, $\mathbf{L^2}$ and complexes **1**-**3**.

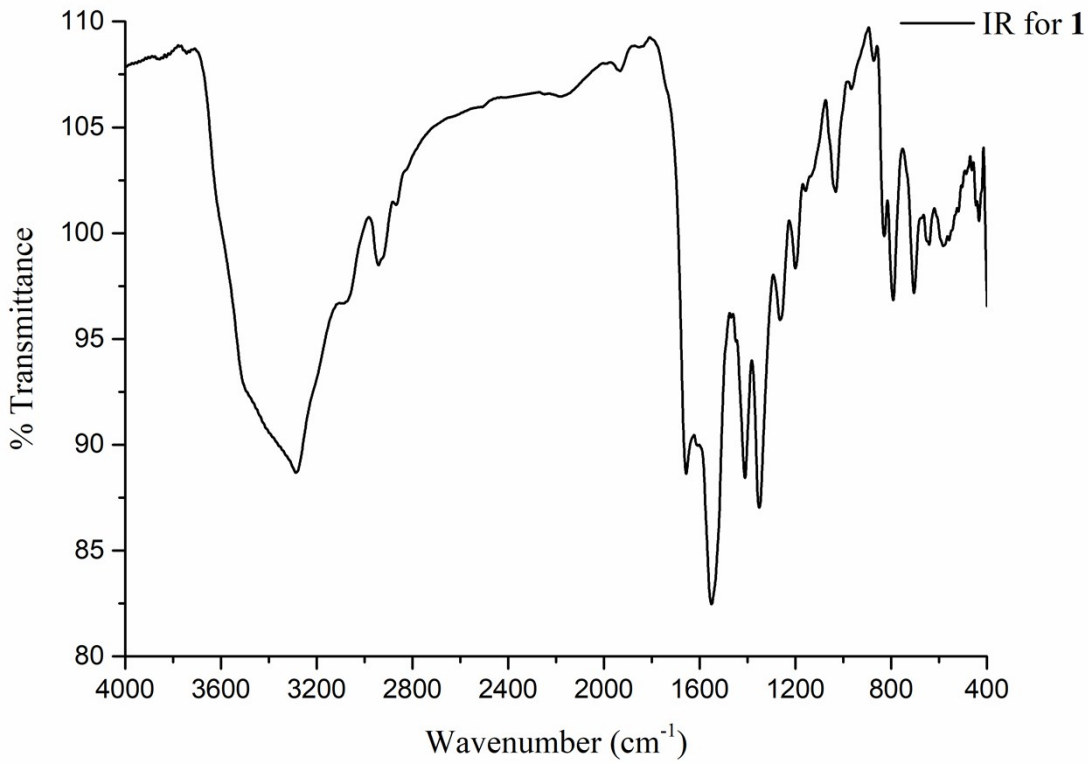

Fig. S10 IR Spectrum of **1**.

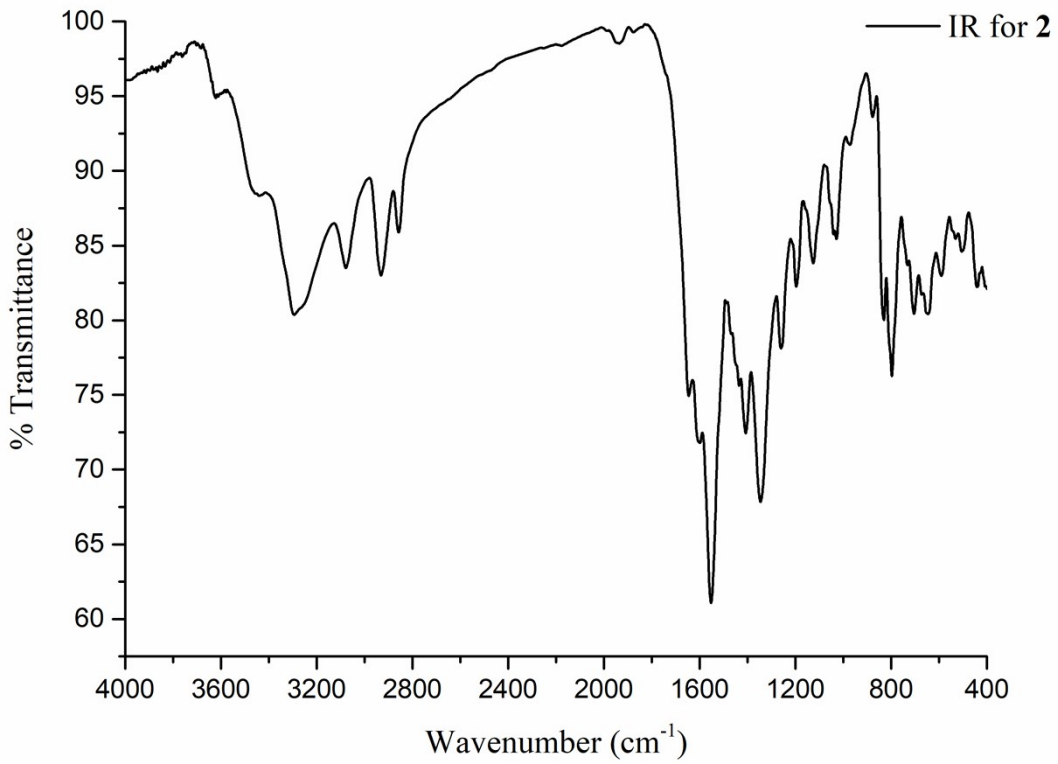

Fig. S11 IR Spectrum of **2**.

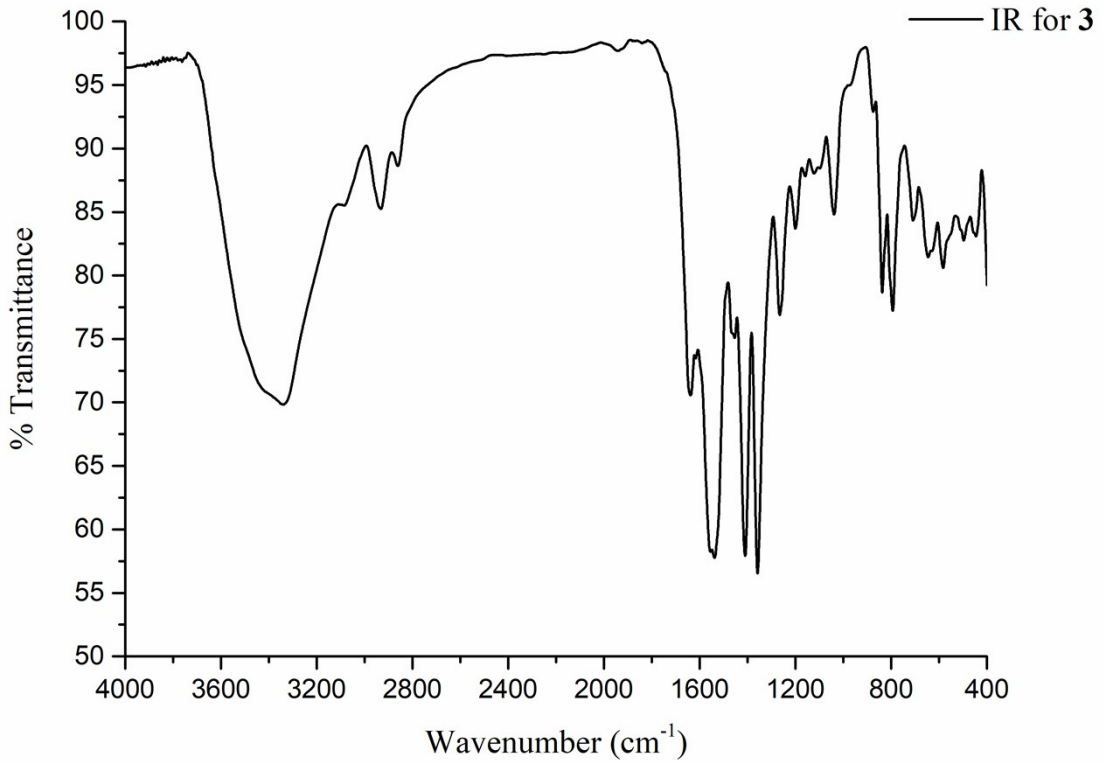

Fig. S12 IR Spectrum of **3**.

Table S1. Experimental data for the structural transformation between **2** and **3**

Parent CPs	Daughter CPs	Reaction time	Product Weight	Average Yield
2	**3**	7 days	1st 0.033 g	0.033 g 89 %
			2nd 0.034 g	
			3rd 0.032 g	
3	**2**		1st 0.019 g	0.017 g 51 %
			2nd 0.019 g	
			3rd 0.014 g	

Table S2. Experimental data for the SALE from **1** to **2** and **3** to **1**

Parent CPs	Daughter CPs	Reaction time	Product Weight	Average Yield
1	**2**	7 days	1st 0.037 g	0.036 g 69 %
			2nd 0.033 g	
			3rd 0.038 g	
3	**1**		1st 0.022 g	0.026 g 39 %
			2nd 0.023 g	
			3rd 0.032 g	

Table S3. Experimental data for **3** react $\mathbf{L^1}$ and $\mathbf{L^2}$ with H_2O.

Parent CPs	Daughter CPs	Reaction time	Product Weight	Average Yield
3	**2**	7 days	1st 0.044 g	0.044 g 66 %
			2nd 0.041 g	
			3rd 0.046 g	