

Electronic Supplementary Information

**Post-Synthetic Cation Exchange in Anionic Metal-Organic Frameworks; Novel
Strategy for Increasing Catalytic Activity in Solvent-Free Condensation Reactions**

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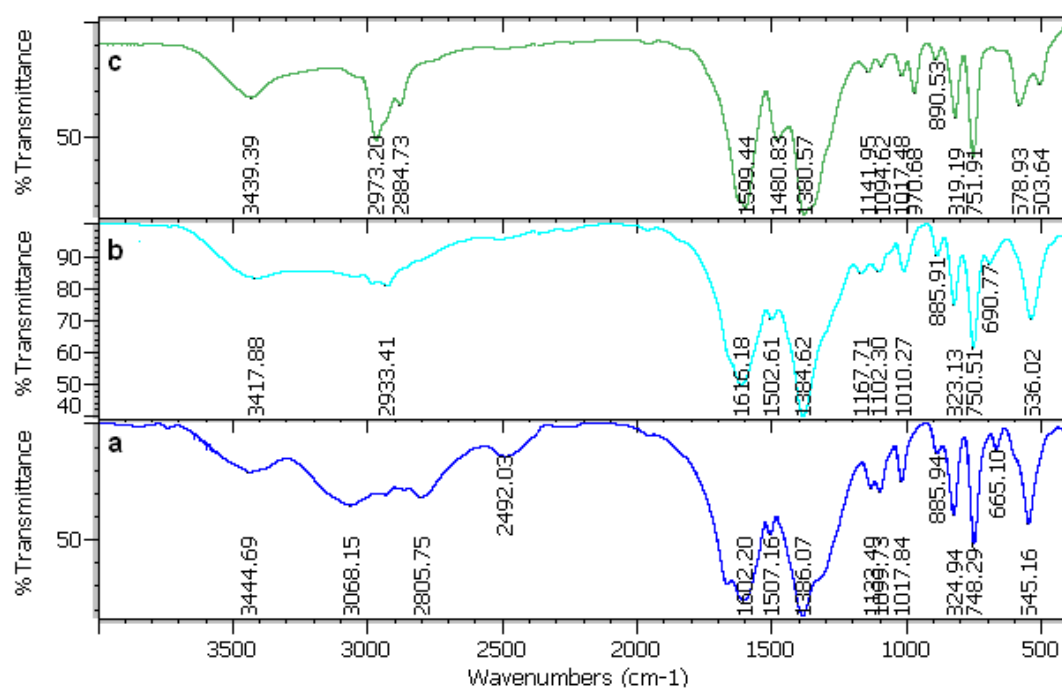


Figure S1. IR spectra of (a) colorless crystals of compound **1**, (b) post-synthetic MOF material of **5** and (c) post-synthetic MOF material of **6**.

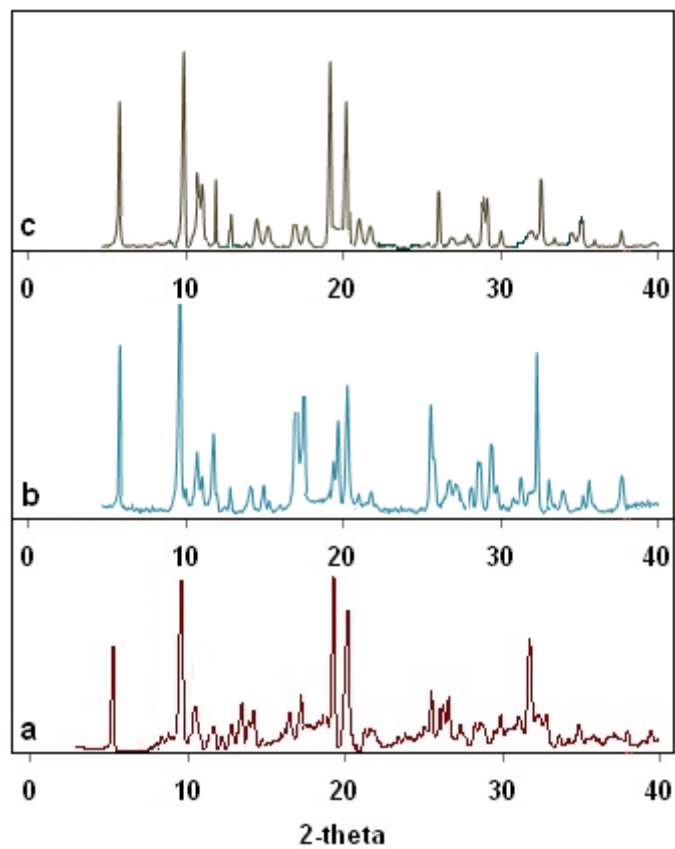


Figure S2. The XRD patterns of (a) compound **1**, (b) post-synthetic MOF material of **5** and (c) post-synthetic MOF material of **6**.

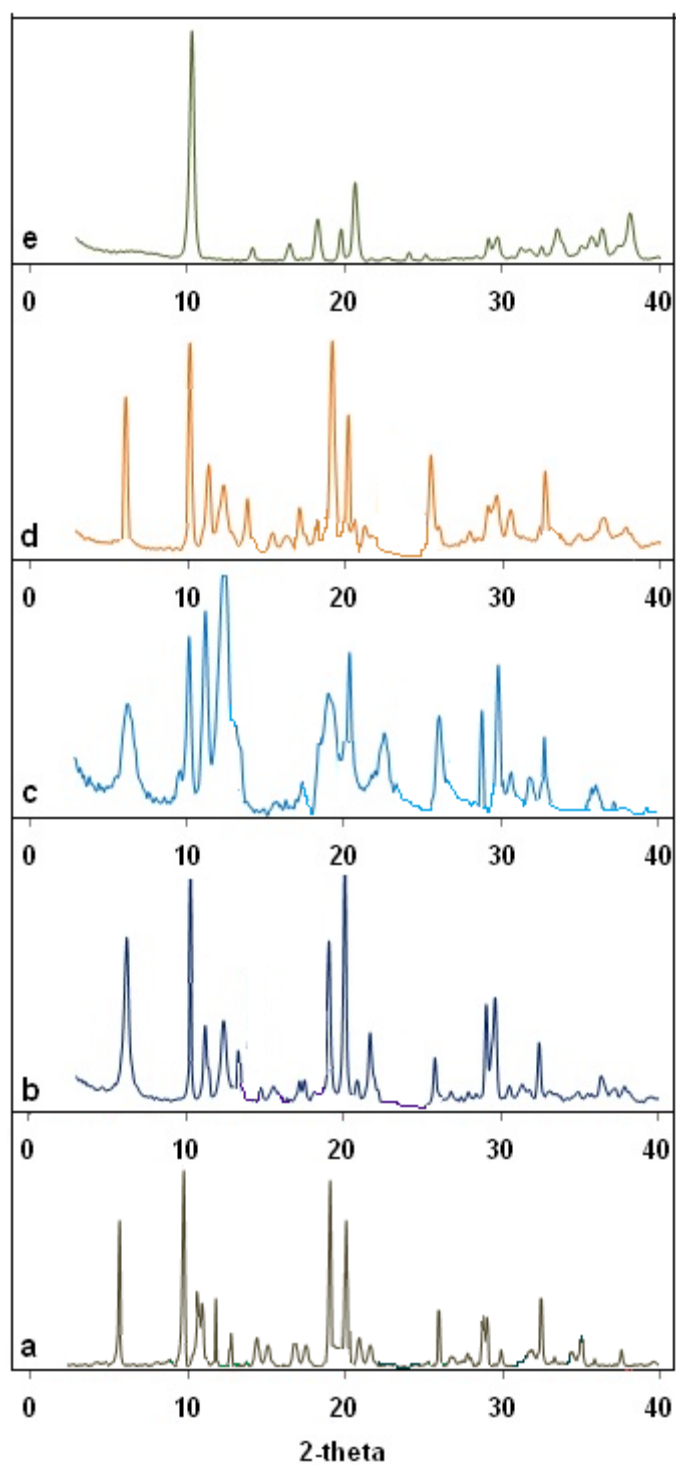


Figure S3. The XRD patterns of compound **6** samples which were immersed in (a) benzene, (b) toluene, (c) dichloromethane, (d) ethanol and (e) tetrahydrofuran (THF) after one week.

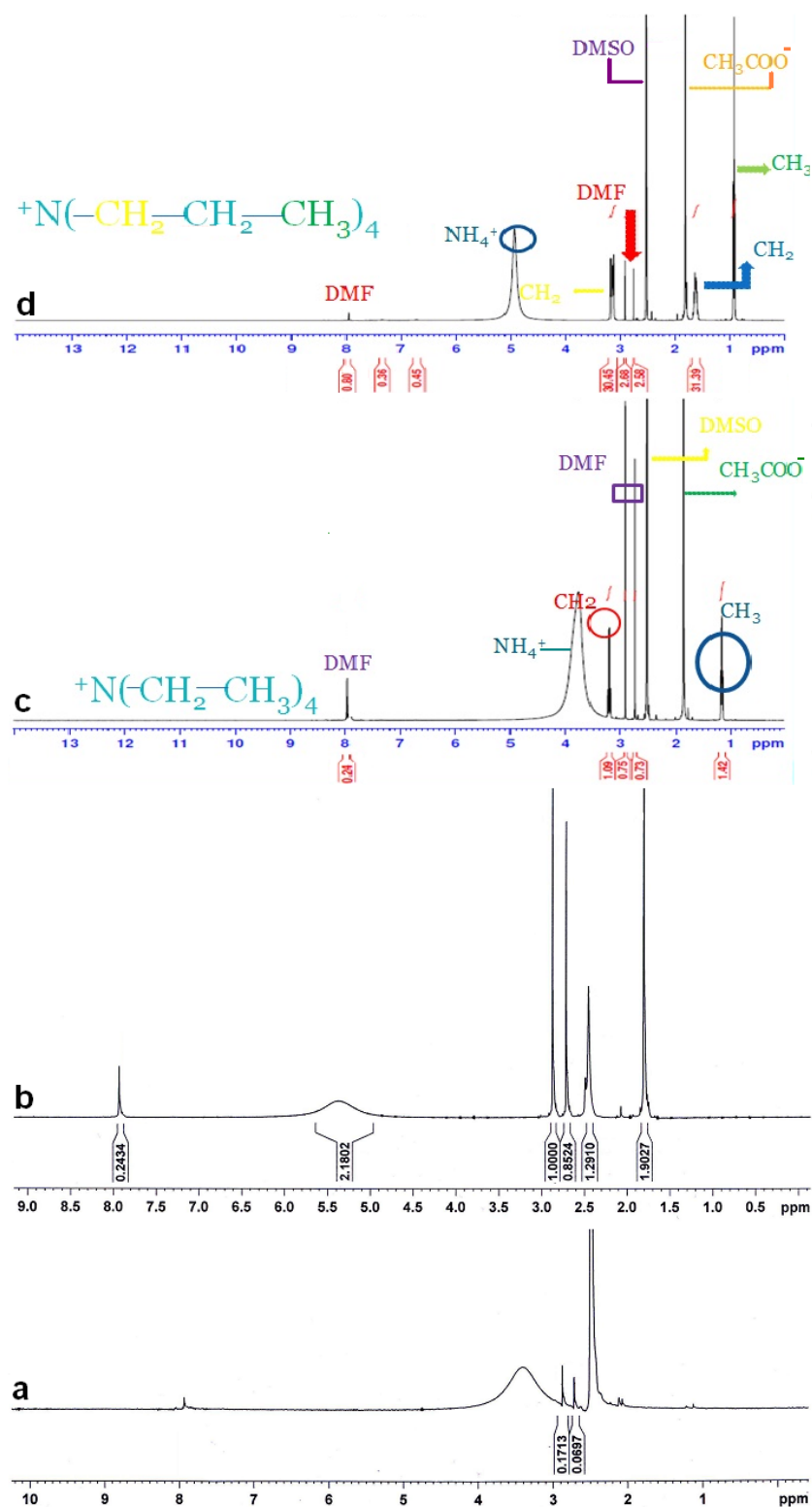


Figure S4. The ^1H -NMR spectra of (a) compound **1**, (b) compound **1** after addition of 5 mg ammonium acetate to the tube, (c) compound **5** after addition of 5 mg ammonium acetate to the tube and (d) compound **6** after addition of 5 mg ammonium acetate to the tube.

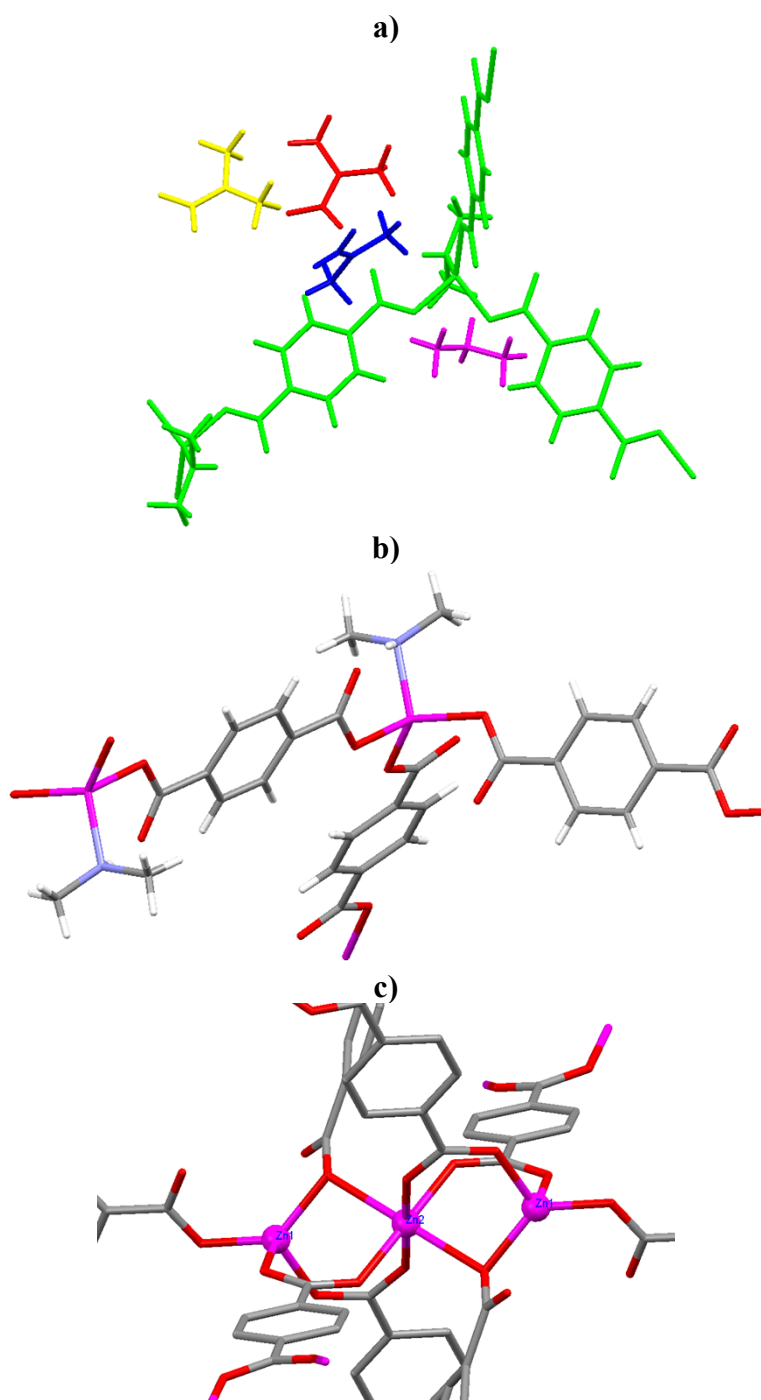


Figure S5. Showing the a) structure of the basic polymeric building block of compound **1** with three DMF molecules (red, blue and yellow species) and HDMA^+ organic cation (violet species), b) coordination sphere around Zn^{II} ion in anionic MOF of **1** and c) trinuclear Zn_3 cluster unit which exists in anionic MOF of **7** (Zn = violet, O = red, N = blue, C = gray and H = white).

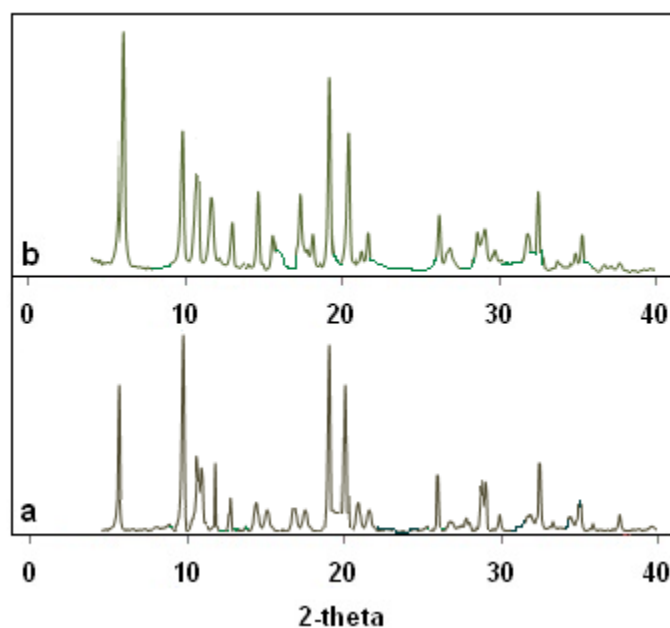


Figure S6. The XRD patterns of (a) compound **6** and (b) compound **6** after nine successive runs.

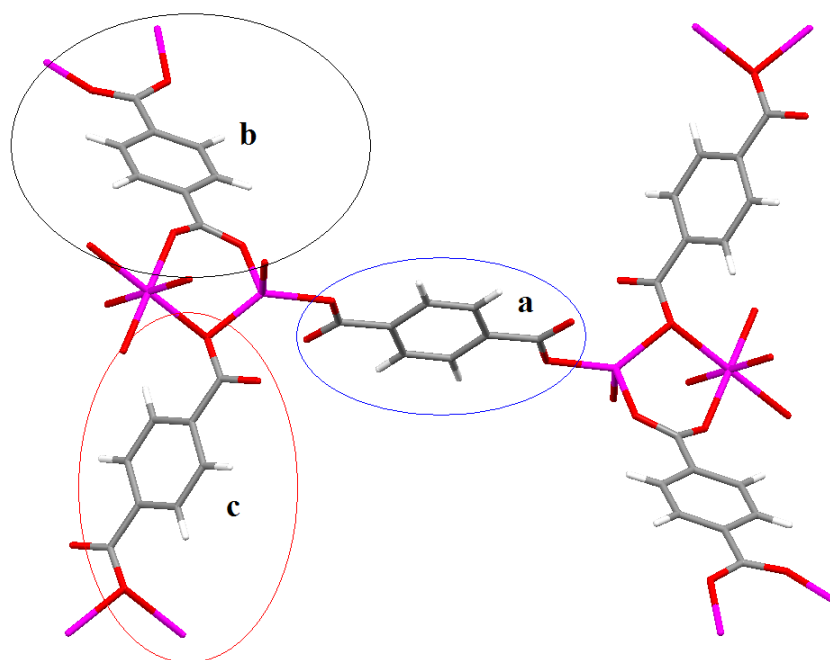


Figure S7. Showing three types of BDC²⁻ anions with a) μ_2 , b) μ_4 and c) μ_4 coordination modes in anionic MOF of **7**, (Zn = violet, O = red, C = gray and H = white).

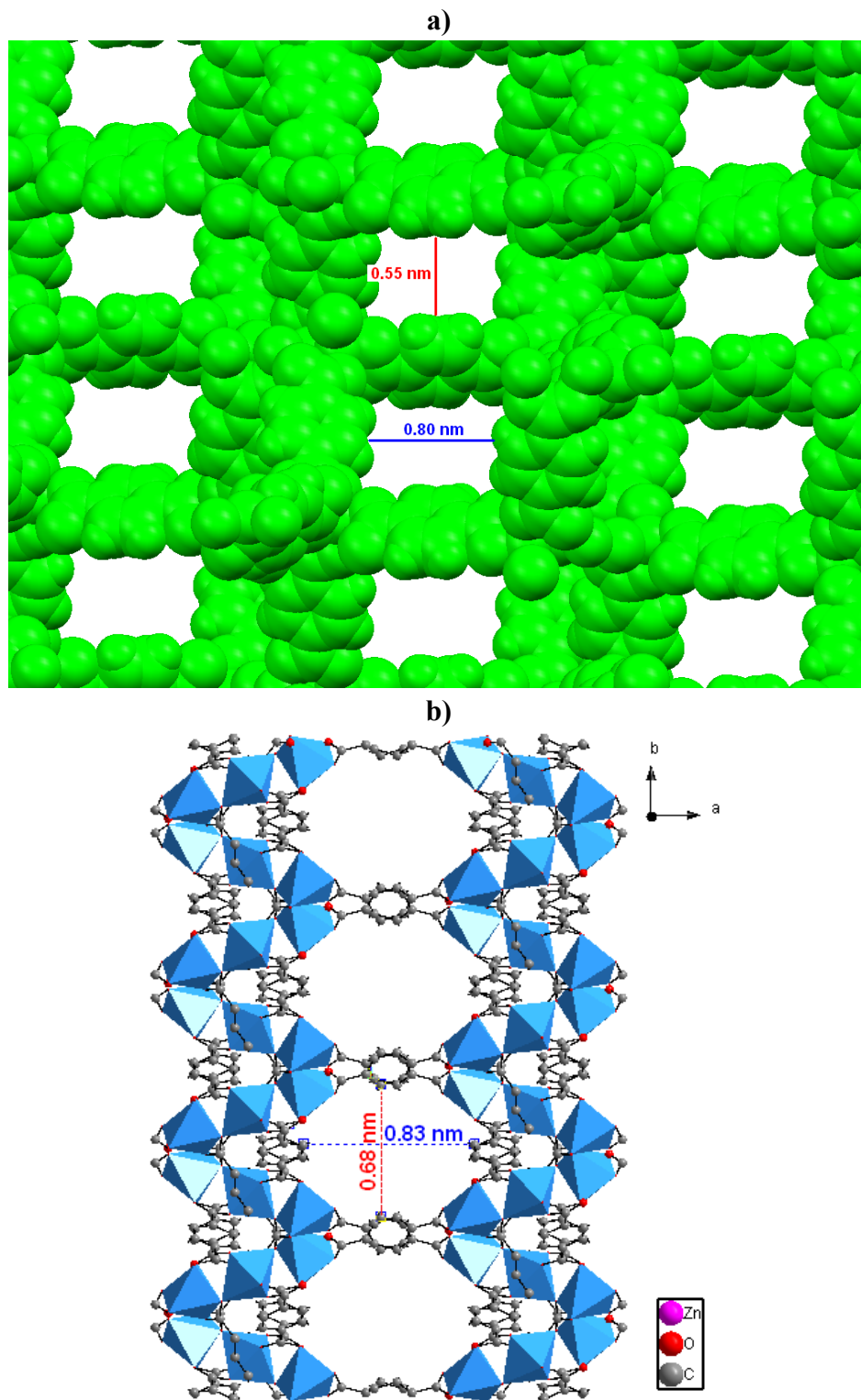


Figure S8. Showing the existence of one-dimensional channels along the crystallographic a) *b* axis and b) *c* axis in an anionic nano-porous MOF of 7.

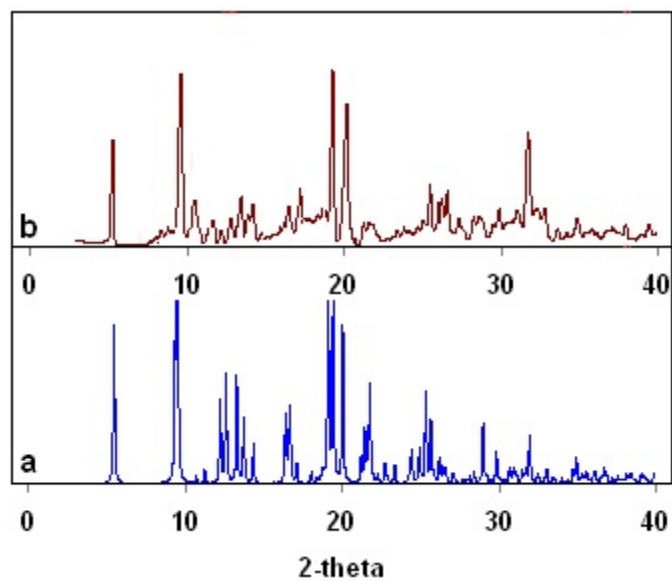


Figure S9. The XRD patterns of (a) simulated from single crystal X-ray data of compound **1** and (b) colorless crystals of compound **1**.

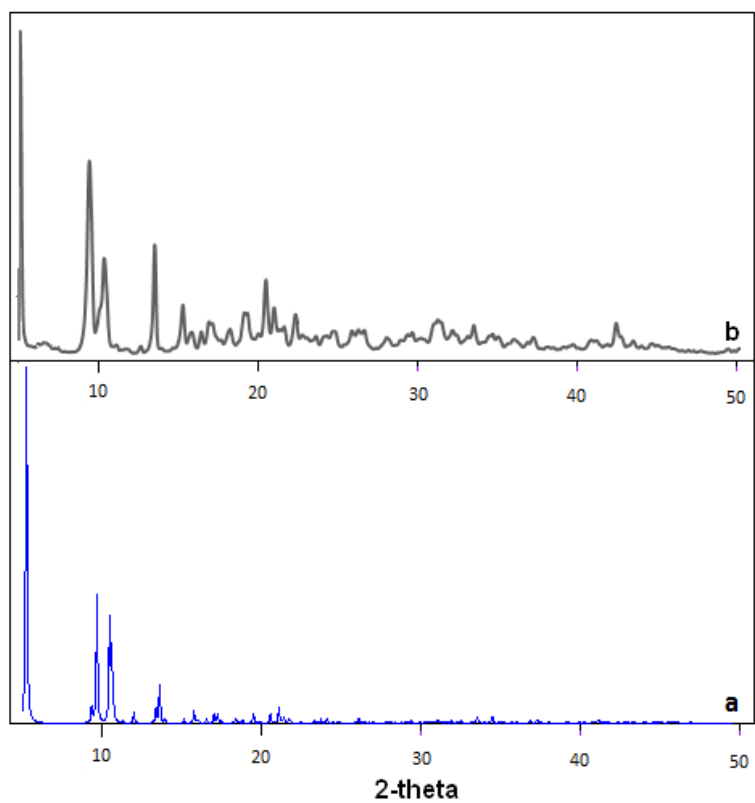


Figure S10. The XRD patterns of (a) simulated from single crystal X-ray data of compound **7** and (b) colorless crystals of compound **7**.