

Supporting Information for the Article

Current Design Mixed-Ligand Complexes of Magnesium(II): Synthesis, Crystal Structure, Thermal Properties and Biological Activity Against *Mycolicibacterium Smegmatis* and *Bacillus Kochii*

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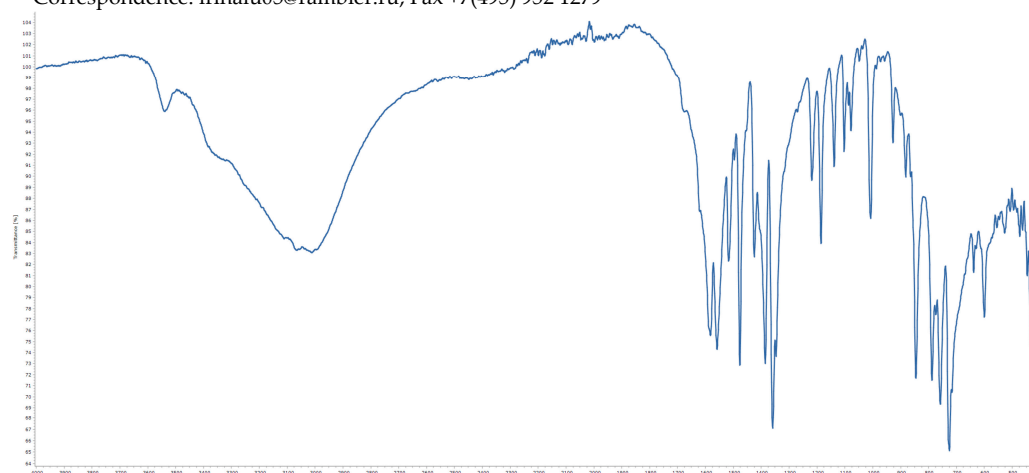


Figure S1. IR-spectrum of $[\text{Mg}(\text{H}_2\text{O})_4(\text{phen})]\cdot 2\text{fur}\cdot\text{phen}\cdot\text{H}_2\text{O}$ (1)

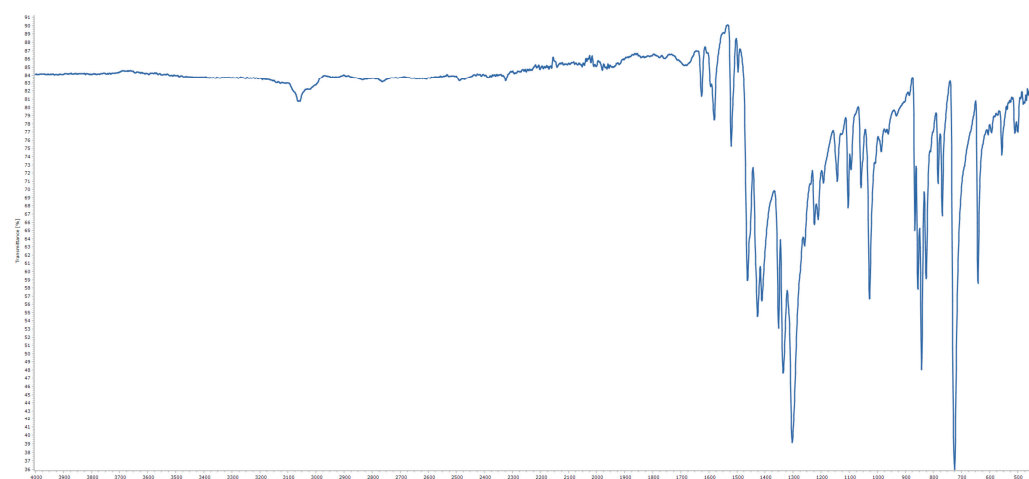


Figure S2. IR-spectrum of $[\text{Mg}(\text{NO}_3)_2(\text{phen})_2]$ (2)

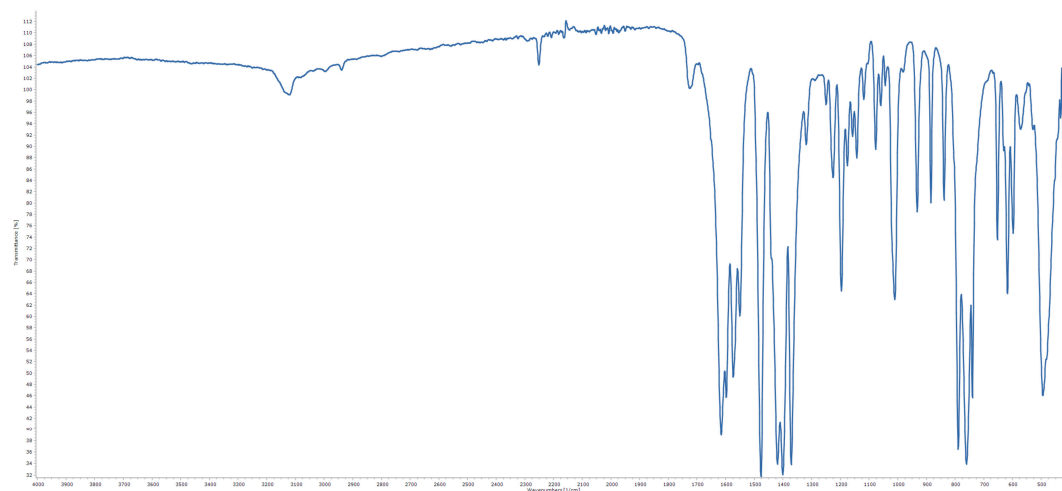
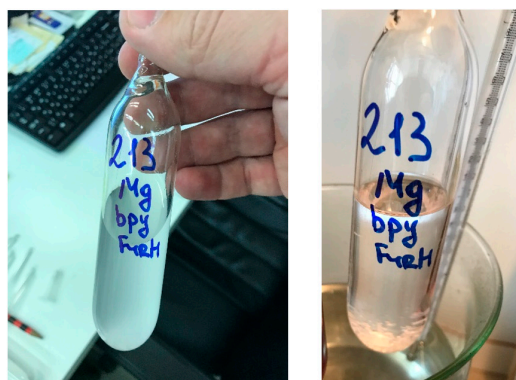


Figure S3. IR-spectrum of $[\text{Mg}_3(\text{fur})_6(\text{bpy})_2] \cdot 3\text{CH}_3\text{CN}$ (**3**)



Samples of $\text{Mg}(\text{CH}_3\text{COO})_2$ (142 mg, 1.0 mmol), HFur (224 mg, 2.0 mmol) and bpy (156 mg, 1.0 mmol) were heated with acetonitrile (10 mL) in a sealed vial by oil bath at 383 K until the solution became clear.



Slow cooling (10 K per hour) led to the formation of colorless rhombic-shaped single crystals amenable for X-ray diffraction.

Figure S4. Synthesis of $[\text{Mg}_3(\text{fur})_6(\text{bpy})_2] \cdot 3\text{CH}_3\text{CN}$ (**3**)

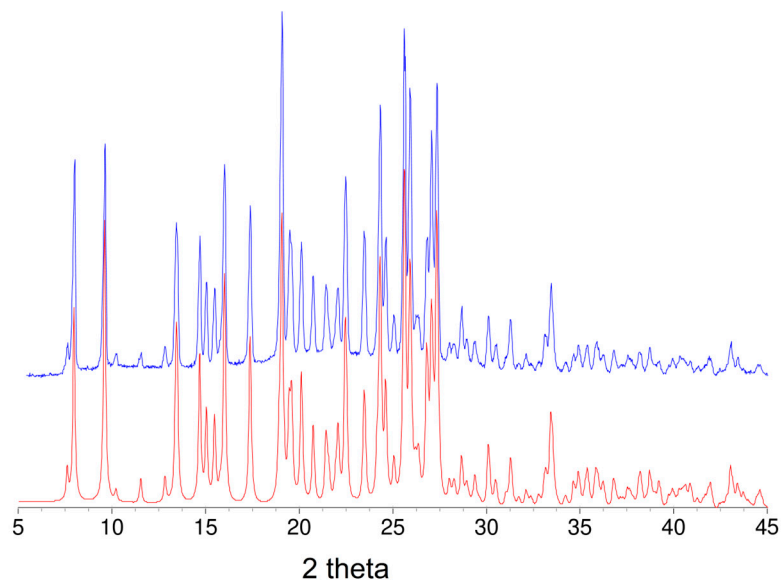


Figure S5. Theoretical (red) and experimental (blue) X-ray powder diffraction patterns of sample $[\text{Mg}(\text{H}_2\text{O})_4(\text{phen})]\cdot 2\text{fur}\cdot \text{phen}\cdot \text{H}_2\text{O}$ (**1**)

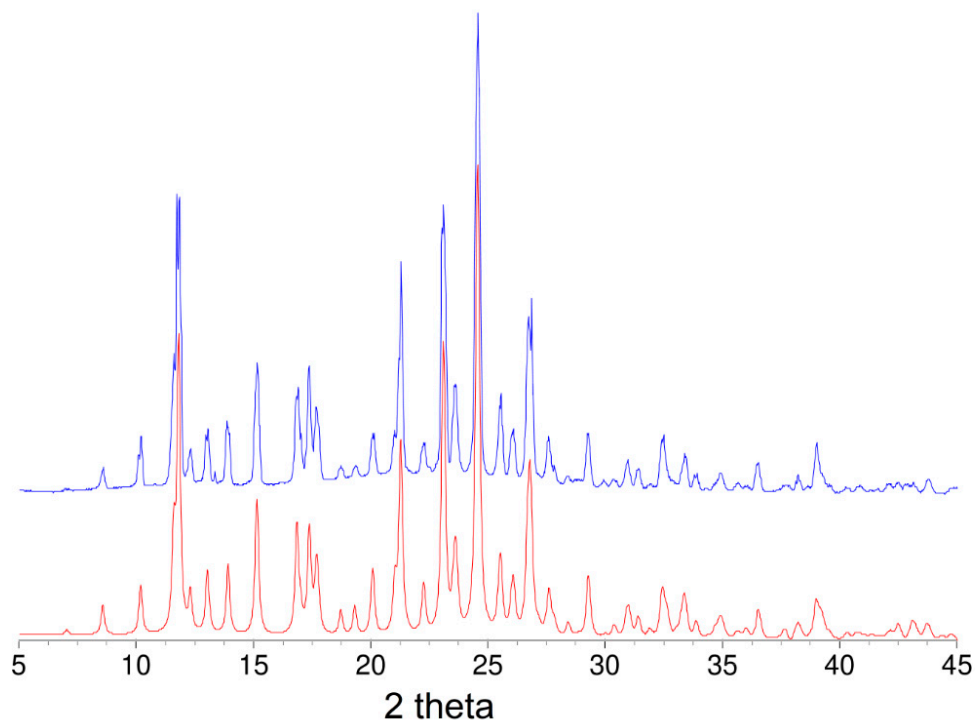


Figure S6. Theoretical (red) and experimental (blue) X-ray powder diffraction patterns of sample $[\text{Mg}(\text{NO}_3)_2(\text{phen})_2]$ (**2**)

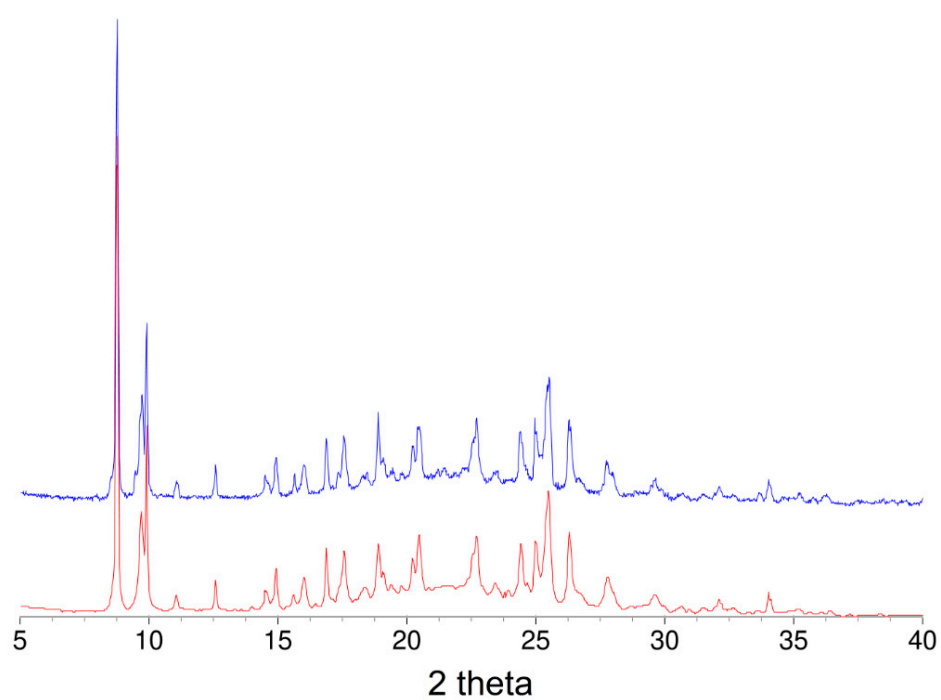


Figure S7. Theoretical (red) and experimental (blue) X-ray powder diffraction patterns of sample $[\text{Mg}_3(\text{fur})_6(\text{bpy})_2] \cdot 3\text{CH}_3\text{CN}$ (3)