Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B. This journal is © The Royal Society of Chemistry 2020

Electronic Supporting Information (ESI)

A Cerium-based MOFzyme with Multi-enzyme-like Activity for Disrupting and

Inhibiting Recolonization of Fungi

Hani Nasser Abdelhamid^{†*}, Ghada Abd-Elmonsef Mahmoud[‡], and Walid Sharmouk[§] [†]Advanced Multifunctional Materials Laboratory, Department of Chemistry, Faculty of Science, Assiut University, Assiut 71516, Egypt [‡]Department of Botany & Microbiology, Faculty of Science, Assiut University, Assiut 71516, Egypt [§]National Reseach Centre, Inorganic Chemsitry Department, Tahrir St, Dokki, 12622 Giza, Egypt ^{*}Corresponding author: hany.abdelhamid@aun.edu.eg (H.N. Abdelhamid)



Figure S1. ¹HNMR for 4,4',4"-triacetyltriphenylamine 1,1',1"-[nitrilotri(4,1-phenylene)]tri(ethan-1-one).



Figure S2. ¹³CNMR for 4,4',4"-triacetyltriphenylamine 1,1',1"-[nitrilotri(4,1-phenylene)]tri(ethan-1-one).



Figure S3. ¹HNMR for 4,4',4"-tricarboxytriphenylamine.



Figure S4. ¹³CNMR for 4,4',4"-tricarboxytriphenylamine.



Figure S5. XRD of organic linker, H₃NTB, and Ce-MOF as synthesized without washing.



Figure S6. FT-IR spectra for NTB and Ce-NTB.



Figure S7. FT-IR spectra of NTB, and Ce-MOF in the range of 1800-1300 cm⁻¹.



Figure S8. TEM image of Ce-MOF.



Figure S9. Electron diffraction of Ce-MOF.



Figure S10. a-b) SEM images of Ce-MOF with different magnification.



Figure S11. Camera photo of fungi without and with Ce-MOF (10-40 µg•mL⁻¹).



Figure S12. Spore viability of *Aspergillus terreus* in a) free sample and b) Ce-MOF (40 μ g•mL⁻¹).



Figure S13. Antifungal activity of Ce-MOF using colony forming units (CFU).