Electronic Supporting Information

Towards Hydroxamic acid Linked Zirconium Metal–Organic Frameworks

Carla F. Pereira,[a,b,c] Ashlee J. Howarth,[c] Nicolaas A. Vermeulen,[c] Filipe A. Almeida Paz,[b] João P. C. Tomé,[a,d] Joseph T. Hupp[c*] and Omar K. Farha[c,e*]

[a] Department of Chemistry & QOPNA, University of Aveiro, 3810-193 Aveiro, Portugal

[b] Department of Chemistry & CICECO – Aveiro Institute of Materials, University of Aveiro, 3810-193 Aveiro, Portugal

[c] Department of Chemistry, Northwestern University, 2145 Sheridan Road, Evanston, Illinois 60208, USA

[d]CQE, Instituto Superior Técnico, Universidade de Lisboa, Av. Rovisco Pais, 1049-001 Lisboa, Portugal

[e] Department of Chemistry, Faculty of Science, King Abdulaziz University, Jeddah, Saudi Arabia

---

To whom correspondence should be addressed:

*Joseph T. Hupp
E-mail: j-hupp@u.northwestern.edu

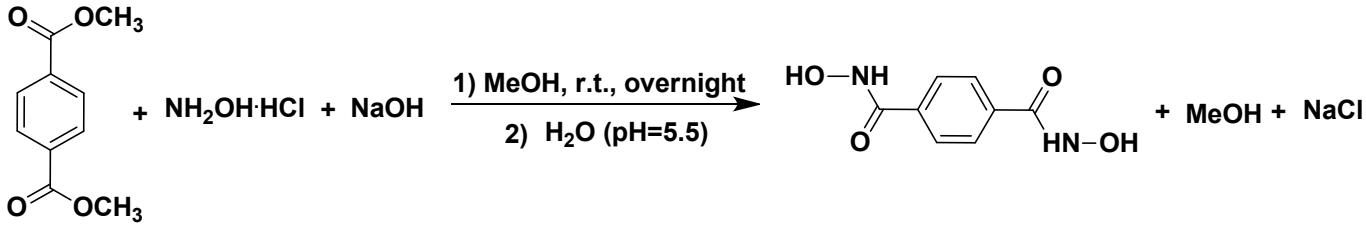
*Omar K. Farha
E-mail: o-farha@northwestern.edu

Fax: (847)-467-1425. Telephone: (847)-491-3504.

Table of Contents

1 - Experimental section

1.1 – Synthesis of benzene-1,4-dihydroxamic acid (H_2BDHA)



Scheme S1

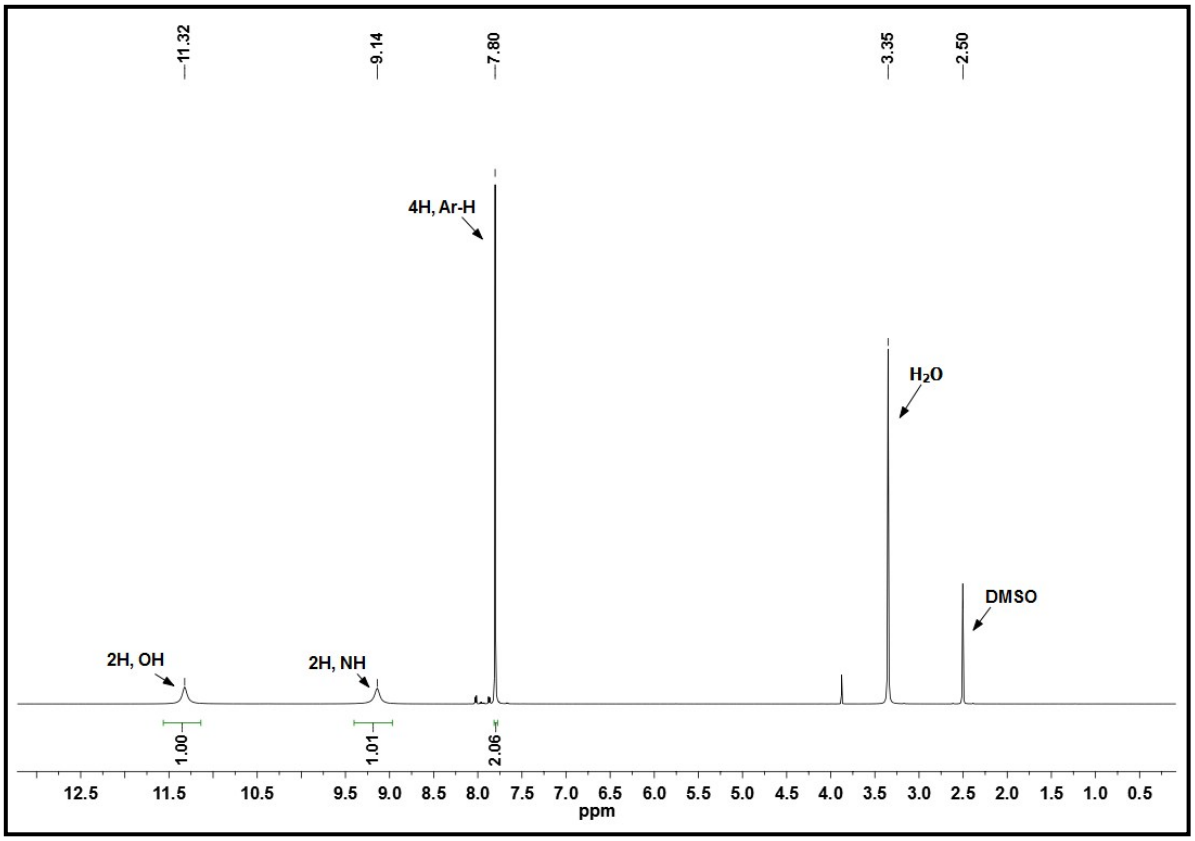


Figure S1 – ^{1}H NMR (600 MHz) spectrum of benzene-1,4-dihydroxamic acid in DMSO-d_6.

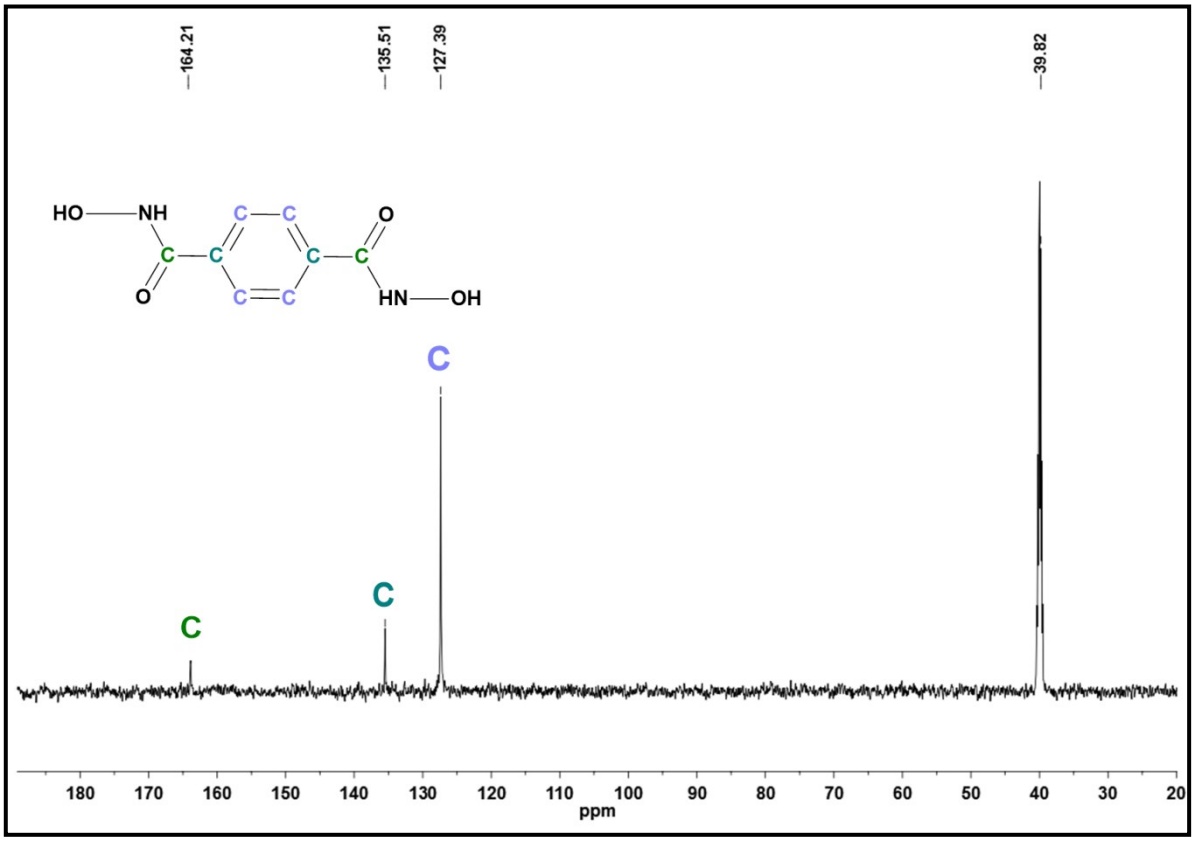


Figure S2 – ^{13}C NMR (151 MHz) spectrum of benzene-1,4-dihydroxamic acid in DMSO-d_6.

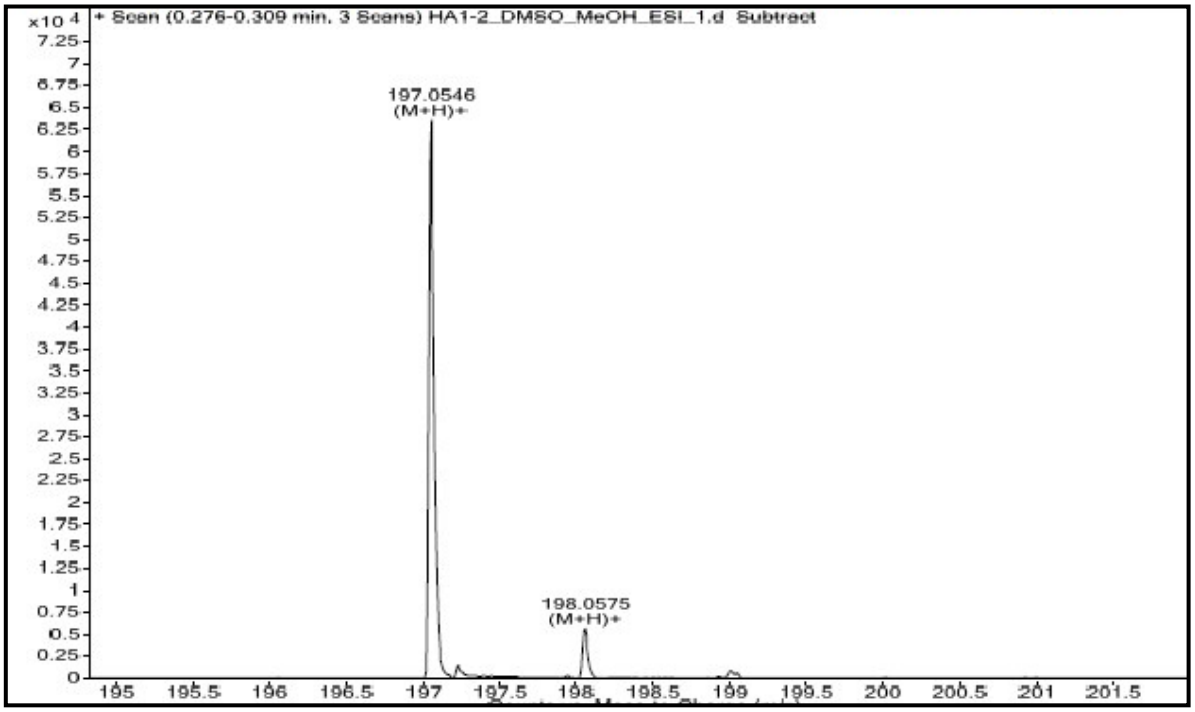


Figure S3 – ESI^+-TOF mass spectrum of benzene-1,4-dihydroxamic acid.

2– Characterization

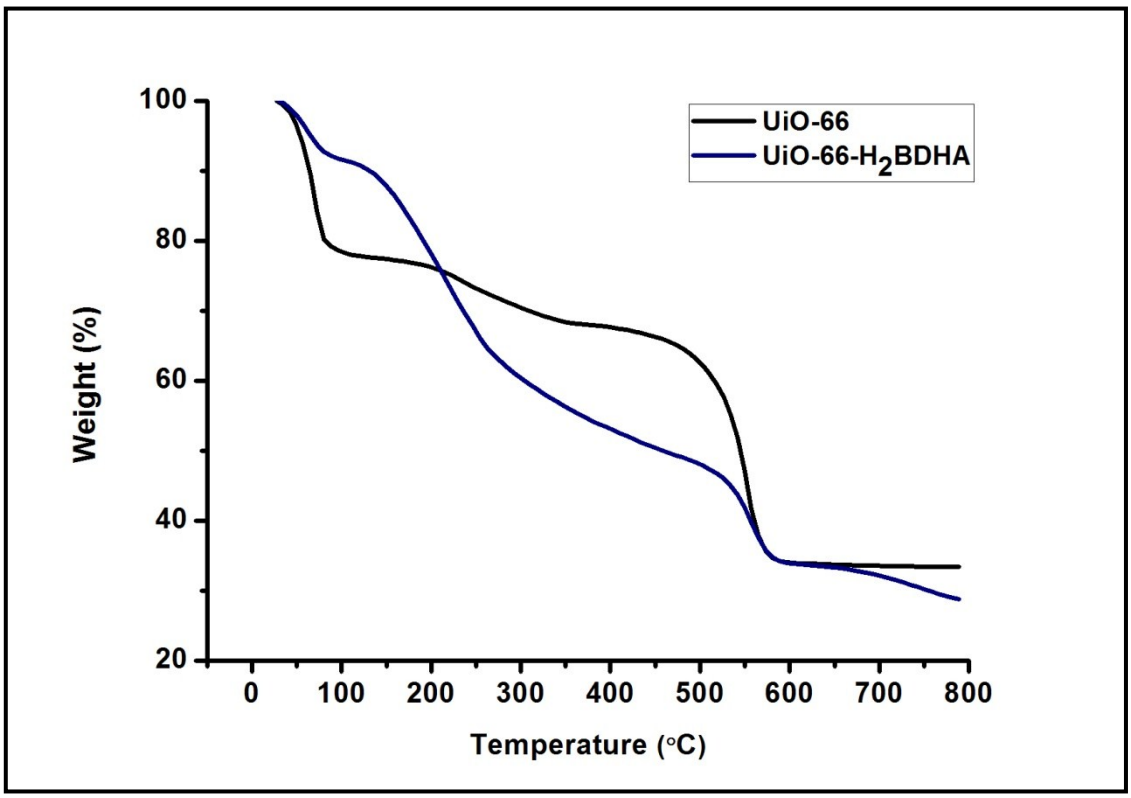


Figure S4 – TGA data for UiO-66 and UiO-66-H_2BDHA.

3 – Stability tests

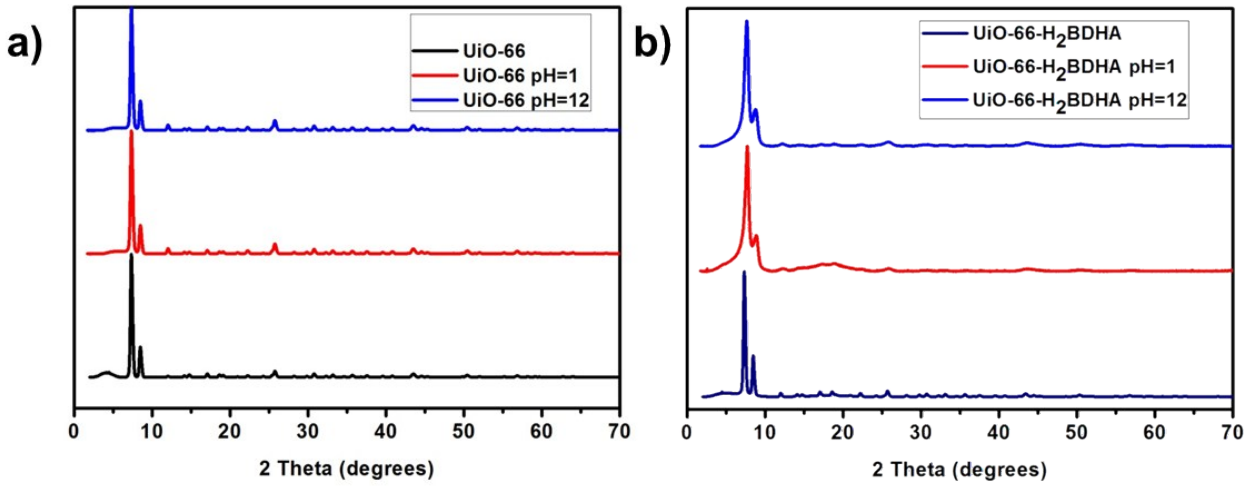


Figure S5 – (a) PXRD patterns obtained for UiO-66 (made with HCl) and UiO-66-H_2BDHA in the evaluation of their stability at different pH.

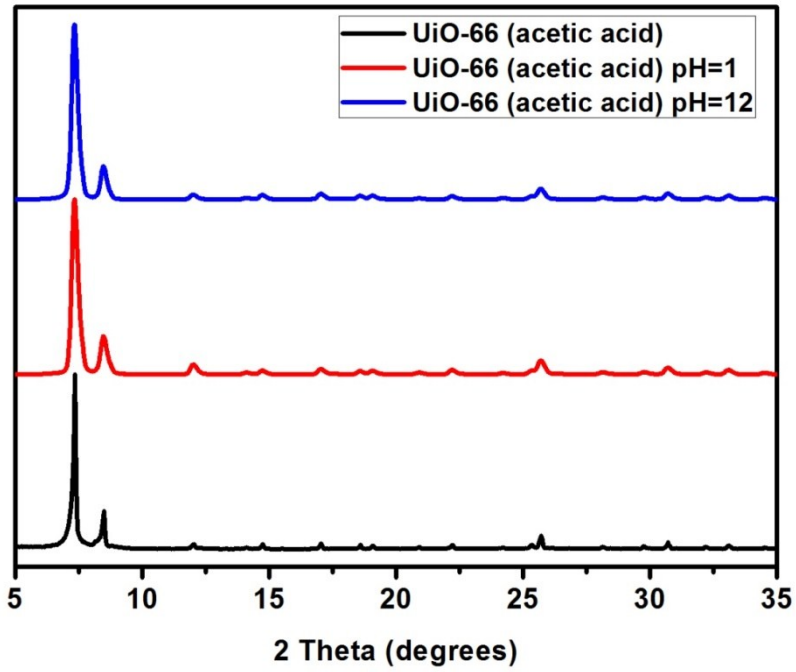


Figure S6 – PXRD patterns obtained for defect-free UiO-66 in the evaluation of its stability at different pH.

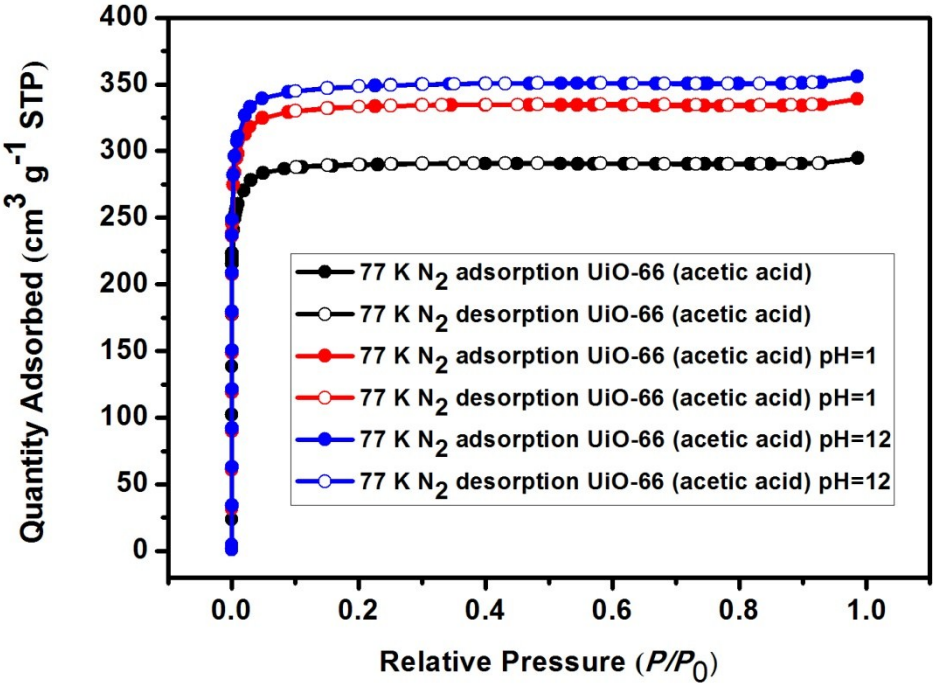


Figure S7 – N_2 isotherms of defect-free UiO-66 obtained in the stability studies at different pH.

Table S1 – Brunauer–Emmett–Teller (BET) areas of the materials used in the stability tests at different pH.

Material	BET area (m^2/g)		
	Original material	**pH=1**	**pH=12**
UiO-66	1580	1150	1130
UiO-66-H_2BDHA	1050	860	840
UiO-66 (acetic acid)	1190	1360	1420