

## **ELECTRONIC SUPPLEMENTARY MATERIAL**

### ***Grafting of 2,8-dithia-5-aza-2,6-pyridinophane macrocycle on SBA-15 mesoporous silica for removal of Cu<sup>2+</sup> and Cd<sup>2+</sup> ions from aqueous solutions: synthesis, adsorption, and complex stability studies***

*Giulia Rossella Delpiano<sup>1</sup>, Alessandra Garau<sup>1</sup>, Vito Lippolis<sup>1</sup>, Joanna Izabela Lachowicz<sup>2,\*</sup> and  
Andrea Salis<sup>1,3,\*</sup>*

<sup>1</sup>*University of Cagliari, Department of Chemical and Geological Science, Cittadella Universitaria,  
09042 Monserrato-Cagliari, Italy*

<sup>2</sup>*University of Cagliari, Department of Medical Sciences and Public Health, Cittadella Universitaria,  
09042 Monserrato-Cagliari, Italy*

<sup>3</sup>*Consorzio Interuniversitario per lo Sviluppo dei Sistemi a Grande Interfase (CSGI), via della  
Laustruccia 3, 50019, Sesto Fiorentino (FI), Italy.*

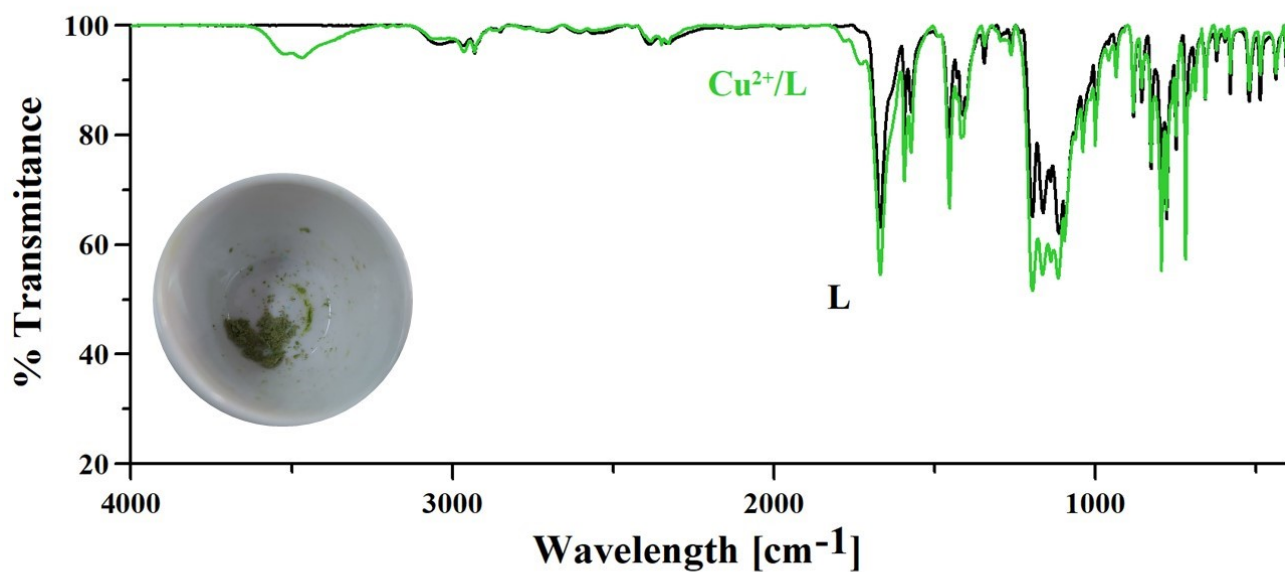


Figure S1. Solid state FTIR spectra of free L (black) and Cu<sup>2+</sup>/L complex (green).

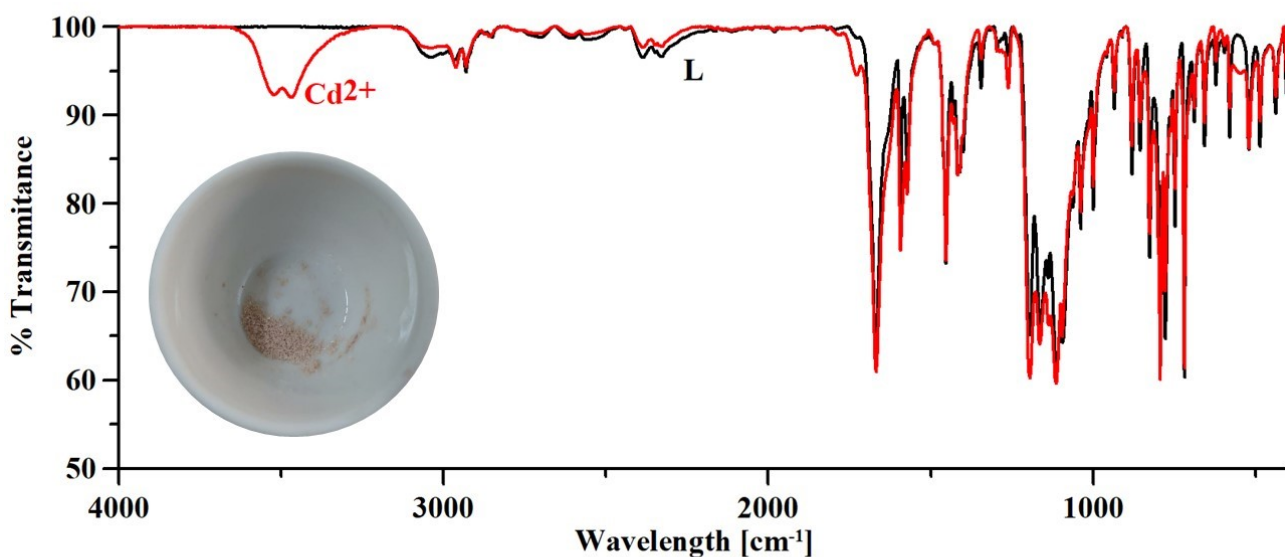
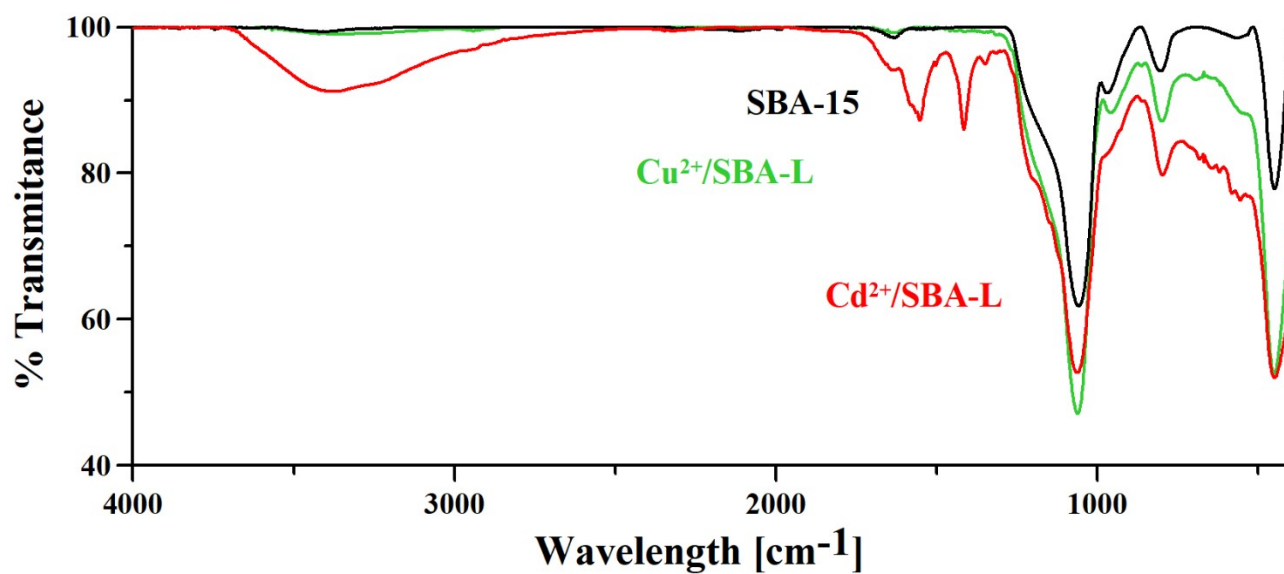
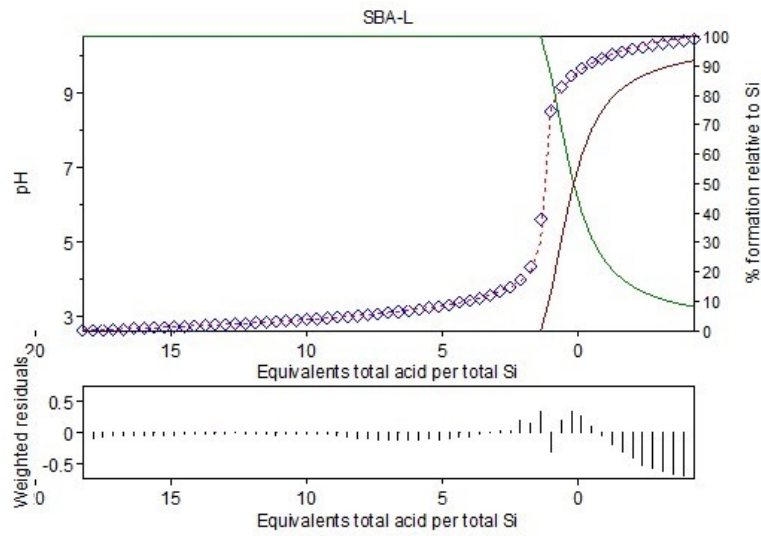
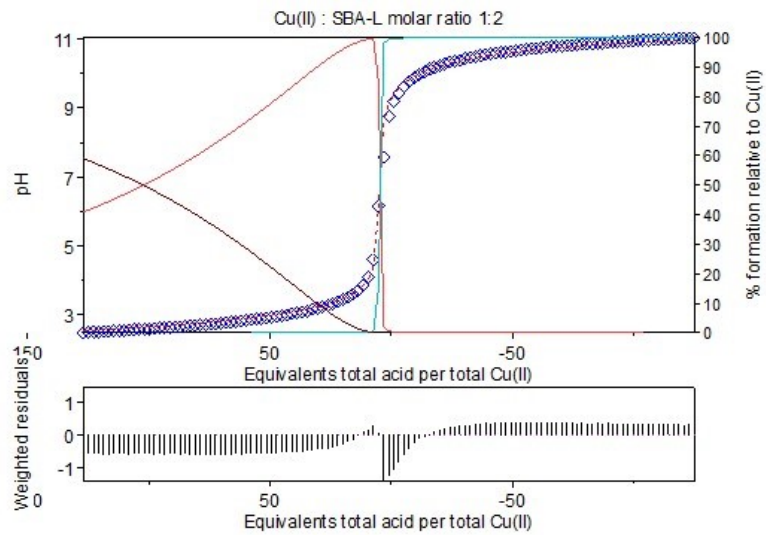
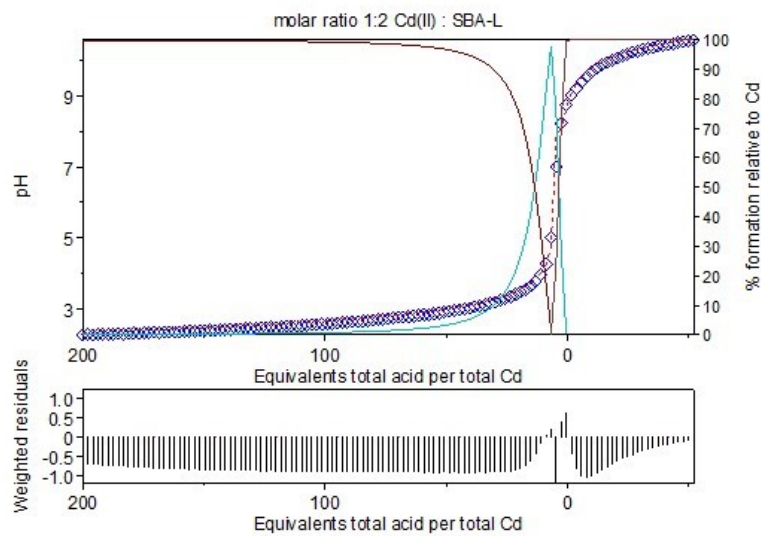


Figure S2. Solid state FTIR spectra of free L (black) and Cd<sup>2+</sup>/L complex (red).



**Figure S3.** FTIR spectra of SBA-15 (black) and Cu<sup>2+</sup> (green) and Cd<sup>2+</sup> (red) complexes on the surface of SBA-L. The Cu<sup>2+</sup>/SBA-L and Cd<sup>2+</sup>/SBA-L were filtered and dried after the isotherm studies, where the metal loading was maximum (pH = 4 for Cu<sup>2+</sup> and pH = 7 for Cd<sup>2+</sup>).

**A****B****C**

**Figure S4.** Examples of potentiometric experimental data used for the calculation of (A) protonation constants (Log K) of L grafted on SBA-15, and cumulative formation constants ( $\log \beta$ ) of (B)  $\text{Cu}^{2+}$  and (C)  $\text{Cd}^{2+}$  complexes with L grafted on SBA-15 at 25 °C, 0.1 M NaCl ionic strength, calculated using the Hyperquad program.