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Exploring bacterial growth effects on *Mycobacterium Smegmatis* with the anti-carcinogenic vanadium-compounds

## Supplemental Material

### Authors

Zeyad Arhouma<sup>1,2</sup>, Heide A. Murakami<sup>2</sup>, Jordan T. Koehn<sup>2</sup>, Xiaorong Li<sup>2,3</sup>, Deborah A. Roess<sup>1,4</sup>, Dean C. Crick<sup>1,5</sup> and Debbie C. Crans,<sup>1,2\*</sup>

### Affiliations

<sup>1</sup>Cellular and Molecular Biology, Colorado State University, 80523, Fort Collins, CO, USA

<sup>2</sup>Department of Chemistry, Colorado State University, 80523, Fort Collins, CO, USA

<sup>3</sup>College of Pharmaceutical Sciences, Southwest University, 400715, Chongqing, China

<sup>4</sup>Departments of Biomedical Sciences, Colorado State University, 80523, Fort Collins, CO, USA

<sup>5</sup>Mycobacteria Research Laboratories, Department of Microbiology, Immunology and Pathology, Colorado State University, 80523, Fort Collins, CO, USA

Correspondence email: [debbie.crans@colostate.edu](mailto:debbie.crans@colostate.edu)

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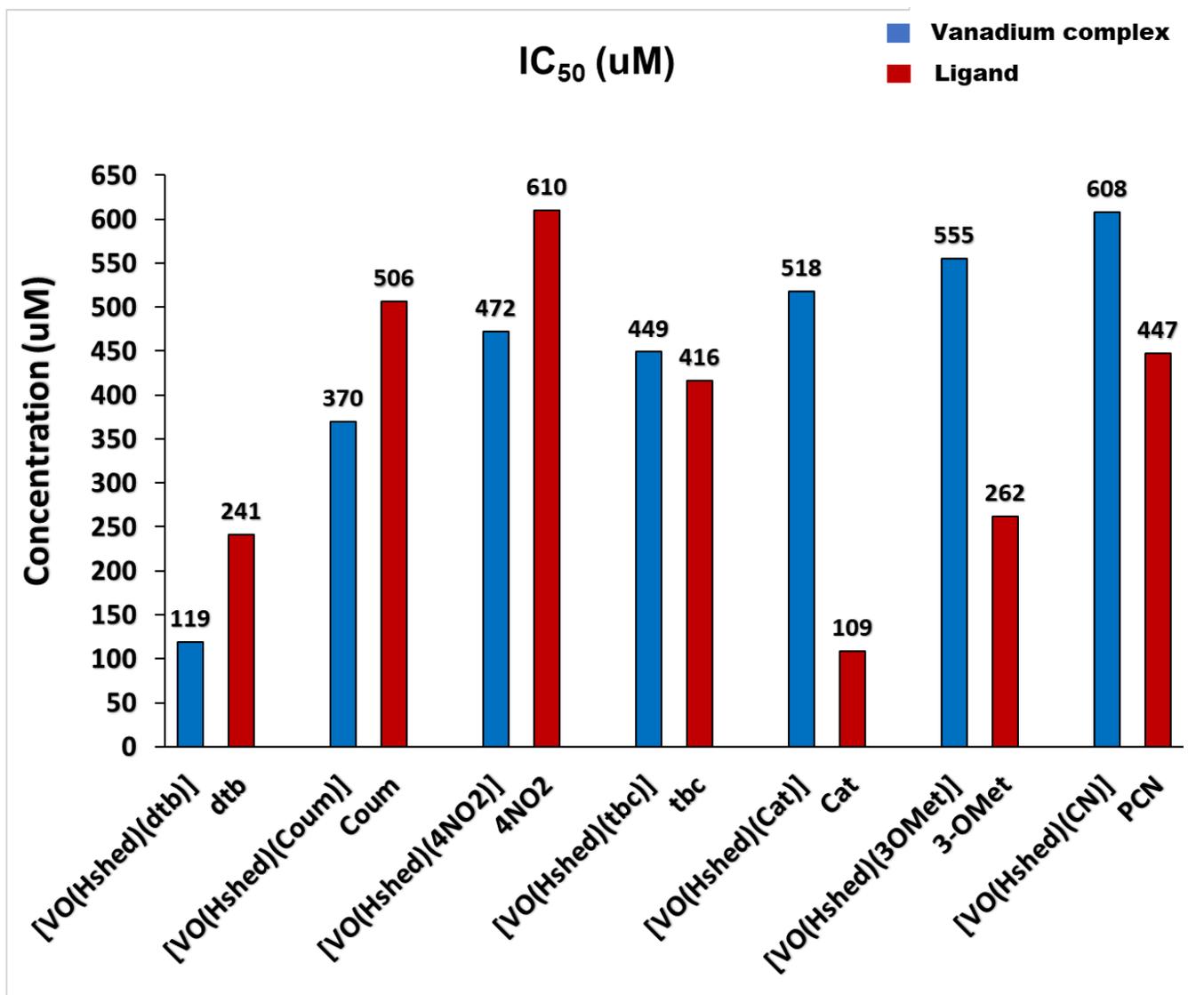
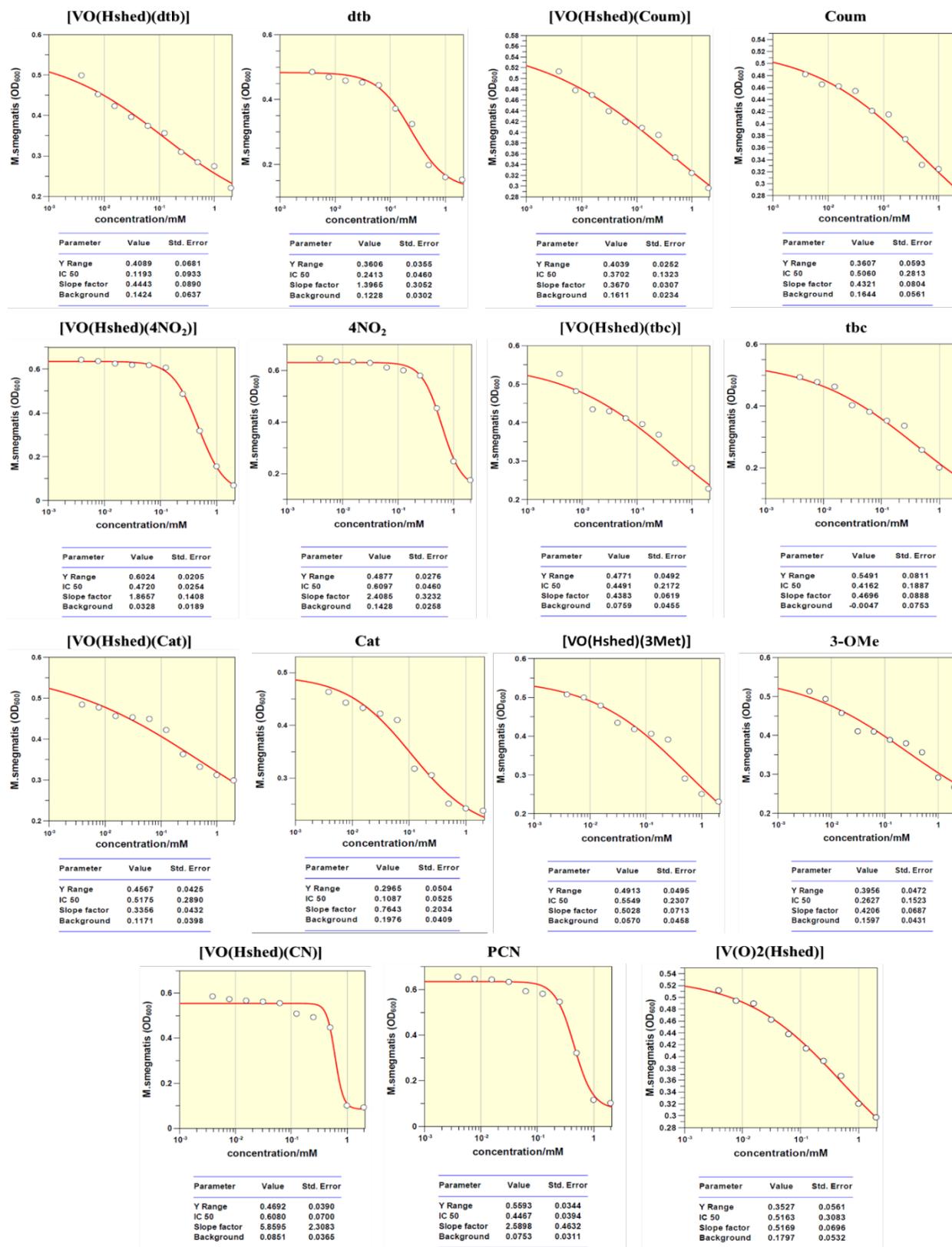


Figure S1. The histograms of the IC<sub>50</sub> values for the effects of the V-complexes and their free ligands on the bacterial growth.



**Figure S2.** The growth inhibition curves and IC<sub>50</sub> values for the effects of the V-complexes and their free ligands on the bacterial growth.

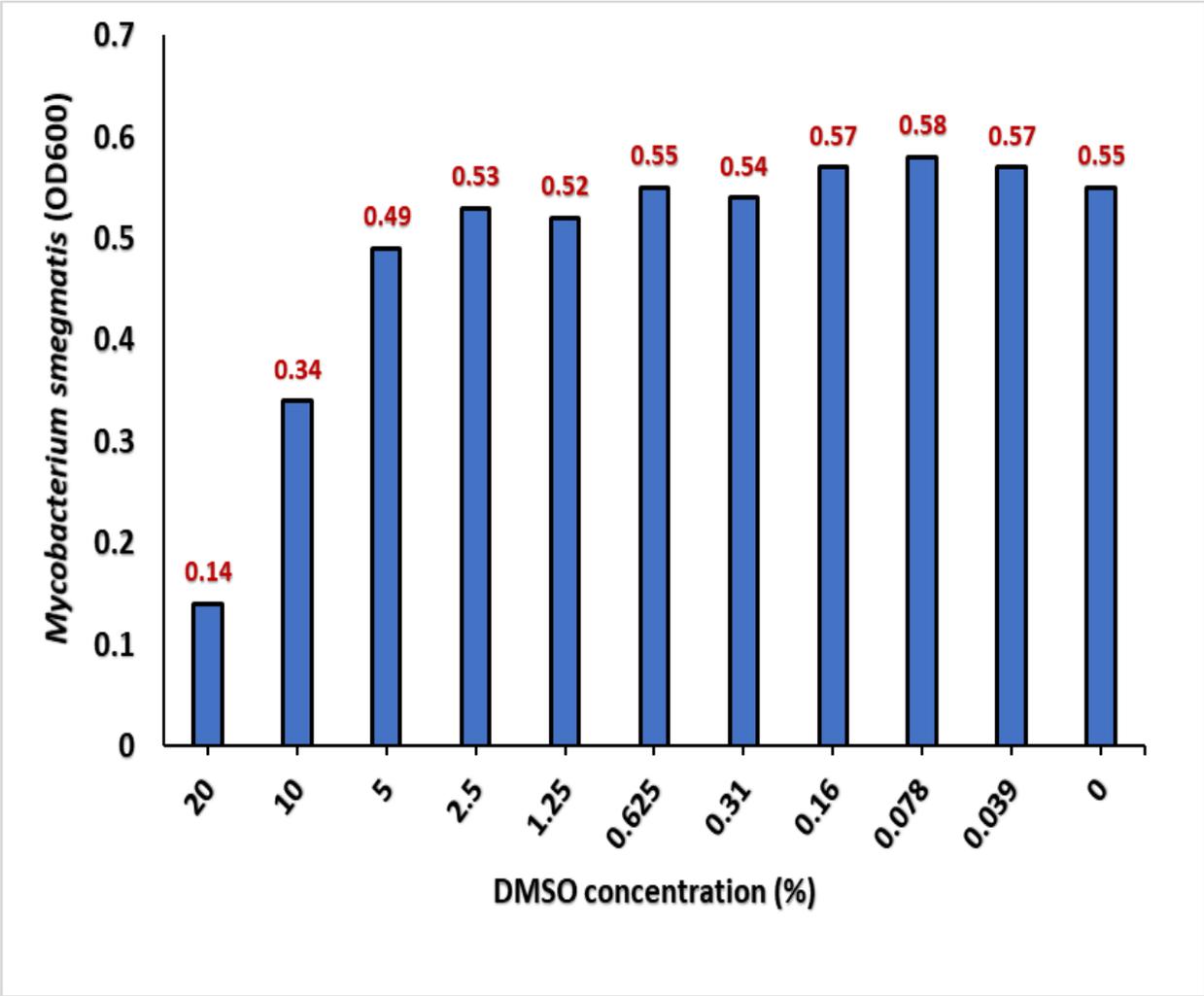
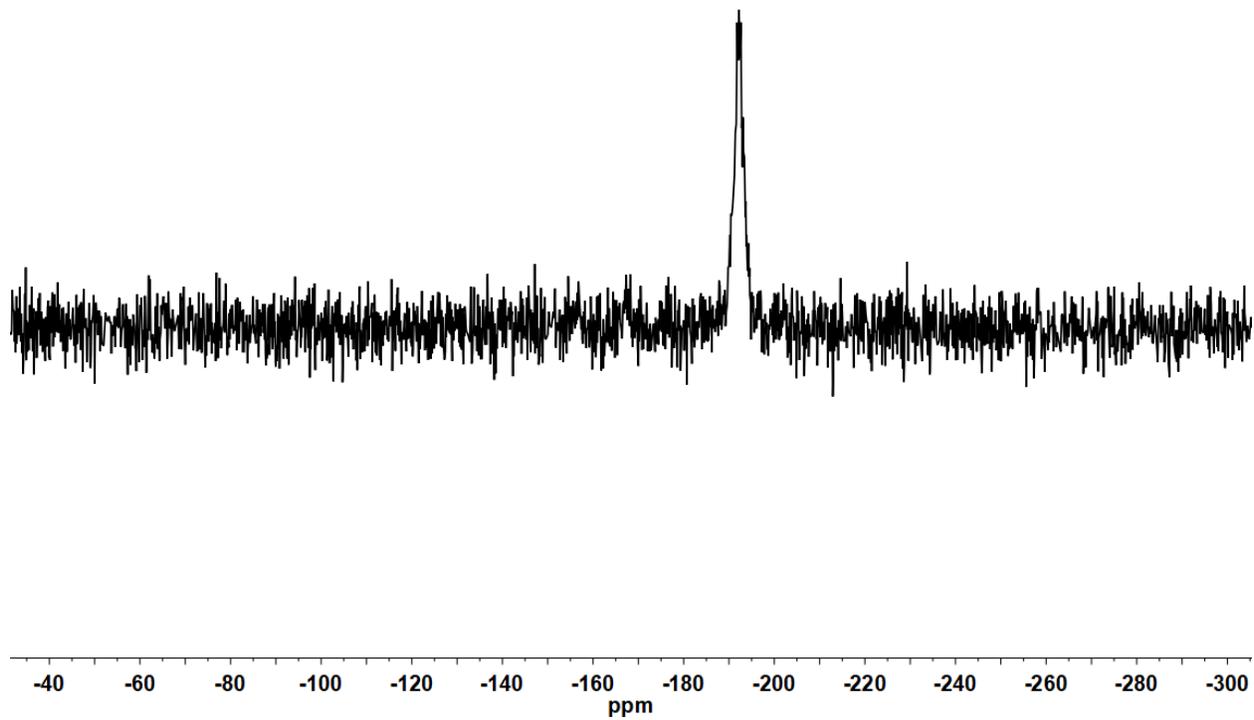
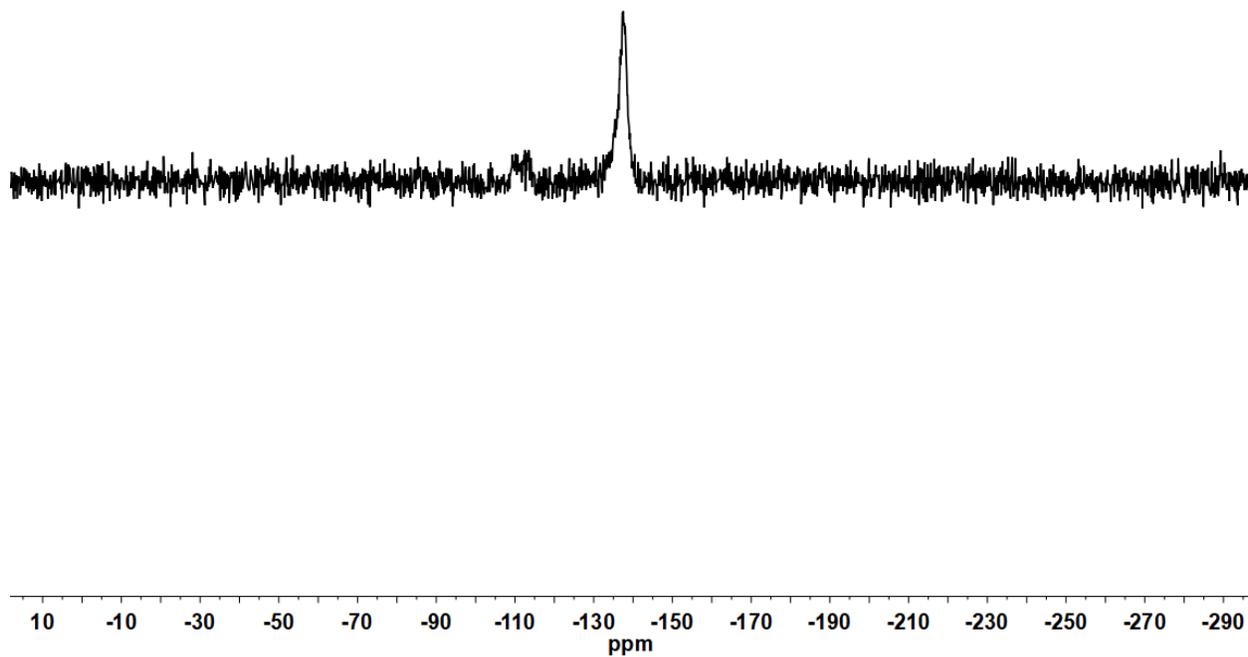


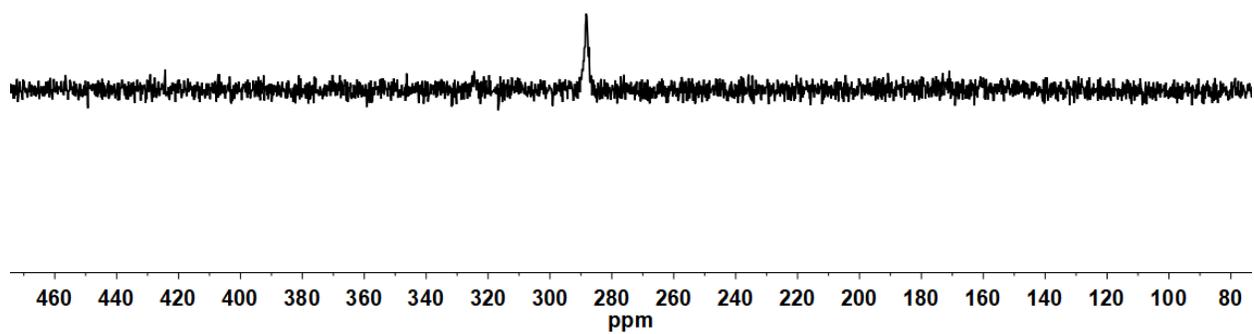
Figure S3. The growth of *M. smegmatis* in the presence of DMSO.



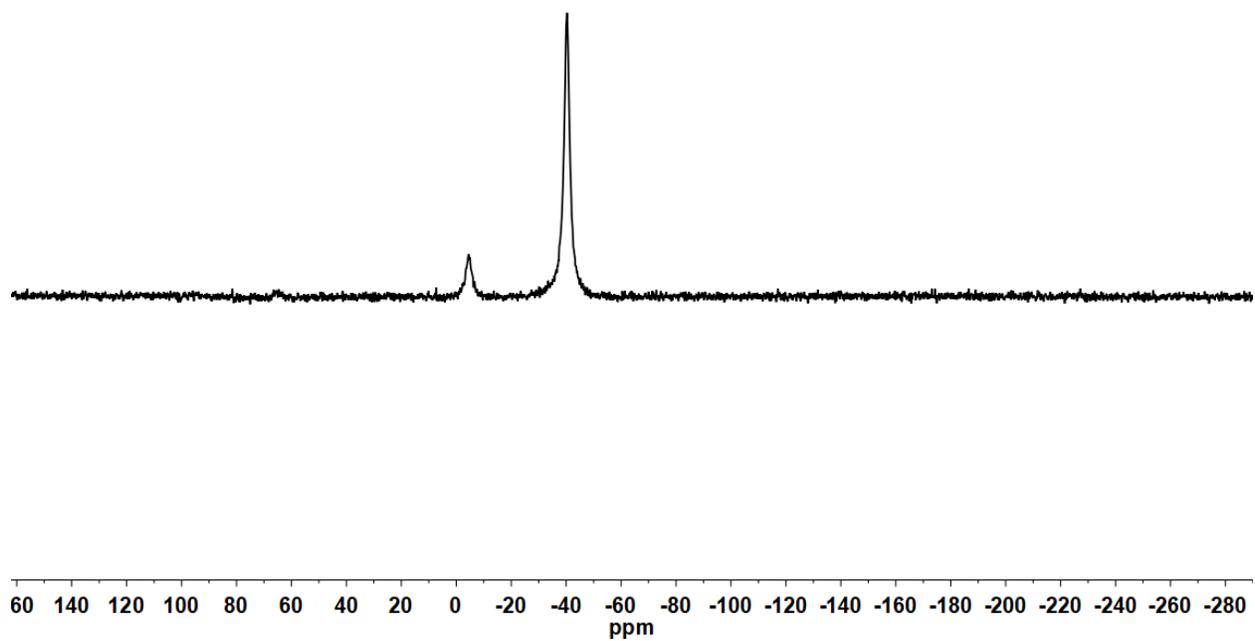
**Figure S4.** The  $^{51}\text{V}$  NMR spectrum of  $[\text{VO}(\text{Hshed})(4\text{NO}_2)]$  in  $\text{CD}_3\text{CN}$ .



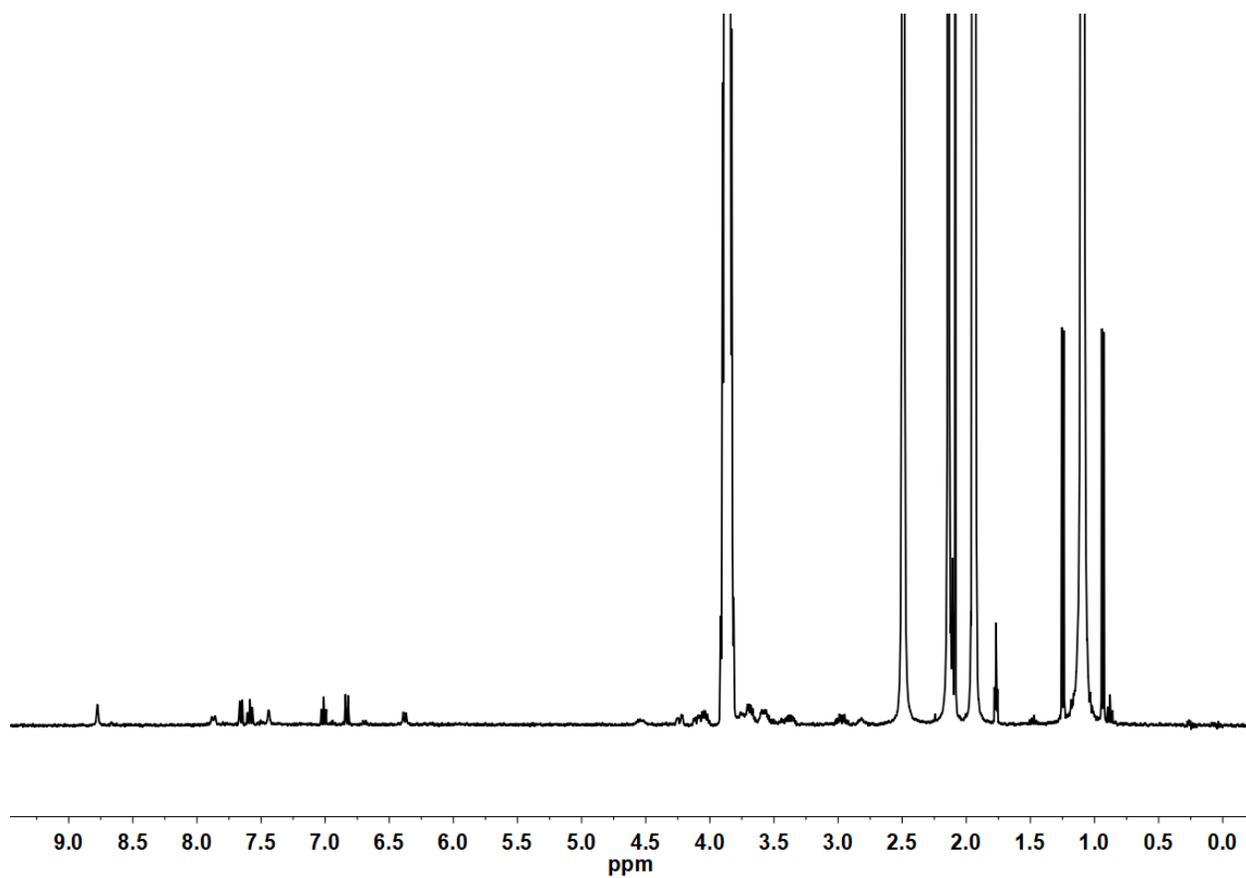
**Figure S5.** The  $^{51}\text{V}$  NMR spectrum of  $[\text{VO}(\text{Hshed})(\text{CN})]$  in  $\text{CD}_3\text{CN}$ .



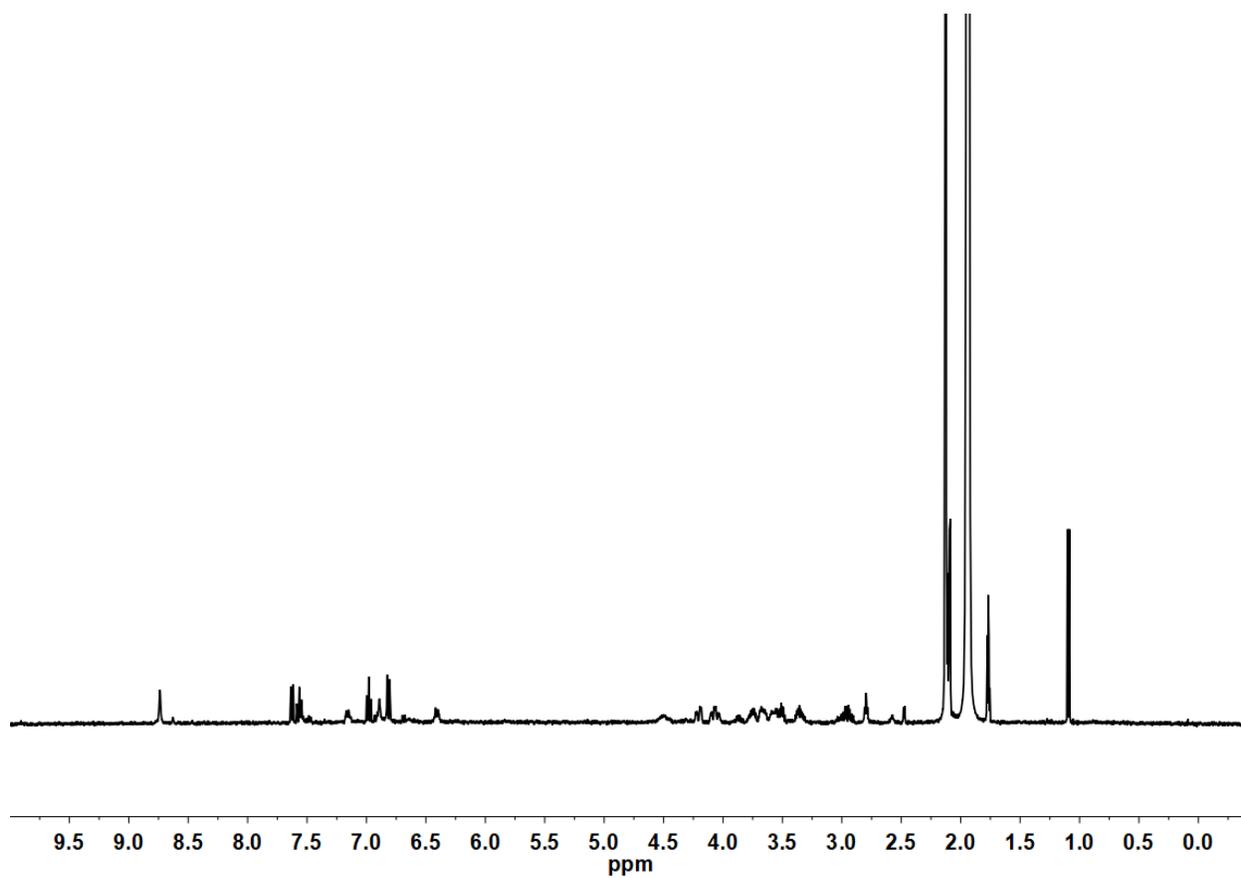
**Figure S6.** The  $^{51}\text{V}$  NMR spectrum of  $[\text{VO}(\text{Hshed})(3\text{OMet})]$  in  $\text{CD}_3\text{CN}$ .



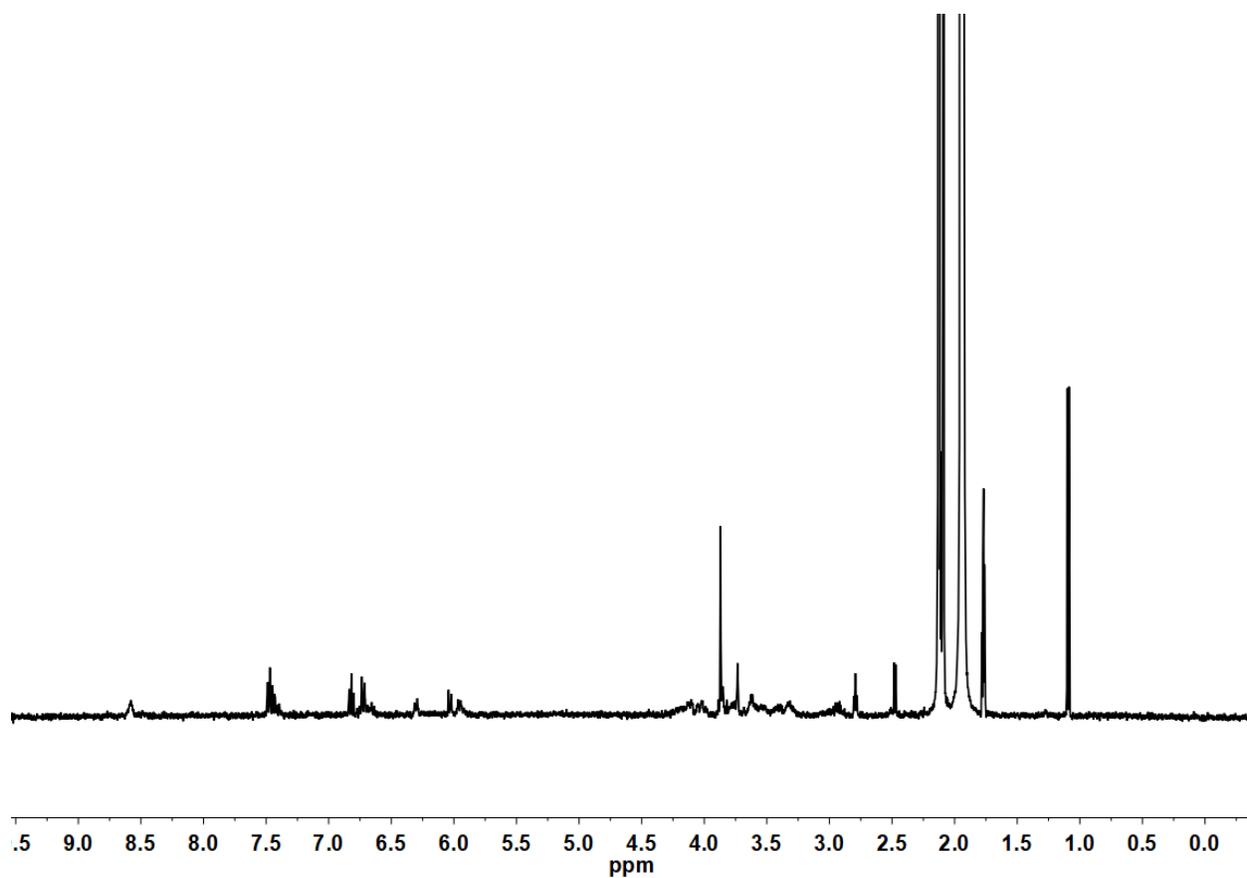
**Figure S7.** The  $^{51}\text{V}$  NMR spectrum of  $[\text{VO}(\text{Hshed})(\text{Coum})]$  in  $\text{CD}_3\text{CN}$ .



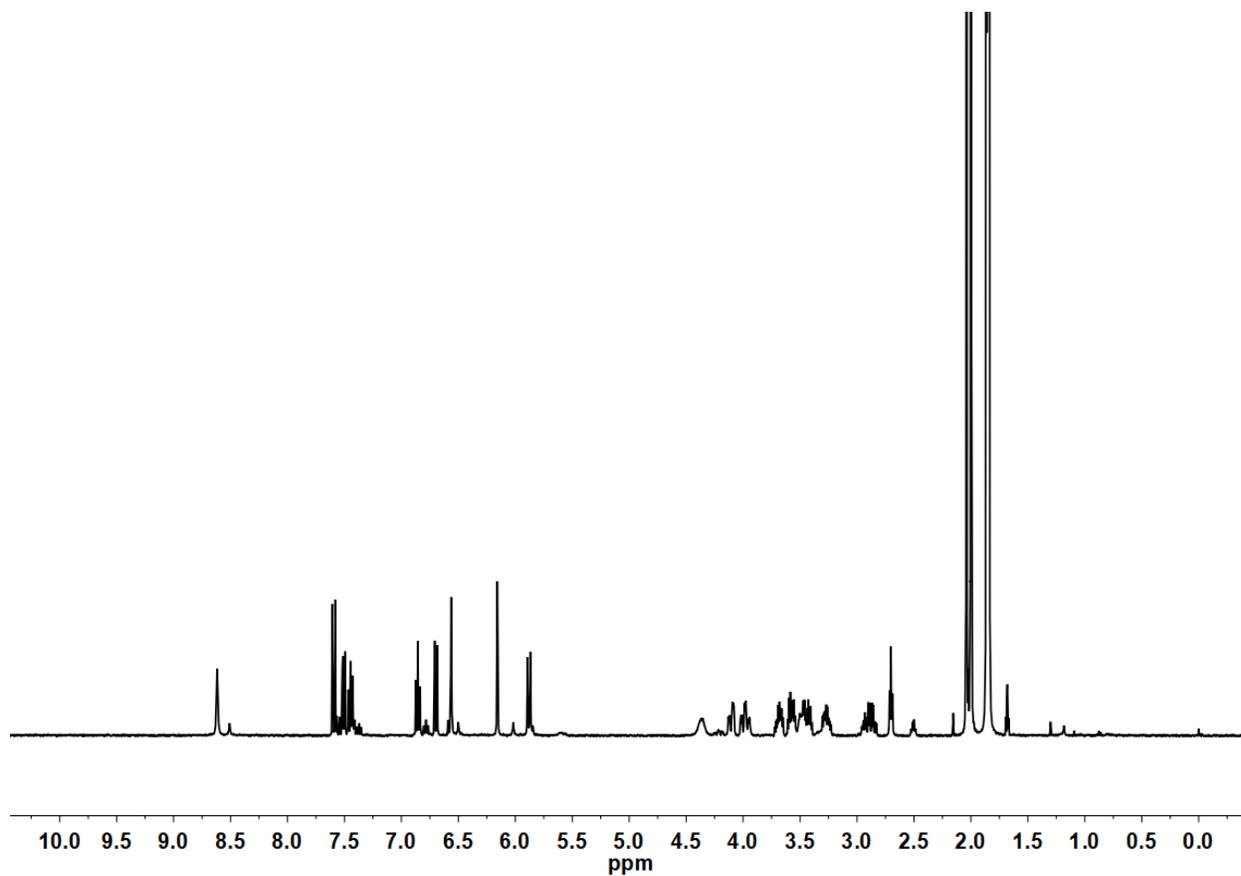
**Figure S8.** The  $^1\text{H}$  NMR spectrum of  $[\text{VO}(\text{Hshed})(4\text{NO}_2)]$  in  $\text{CD}_3\text{CN}$ .



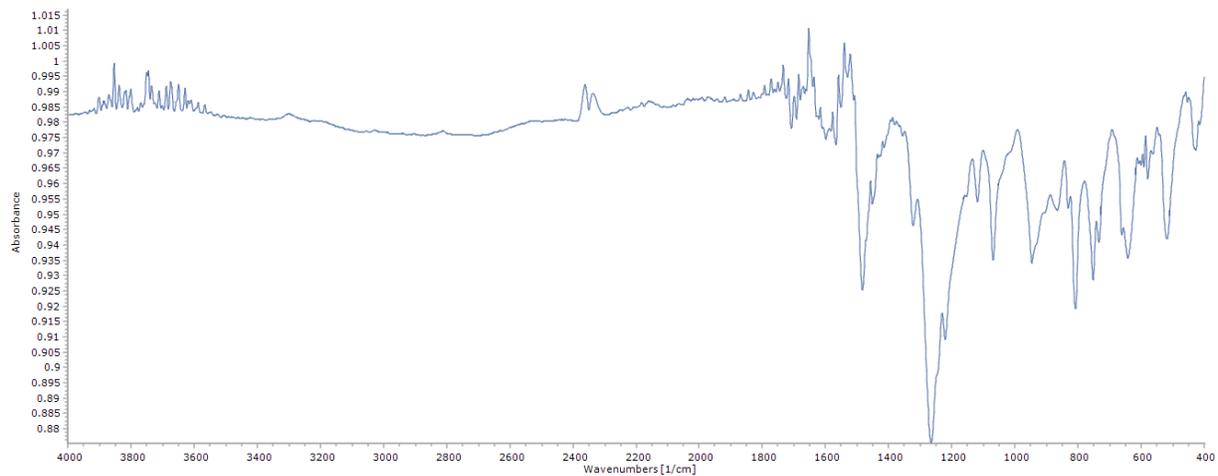
**Figure S9.** The <sup>1</sup>H NMR spectrum of [VO(Hshed)(CN)] in CD<sub>3</sub>CN.



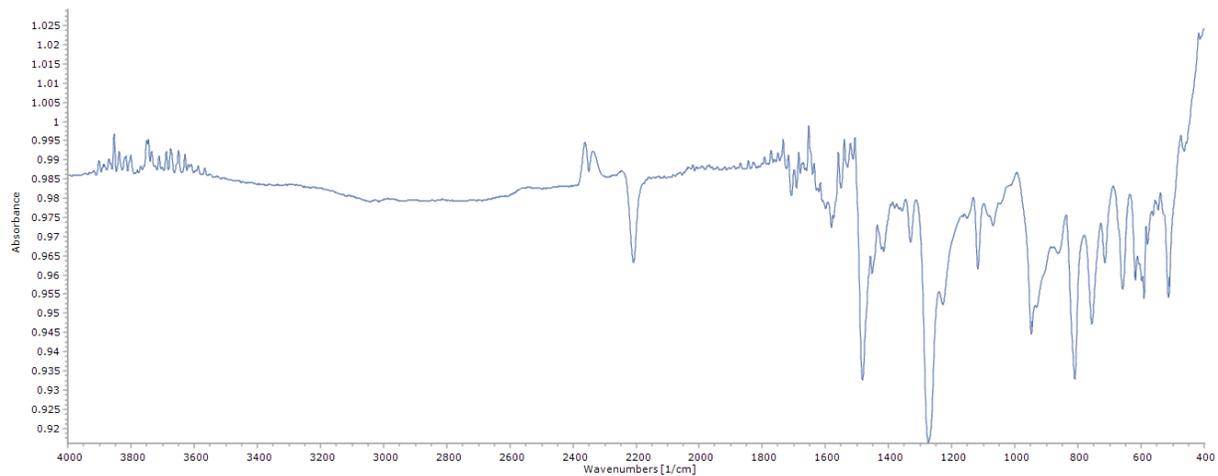
**Figure S10.** The  $^1\text{H}$  NMR spectrum of  $[\text{VO}(\text{Hshed})(3\text{OMet})]$  in  $\text{CD}_3\text{CN}$ .



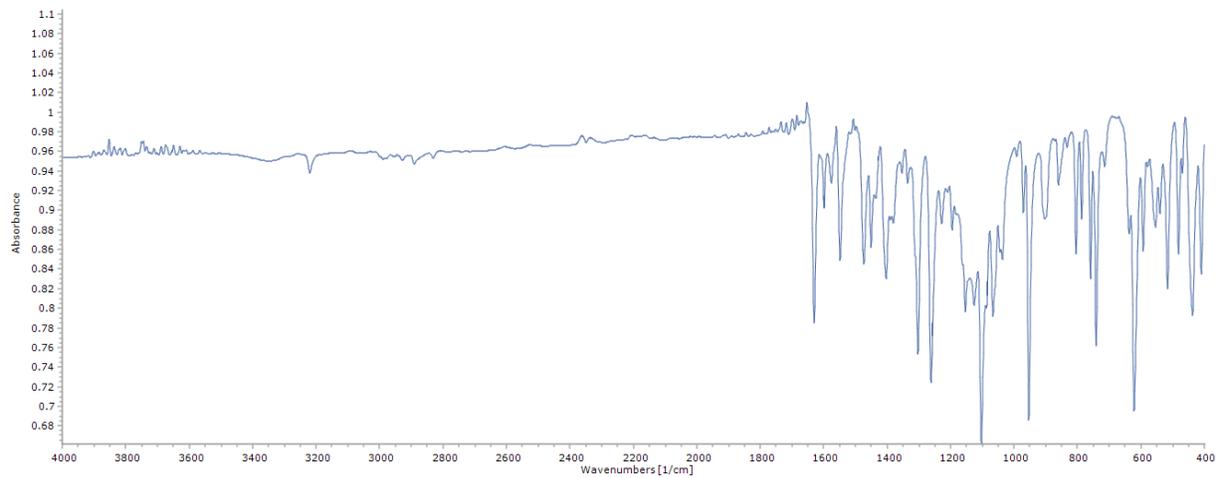
**Figure S11.** The  $^1\text{H}$  NMR spectrum of  $[\text{VO}(\text{Hshed})(\text{Coum})]$  in  $\text{CD}_3\text{CN}$ .



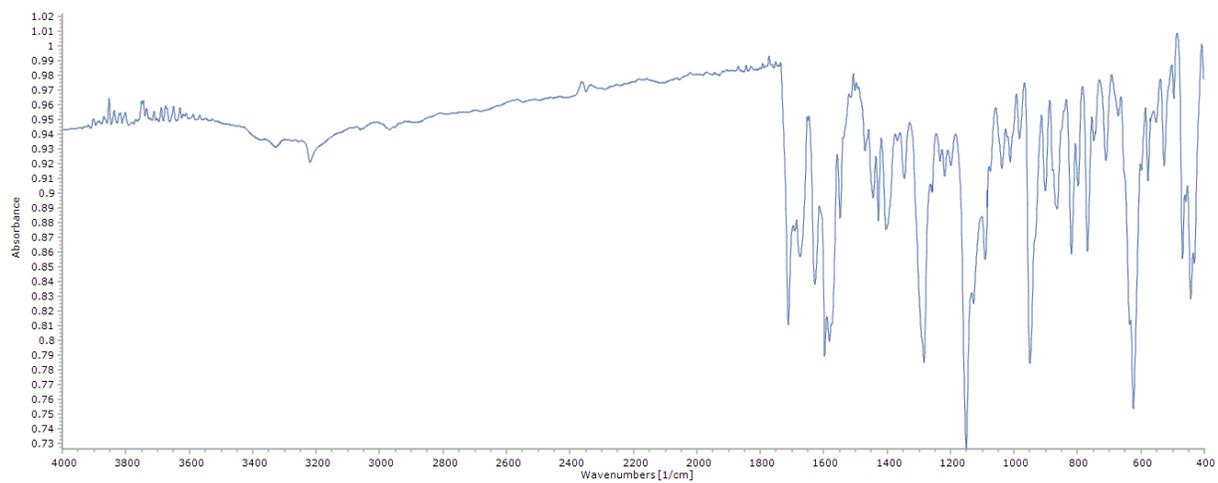
**Figure S12.** The IR spectrum of [VO(Hshed)(4NO<sub>2</sub>)].



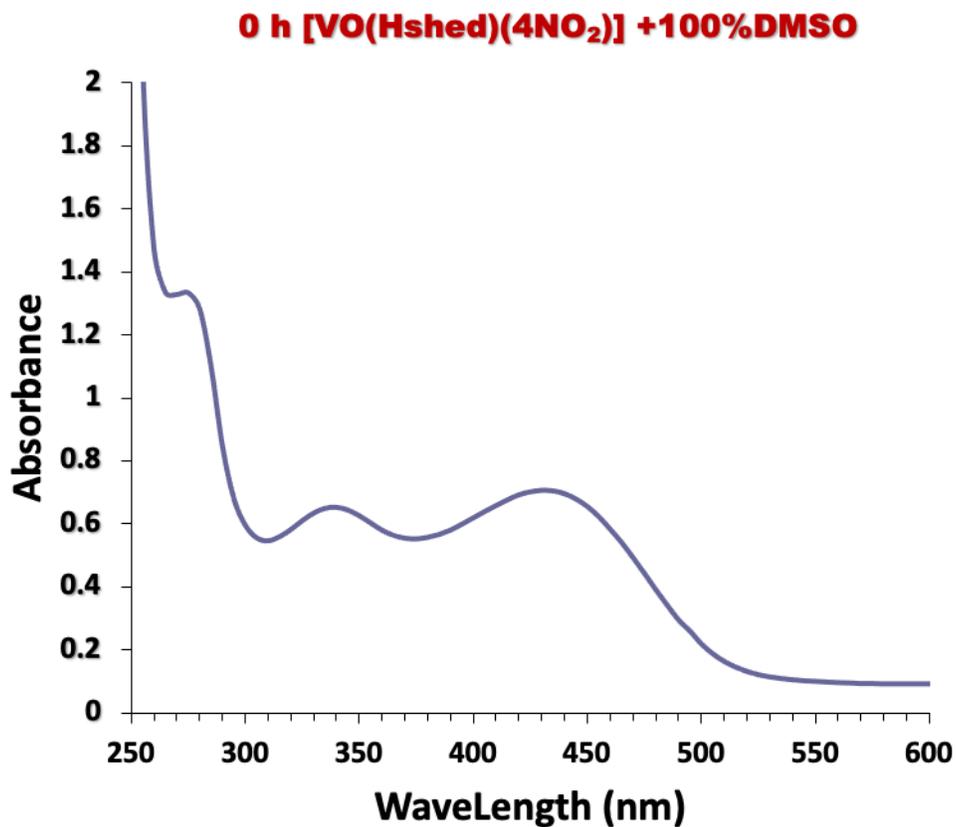
**Figure S13.** The IR spectrum of [VO(Hshed)(CN)].



**Figure S14.** The IR spectrum of [VO(Hshed)(3OMet)].

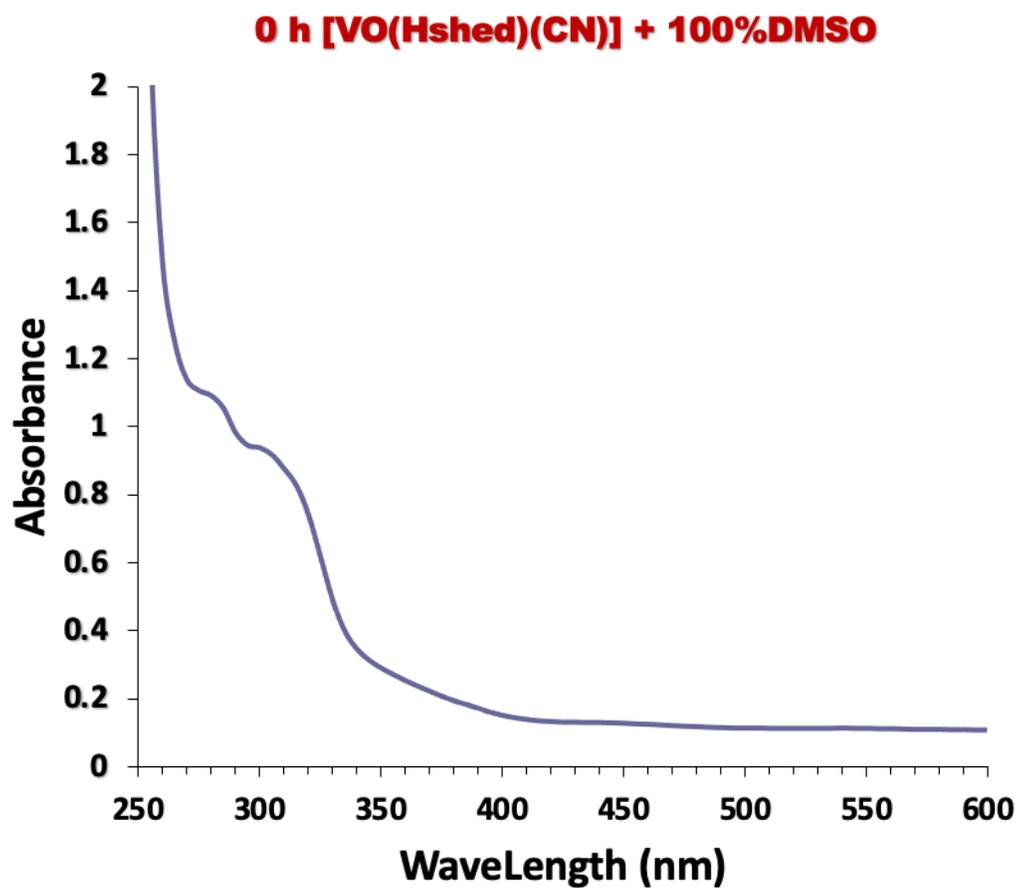


**Figure S15.** The IR spectrum of [VO(Hshed)(Coum)].



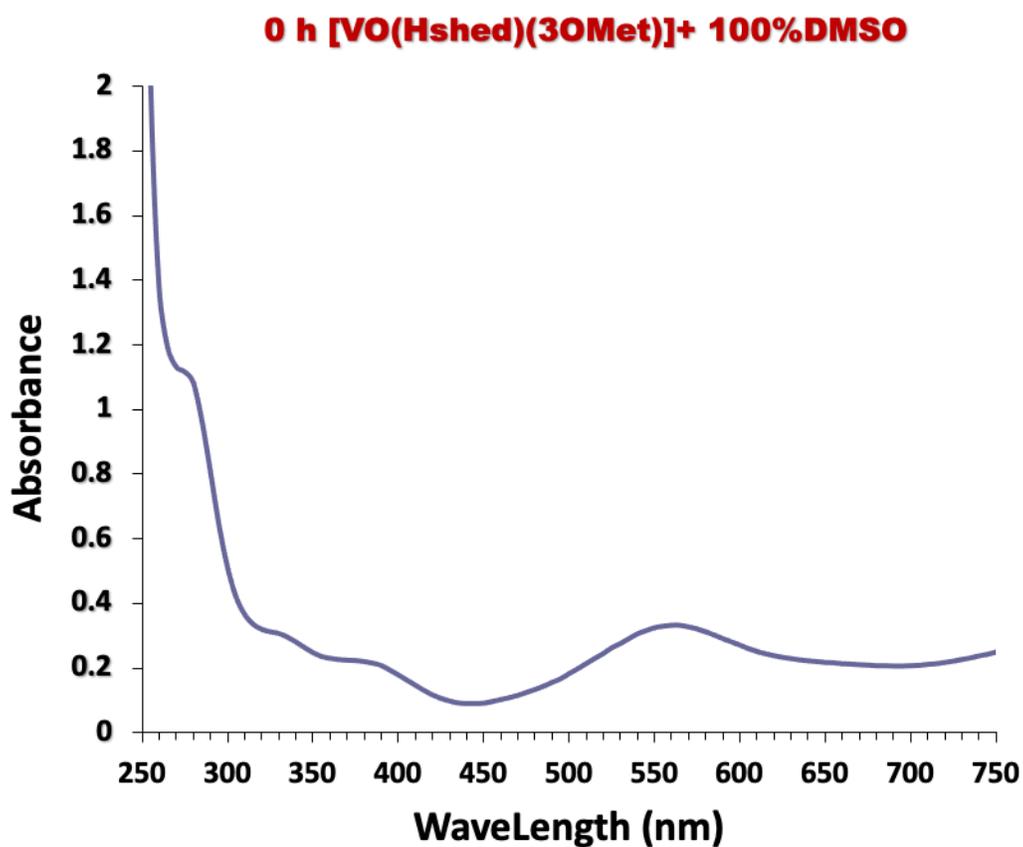
| Complex                                       | [complex]<br>mM | Complex (100%DMSO)<br>absorbance (nm)/ $\epsilon$<br>( $\times 10^3 \text{ M}^{-1}$ ) |
|---|-----------------|---|
| [VO(Hshed)(4NO <sub>2</sub> )]<br>(100% DMSO) | 0.250           | (280, 1.282, 5.1);<br>(340, 0.653, 2.6);<br>(435, 0.705, 2.8)                         |

**Figure S16.** The UV-vis spectrum of [VO(Hshed)(4NO<sub>2</sub>)].



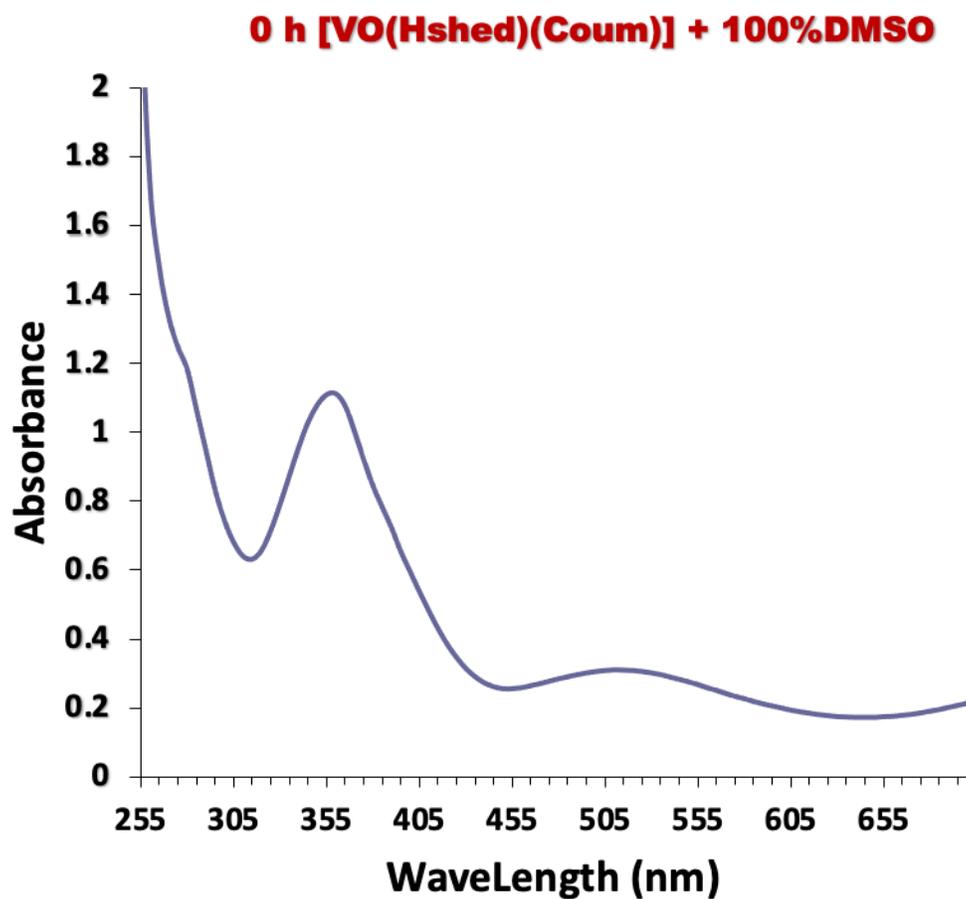
| Complex                        | [complex]<br>mM | Complex (100%DMSO)<br>absorbance (nm)/ $\epsilon$<br>( $\times 10^3 \text{ M}^{-1}$ ) |
|--------------------------------|-----------------|---|
| [VO(Hshed)(CN)]<br>(100% DMSO) | 0.250           | (280, 1.091, 4.4);<br>(305, 0.917, 3.7)   |

Figure S17. The UV-vis spectrum of [VO(Hshed)(CN)].



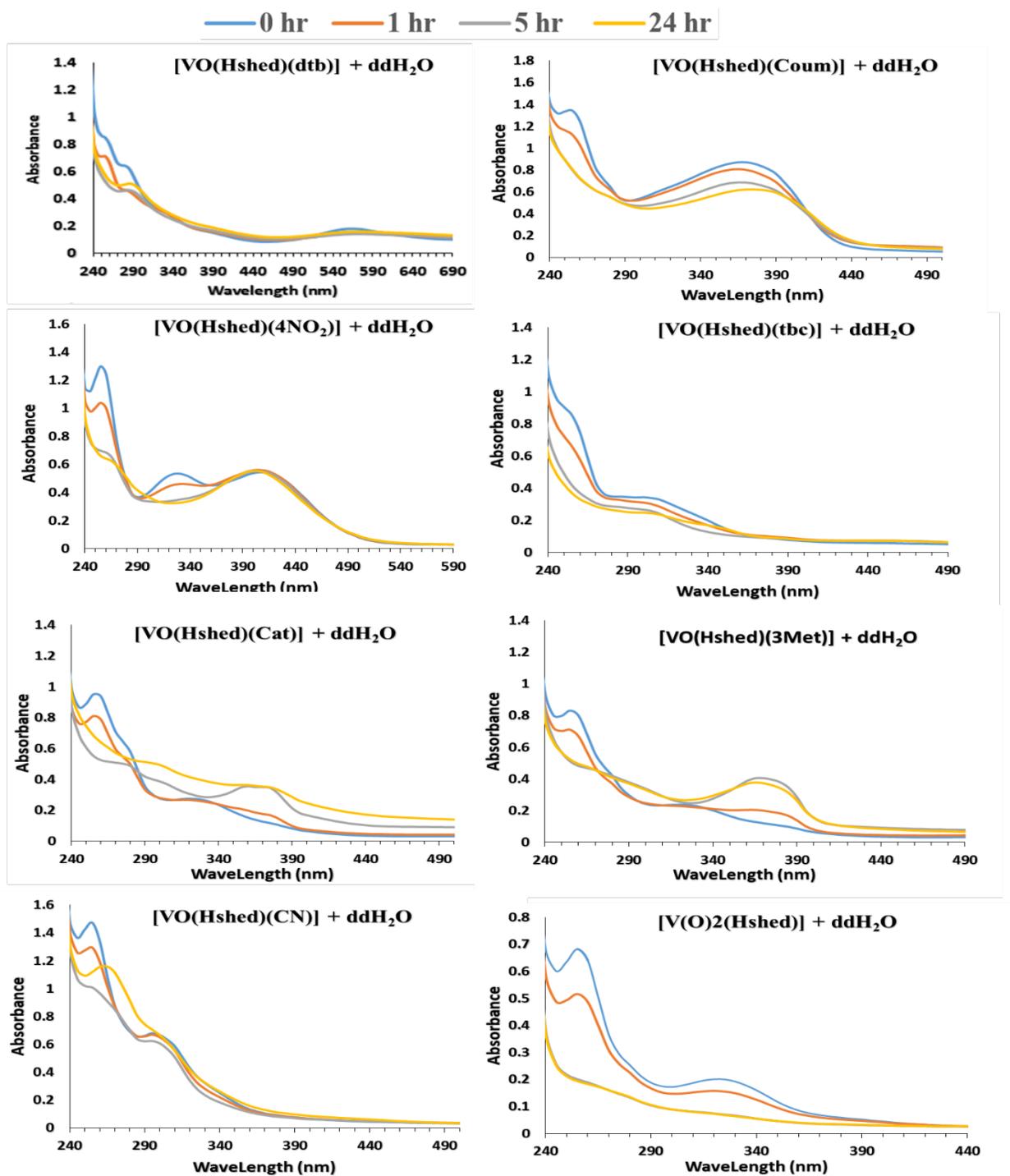
| Complex                              | [complex]<br>mM | Complex (100%DMSO)<br>absorbance (nm)/ $\epsilon$<br>( $\times 10^3 \text{ M}^{-1}$ ) |
|--------------------------------------|-----------------|---|
|                                      |                 | (280, 1.086, 4.3);  |
| [VO(Hshed)(3OMet)] /<br>(100%DMSO) / | 0.250           | (335, 0.298, 1.2);<br>(390, 0.21, 0.84);<br>(565, 0.334, 1.3)                         |

Figure S18. The UV-vis spectrum of [VO(Hshed)(3OMet)].



| Complex                          | [complex]<br>mM | Complex (100%DMSO)<br>absorbance (nm)/ $\epsilon$<br>( $\times 10^3 \text{ M}^{-1}$ ) |
|----------------------------------|-----------------|---|
| [VO(Hshed)(Coum)]<br>(100% DMSO) | 0.250           | (280, 1.183, 4.7);<br>(360, 1.112, 4.4);<br>(520, 0.309, 1.2)                         |

Figure S19. The UV-vis spectrum of [VO(Hshed)(Coum)].



**Figure S20.** The UV-vis spectra are recorded of all the complexes at 0.250 mM in ddH<sub>2</sub>O as a function of time (0, 1, 5, 24 h).

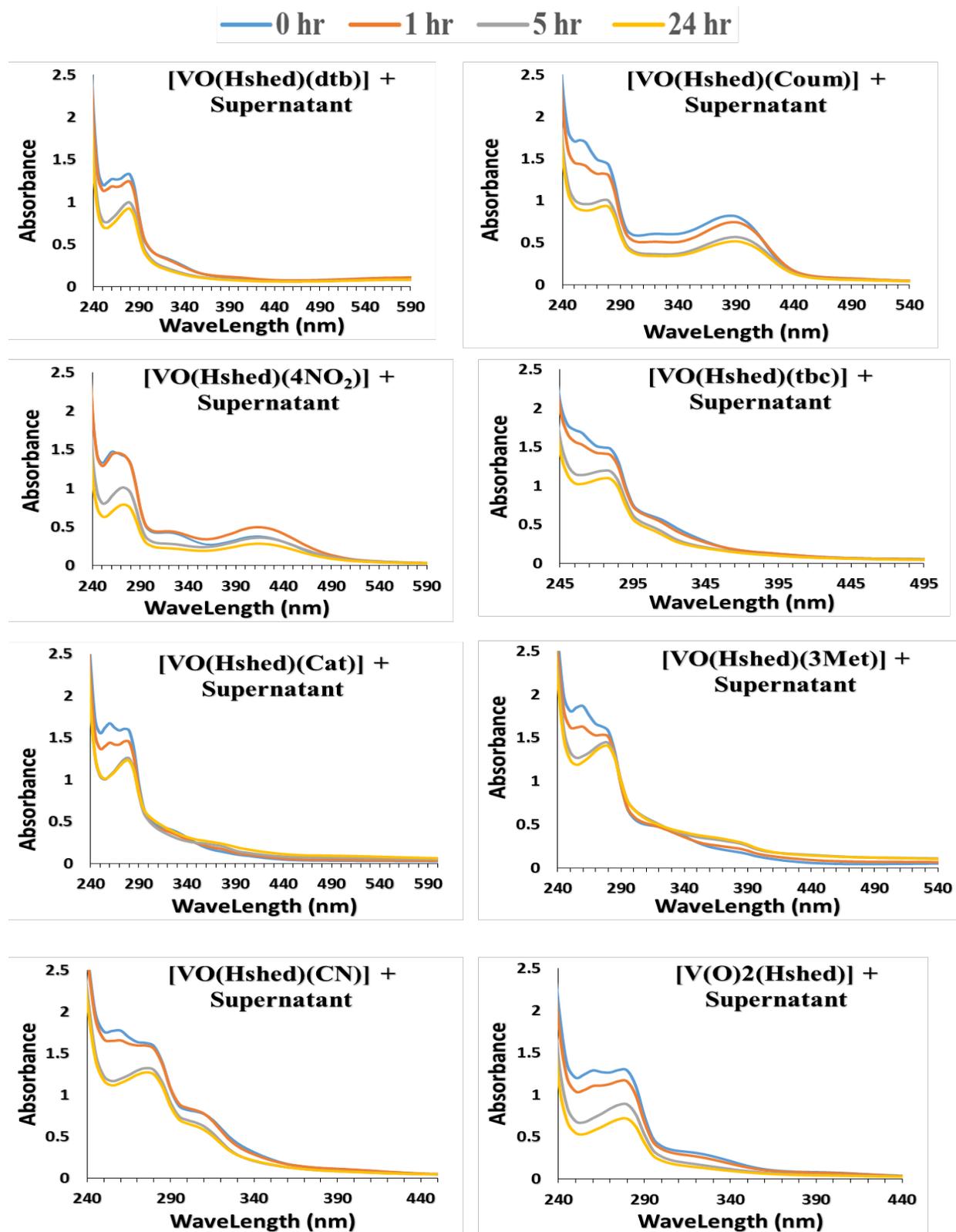
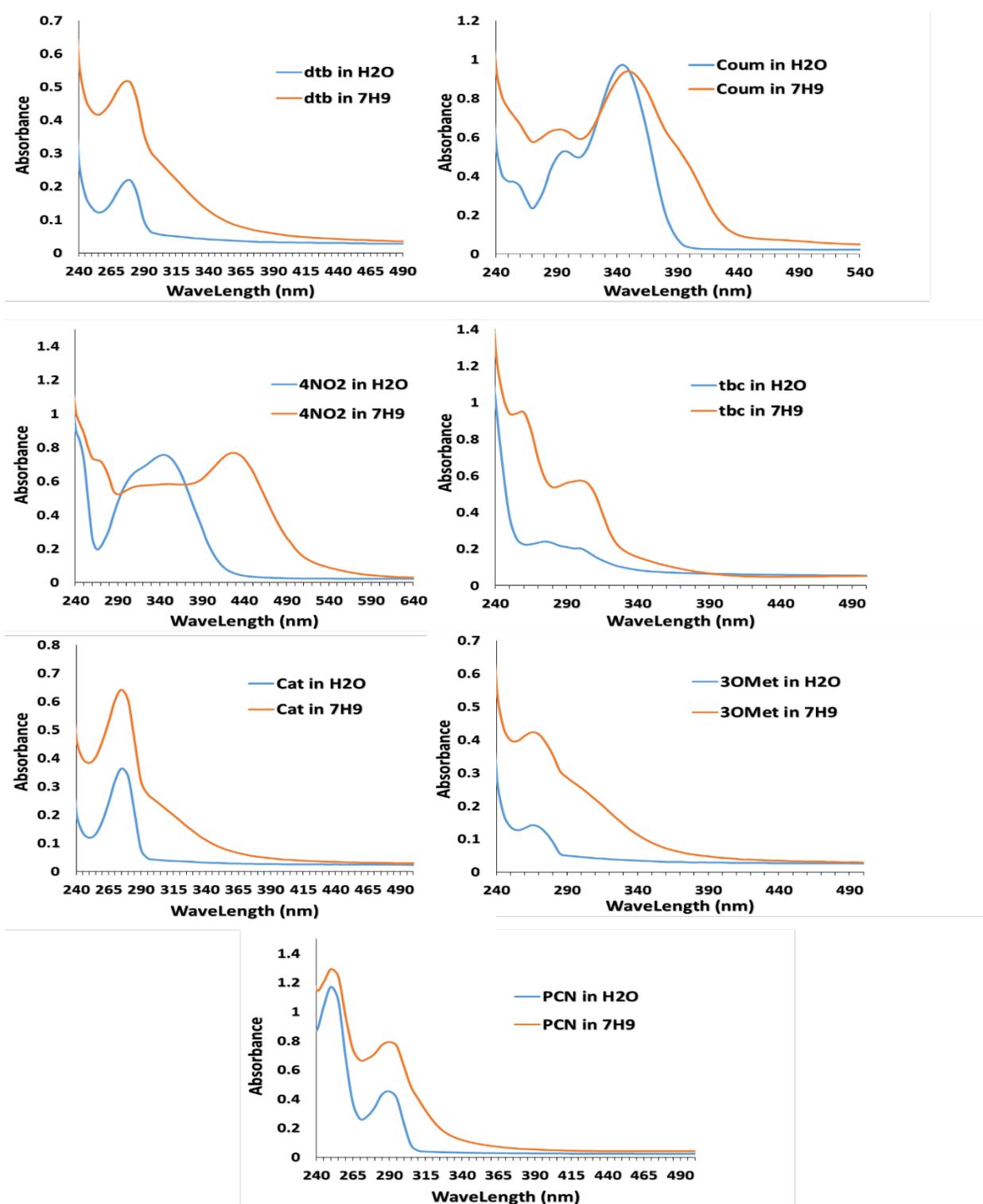
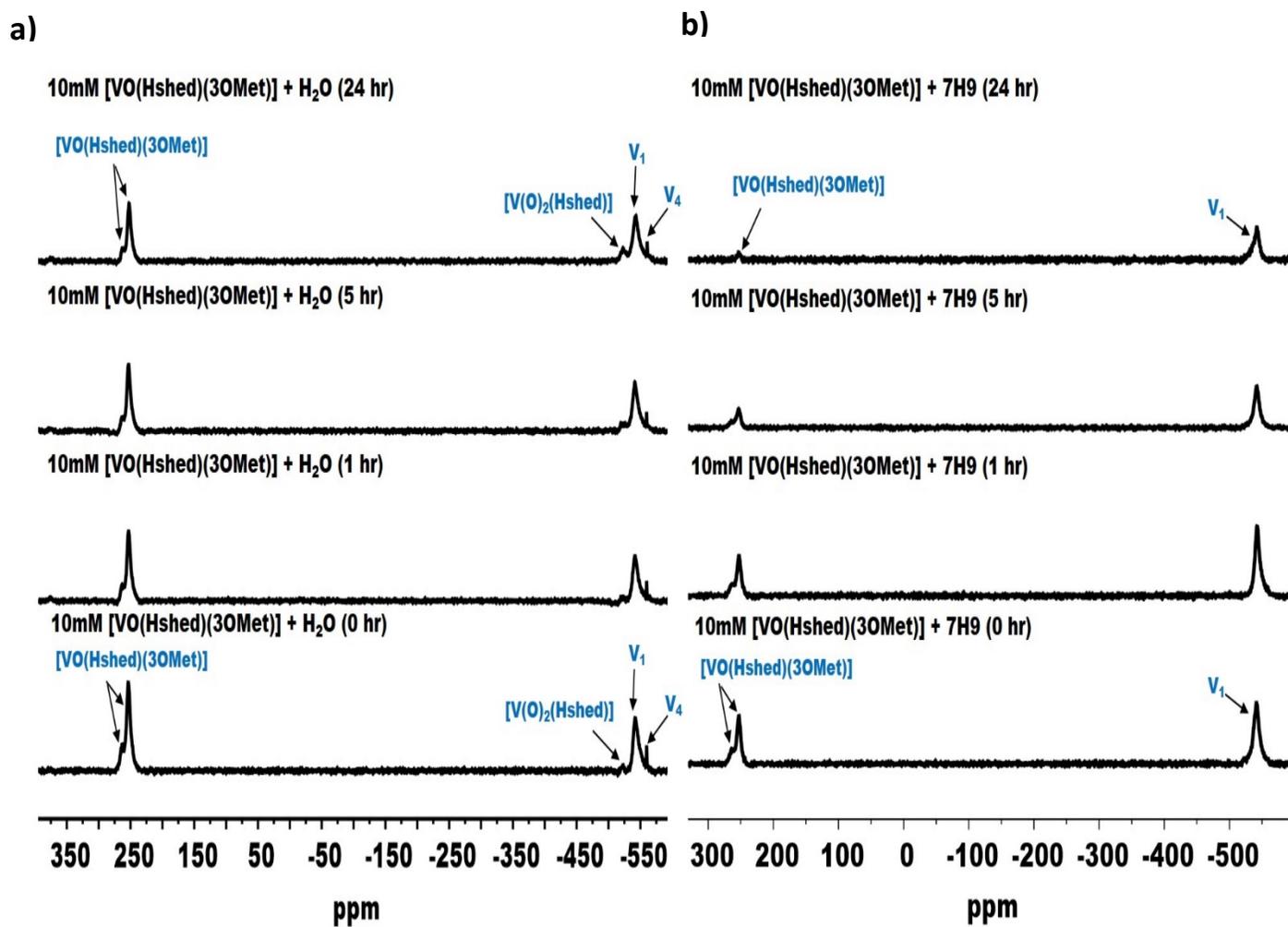


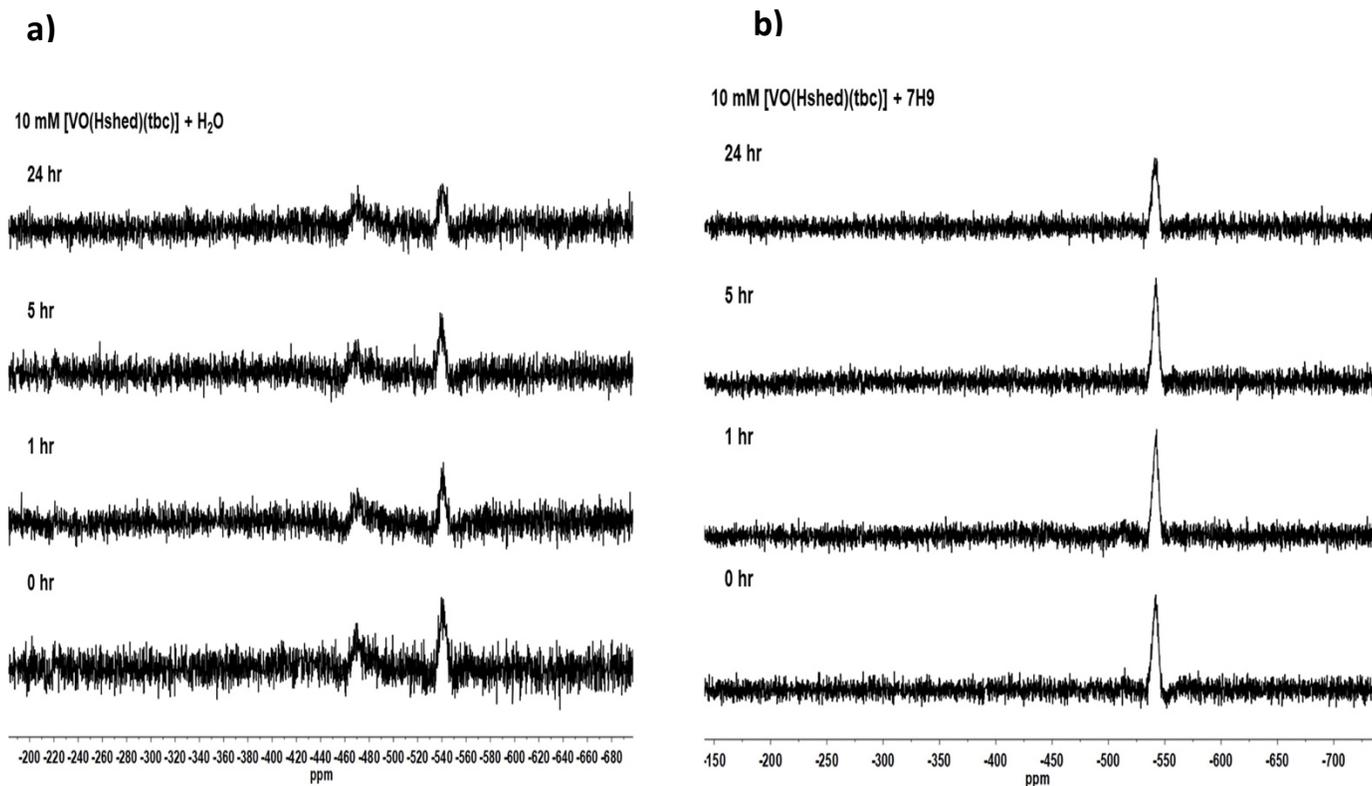
Figure S21. The UV-vis spectra are recorded of all the complexes at 0.250 mM in supernatant fraction as a function of time (0,1, 5, 24 h).



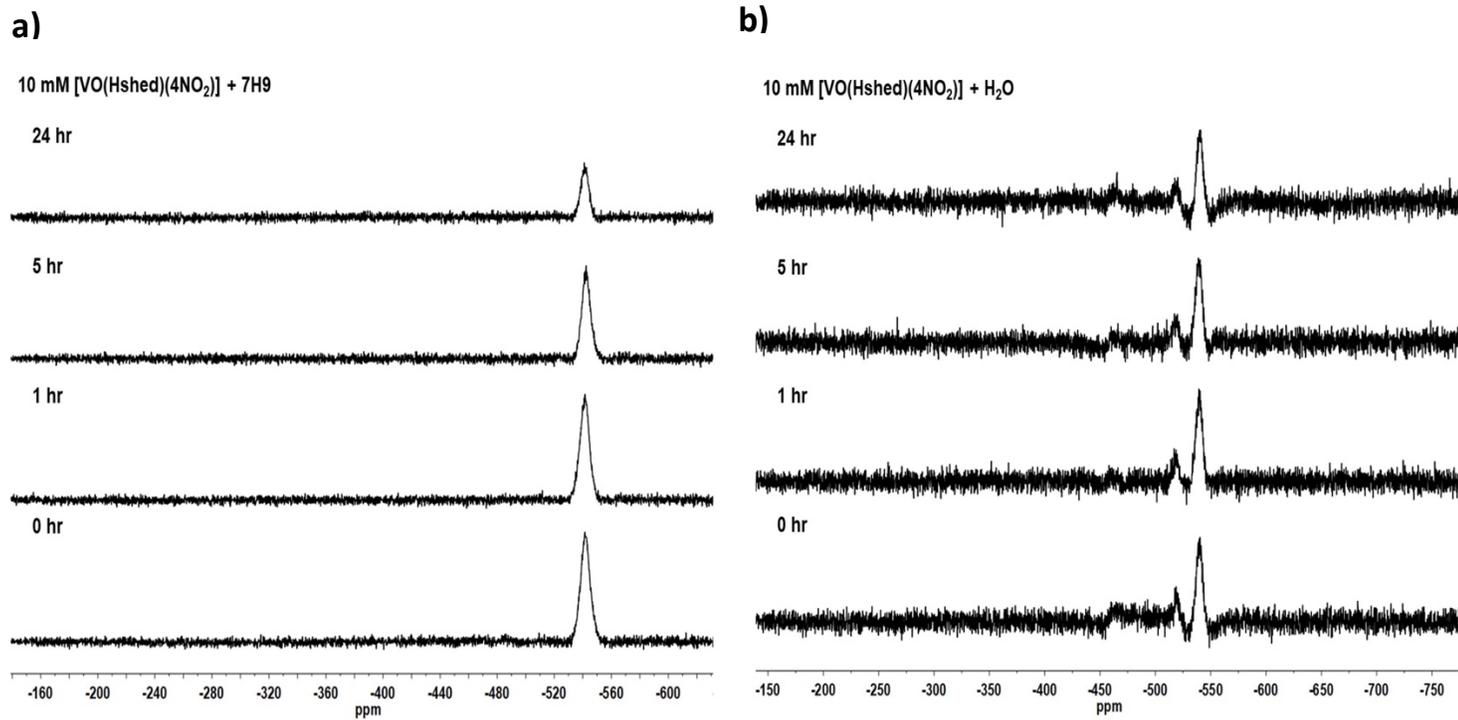
**Figure S22.** The UV-vis spectra are recorded of all the free ligands at 0.250 mM in ddH<sub>2</sub>O and 7H9 medium at time zero (0 h).



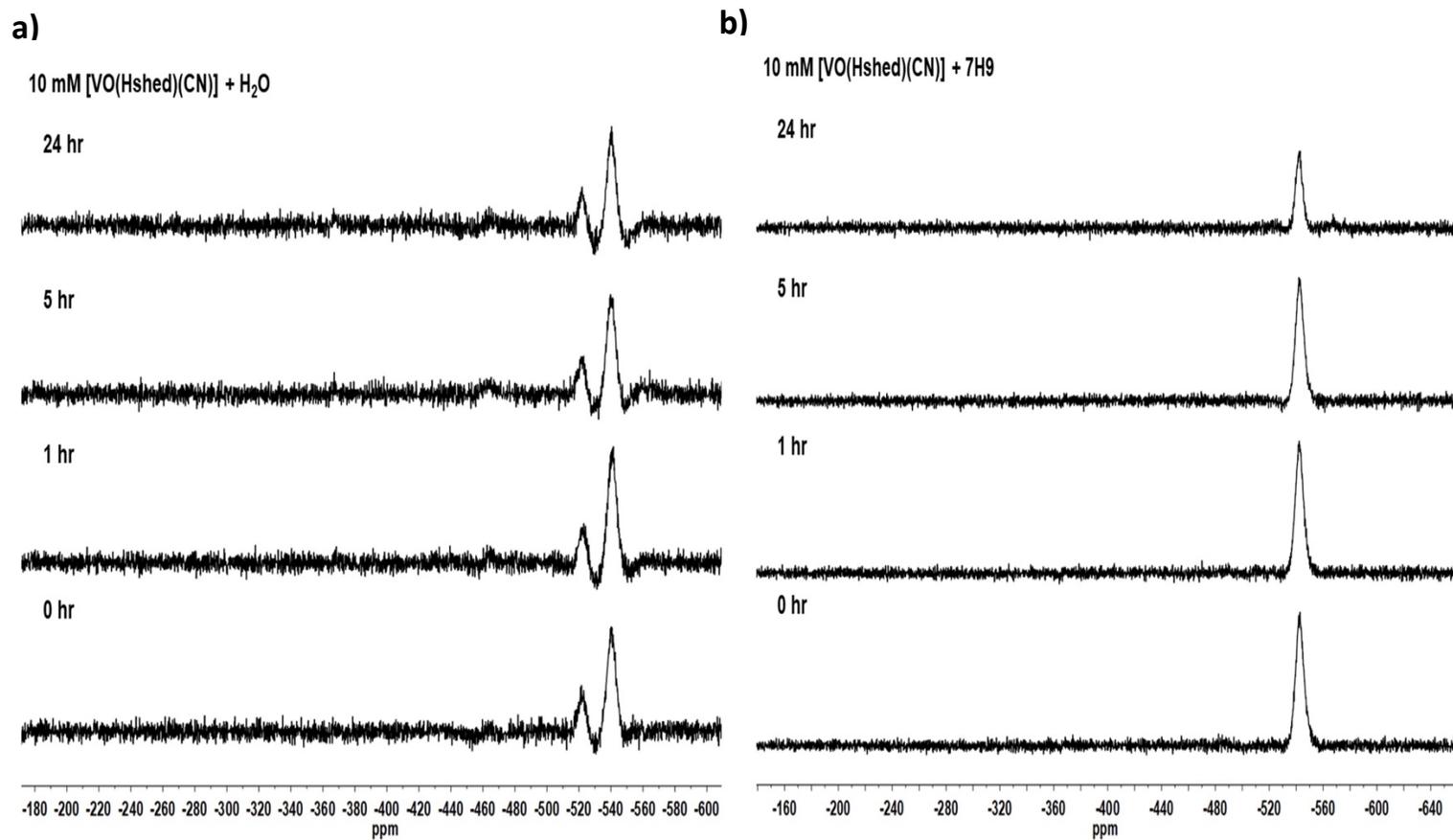
**Figure S23.** The  $^{51}\text{V}$  NMR spectra of 10mM  $[\text{VO}(\text{Hshed})(3\text{OMet})]$  at 0, 1, 5, and 24 h time points in a) 50:50  $\text{H}_2\text{O}:\text{DMSO}$  and in b) 50:50 7H9 growth medium: DMSO.



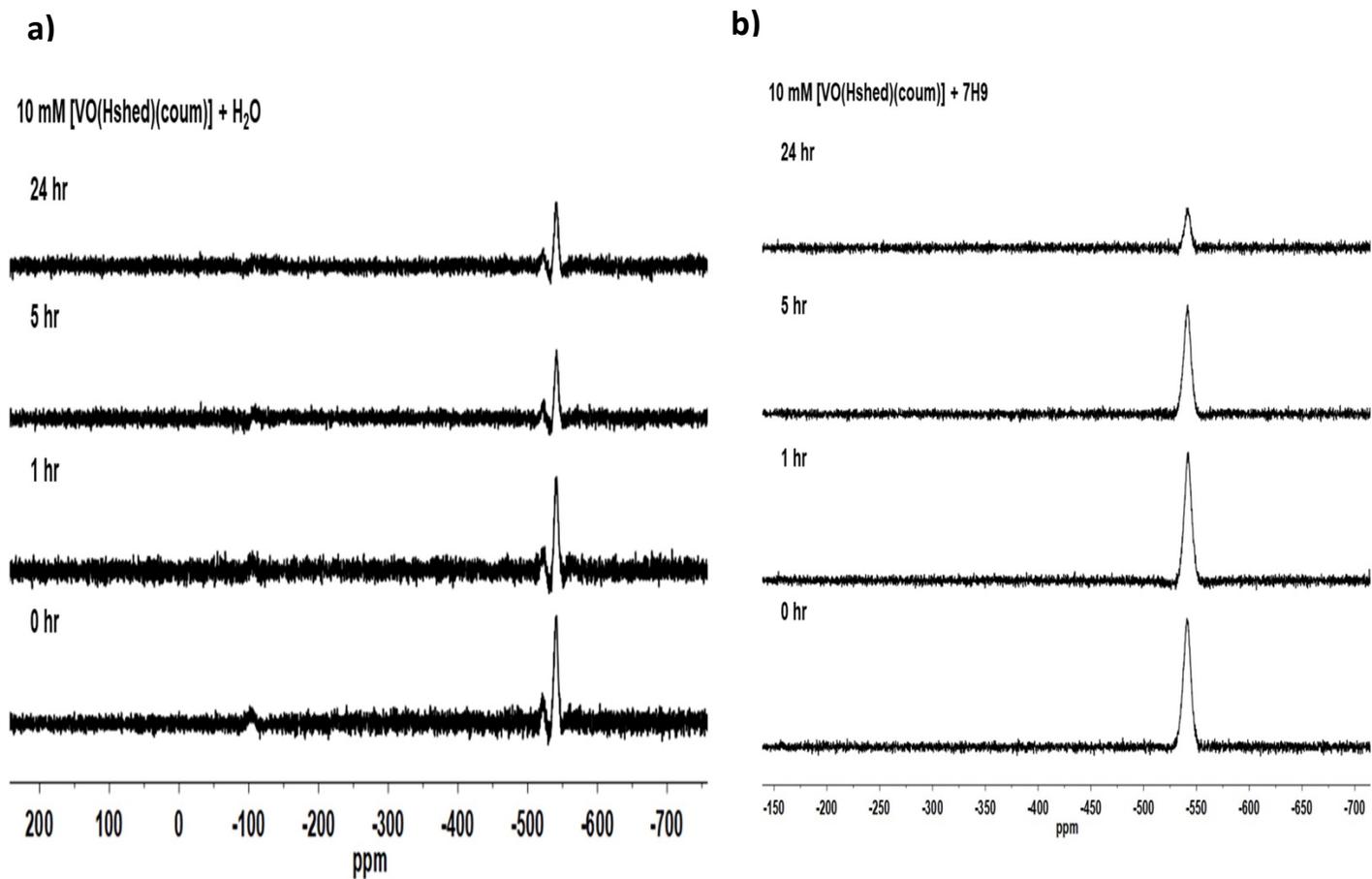
**Figure S24.** The <sup>51</sup>V NMR spectra of 10mM [VO(Hshed)(tbc)] at 0, 1, 5, and 24 h time points in **a)** 50:50 H<sub>2</sub>O:DMSO and in **b)** 50:50 7H9 growth medium: DMSO.



**Figure S25.** The <sup>51</sup>V NMR spectra of 10mM [VO(Hshed)(4NO<sub>2</sub>)] at 0, 1, 5, and 24 h time points in a) 50:50 H<sub>2</sub>O:DMSO and in b) 50:50 7H9 growth medium: DMSO.



**Figure S26.** The <sup>51</sup>V NMR spectra of 10mM [VO(Hshed)(CN)] at 0, 1, 5, and 24 h time points in **a)** 50:50 H<sub>2</sub>O:DMSO and in **b)** 50:50 7H9 growth medium: DMSO.



**Figure S27.** The <sup>51</sup>V NMR spectra of 10mM [VO(Hshed)(Coum)] at 0, 1, 5, and 24 h time points in **a)** 50:50 H<sub>2</sub>O:DMSO and in **b)** 50:50 7H9 growth medium: DMSO.

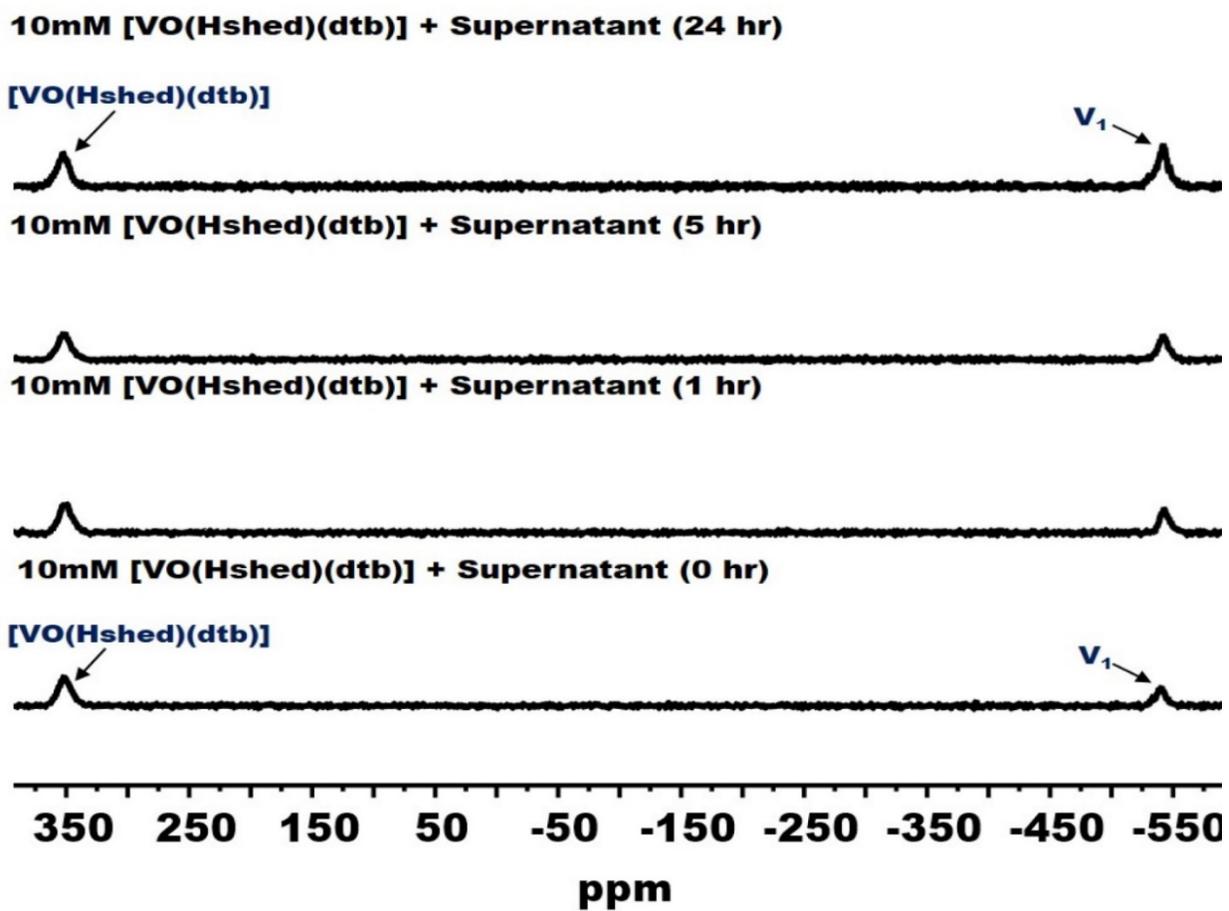


Figure S28. The  $^{51}\text{V}$  NMR spectra of 10mM [VO(Hshed)(dtb)] at 0, 1, 5, and 24 h time points in supernatant fraction.

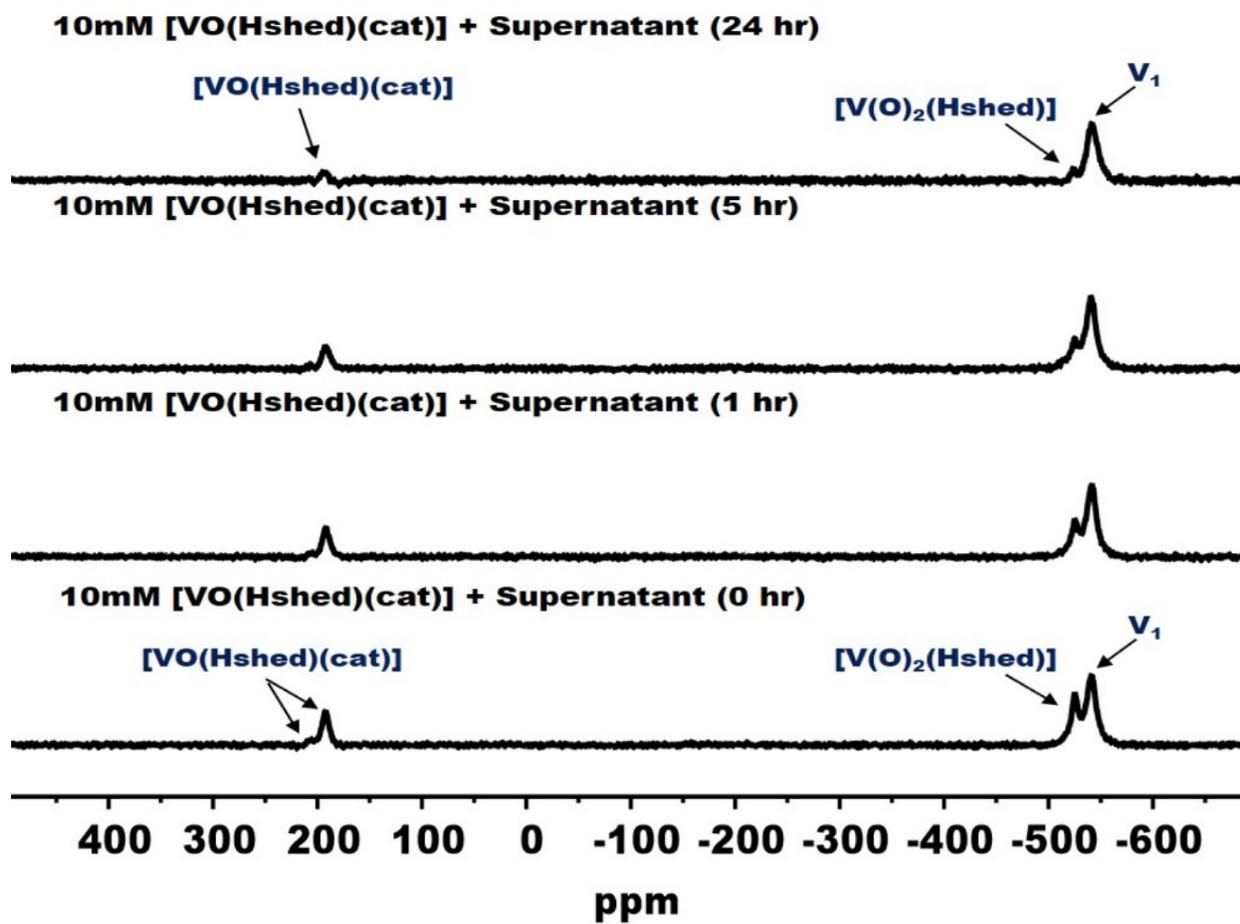


Figure S29. The <sup>51</sup>V NMR spectra of 10mM [VO(Hshed)(cat)] at 0, 1, 5, and 24 h time points in supernatant fraction.

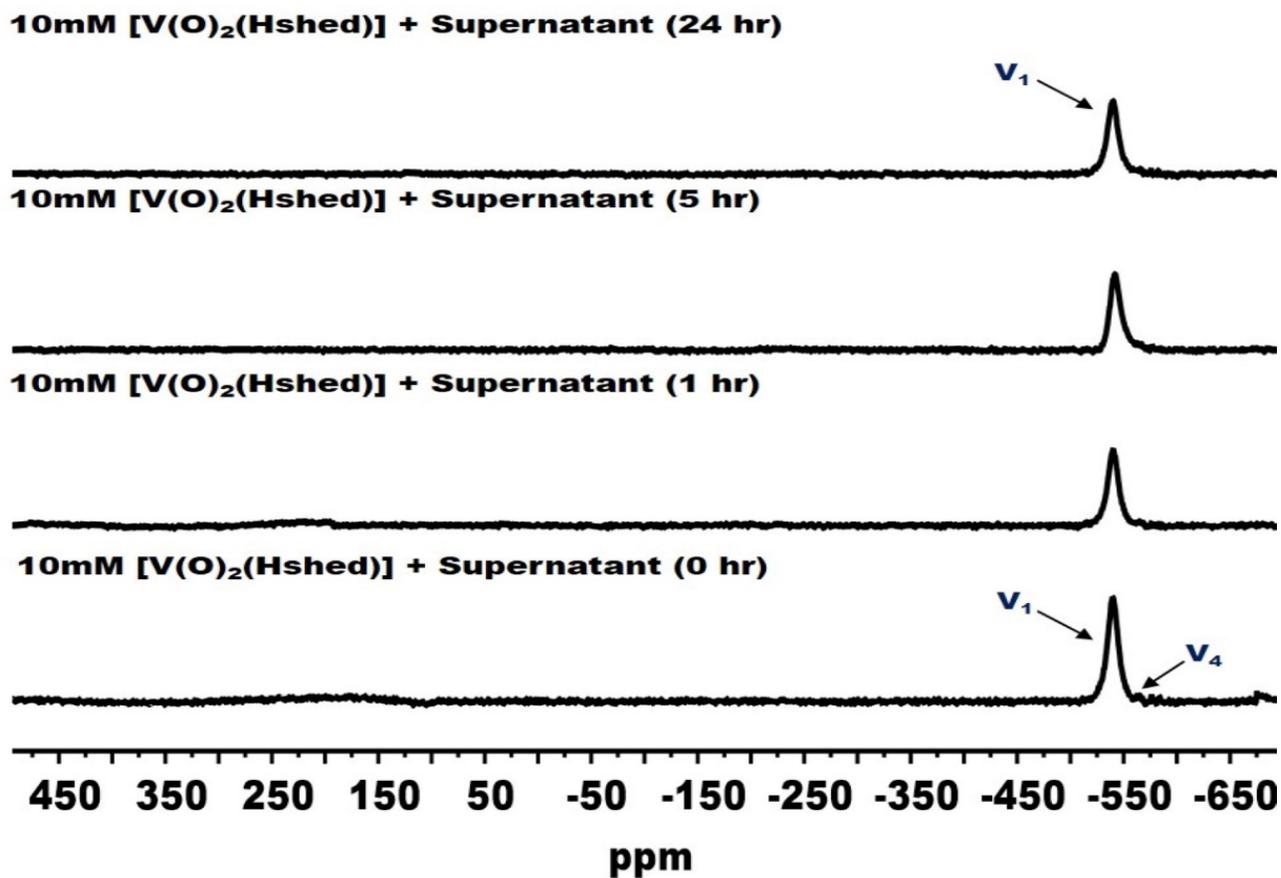


Figure S30. The <sup>51</sup>V NMR spectra of 10mM [V(O)<sub>2</sub>(Hshed)] at 0, 1, 5, and 24 h time points in supernatant fraction.

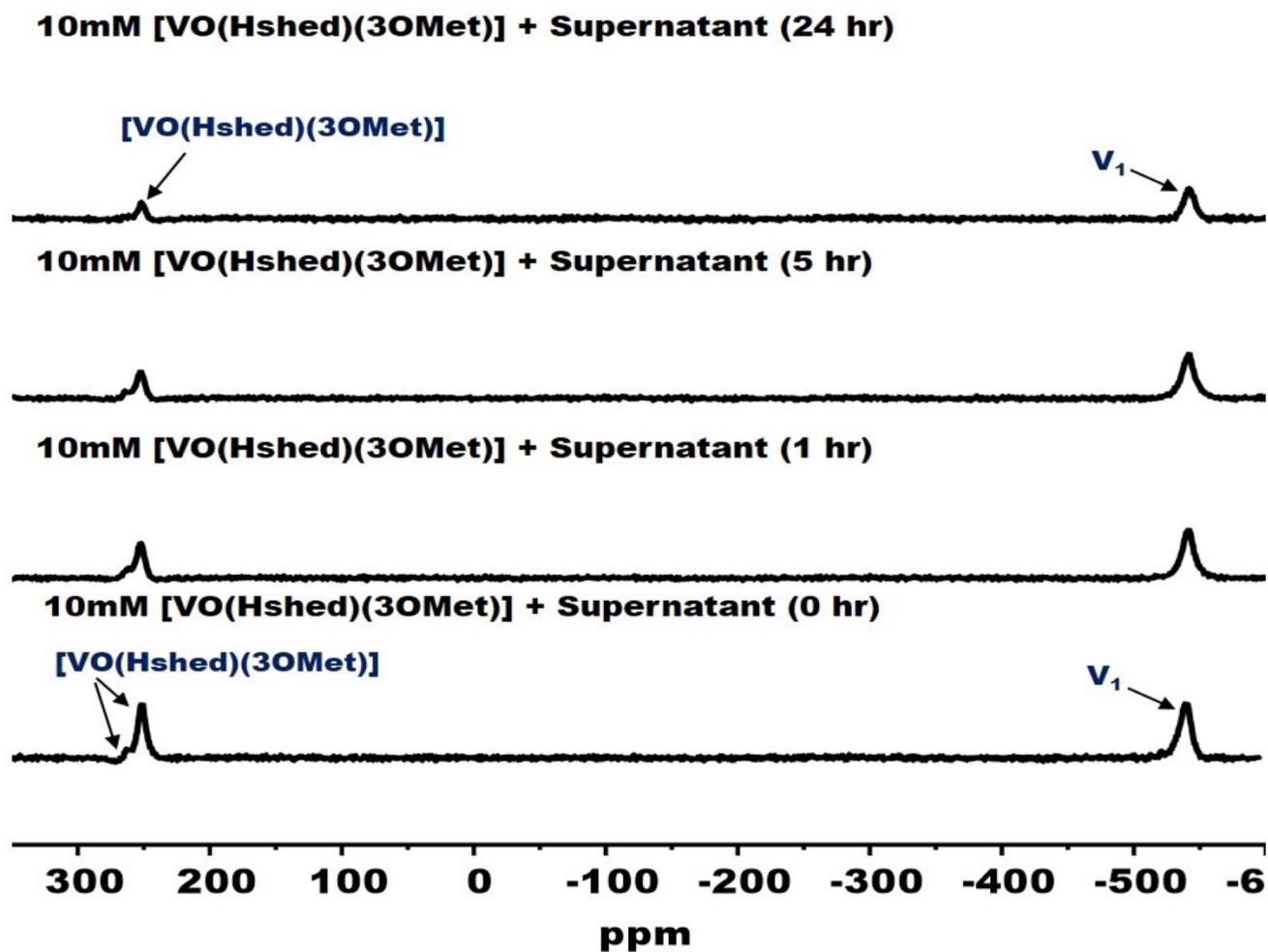


Figure S31. The  $^{51}\text{V}$  NMR spectra of 10mM [VO(Hshed)(3OMet)] at 0, 1, 5, and 24 h time points in supernatant fraction.