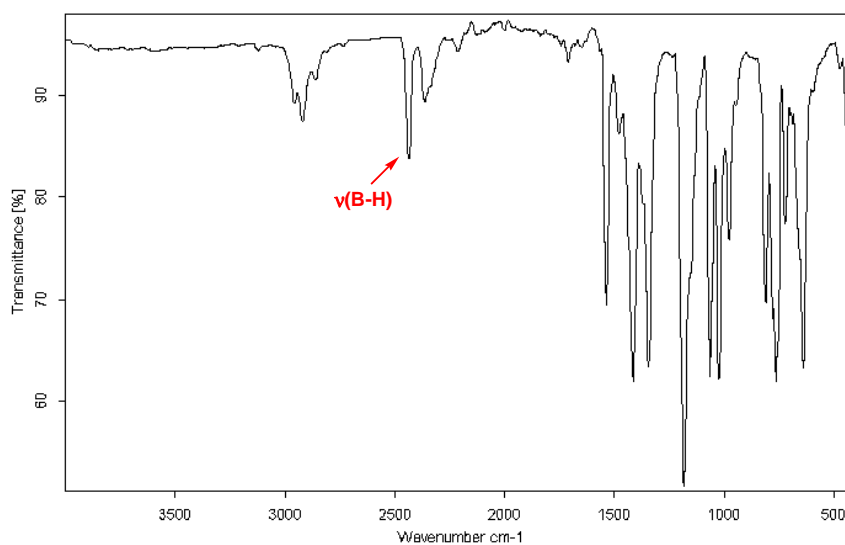


## Electronic Supplementary Information

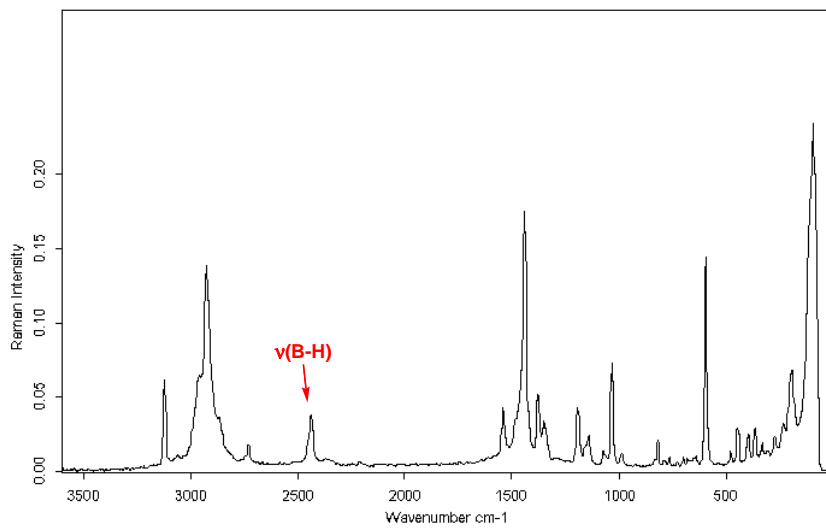
### Spectroscopic, thermodynamic, kinetic studies and oxidase/antioxidant biomimetic catalytic activities of tris(3,5-dimethylpyrazolyl)borate Cu(II) complexes

Shaban Y. Shaban\*, Abd El-Motaleb M. Ramadan, Mohamed M. Ibrahim, Mahmoud A. Mohamed and Rudi van Eldik\*

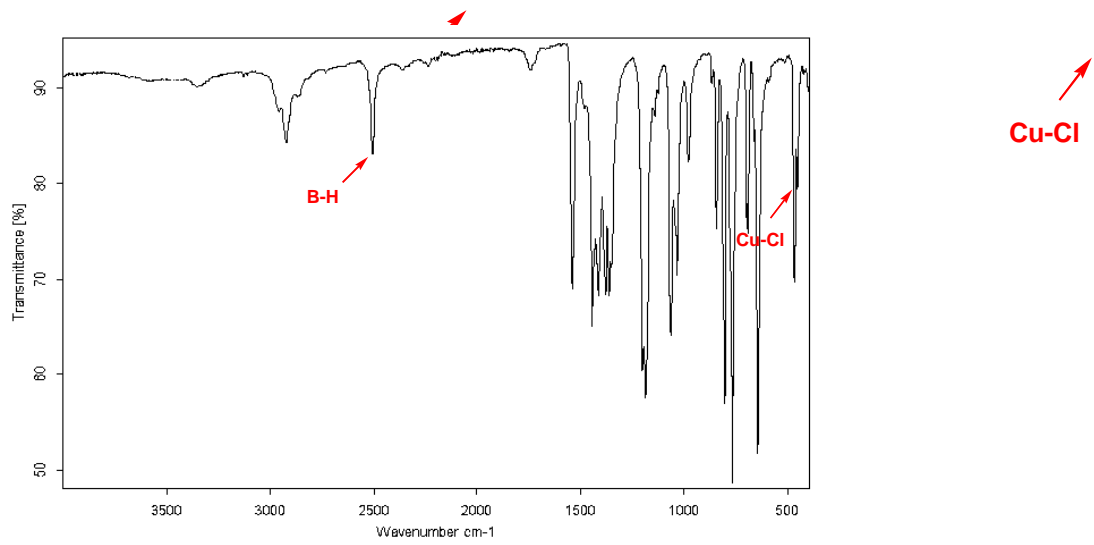
**Figure S1.** FT-IR spectrum of the ligand  $\text{KTp}^{\text{MeMe}}$



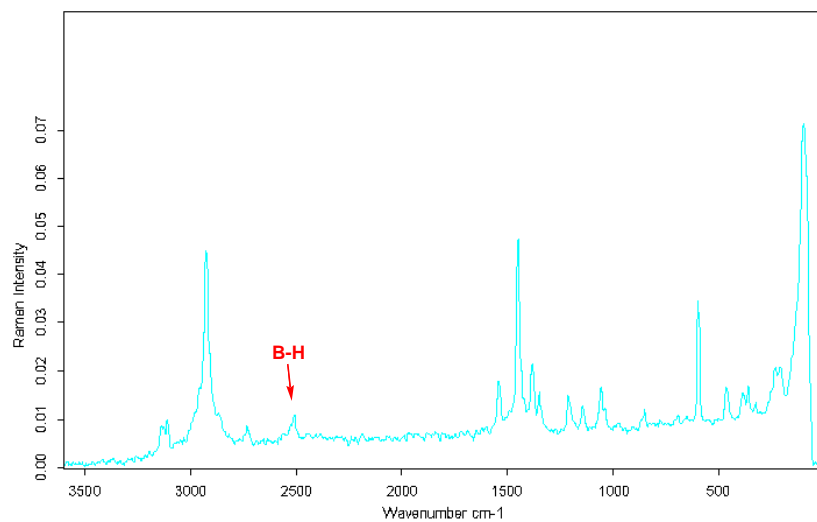
**Figure S2.** Raman spectrum of the ligand  $\text{KTp}^{\text{MeMe}}$



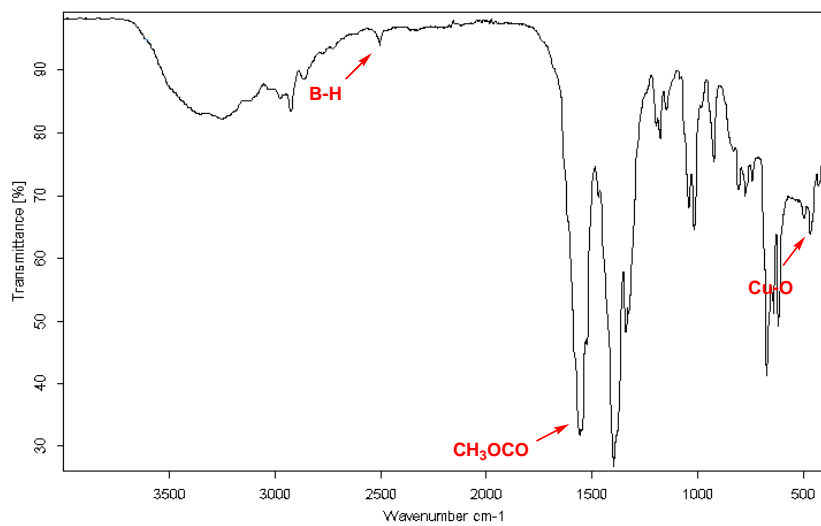
**Figure S3.** FT-IR spectrum of  $[\text{Tp}^{\text{MeMe}}\text{Cu}(\text{Cl})(\text{H}_2\text{O})]$  (**1**)



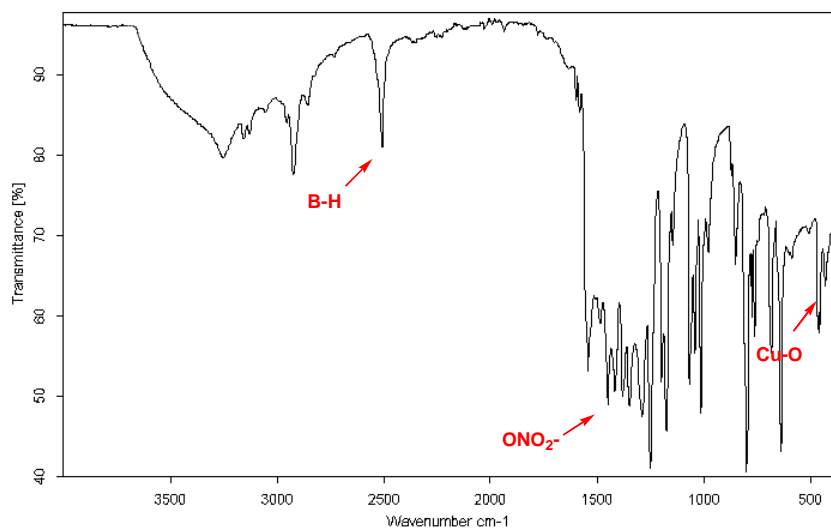
**Figure S4.** Raman spectrum of  $[\text{Tp}^{\text{MeMe}}\text{Cu}(\text{Cl})(\text{H}_2\text{O})]$  (**1**)



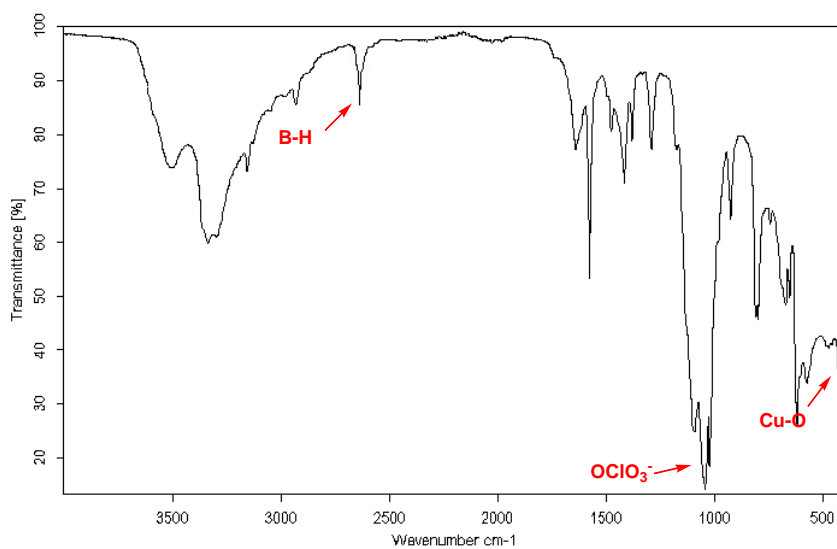
**Figure S5.** FT-IR spectrum of  $[\text{Tp}^{\text{MeMe}}\text{Cu}(\text{Ac})(\text{H}_2\text{O})]$  (**2**)



**Figure S6.** FT-IR spectrum of  $[\text{Tp}^{\text{MeMe}}\text{Cu}(\text{NO}_3)]$  (**3**)



**Figure S7.** FT-IR spectrum of  $[\text{Tp}^{\text{MeMe}}\text{Cu}(\text{ClO}_4)]$  (**4**)



**Figure S8.** TGA-DTG thermogram of  $[\text{Tp}^{\text{MeMe}}\text{Cu}(\text{Cl})(\text{H}_2\text{O})]$  (**1**)

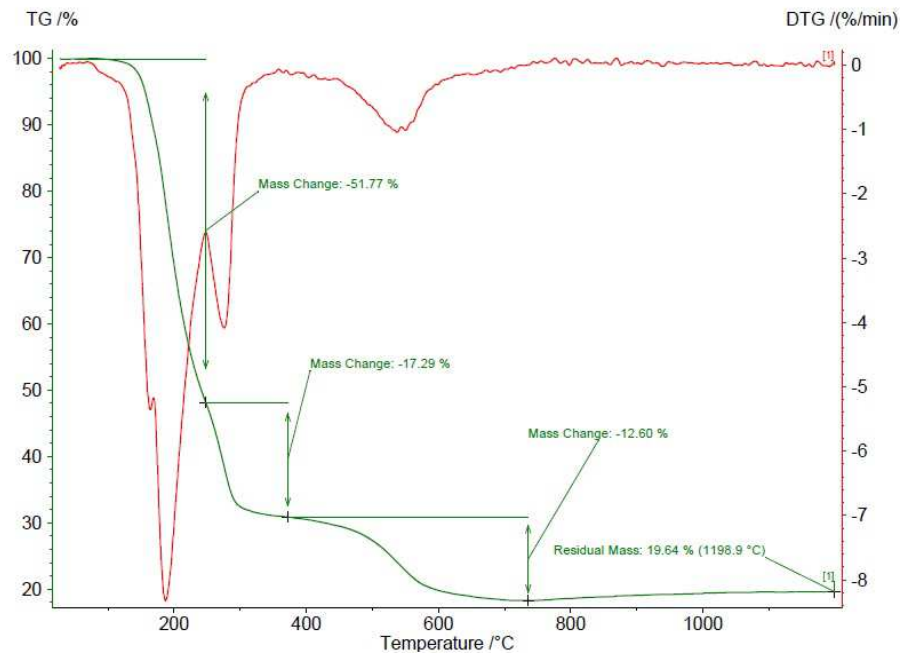
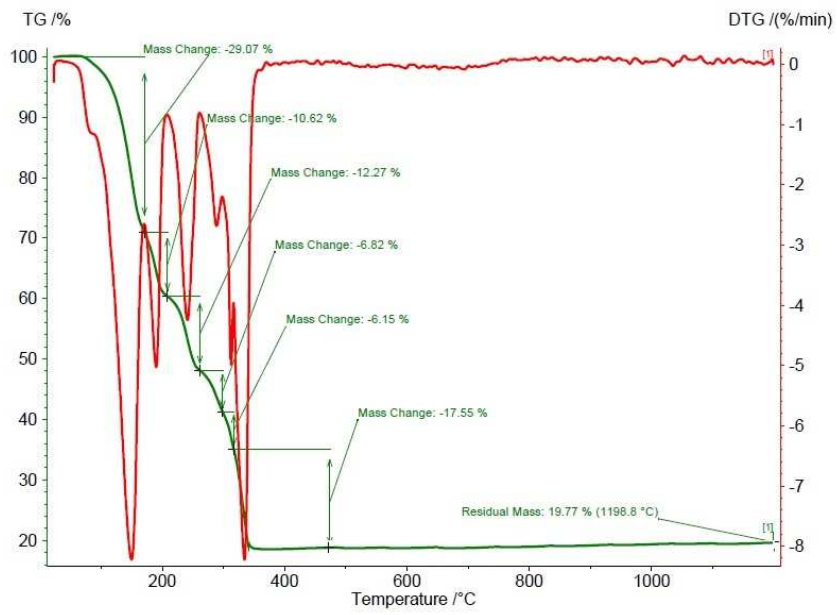
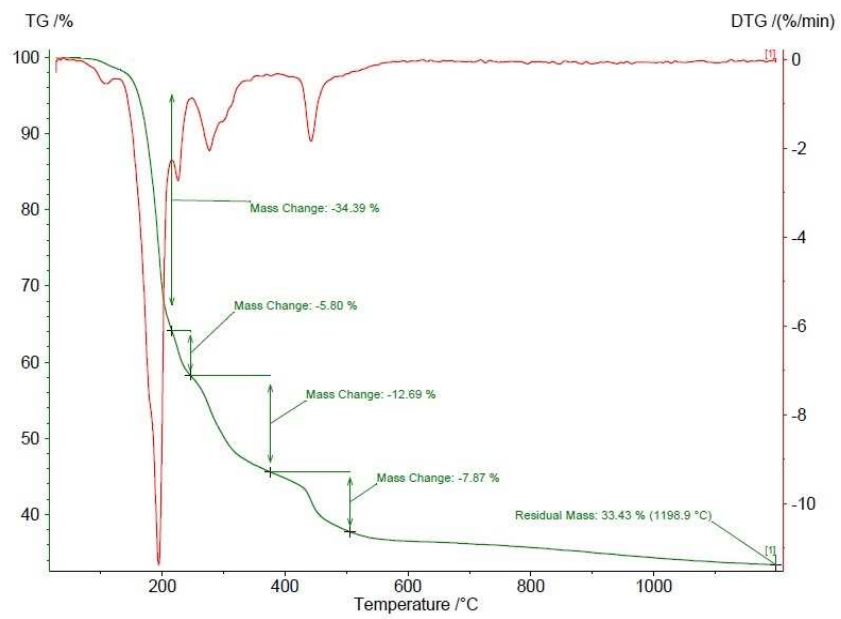




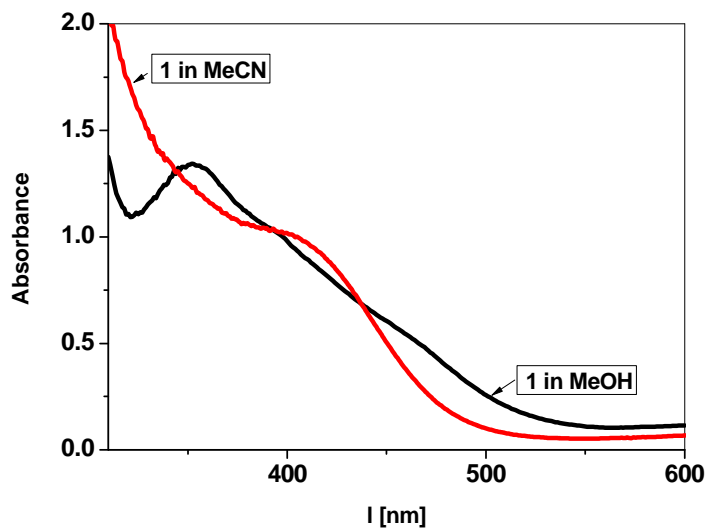
Figure S9. TGA-DTG thermogram of  $[\text{Tp}^{\text{MeMe}}\text{Cu}(\text{Ac})(\text{H}_2\text{O})]$  (2)



**Figure S10.** TGA-DTG thermogram of  $[\text{Tp}^{\text{MeMe}}\text{Cu}(\text{NO}_3)]$  (**3**)



**Figure S11.** UV-vis spectral changes recorded for **1** ( $0.5 \times 10^{-4}$ ) in MeOH and CH<sub>3</sub>CN at 296 K.



**Figure S12.** UV-vis spectral changes recorded for **4** ( $0.5 \times 10^{-4}$ ) in MeOH and CH<sub>3</sub>CN at 296 K.

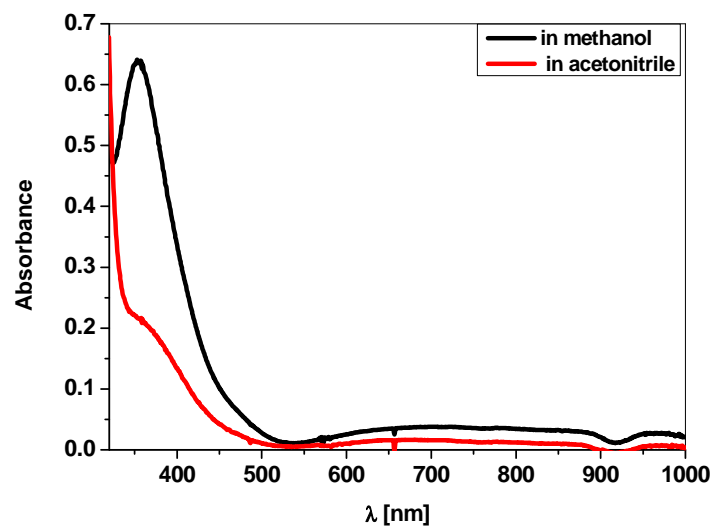
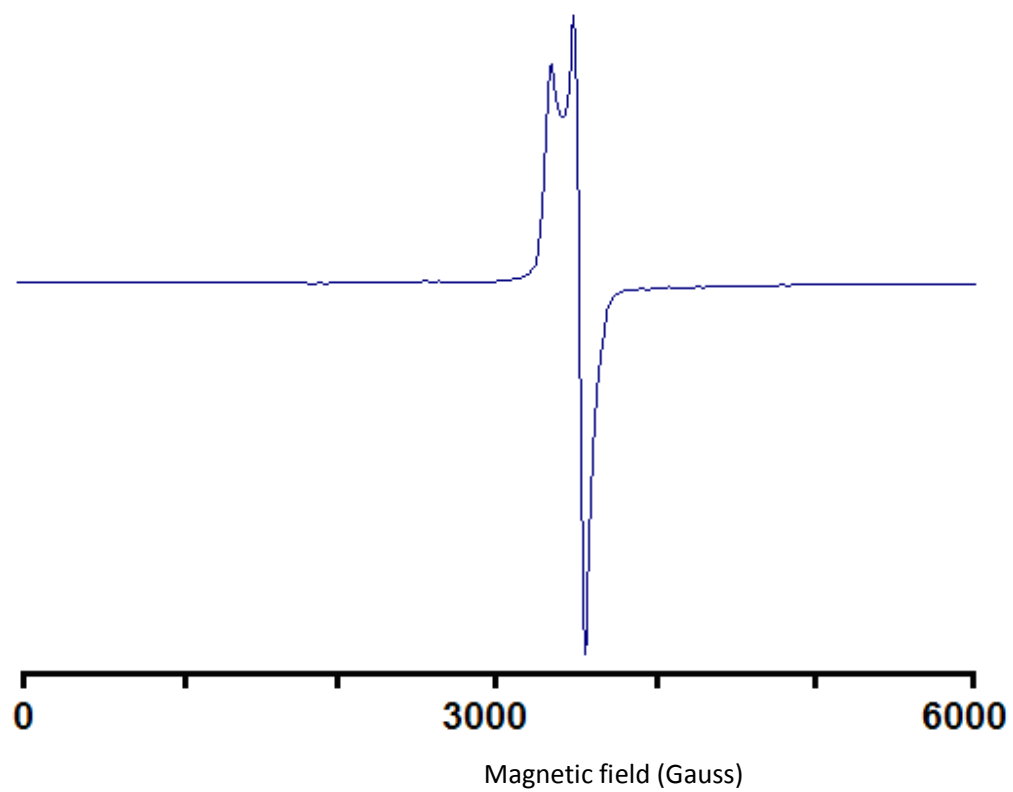
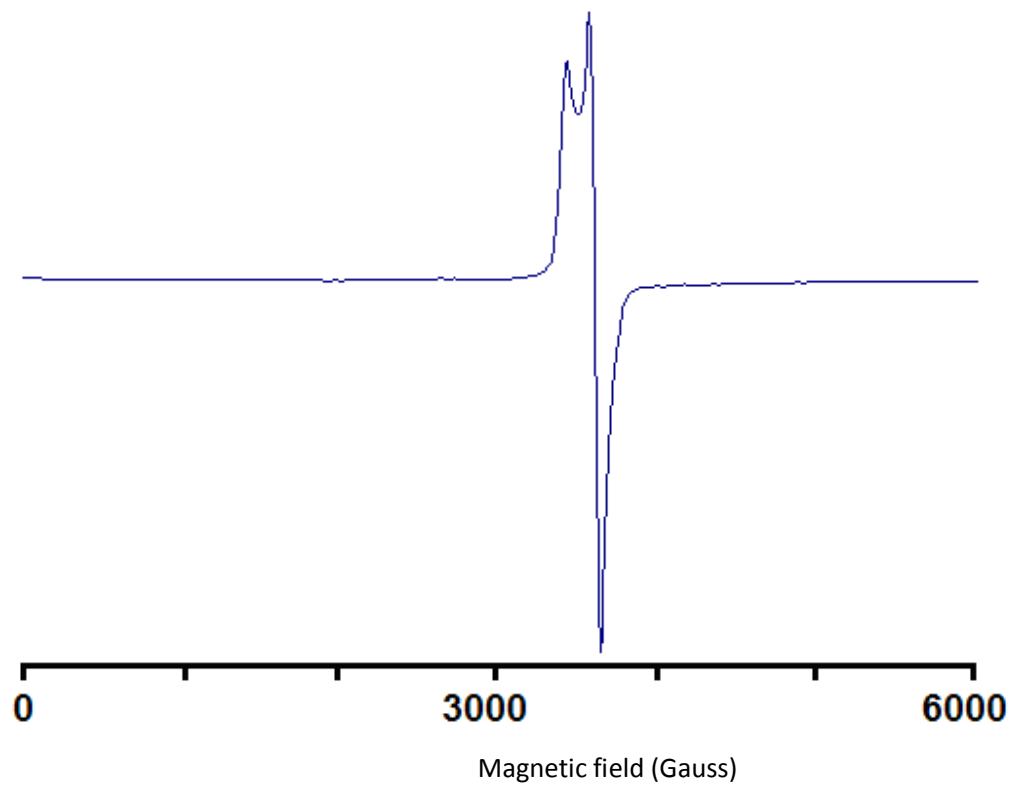


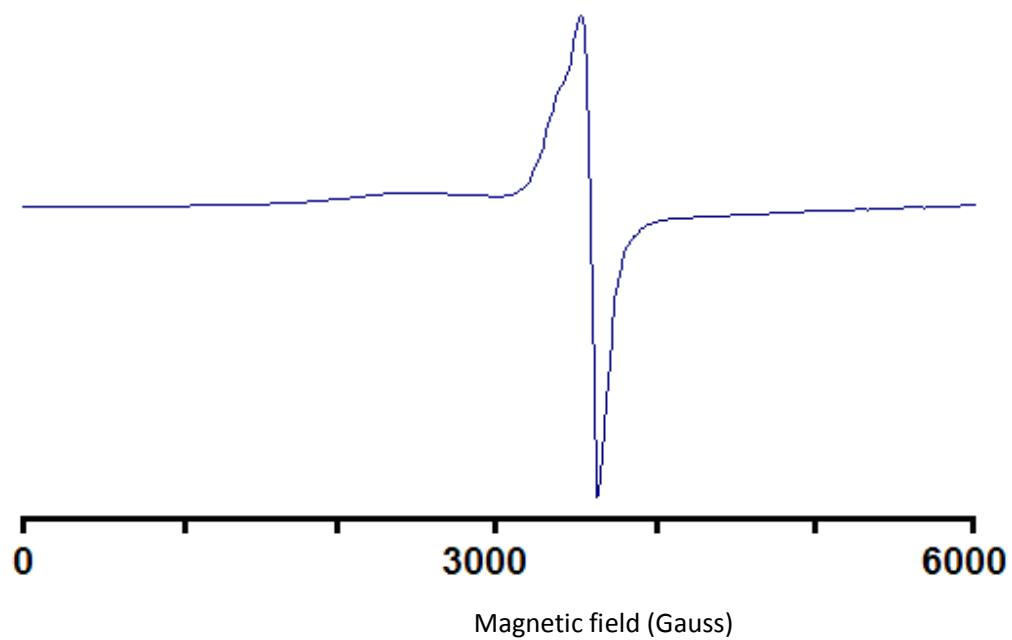
Figure S13. ESR spectrum of copper(II) complex [Tp<sup>MeMe</sup>Cu(Cl)(H<sub>2</sub>O)] (1)



**Figure S14.** ESR spectrum of copper(II) complex [Tp<sup>MeMe</sup>Cu(AcO)(H<sub>2</sub>O)] (2)



**Figure S15.** ESR spectrum of copper(II) complex [Tp<sup>MeMe</sup>Cu(NO<sub>3</sub>)] (**3**)



**Figure S16.** ESR spectrum of copper(II) complex [Tp<sup>MeMe</sup>Cu(ClO<sub>4</sub>)] (**4**)

