

## Kinetics and mechanism of the Co(II)-assisted oxidation of thioureas by dioxygen

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### Supporting Information

#### Legends for Figures

**Figure S1.** Plot of  $\ln k_{\text{obs1}}$  vs. pressure. Experimental conditions: 0.1 M TRIS buffer, pH = 7.0, 25.0 °C,  $[\text{Co}^{\text{II}}\{\text{PyzPz}(\text{PhSO}_3)_8\}(\text{H}_2\text{O})_2]^{8-} = 1.46 \times 10^{-5}$  M,  $[\text{DMTU}] = 0.2$  M

**Figure S2.** Eyring plot for the reaction of **3'** with  $\text{O}_2$ . Experimental conditions: 0.1 M TRIS buffer, pH = 7.0,  $[\text{Co}^{\text{II}}\{\text{PyzPz}(\text{PhSO}_3)_8\}(\text{H}_2\text{O})_2]^{8-} = 2.1 \times 10^{-6}$  M.

**Figure S3.** Eyring plot for reaction of **2** with  $\text{OH}^-$ . Experimental conditions: KOH, pH = 13, 25.0 °C,  $[\text{Co}^{\text{II}}\{\text{PyzPz}(\text{PhSO}_3)_8\}(\text{H}_2\text{O})_2]^{8-} = 1.46 \times 10^{-5}$  M.

**Figure S4.** Plot of  $\ln k_{\text{obs3}}$  vs. pressure. Experimental conditions: 0.1 M TRIS buffer, pH 7.0,  $[\text{Co}^{\text{II}}\{\text{PyzPz}(\text{PhSO}_3)_8\}(\text{H}_2\text{O})_2]^{8-} = 1.46 \times 10^{-5}$  M, 25.0 °C.

**Figure S5.** pH titration curve for  $[\text{Co}^{\text{II}}\{\text{PyzPz}(\text{PhSO}_3)_8\}(\text{H}_2\text{O})_2]^{8-}$  ( $1.46 \times 10^{-5}$  M), 25.0 °C.

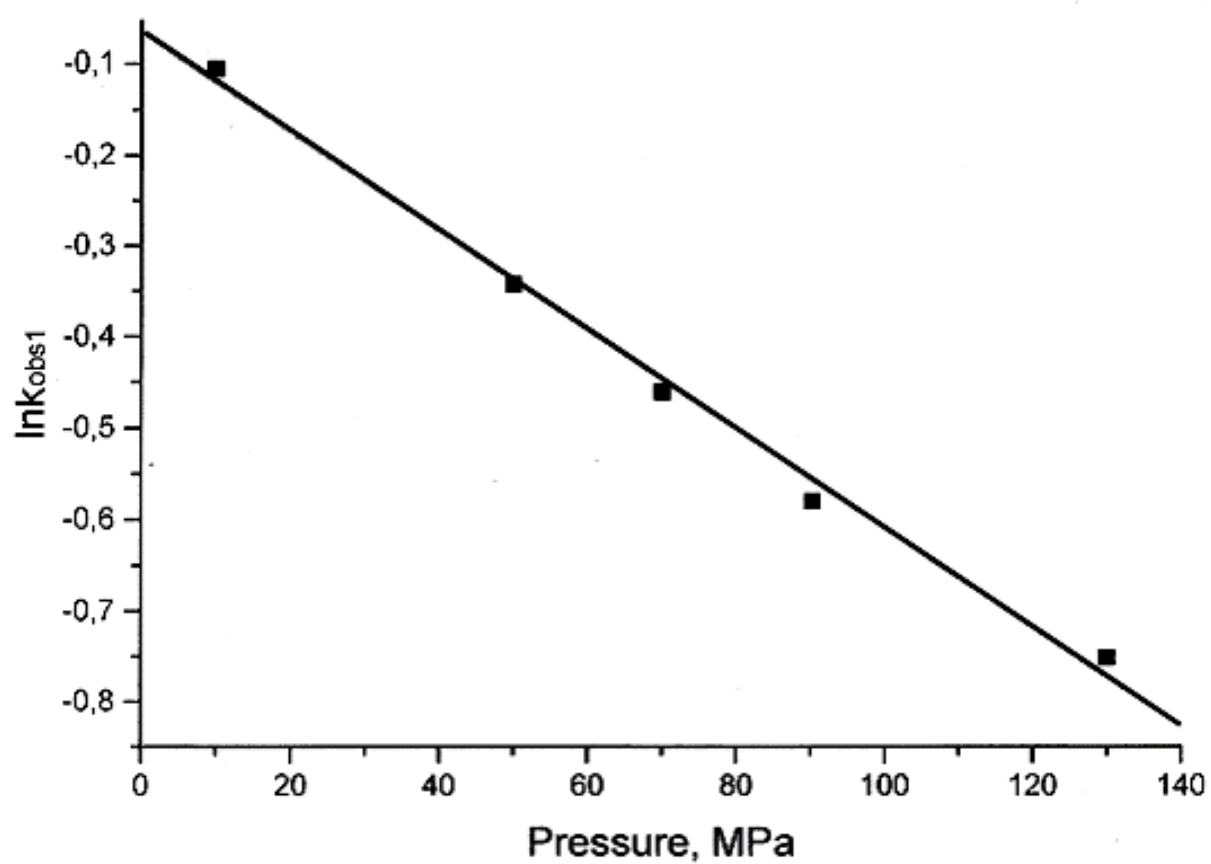


Figure S1

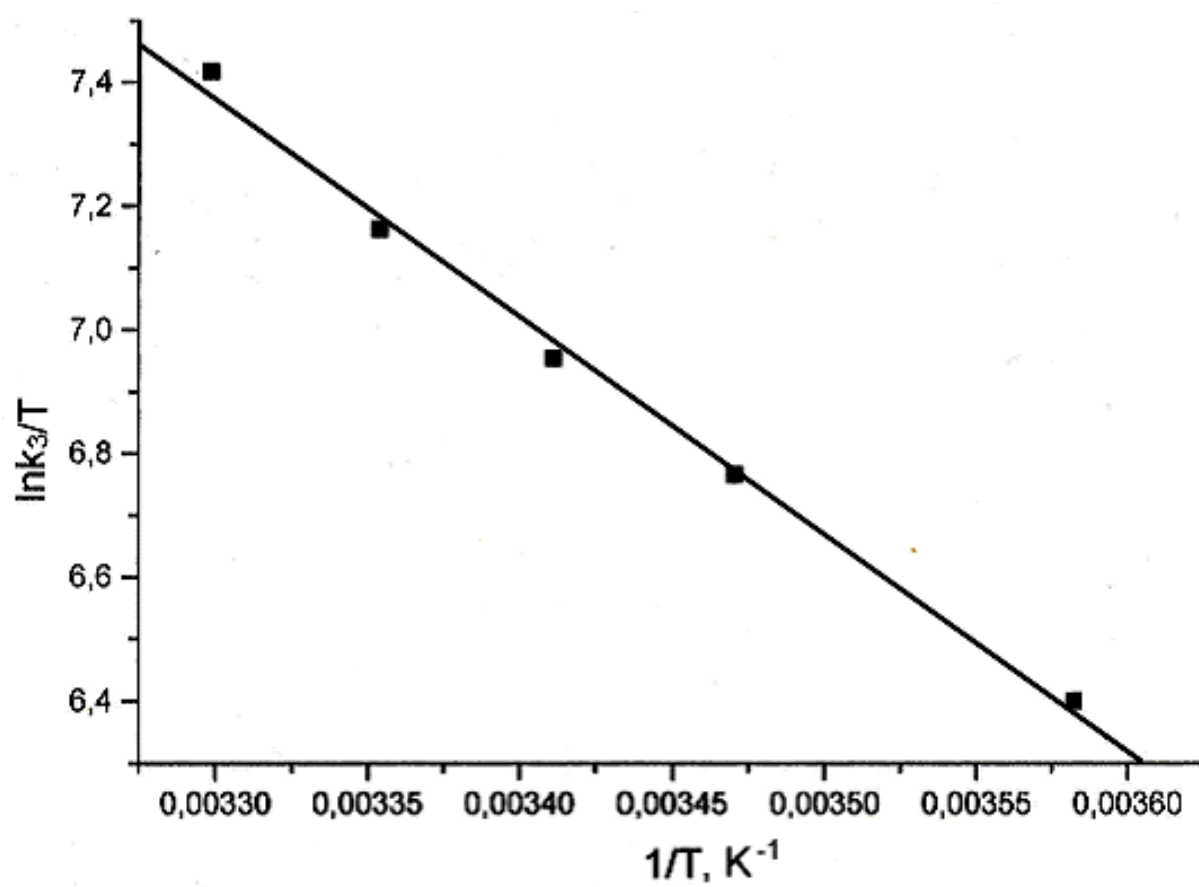


Figure S2

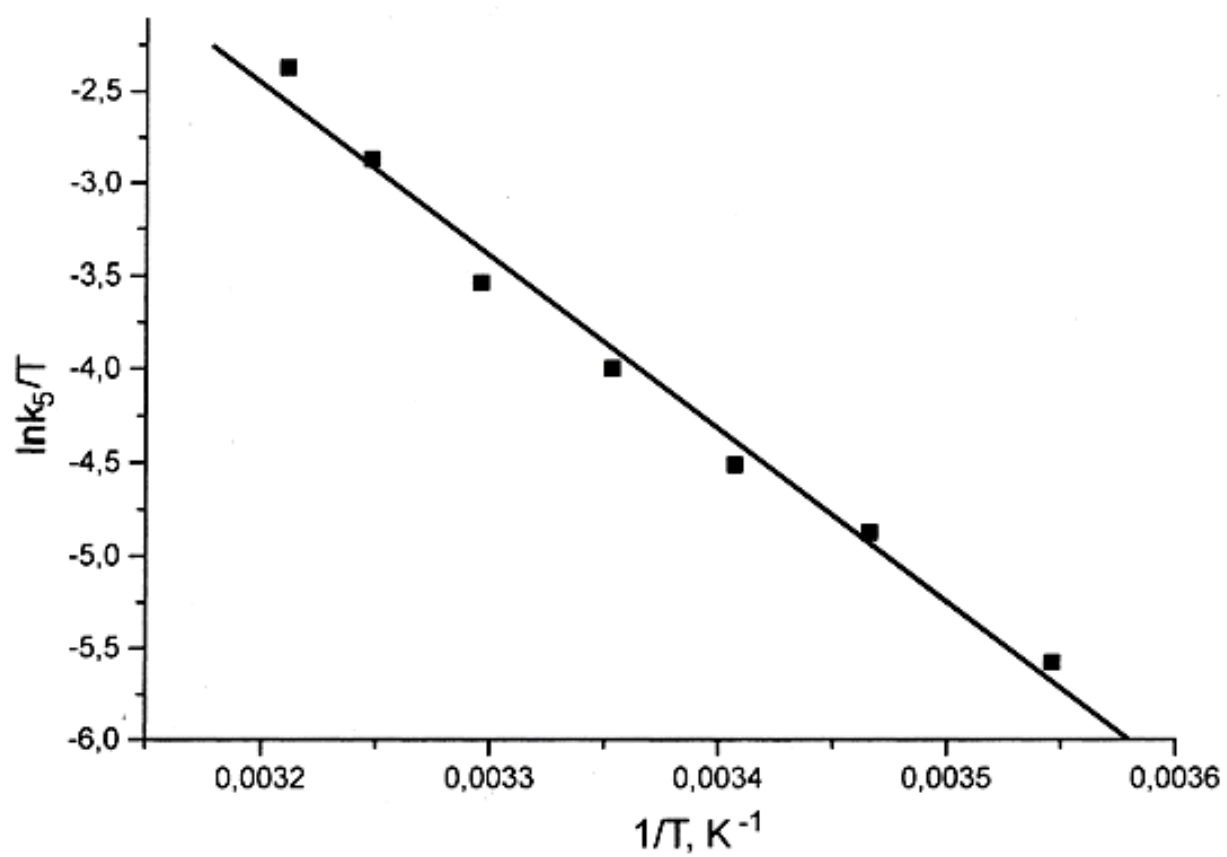


Figure S3

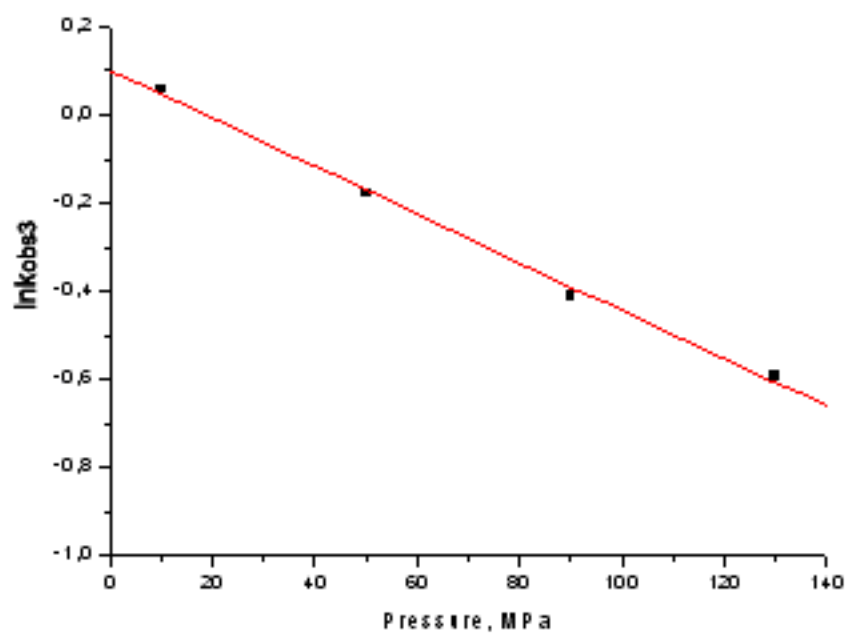


Figure. S4

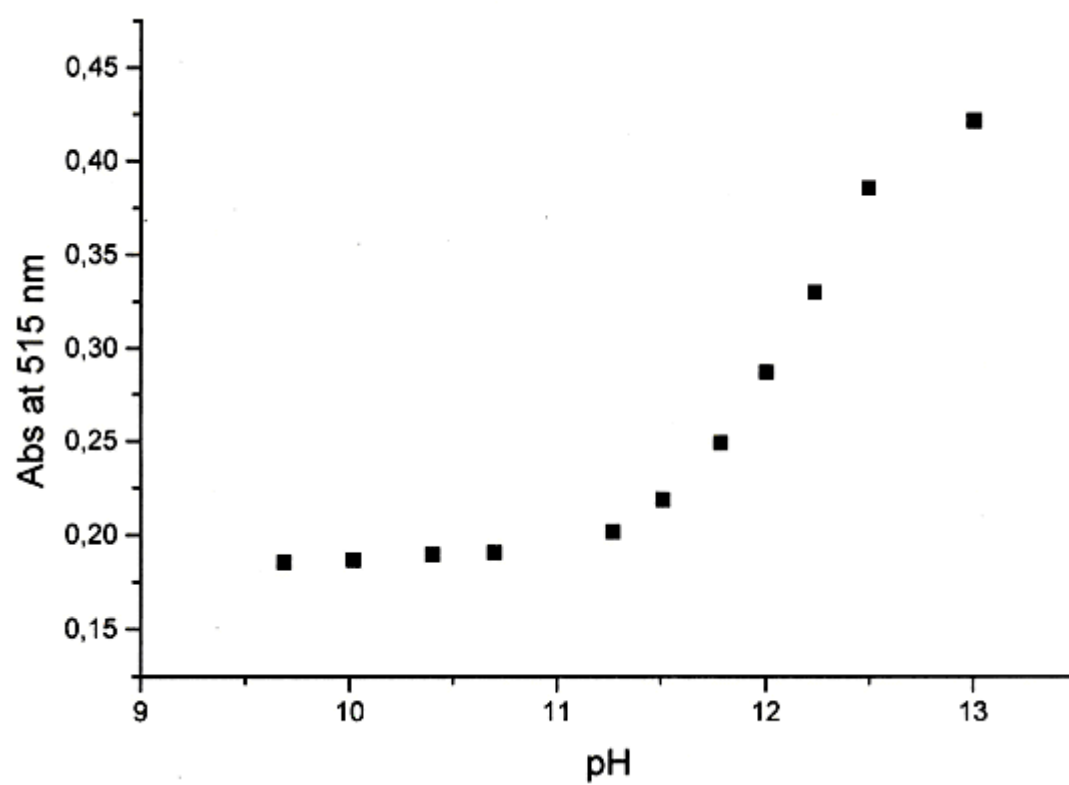


Figure S5