

Supplementary Materials

The [(Bn-tpen)FeII]²⁺ Complex as a Catalyst for the Oxidation of Cyclohexene and Limonene with Dioxygen

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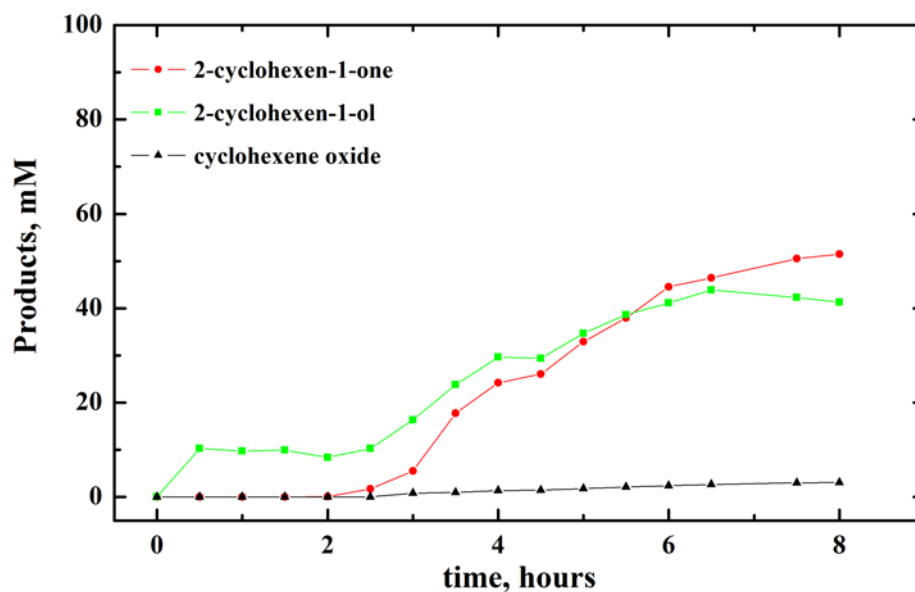


Figure S1. Product concentrations over time for the oxidation of 1 M cyclohexene by air ($p_{O_2} = 0.2$ atm) in the presence of 10 mM cyclohexen-1-ol catalyzed by 1 mM synthesized $[(\text{Bn-tpen})\text{Fe}^{\text{II}}]^{2+}$ in MeCN.

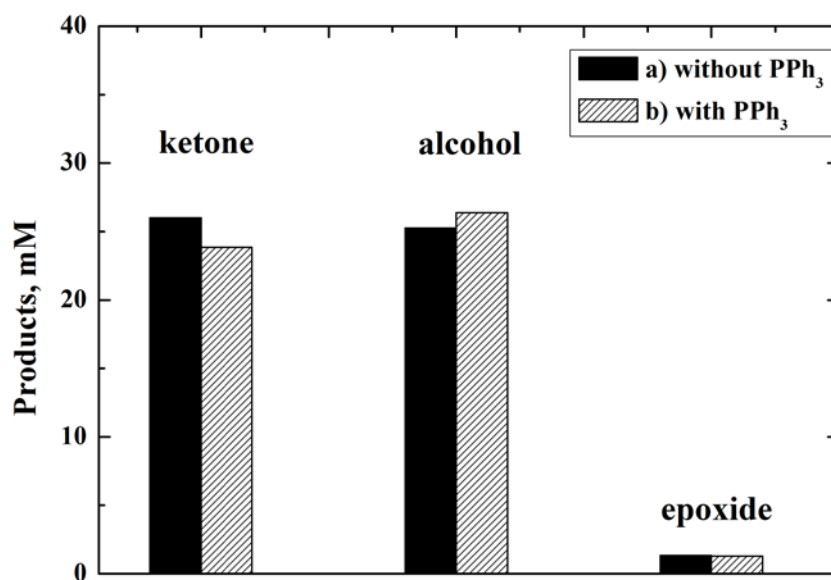


Figure S2. The amounts of products formed in the oxidation of 1 M cyclohexene with dioxygen ($p_{O_2} = 1.0$ atm) catalyzed by 1 mM synthesized $[(\text{Bn-tpen})\text{Fe}^{\text{II}}]^{2+}$ in MeCN after 3 h of reaction. Analysis of products was performed a) without triphenylphosphine, b) with 50 mM triphenylphosphine added to the sample before analysis.

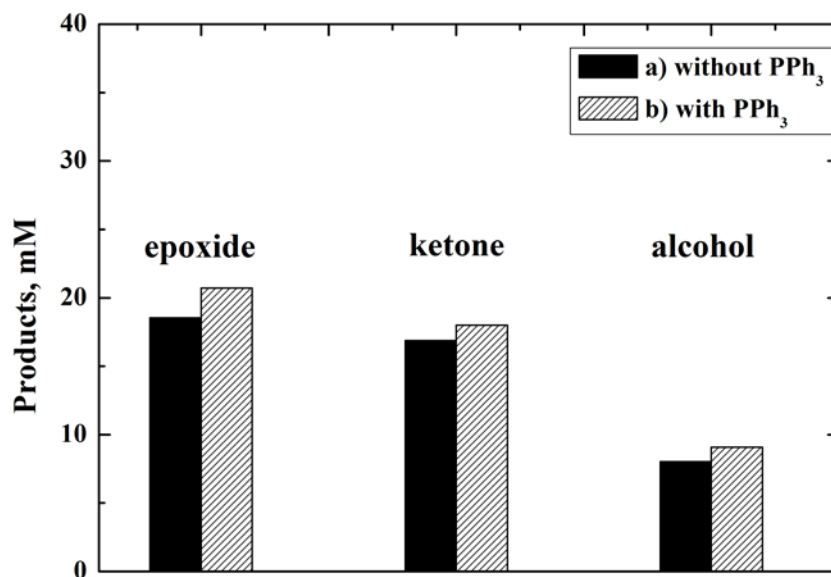


Figure S3. The amounts of products formed in the oxidation of 1 M limonene with dioxxygen ($p_{O_2} = 1.0$ atm) catalyzed by 1 mM synthesized $[(\text{Bn-tpen})\text{Fe}^{\text{II}}]^{2+}$ in MeCN after 3 h of reaction. Analysis of products was performed a) without triphenylphosphine, b) with 50 mM triphenylphosphine added to the sample before analysis.

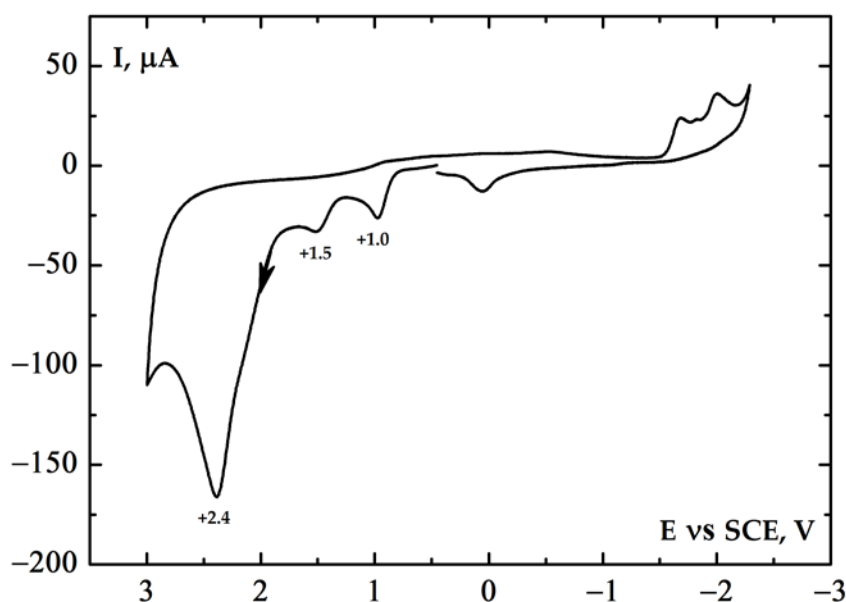


Figure S4. Cyclic voltammogram of 5 mM synthesized $[(\text{Bn-tpen})\text{Fe}^{\text{II}}]^{2+}$ in MeCN containing 0.1 M $(t\text{-Bu})_4\text{NClO}_4$ as a supporting electrolyte. Scan rate, 0.1 V/s, GCE (0.008 cm^2), SCE vs. NHE +0.242 V, the anodic scan.

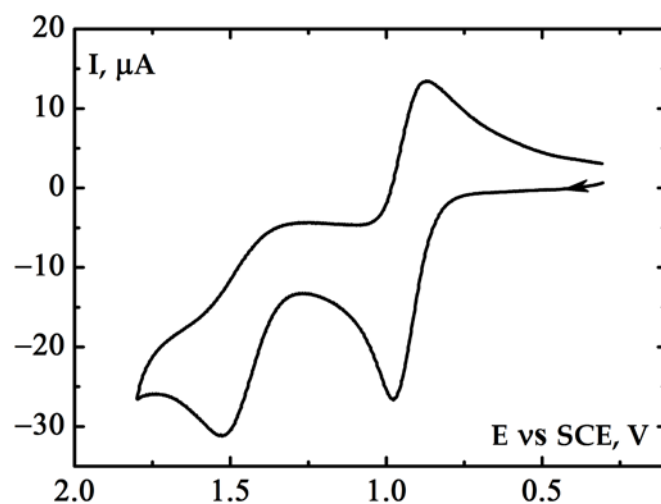
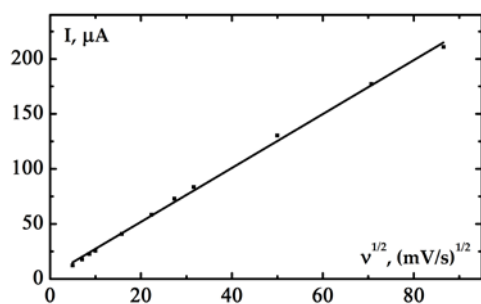
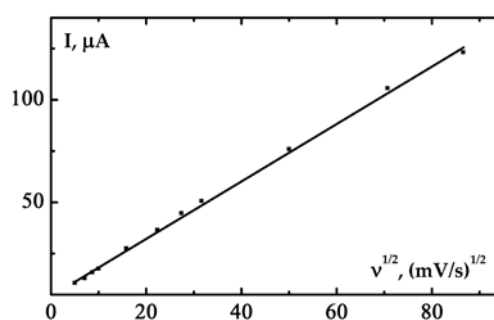


Figure S5. Cyclic voltammogram of 5 mM synthesized $[(\text{Bn-tpen})\text{Fe}^{\text{II}}]^{2+}$ in MeCN with 0.1 M $(t\text{-Bu})_4\text{NClO}_4$. Scan rate, 0.1 V/s, GCE (0.008 cm^2), SCE *vs.* NHE +0.242 V.



(a)



(b)

Figure S6. Dependence of I on $v^{1/2}$ registered for 5 mM synthesized $[(\text{Bn-tpen})\text{Fe}^{\text{II}}]^{2+}$ in MeCN [0.1 M $(t\text{-Bu})_4\text{NClO}_4$] for anodic peaks at potentials (a) +1.0 V, (b) +1.5 V.

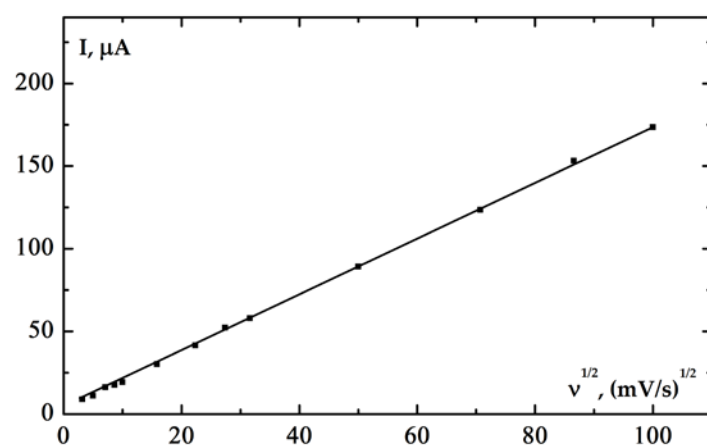


Figure S7. Dependence of I on $v^{1/2}$ registered for the mixture of 5 mM synthesized $[(\text{Bn-tpen})\text{Fe}^{\text{II}}]^{2+}$ and 10 mM PhIO in MeCN [0.1 M (*t*-Bu)₄NClO₄], GCE (0.008 cm²), SCE *vs.* NHE +0.242 V.