

Electronic Supplementary Information (ESI)

Catalytic Antioxidant Nanocomposites Based on Sequential Adsorption of Redox Active Metal Complexes and Polyelectrolytes on Nanoclay Particles

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Table S1. Sample preparation methods for EPR measurements.^a

Sample	Preparation method
Cu(Bpy) ₂ in solution	1.5 mM of CuCl ₂ and 3 mM of Bpy mixed in water (pH ~ 7)
Fe(Cit) ₂	1.5 mM of FeCl ₃ and 3 mM of sodium Cit mixed in water (pH was set to 8 for 1:2 complex formation)
Cu(Bpy) ₂ and Fe(Cit) ₂ together in aqueous solution	0.5 mL of 15 mM Cu(Bpy) ₂ and 0.5 ml of 15 mM Fe(Cit) ₂ was added into 4 mL of water
100ppm COMP	50 μL of 10000 ppm LDH solution was added into 2884 μL water, 1000 μL of 5×10 ⁻⁵ g/L PSS solution was added 2 h later, 33 μL of 15 mM Cu(Bpy) ₂ was added after 4 h, 1000 μL of 5×10 ⁻⁵ g/L PDADMAC solution was added after 6 h and 33 μL of 15 mM Fe(Cit) ₂ was added after 8 h
400ppm COMP	200 μL of 10000 ppm LDH solution was added into 4453 μL water, 40 μL of 5×10 ⁻³ g/L PSS solution was added 2 h later, 133 μL of 15 mM Cu(Bpy) ₂ was added after 4 h, 40 μL of 5×10 ⁻³ g/L PDADMAC solution was added after 6 h and 133 μL of 15 mM Fe(Cit) ₂ was added after 8 h
100ppm LDH-PSS-Cu(Bpy) ₂	50 μL of 10000 ppm LDH solution was added into 3916 μL water, 1000 μL of 5×10 ⁻⁵ g/L PSS solution was added 2 h later, 33 μL of 15 mM Cu(Bpy) ₂ was added after 4 h
400ppm LDH-PSS-Cu(Bpy) ₂	100 μL of 10000 ppm LDH solution was added into 4726 μL water, 40 μL of 5×10 ⁻³ g/L PSS solution was added 2 h later, 133 μL of 15 mM Cu(Bpy) ₂ was added after 4 h

^aFinal volumes for all samples were 5 mL at preparation.

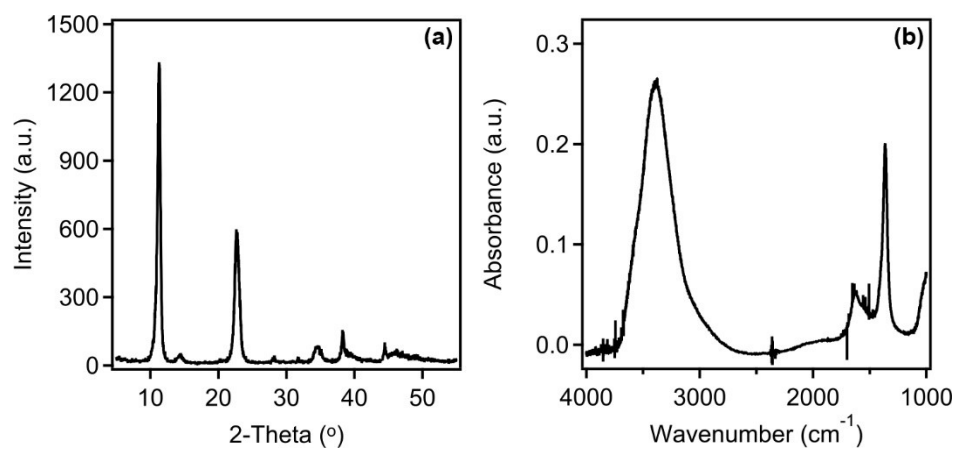


Fig. S1 XRD diffractogram (a) and IR spectrum (b) of the LDH material used as carrier in **COMP**.

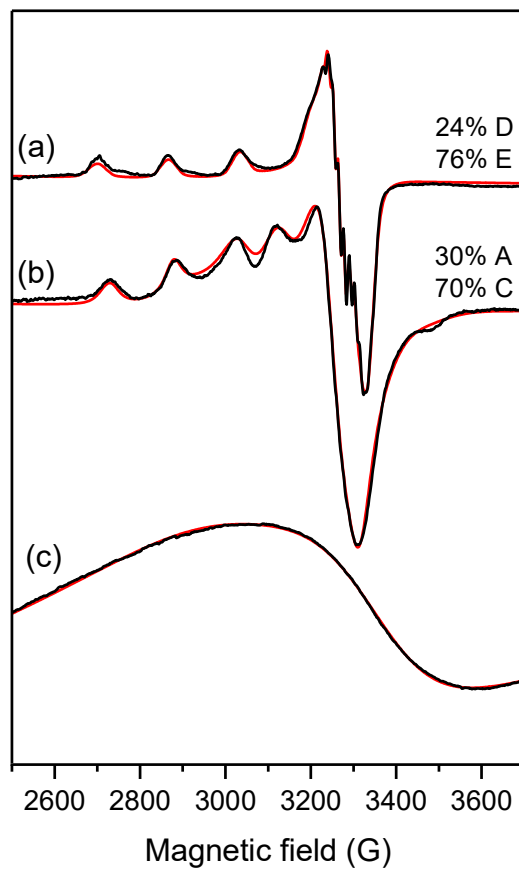


Fig. S2 Measured (black) and simulated (red) EPR spectra of samples containing (a) 400 ppm **COMP**, (b) 400ppm LDH-PSS-Cu(Bpy)₂ and (c) Fe(Cit)₂ in aqueous solution. For details of sample preparation see Table S1 and the component spectra are shown in Figure 3.

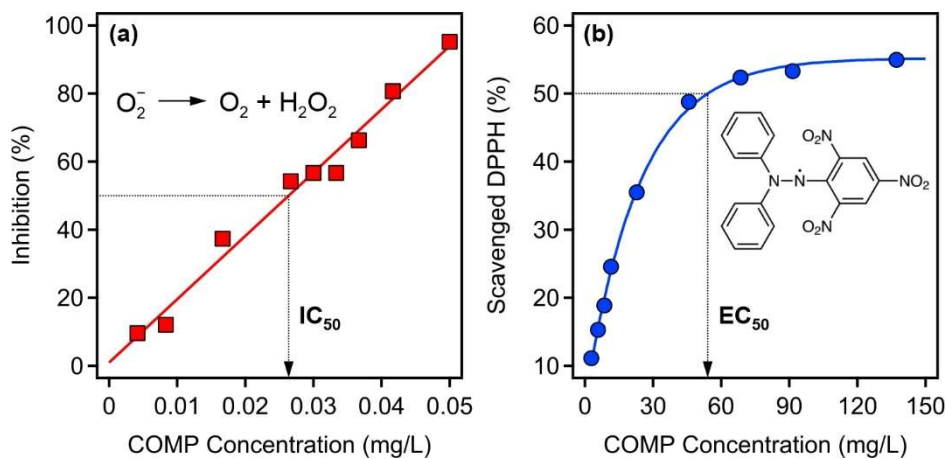


Fig S3. Superoxide (a) and DPPH (b) radical scavenging ability of the **COMP** hybrid. The concentrations necessary to decompose 50% of the radicals (IC_{50} (a) and EC_{50} (b)) are indicated. The solid lines are mathematical functions used to calculate the IC_{50} and EC_{50} values. The dismutation scheme for superoxide radicals and the chemical structure of DPPH are shown in the insets in (a) and (b), respectively.