Quantitative Immobilization of Phthalocyanine onto Bacterial Cellulose for Construction of High Performance Catalytic Membrane Reactor

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Figure S1. FESEM of (a) pure BC, and (b) CoPc@BC.

Figure S2. ATR/FT-IR spectra of (a) BC, (b) oxidized BC, and (c) CoPc@BC.
Figure S3. Effect of oxidation temperature on CoPc loading of CoPc@BC (filled square) and aldehyde content of BC (filled circle), [NaIO4]=30 mmol/L, reaction time=8 h.

Figure S4. Effect of oxidation time on CoPc loading of CoPc@BC (filled square) and aldehyde content of BC (filled circle), [NaIO4]=30 mmol/L, T=30 °C.
Figure S5. XPS of surface of CoPc@BC after dye adsorption. Left inset: detail of Co region, middle inset: detail of Cl region, right inset: detail of S region.

Figure S6. Effect of reaction temperature on decoloration rate of reactive red X-3B (flow rate: 6 mL/min, H₂O₂ concentration: 10 mmol/L).
Figure S7. Effect of initial H₂O₂ concentration on decoloration rate of reactive red X-3B (flow rate: 6 mL/min, T=50 °C).

Figure S8. Repetitive catalytic oxidation of reactive red X-3B (initial concentration: 1 × 10⁻⁴ mol/L, CoPe@BC: 1.60 mg, flow rate: 6 mL/min, H₂O₂ concentration: 10 mmol/L, T=50 °C) for 60 min.