

Supplementary Materials

For

**Ultrasonic-Assisted Self-assembly Synthesis of Highly Dispersed β -MnO₂ Nanobranches
Interwoven with Graphene Flakes for Catalytic Oxidation of Aromatic Compounds**

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Figures

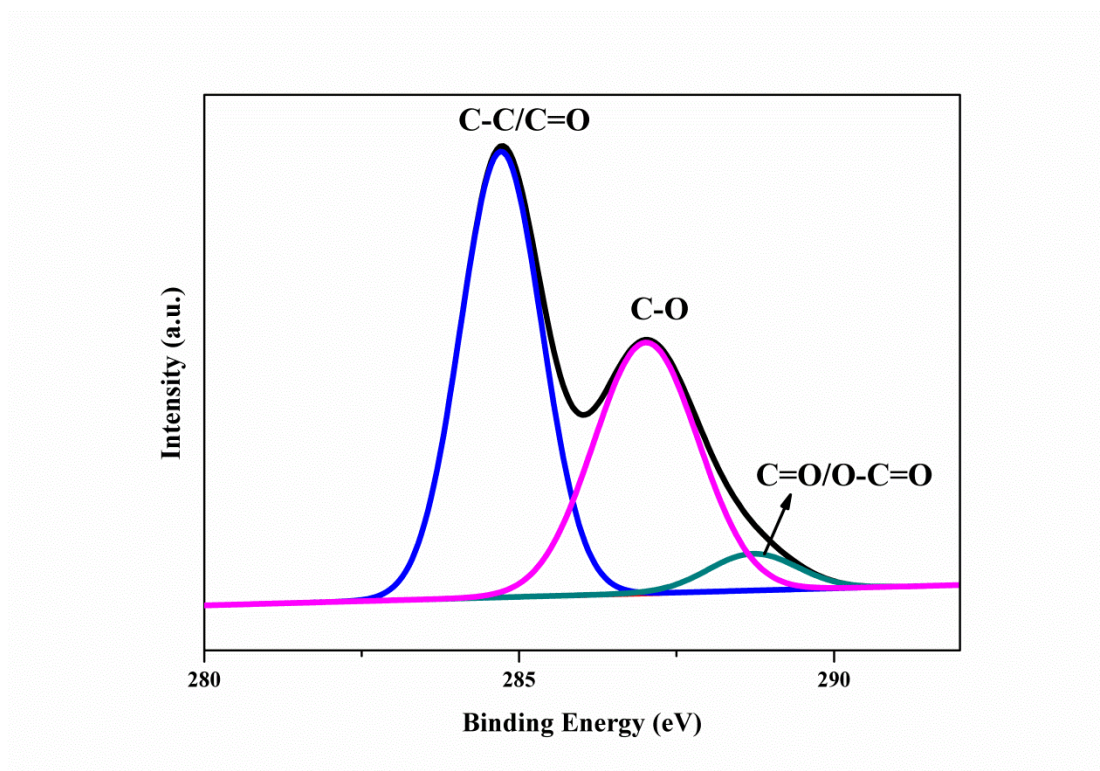


Figure S1. O1s spectra of the GO

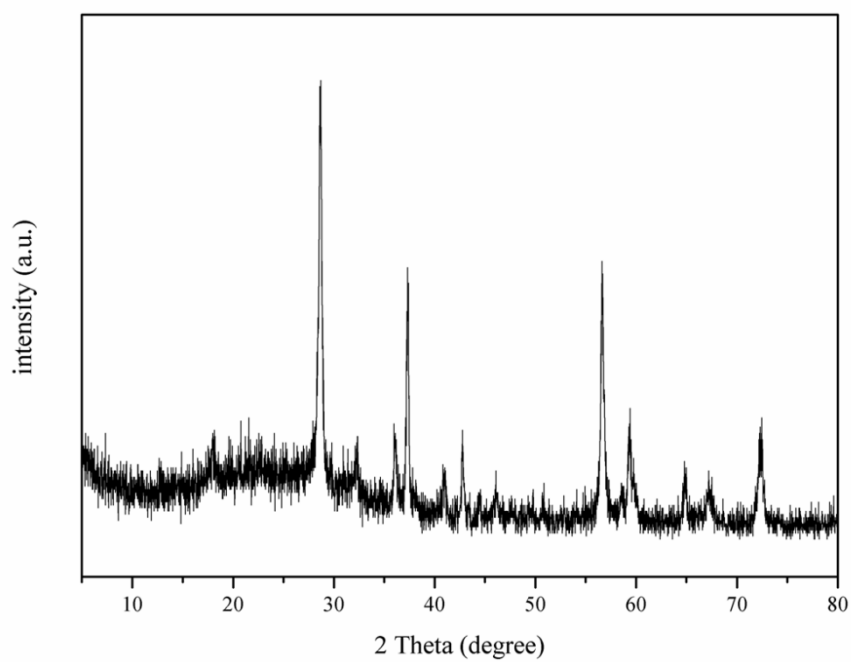


Figure S2. XRD patterns of the residual solid after 5 circles. Reaction conditions: $[\text{MB}] = 25 \text{ mg}\cdot\text{L}^{-1}$, $[\text{H}_2\text{O}_2] / [\text{MB}] = 20 \text{ mL/L}$, $[\text{MnO}_2/\text{GO-94 composites}] = 0.5 \text{ g}\cdot\text{L}^{-1}$, $T = 25^\circ\text{C}$.

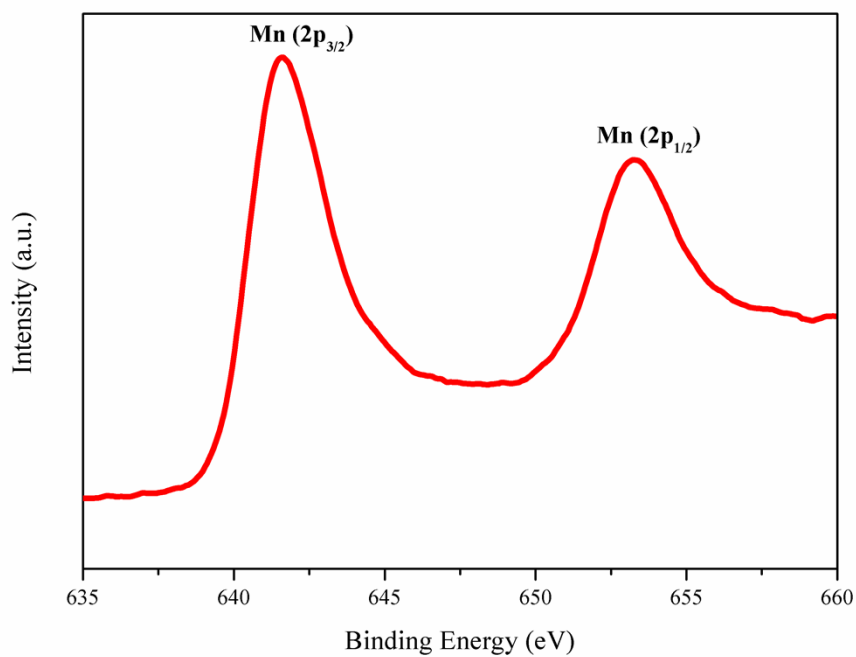


Figure S3. XPS spectra (Mn 2p) of the residual solid after 5 circles. Reaction conditions: $[\text{MB}] = 25 \text{ mg}\cdot\text{L}^{-1}$, $[\text{H}_2\text{O}_2] / [\text{MB}] = 20 \text{ mL/L}$, $[\text{MnO}_2/\text{GO-94 composites}] = 0.5 \text{ g}\cdot\text{L}^{-1}$, $T = 25^\circ\text{C}$.

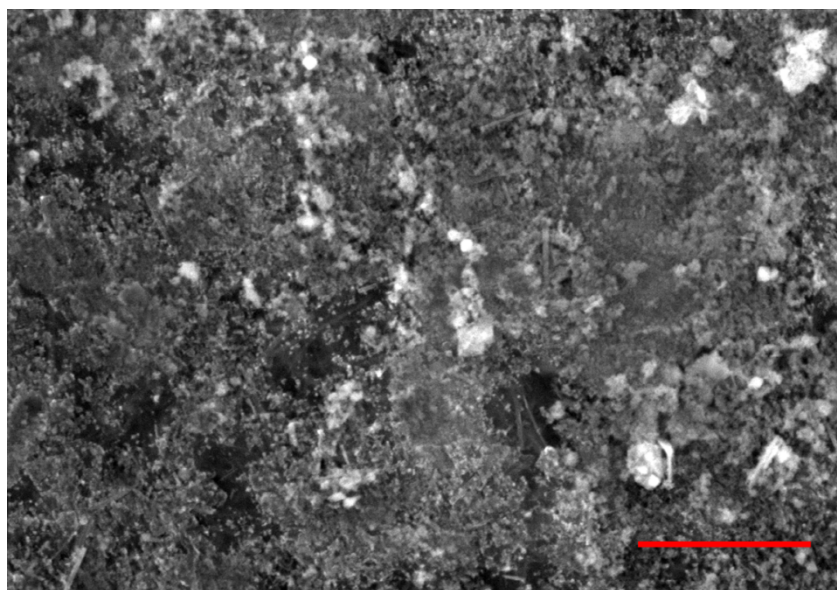


Figure S4. SEM images of the residual solid after 5 cycles. Reaction conditions: [MB] = $25 \text{ mg}\cdot\text{L}^{-1}$, $[\text{H}_2\text{O}_2] / [\text{MB}] = 20 \text{ mL/L}$, $[\text{MnO}_2/\text{GO-94 composites}] = 0.5 \text{ g}\cdot\text{L}^{-1}$, $T = 25^\circ\text{C}$. Scale bars: $5 \mu\text{m}$.

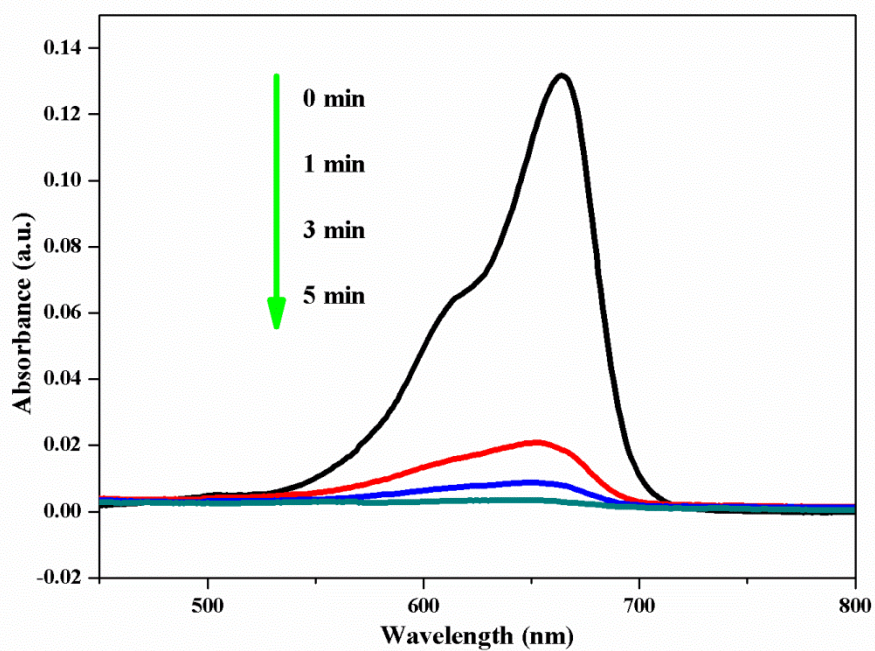


Figure S5. Absorption spectra of MB solution by $\text{MnO}_2/\text{GO-94}$ catalytic system at different intervals. Reaction conditions: $[\text{MB}] = 25 \text{ mg}\cdot\text{L}^{-1}$, $[\text{H}_2\text{O}_2] / [\text{MB}] = 20 \text{ mL/L}$, $[\text{Catalyst}] = 0.5 \text{ g}\cdot\text{L}^{-1}$, $T = 25 \text{ }^\circ\text{C}$.