

Supplementary Information

Ce-doped three-dimensional graphite felt/PbO₂ anode: Single-step room-temperature electrodeposition and efficient electrocatalytic degradation of tetracycline

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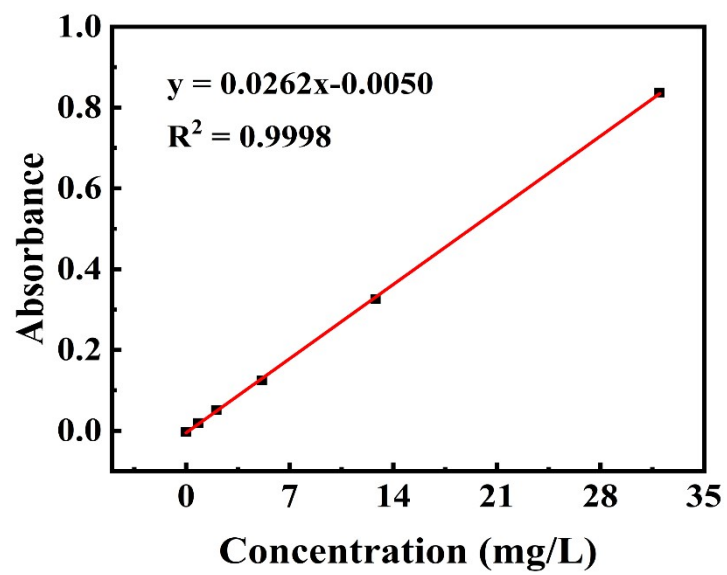


Fig. S1. The corresponding calibration curve used for calculation of TC concentration.

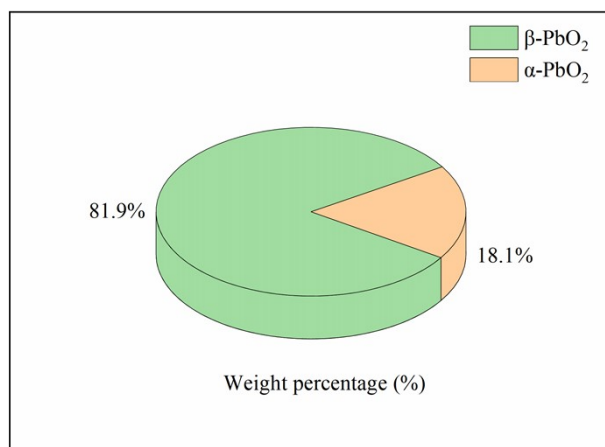


Fig. S2. Relative proportions of α - and β -PbO₂ phases in the GF/PbO₂-Ce electrode as determined by XRD analysis.

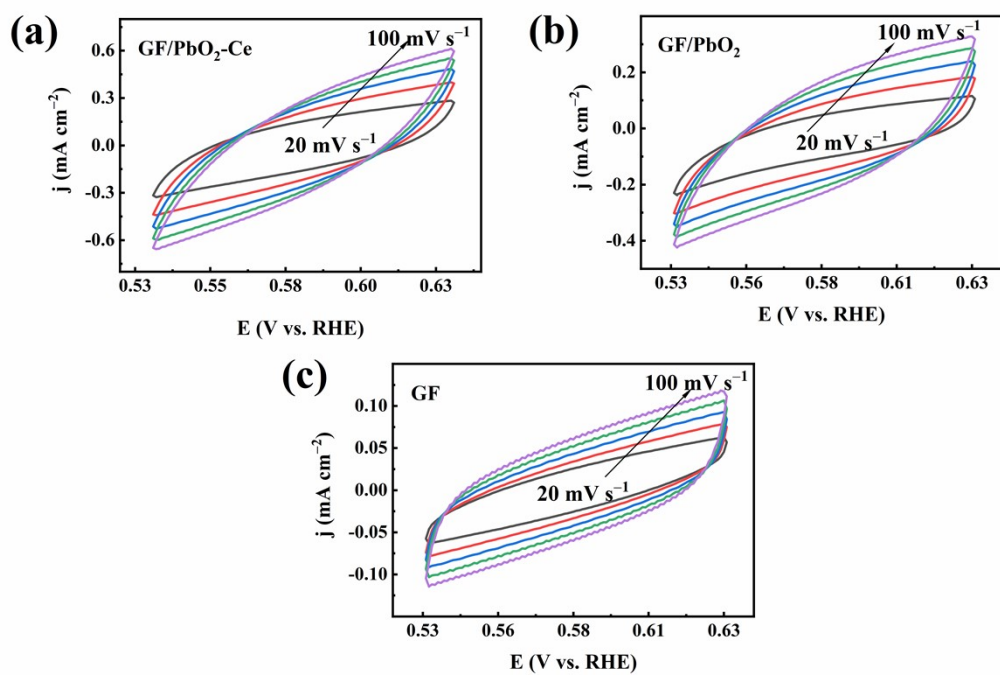


Fig. S3. CV curves of (a) GF/PbO₂-Ce, (b) GF/PbO₂, and (c) GF in 1 mol L⁻¹ Na₂SO₄ solution.

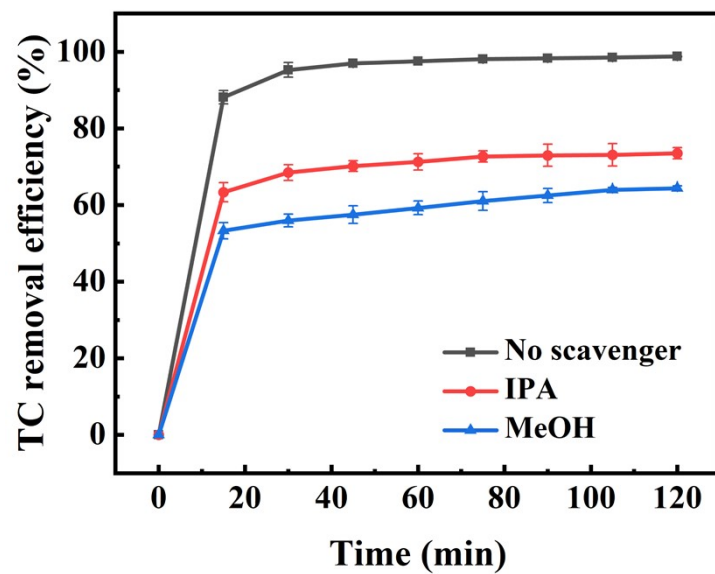


Fig. S4. The effect of quenchers on the removal rate of TC during the electrocatalytic degradation using the GF/PbO₂-Ce electrode. (pH=3, TC=30 mg L⁻¹, 7 mA cm⁻², 0.04 mol L⁻¹ Na₂SO₄).

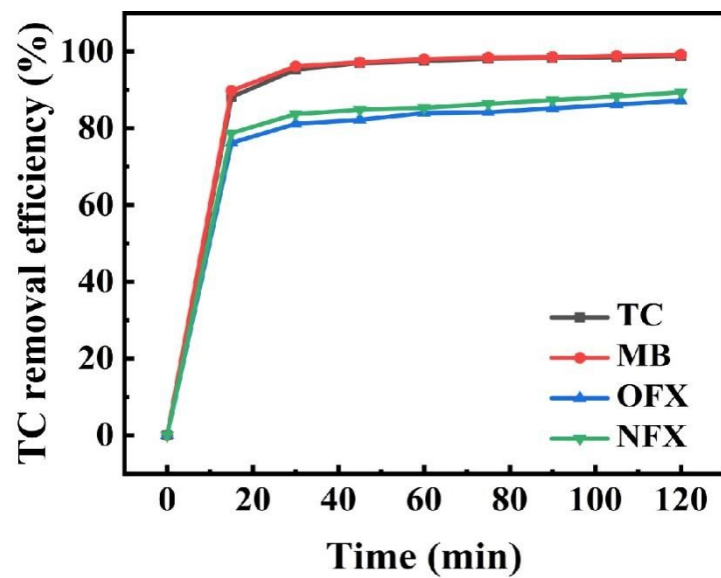


Fig. S5. Degradation curves of TC in contaminants. (pH=3, TC=30 mg L⁻¹, 7 mA cm⁻², 0.04 mol L⁻¹ Na₂SO₄).

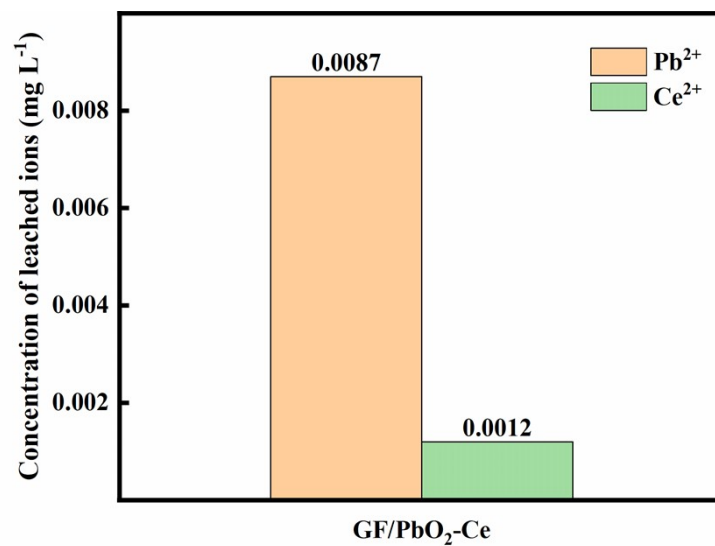


Fig. S6 Leaching concentrations of Ce²⁺ and Pb²⁺ from GF/PbO₂-Ce electrode after 120 minutes of electrocatalysis.

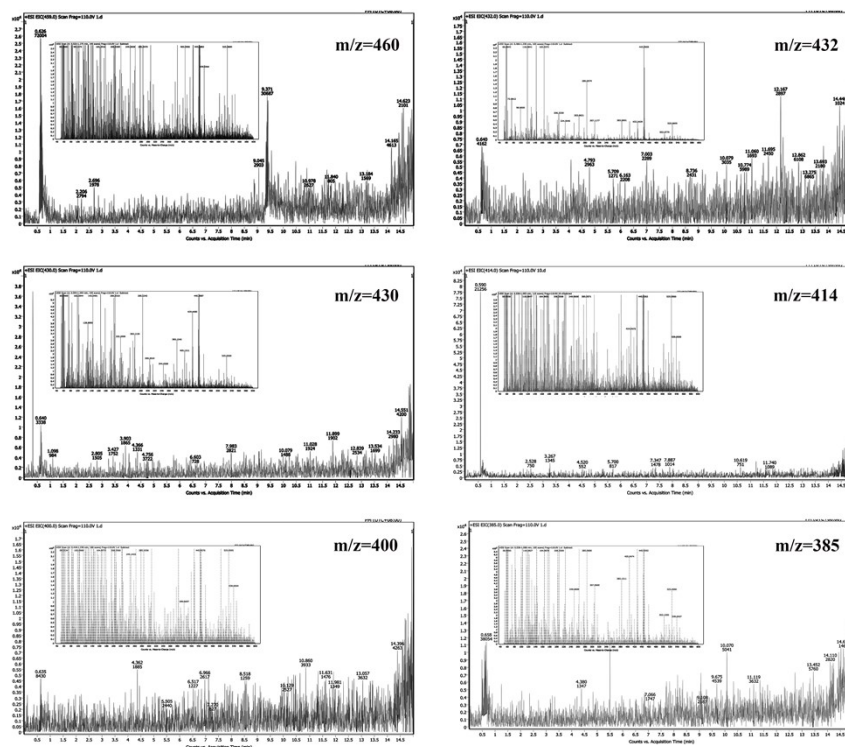


Fig. S7 The results of HPLC-MS chromatographic of TC degradation products in the EIS (+) mode.

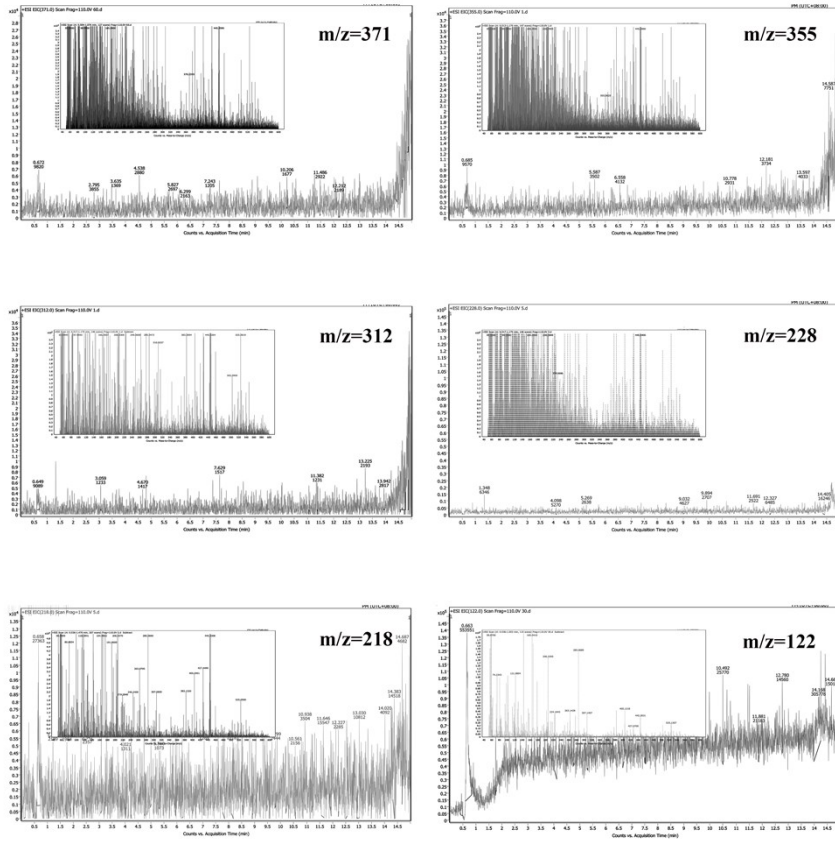


Fig. S8 The results of HPLC-MS chromatographic of TC degradation products in the EIS (+) mode.

Table S1 Evaluating electrocatalytic efficacy and durability relative to existing studies.

Anodes	Pollutants	Removal efficiency (%)	Stability	Reference
GNP/PbO ₂	Enoxacin (100 mg L ⁻¹)	92.69 (120 min)	over 80% (8 cycles)	1
Ti/FeTiO ₃ /Ce- PbO ₂	Levofloxacin (30 mg L ⁻¹)	95.00 (120 min)	92.29% (10 cycles)	2
GNPs/PbO ₂	Sulfadiazine (50 mg L ⁻¹)	98.15 (120 min)	over 90% (10 cycles)	3
Pb/PbO ₂	Congo red (20 mg L ⁻¹)	68.62% (20 min)	68.62% (10 cycles)	4
CNT-Ce-PbO ₂	m-nitrophenol (50 mg L ⁻¹)	98.70% (120 min)	/	5
1.0-CNT-PbO ₂	Pyridine (50 mg L ⁻¹)	93.8% (120 min)	/	6
Iron/cobalt alloy nanoparticles	Tetracycline (30 mg L ⁻¹)	100% (12 h)	97.55% (10 cycles)	7
Cu-doped Fe@Fe ₂ O ₃ core-shell nanoparticles	Tetracycline (20 mg L ⁻¹)	98.1% (2 h)	/	8
GF/PbO ₂ -Ce	Tetracycline (30 mg L ⁻¹)	98.75% (120 min)	over 93% (5 cycles)	This work

References

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