

Supplementary Materials

Table S1 comparison of CBZ degradation with reported literatures

Oxidation process	Reaction time	Concentration	CBZ removal	TOC removal	Ref
FeOCl based Photo-Fenton	30 min	100 μ M	92%	- ^a	[1]
Radiation with ferrate oxidation	240 min	0.04 mM	100%	22.2%	[2]
Radiation with persulfate oxidation	30 min	42.32 μ M	100%	34.1%	[3]
Photoelectrocatalytic system	180 min	5 mg/L	99.1%	- ^a	[4]
MnO ₂ anchored titanate nanotubes with peroxymonosulfate	20 min	5 μ M	100%	35.9%	[5]
Ce-doped ZnO	180 min	6.3×10^{-5} M	94.0%	- ^a	[6]
CeOx/GF-EP	60 min	10 mg/L	100%	69.4%	This work

a: Not mentioned

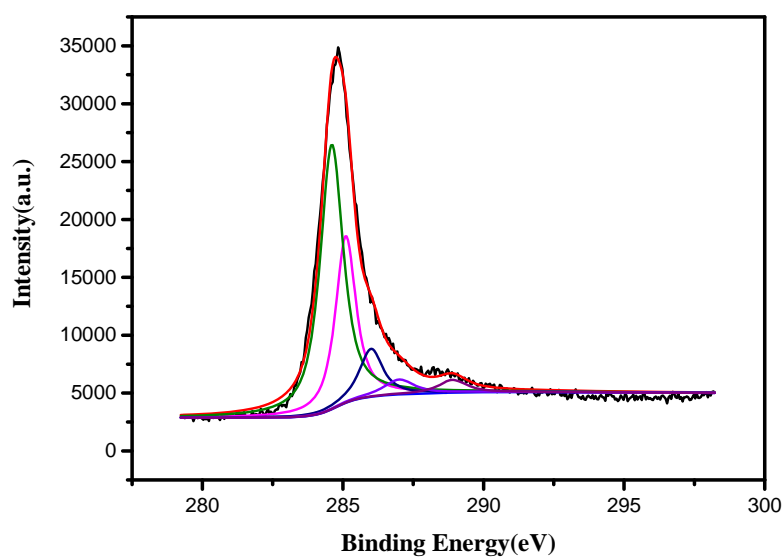


Fig.S1 C1s of graphite felt

References

- [1] S. Sun, H. Yao, W. Fu, F. Liu, X. Wang, W. Zhang, Enhanced degradation of carbamazepine in FeOCl based Photo-Fenton reaction, *Journal of Environmental Chemical Engineering*, (2020) 104501.
- [2] S. Wang, Y. Hu, J. Wang, Strategy of combining radiation with ferrate oxidation for enhancing the degradation and mineralization of carbamazepine, *The Science of the total environment*, 687 (2019) 1028-1033.
- [3] Z. Zhang, H. Chen, J. Wang, Y. Zhang, Degradation of carbamazepine by combined radiation and persulfate oxidation process, *Radiation Physics and Chemistry*, 170 (2020) 108639.
- [4] R. Guo, L.-C. Nengzi, Y. Chen, Q. Song, J. Gou, X. Cheng, Construction of high-efficient visible photoelectrocatalytic system for carbamazepine degradation: Kinetics, degradation pathway and mechanism, *Chinese Chemical Letters*, 31 (2020) 2661-2667.
- [5] F. Pan, H. Ji, P. Du, T. Huang, C. Wang, W. Liu, Insights into catalytic activation of peroxydisulfate for carbamazepine degradation by MnO₂ nanoparticles in-situ anchored titanate nanotubes: Mechanism, ecotoxicity

and DFT study, *Journal of hazardous materials*, 402 (2021) 123779.

[6] P. Caregnato, K.R. Espinosa Jiménez, P.I. Villabrille, Ce-doped ZnO as photocatalyst for carbamazepine degradation, *Catalysis Today*, (2020).