

Supplementary Information

Photocatalytic degradation of fluoroquinolone antibiotics in solution by Au@ZnO-rGO-gC₃N₄ composites

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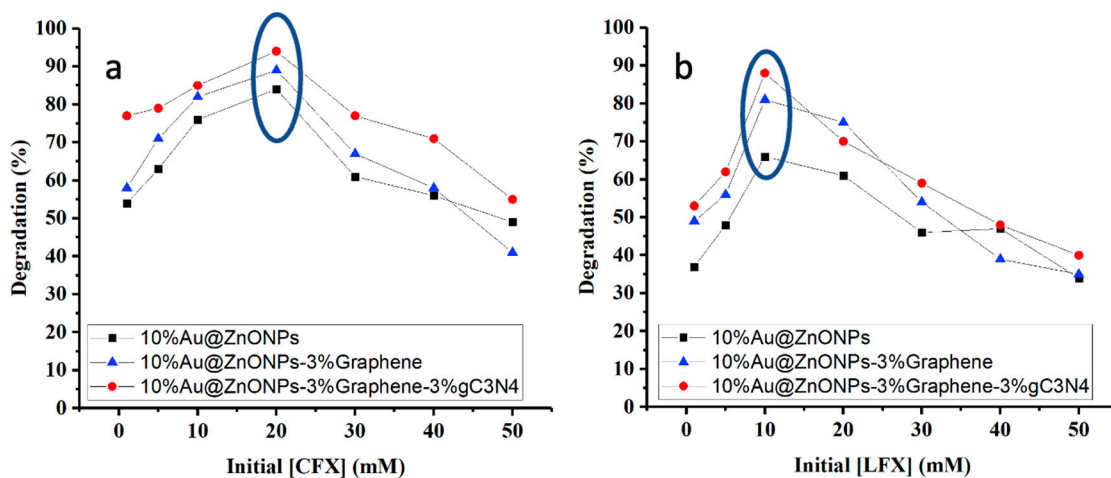


Figure S1. Evaluation of the initial concentration of CFX (a) and LFX (b) on the catalytic efficiency of 10%Au@ZnONPs, 10%Au@ZnONPs-3%rGO, and 10%Au@ZnONPs-3%rGO-3%gC₃N₄ in the photodegradation reaction.

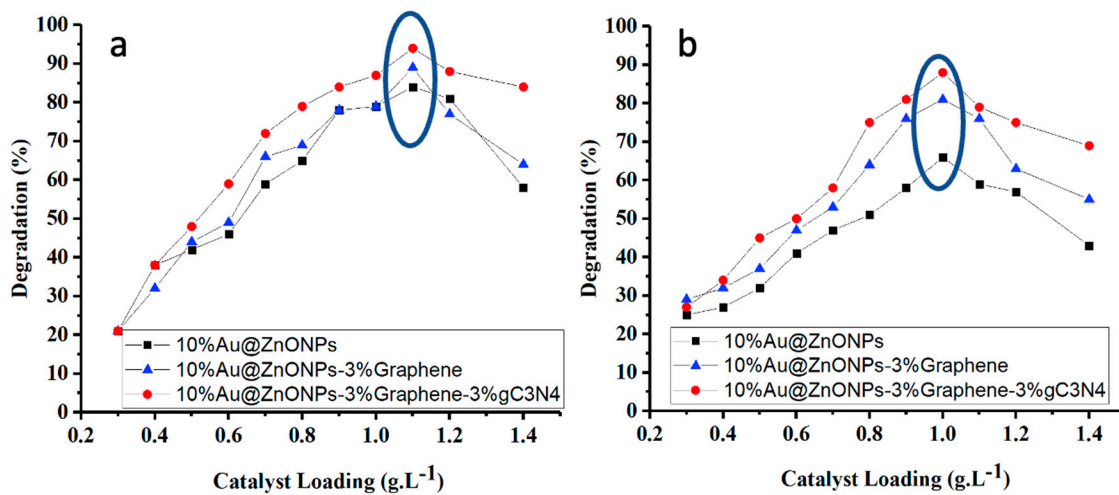


Figure S2. Evaluation of the initial concentration of 10%Au@ZnONPs, 10%Au@ZnONPs-3%rGO, and 10%Au@ZnONPs-3%rGO-3%gC₃N₄ on the efficiency of the photodegradation reaction of CFX (a) and LFX (b).

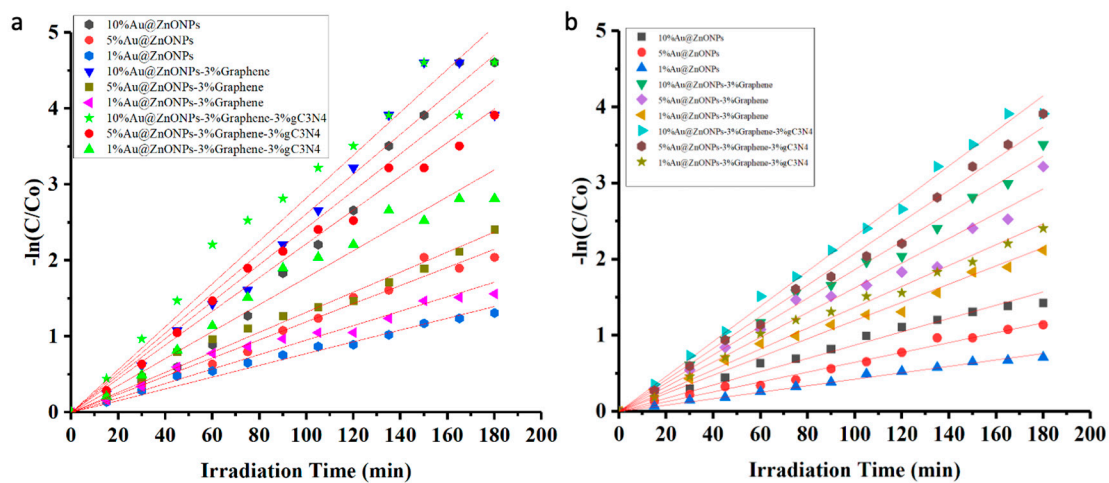


Figure S3. Pseudo-first order kinetics of photodegradation of CFX (a) and LFX (b) using different catalysts.

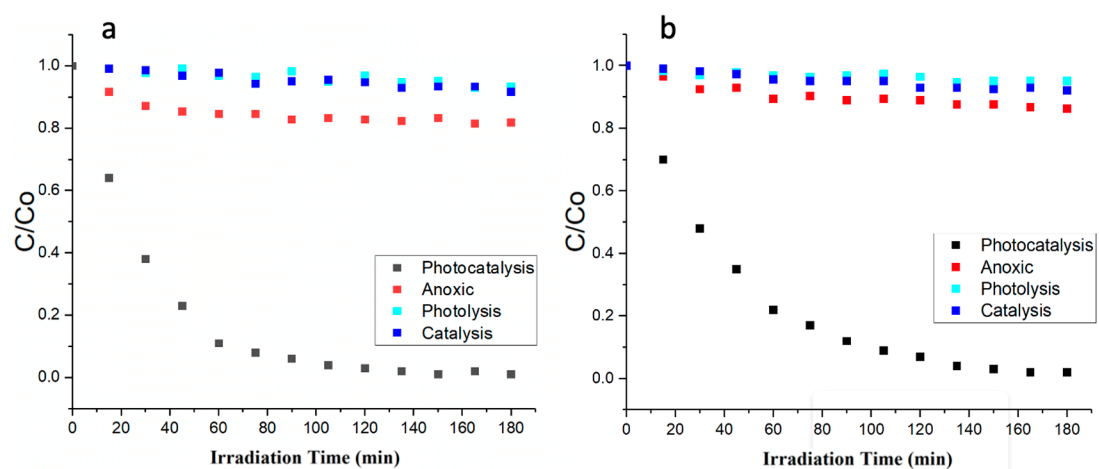


Figure S4. Control experiments for 10%Au@ZnONPs-3%rGO-3%gC₃N₄ with CFX (a) and LFX (b), under visible radiation.

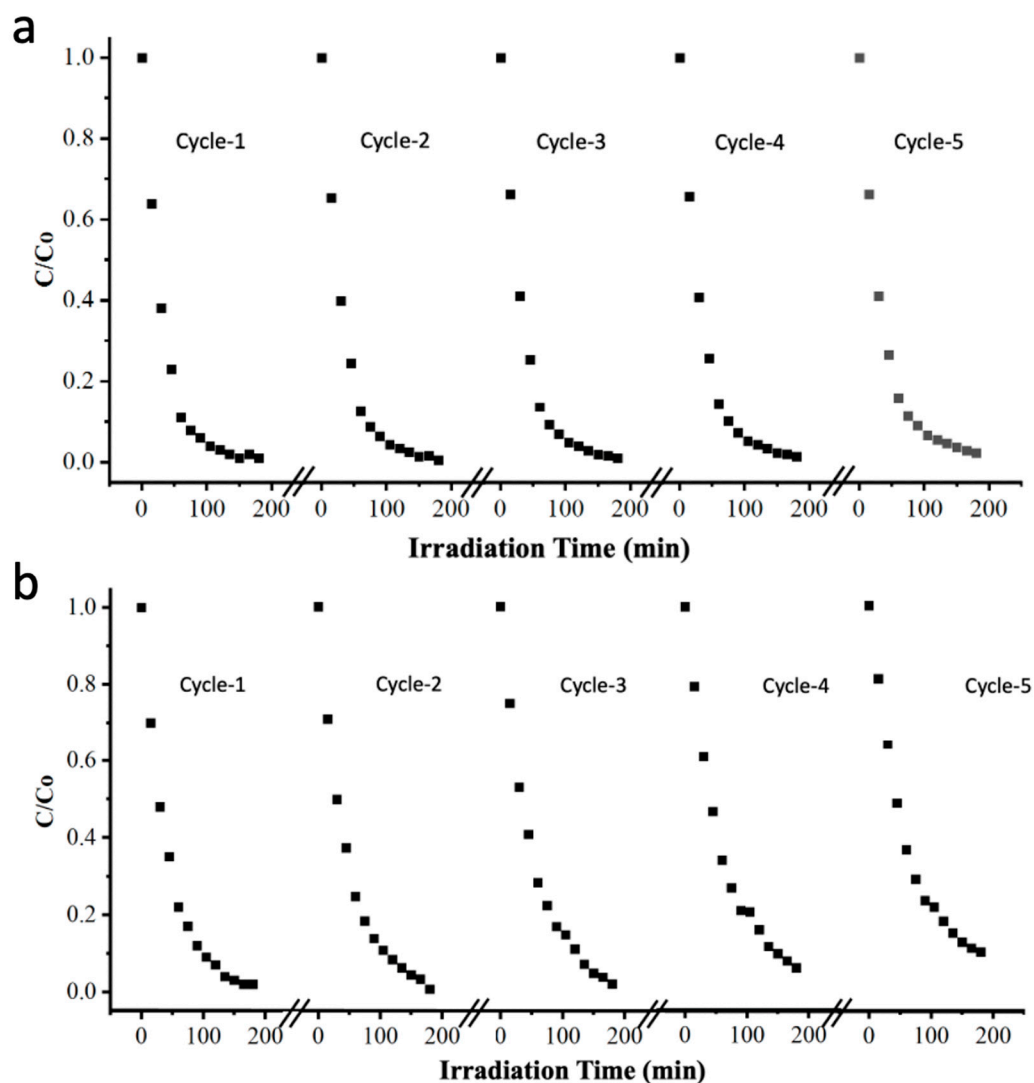


Figure S5. Recyclability of 10%Au@ZnONPs-3%rGO-3%gC₃N₄ after five consecutive catalytic cycles of photodegradation of CFX (a) and LFX (b) under visible radiation.

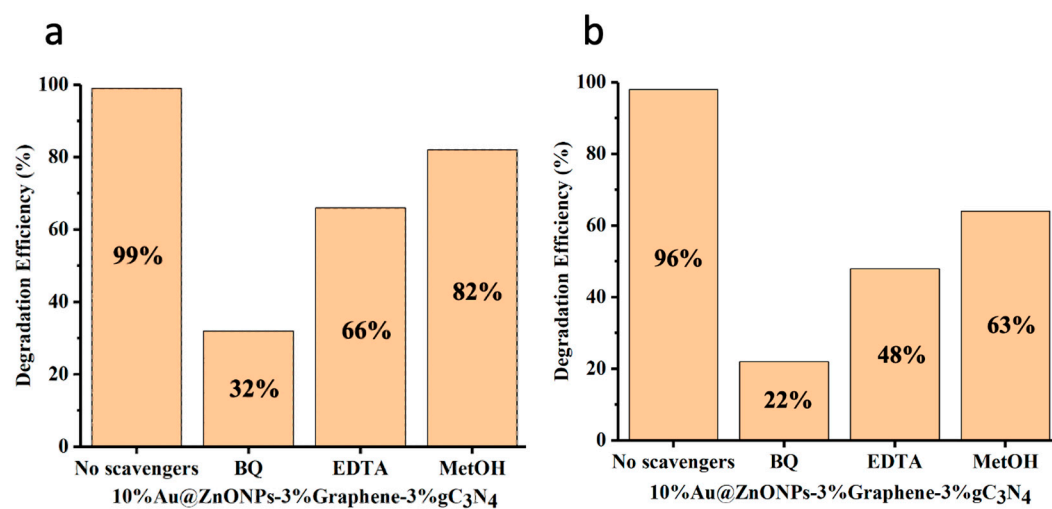


Figure S6. Photocatalytic activity of 10%Au@ZnONPs-3%rGO-3%gC₃N₄ on the degradation of CFX (a) and LFX (b) in the presence of various scavengers under visible radiation.

Table S1. The pseudo-first-order kinetics constants for the photodegradation of CFX and LFX, along with the respective linear correlation coefficients (R^2).

| Material | Apparent rate CFX ¹ | R ² | Apparent rate LFX ¹ | R ² |
|---|--------------------------------|----------------|--------------------------------|----------------|
| 1%Au@ZnONPs | 0.008 | 0.99 | 0.004 | 0.99 |
| 5%Au@ZnONPs | 0.012 | 0.98 | 0.006 | 0.99 |
| 10%Au@ZnONPs | 0.026 | 0.95 | 0.009 | 0.99 |
| 1%Au@ZnONPs-3%rGO | 0.009 | 0.97 | 0.011 | 0.99 |
| 5%Au@ZnONPs-3%rGO | 0.013 | 0.99 | 0.016 | 0.97 |
| 10%Au@ZnONPs-3%rGO | 0.024 | 0.97 | 0.019 | 0.99 |
| 1%Au@ZnONPs-3%rGO-3%gC ₃ N ₄ | 0.018 | 0.97 | 0.014 | 0.98 |
| 5%Au@ZnONPs-3%rGO-3%gC ₃ N ₄ | 0.022 | 0.98 | 0.021 | 0.99 |
| 10%Au@ZnONPs-3%rGO-3%gC ₃ N ₄ | 0.028 | 0.96 | 0.023 | 0.99 |

¹(k , min⁻¹)