

Highly sensitive biosensor based on synergistic effect of Fe₃O₄-Co₃O₄ bimetallic oxides and graphene

Shanying Han^a, Tianyu Du^a, Lanmei Lai^a, Xuerui Jiang^a, Chuansheng Cheng^a, Hui Jiang^{a,*}, and Xuemei Wang^{a,*}

State Key Lab of Bioelectronics (Chien-Shiung Wu Laboratory), Southeast University, No. 2 Sipailou, Nanjing 210096, China.

*Corresponding authors. Tel.: +86 25 83792177; Fax: +86 25 83792177.

E-mail addresses: sungi@seu.edu.cn (H. Jiang) or xuewang@seu.edu.cn (X. M. Wang).

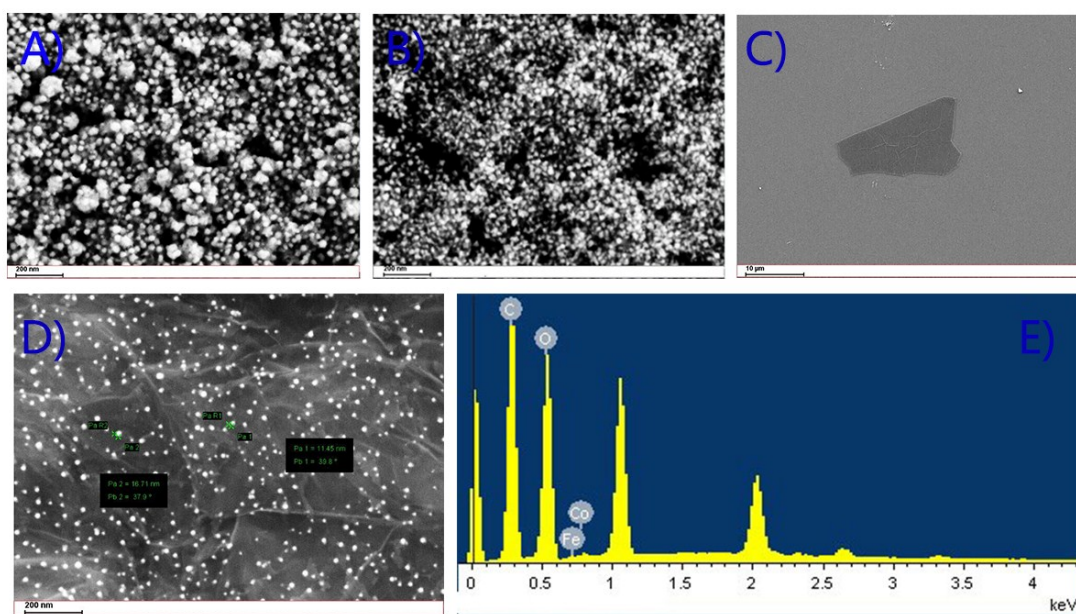


Fig. S1. SEM images of Co₃O₄ (A), Fe₃O₄-Co₃O₄ (B), rGO (C) and Fe₃O₄-Co₃O₄/rGO (D) modified on GCE. Picture E was the EDS of Fe₃O₄-Co₃O₄/rGO nanocomposites.

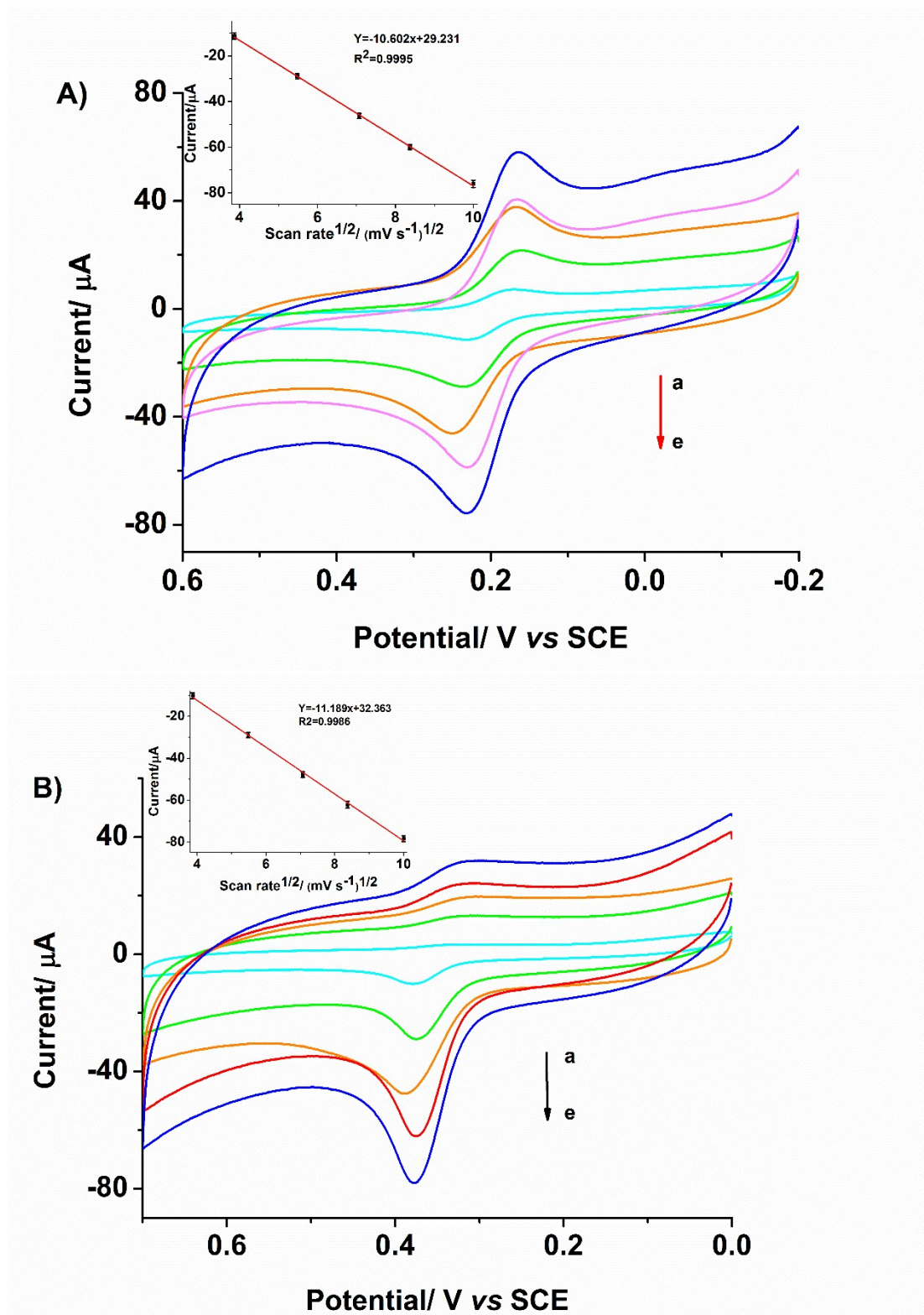


Fig. S2. CV studies of $\text{Fe}_3\text{O}_4\text{-Co}_3\text{O}_4/\text{rGO}$ modified GCE in 0.5 mM DA (A) and 0.5 mM UA (B) at the scan rate of 15 (a), 30 (b), 50 (c), 70 (d) and 100 (e) mV/s . The linear relationship of peak currents vs the square root of scanning rates were presented in inset A and inset B.

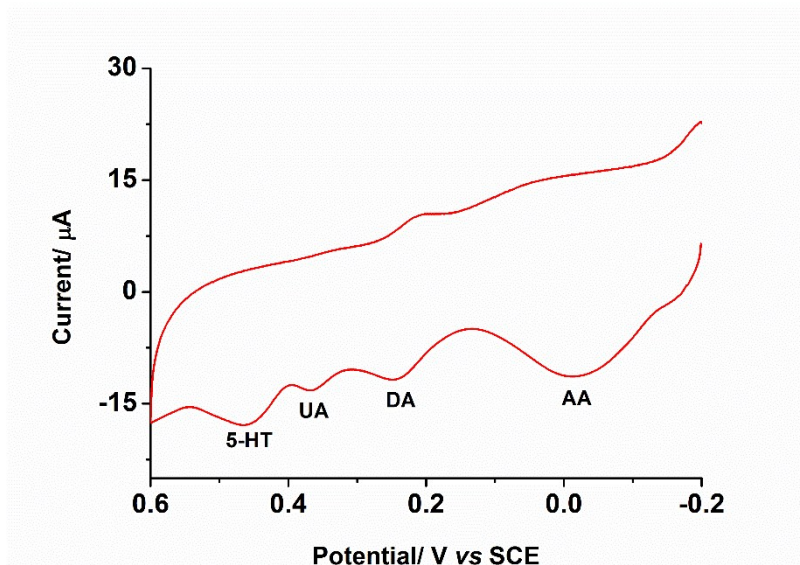


Fig. S3. CV curves of $\text{Fe}_3\text{O}_4\text{-Co}_3\text{O}_4/\text{rGO}$ composites modified GCE in PBS (0.2 M, pH 7.4) containing 300 μM AA, 80 μM DA, 100 μM UA and 300 μM 5-HT.

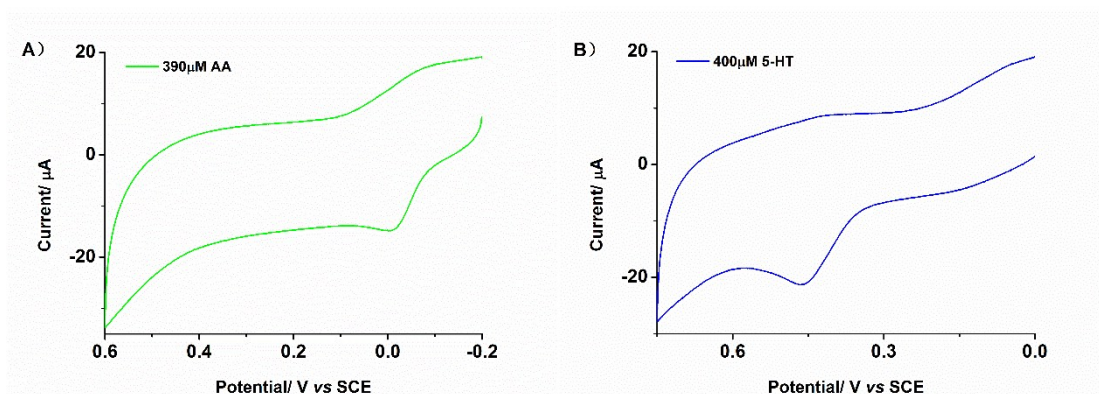


Fig. S4. Individual CVs for (A) AA and (B) 5-HT.

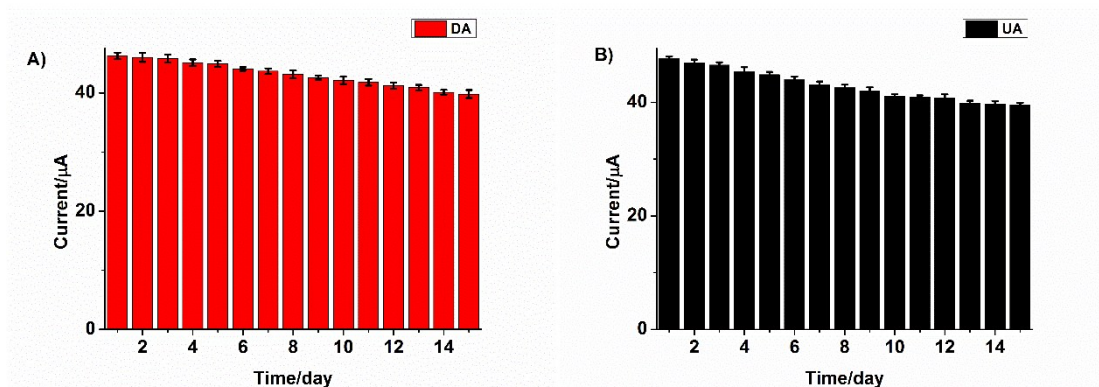


Fig. S5. The stability of the $\text{Fe}_3\text{O}_4\text{-Co}_3\text{O}_4/\text{rGO}$ modified electrode in the detection of DA and UA.