

Supplementary Material

Signal Amplification for Detection of Nilutamide in Three-Dimensional Electrochemical Sensor Using Copper Metal–Organic Framework Decorated Carbon Nanofibers

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1. Materials and Reagents Used

Copper (III)nitrate trihydrate, Benzimidazole, N, N-dimethylformamide (DMF) and Pristine CNF were procured from Sigma Aldrich. Nilutamide (Nlu) and other chemicals are purchased from Sigma-Aldrich. Phosphate buffer (PB, 0.1 M) was used as electrolyte in the electrochemical studies.

2. Real-Sample Preparation

The water sample were taken from the Xindian River Taiwan and human urine sample is collected from health volunteer. 1 ml of water and urine samples are mixed with 9 ml of 0.1 M PB solution and ultra-sonication for 30 minutes. Then the samples were centrifuged at 6000 rpm, decanted the supernatant, and directly used for the real sample analysis.

3. Characterization Techniques

The FT-IR measurement of the samples was recorded using Bruker Tensor-27 FT-IR spectrophotometer. The powder XRD analysis was done by Rigaku Dmaxrc diffractometer, Taiwan with Cu K α radiation $\lambda=1.504$ Å. The morphological studies the as-prepared samples were recorded using JSM-6701F, JEOL, Tokio, Japan. The XPS analysis of the resultant composite was performed using an ESCALab-250 XPS analyzer. The electrochemical impedance spectroscopy (EIS) analysis of the as-fabricated electrodes was done by Autolab (AUT51770) instrument, Taiwan (Nova 2.1 software). Further, cyclic voltammetry (CV) and amperometric i-t measurements were performed using CHI 1211c electrochemical workstation (Taiwan) in a conventional three-electrode cell using (CHI1211c software). Here, the modified GCE, saturated Ag/AgCl and Pt wire were used as working, reference and counter electrodes, respectively.

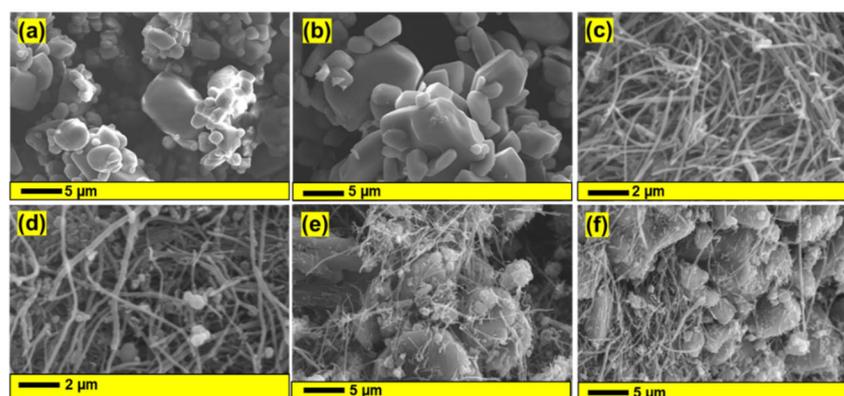


Figure S1. Scanning electron microscopic images of (a-b) Cu-MOF (c-d) f-CNF and (e-f) Cu-MOF/f-CNF composite.

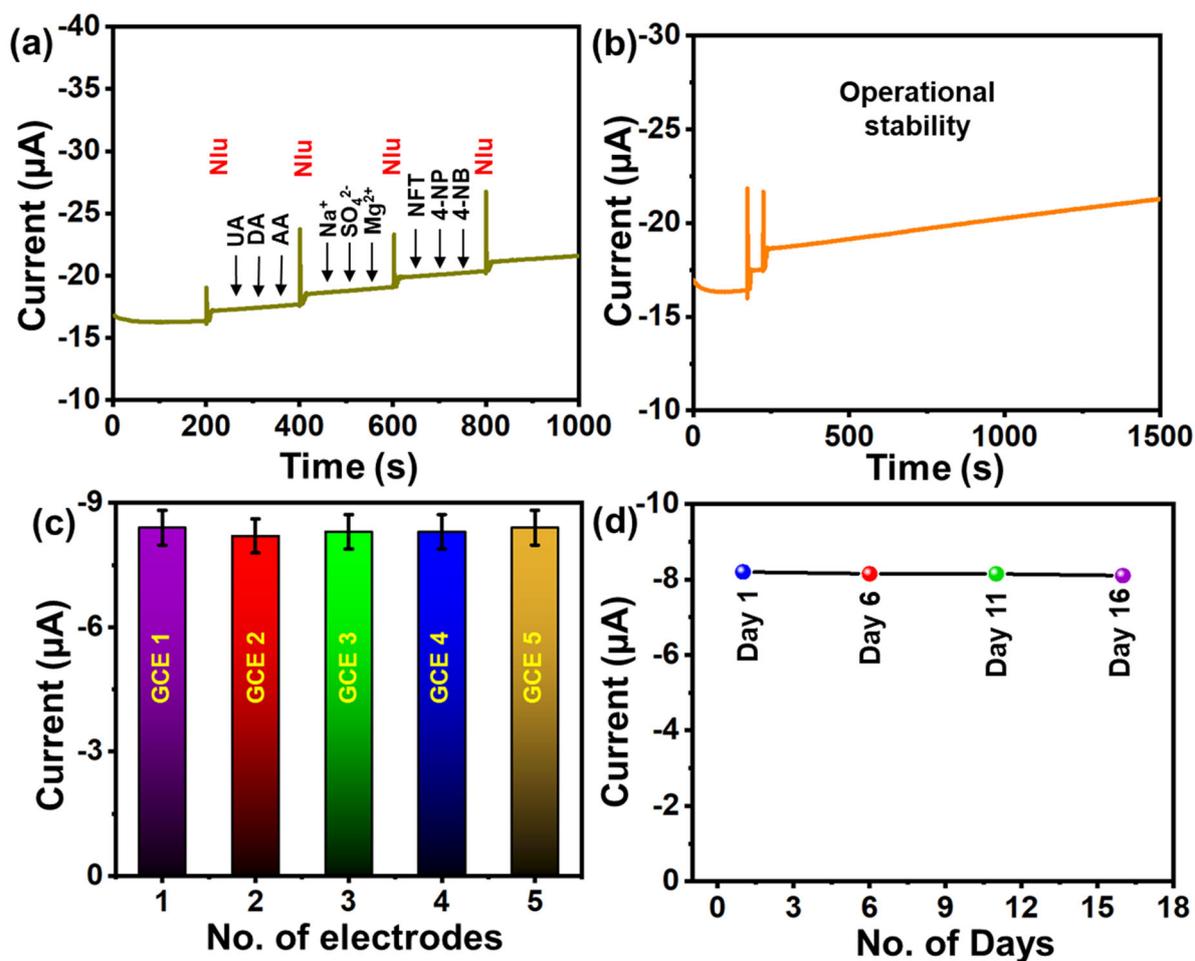


Figure S2. (a) anti interference response of Cu-MOF/f-CNF/rotating disc electrode (RDE) in presence of Nilutamide addition, (b) operation stability of Cu-MOF/f-CNF/RDE in presence of Nlu, (c), (d) Cu-MOF/f-CNF modified different GCEs and storage stability in presence of Nlu.

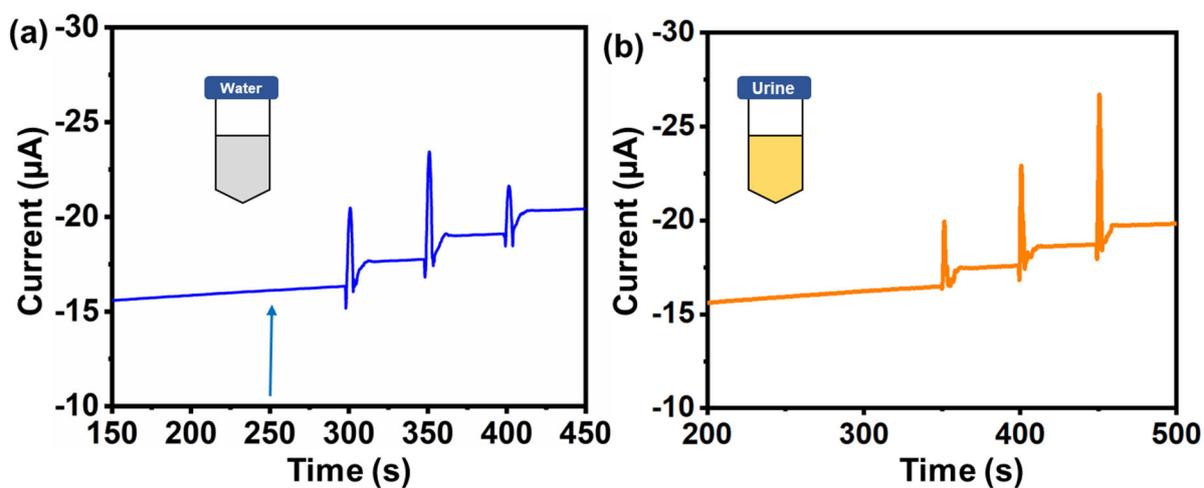


Figure S3. i-t current response of real samples (a) water, and (b) urine.