

Non-enzymatic electrochemical sensor based on AuNPs/Cu-N-C composite for efficient nitrite sensing in sausage sample

Xiaonan Liu,^a Tingting Zhang,^{*b} Xiangyang Li,^{*c} Shiyun Ai^b and Shuang Zhou^{*b}

^a *College of Food Science and Engineering, Shandong Agricultural University, Taian, 271018, PR China*

^b *College of Chemistry and Material Science, Shandong Agricultural University, Taian, 271018, PR China*

^c *School of Food Engineering, Ludong University, Yantai, 264025, PR China*

* Corresponding authors.

E-mail addresses: Zhangtingting90@sdau.edu.cn (T. Zhang);

xiangyang_1@163.com (X. Li);

shuangzhou@sdau.edu.cn (S. Zhou);

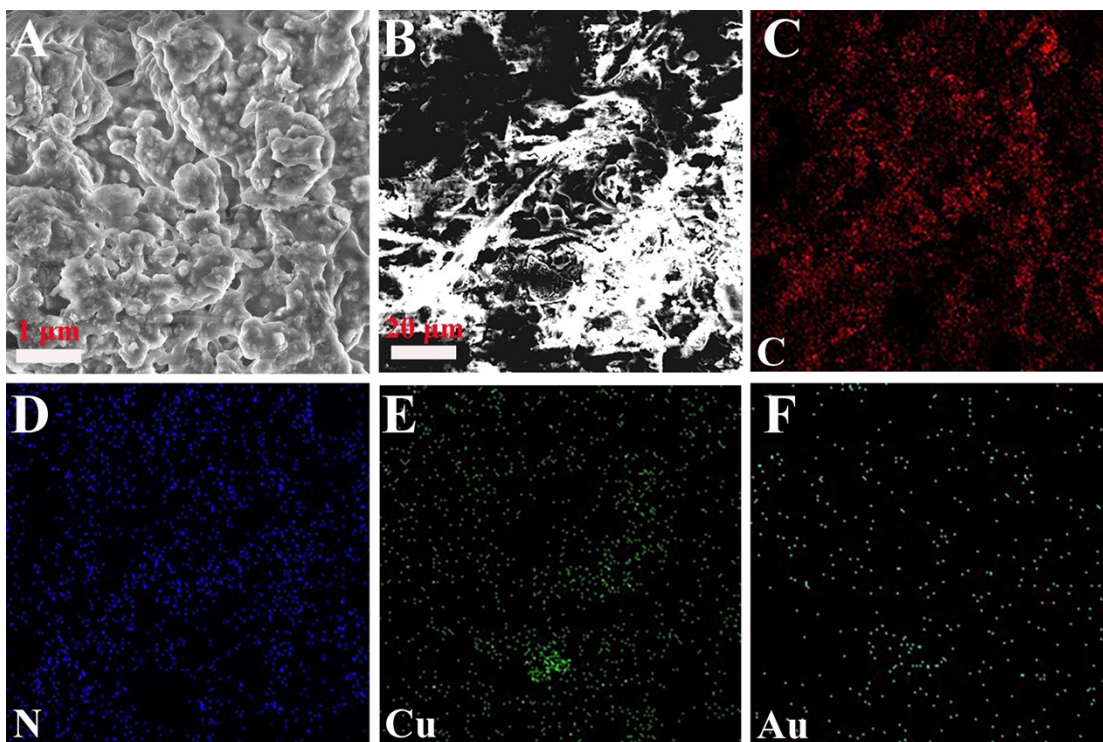


Fig. S1 (A) The SEM image of AuNPs/Cu-N-C, (B-F) the EDS mapping images of AuNPs/Cu-N-C.

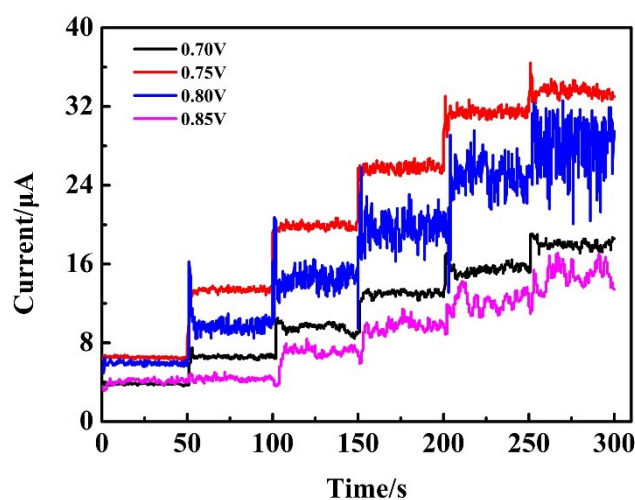


Fig. S2 Amperometric current-time curves of the AuNPs/Cu-N-C in stirred KCl (pH 7.0) with successive additions of 10 μ M nitrite at different applied potential.

Amperometric current-time technique was adopted for the nitrite detection, and the oxidation potential was optimized in the range of 0.70 – 0.85 V to obtain the apparent signal response. As shown in Fig. S2, with the increase of potential from 0.70 to 0.85 V, the current step heightens initially then decreases, and the largest current step appears at 0.75 V, which is in accord with the CV result. Hence, the subsequent amperometric current-time tests for the nitrite detection was performed at 0.75 V.

Detailed information on real sample.

The sausage sample (2 g) was grinded and mixed with 20 mL deionized water. Then the mixture was ultrasonic and boiled for 30min, respectively. 5.0 mL ZnSO₄ solution was added and heated in water bath to precipitated protein (60 °C, 10 min). After removing the upper oil layer, the remaining liquid was centrifuged. The separated supernatant was diluted to 100 mL. The prepared sample was stored at 4 °C for electrochemical determinations.