

Supplementary Material

Selenium and phosphide doped hollow porous N-doped carbon nanoboxes based electrospun N-doped carbon nanofibers toward electrochemical sensing of hydrogen peroxide

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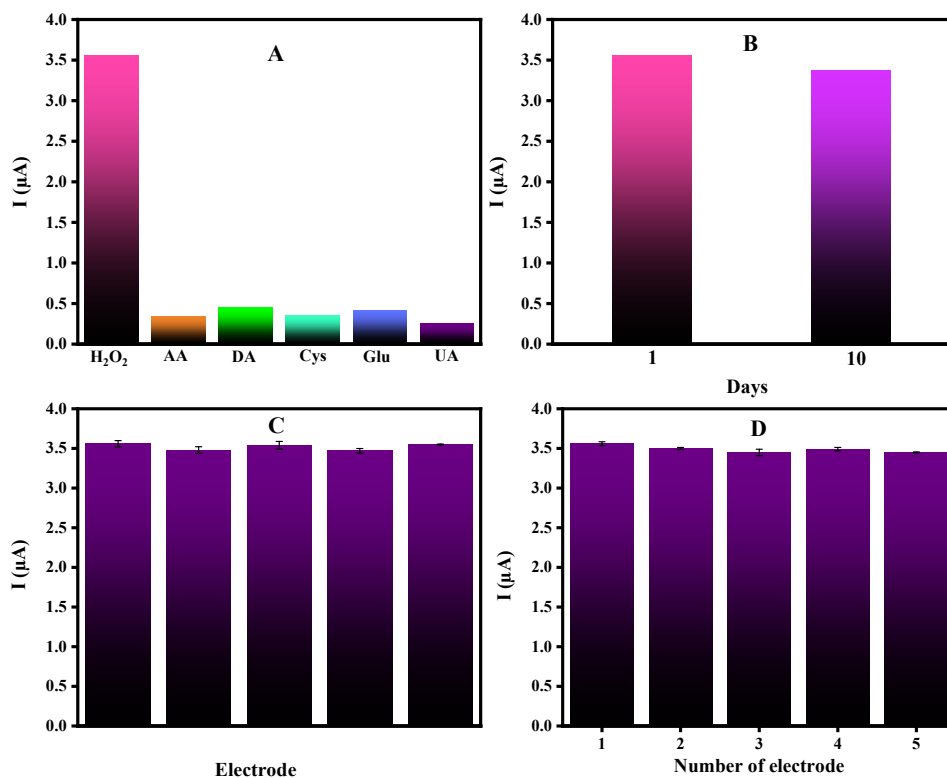


Fig. S1. (A) The histogram for the DPV signal of the Se/P@N-CNBs/CNFs/GCE for the successive addition of 400 μM of H₂O₂ following by addition of the 50-fold concentration of interfering species (B) long-term stability (C) repeatability and (D) reproducibility of the sensor for H₂O₂ detection (400 μM).

Table S1. Comparison of proposed nonenzymatic Se/P@N-CNBS/CNFs@GCE sensor with previously reported for electrocatalysis of H₂O₂ oxidation.

| Electrodes | Sensitivity ($\mu\text{A mM}^{-1} \text{cm}^{-2}$) | Linear range (μM) | LOD (μM) | References |
|--|---|-----------------------------------|-----------------------|------------|
| GCE/Nafion/Ni | - | 5-500 | 1.8 | [1] |
| CoPc(1)-QDs | 2.8×10^5 | | 0.023 | [2] |
| [Cu(adp)(BIB)(H ₂ O)]n/GC | - | 0.1-2.75 | 0.068 | [3] |
| [sub-CYST/Au(pc)] | 58.68 | 1-3000 | 0.8 | [4] |
| Co ₃ O ₄ nanowalls | 1671 | - | 2.8 | [5] |
| Pd electrode | - | 0.15–75 | - | [6] |
| (RhNP@mSiNW) | 0.53 | - | - | [7] |
| Se/P@N-CNBS/CNFs | 171 | 200-1800 | 58 | This work |

References

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Table S2: Quantitative analysis of H₂O₂ in human serum using Se/P@N-CNBs/CNFs modified electrode.

| Sample | Added ($\mu\text{mol L}^{-1}$) | Founded ($\mu\text{mol L}^{-1}$) | RSD (%) (n = 3) | Recovery (%) (n = 3) |
|---------------|----------------------------------|------------------------------------|-----------------|----------------------|
| human serum 1 | 250 | 252.74 | 3.4 | 101 |
| human serum 2 | 300 | 289.24 | 2.8 | 96 |
| human serum 3 | 350 | 347.64 | 2.6 | 99 |