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SUPPORTING INFORMATION

Coordination-Driven Electrodeposition of Chitosan-Cu^{2+}/SWCNT Hydrogel for Enhanced Non-Enzymatic Glucose Sensing

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Calculation of average coordination ratio (*j*) and stability constant (K_s) with Lingane equation

The average coordination ratio (*j*) and the stability constant (K_s) of the Cu^{2+}-chitosan complex were determined from the slope and intercept of the plot in Figure 4b, based on the Lingane equation:

$$\Delta E_{1/2} = -\frac{0.0592}{n}\log K_s - j\frac{0.0592}{n}\log C_L$$

The average coordination ratio (j) was calculated from the slope according to:

$$j = \frac{slope}{0.0592 / n}$$

Here, n was taken as 1, since the copper redox peak corresponding to the Cu^+/Cu^0 couple was used for the calculation.

The stability constant (K_s) was calculated with the intercept using:

$$K_s = 10^{\frac{intercept}{0.0592/n}}$$

From these calculations, the coordination number was estimated to be j = 0.67, indicating approximately bidentate coordination behavior. The stability constant was determined to be $K_s = 7.04 \times 10^4$ confirming the strong affinity between Cu^{2+} ions and chitosan ligands.

Table S1. Summary of the peak potentials (E_p) and related electrochemical parameters for the Cu^+/Cu^0 redox couple as a function of chitosan concentration. All potentials are reported in volts (V).

Chitosan conc.	E_{pc} ($Cu^+ \rightarrow Cu^0$)	E_{pa} ($Cu^0 \rightarrow Cu^+$)	Half-wave potential	Potential shift
Solution	−0.267	−0.111	−0.189	
0.5 wt%	−0.302	−0.164	−0.233	−0.044
1.0 wt%	−0.34	−0.155	−0.2475	−0.0585
1.5 wt%	−0.35	−0.157	−0.2535	−0.0645
2.0 wt%	−0.353	−0.16	−0.2565	−0.0675

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