

**Suppl. figure 1.** Cyclic voltammograms at the gold electrode in phosphate buffer solution (pH = 3.0):(a) blank run (b) in the presence of CDS; scan rate 50 mVs-1; CDS: 1.0 mM



**Suppl. figure 2.** Successive cyclic voltammograms of 1.0 mM CDS at gold electrode. Other conditions are as in Figure 1

**Suppl. Table 1.** Calculated values of αn, α, n, E0’, and k0 for the electro-oxidation of CDS by cyclic voltammetry (CV) and linear sweep voltammetry (LSV).

|  |  |  |
| --- | --- | --- |
| Parameters | CV | LSV |
| αn | 0.9240 | 0.8101 |
| α | 0.6752 | 0.6765 |
| n | 1.3683 | 1.1975 |
| E0’ | 1.267 | 1.284 |
| k0 | 461.53 | 727.77 |

α is the transfer coefficient, n is the number of electrons transferred, E0’ is the formal redox potential in V, and k0 is the standard heterogeneous rate constant of the reaction in cm s-1

**Suppl. Table 2.** Analytical precision and accuracy of CDS determination by differential pulse voltammetry.

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| --- | --- | --- | --- | --- | --- |
|  | Added(M) | Founda(M) | SD | Accuracy bias (%) | RSD(%) |
| Intraday | 1.0×10-6  1.0×10-4 | 0.9875×10-6  1.0102×10-4 | 0.0106  0.0295 | -1.247  -1.020 | 1.0757  2.9277 |
| Interday | 1.0×10-6  1.0×10-4 | 0.9974×10-6  0.9802×10-4 | 0.0215  0.0125 | -0.260  -1.980 | 2.1566  1.2752 |

aAverage of three determinations

**Suppl. Table 3.** Influence of potential excipients on the voltammetric response of 1.0 × 10-4M CDS.

|  |  |  |
| --- | --- | --- |
| Excipients | Concentration(mM) | Signal change(%) |
| D-glucose | 10 | -0.89 |
| Sucrose | 10 | -1.28 |
| Ascorbic acid | 10 | -1.28 |
| Citric acid | 10 | -1.68 |
| Tartaric acid | 10 | -0.89 |
| Dextrose | 10 | 0.389 |
| KCl | 10 | 3.55 |
| MnSO4 | 10 | -2.87 |
| CaCl2 | 10 | 0.83 |
| FeSO4 | 10 | -1.09 |