

Supplementary Material

Ultrasensitive catechin electrochemical sensor based on uniform ordered mesoporous carbon hollow spheres (MCHSS) advanced carbon based conductive materials

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2. List of Supplementary Tables and Figures:

Scheme S1. The reasonable electrochemical reaction mechanism of catechin at MCHSs/GCE.

Figure S1. SEM images of (A, B) $\text{SiO}_2@\text{SiO}_2@\text{RF}$ and (C, D) $\text{SiO}_2@\text{SiO}_2@\text{C}$.

Figure S2. XRD patterns of MCHSs.

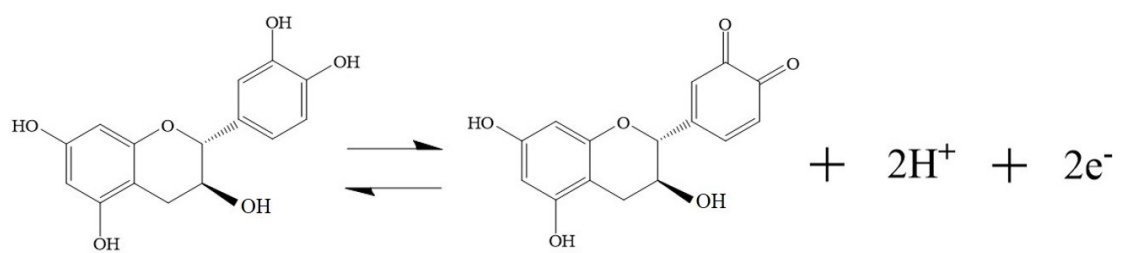
Figure S3. The XPS spectra (A) the survey spectrum, (B) C1s spectrum, (C) O1s spectrum.

Figure S4. N_2 adsorption–desorption isotherms (inset) and pore size distribution of MCHSs.

Figure S5. (A) The oxidation peak currents of 0.5 μM catechin on the different concentration MCHSs/GCE in 0.1 M PBS solution. (B) The oxidation peak currents of 0.5 μM catechin on the MCHSs/GCE in 0.1 M PBS solution over a pH range of 4.5 to 8.5. (C) Influence of accumulation time on the oxidation peak current of 0.25 μM catechin. Accumulation potential: 0.2V. (D) Influence of accumulation potential on the oxidation peak current of 0.25 μM catechin. Accumulation time: 1200 s.

Figure S6. The molecular electrostatic potential (MEP) map of catechin (the blue dot is the minimum and the yellow dot is the maximum, kcal/mol).

Table S1. Analytical results for the catechin detection from real samples ($n = 3$).



Scheme S1

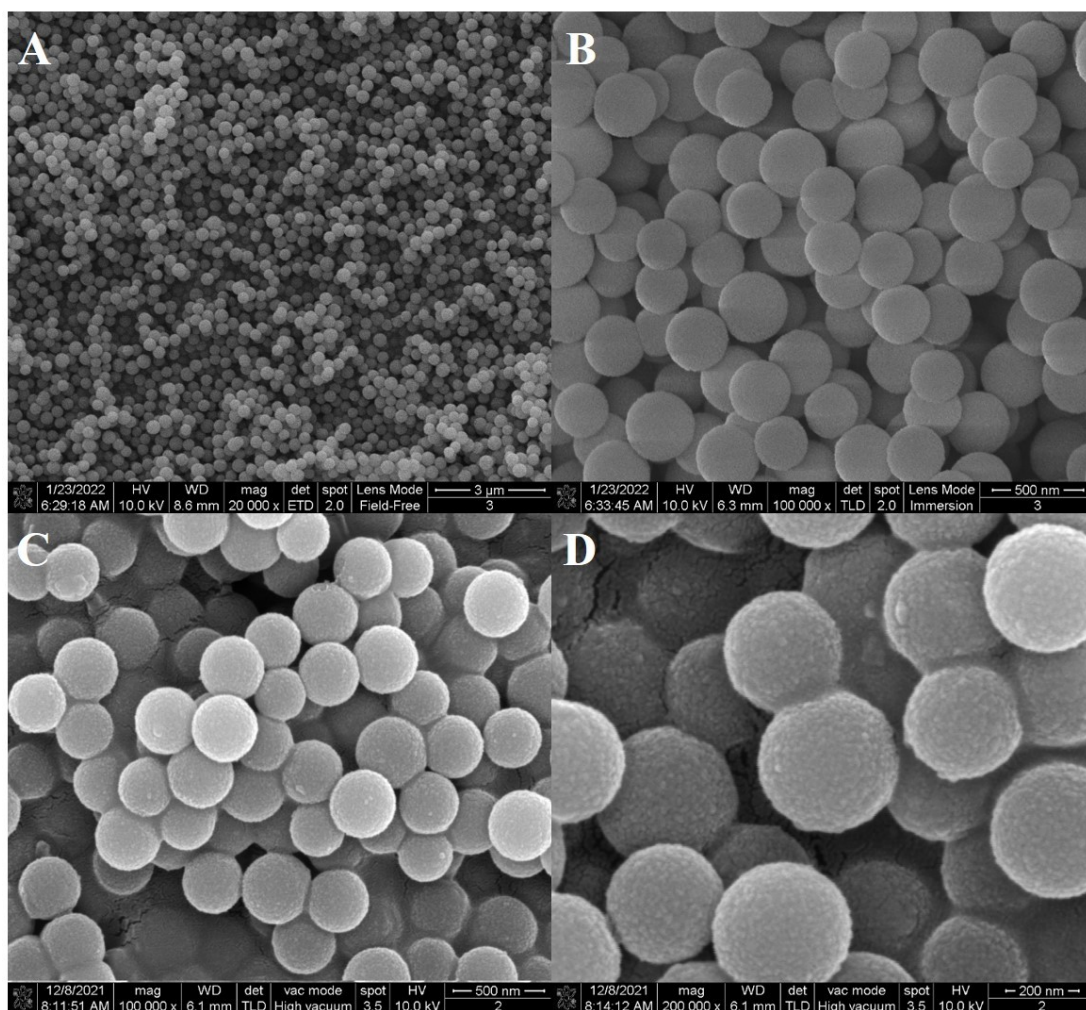


Figure S1

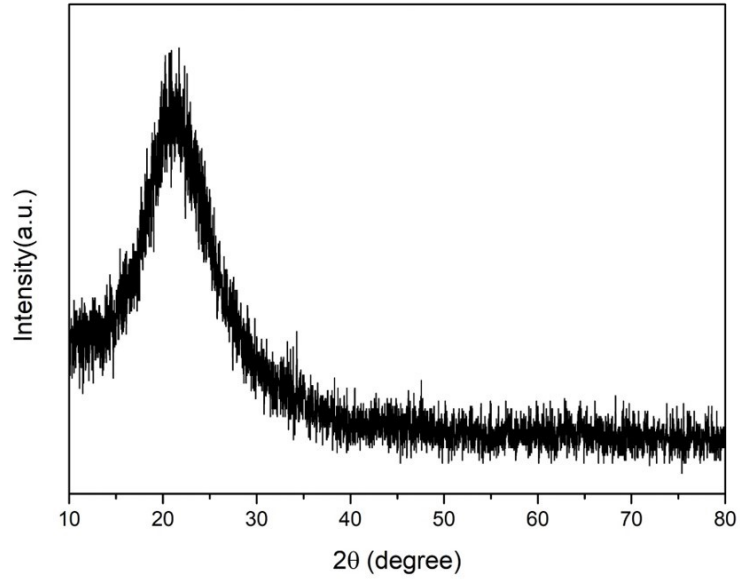


Figure S2

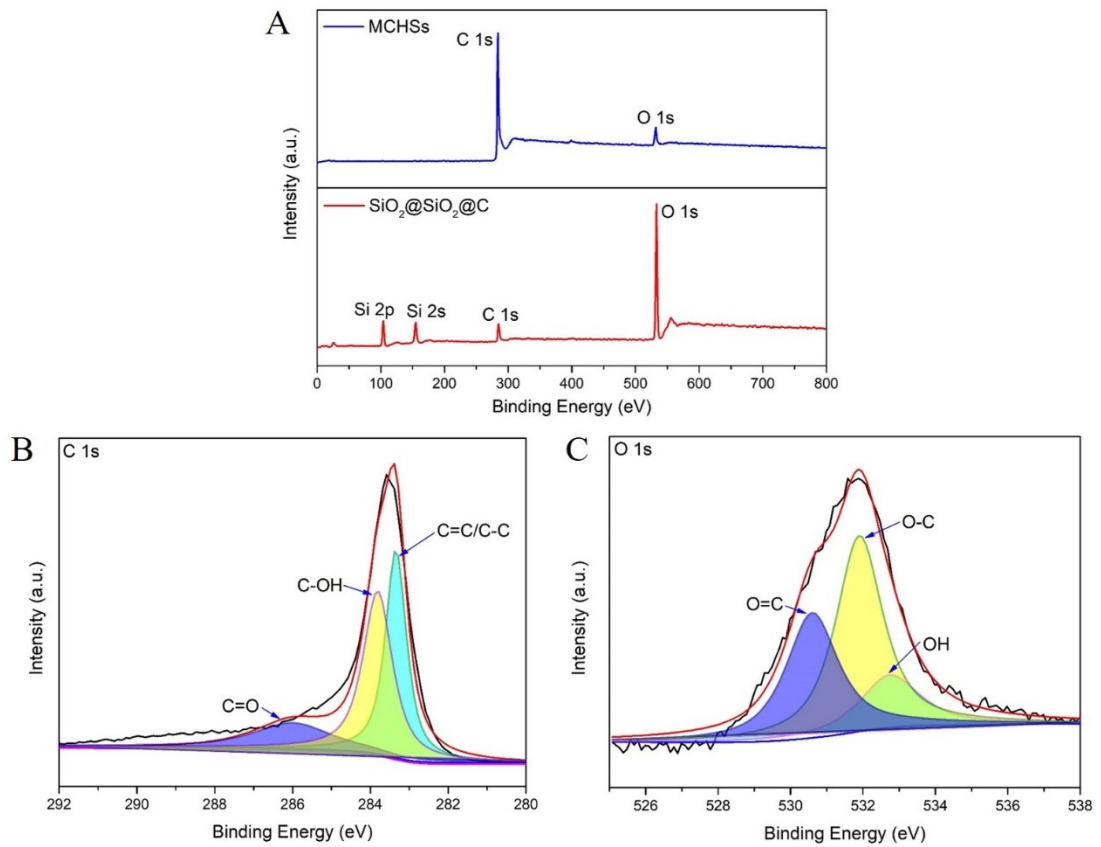


Figure S3

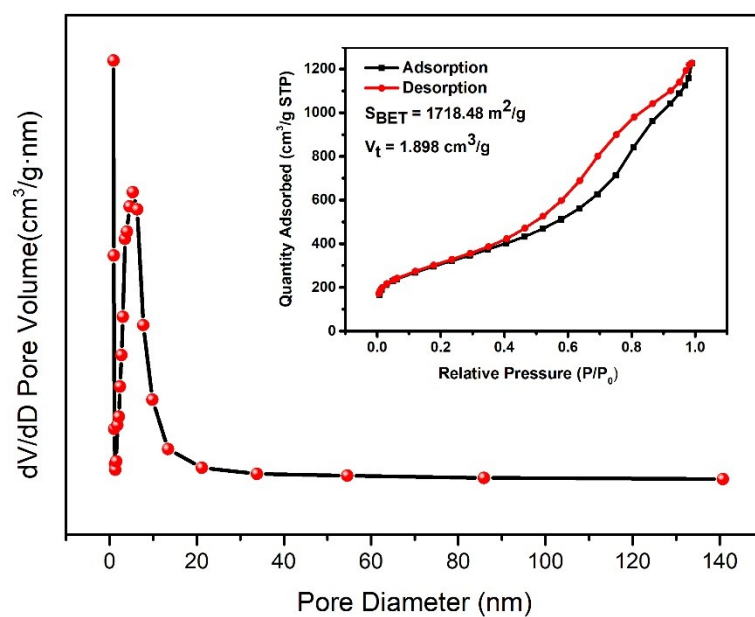


Figure S4

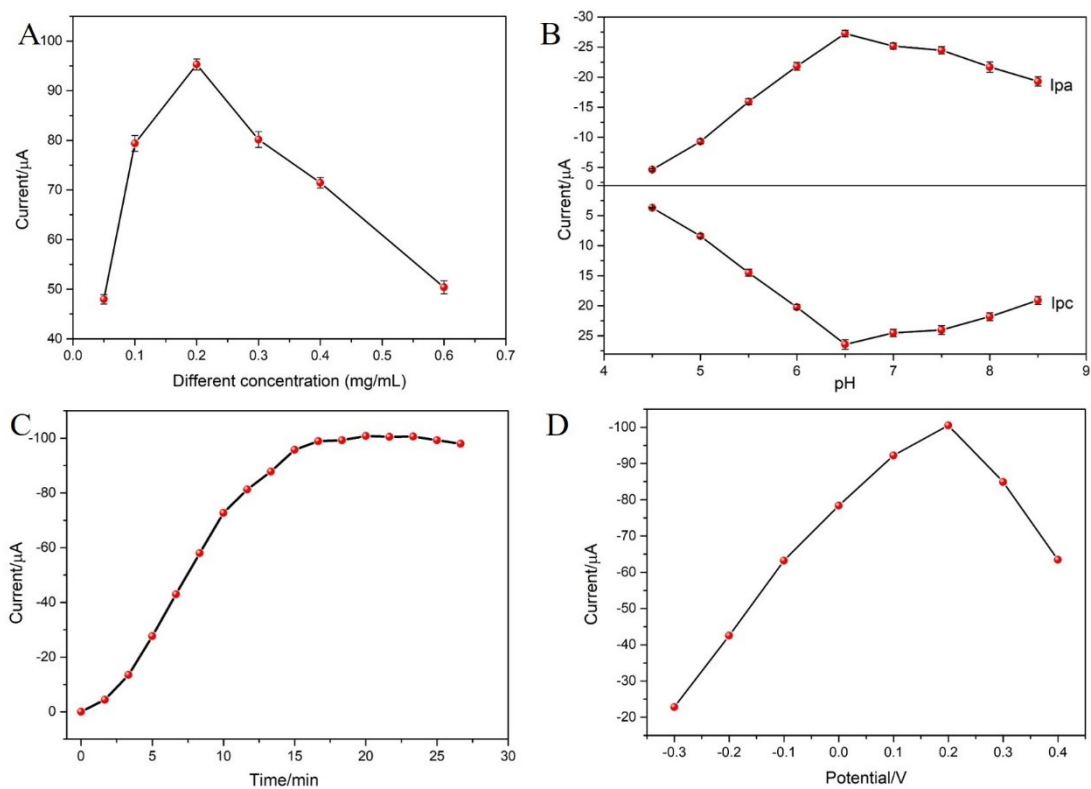


Figure S5

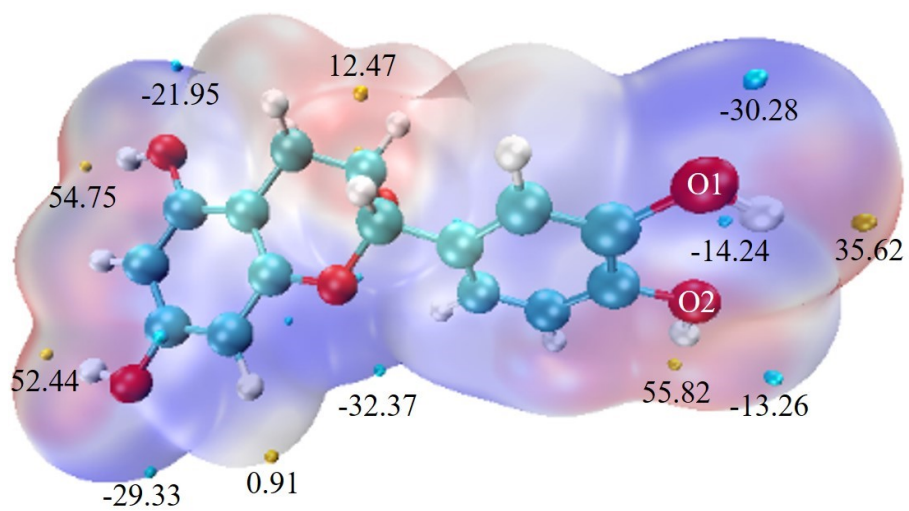


Figure S6

Table S1

Added (nM)	Founded (nM)	Recovery (%)	RSD (%)
0	39.27	-	-
20	60.21	104.7	0.82
40	78.69	98.6	1.02
60	96.13	94.8	0.64