

Supporting Information

Ultrasensitive luteolin electrochemical sensor based on glass carbon electrode modified using multi-walled carbon nanotube supported hollow cobalt sulfide (CoSx) polyhedrons / graphene quantum dots composites

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List of Supplementary Tables and Figures:

Scheme S1. The reasonable electrochemical reaction mechanism of LU at CoSx-MWCNTs/GQDs/GCE.

Figure S1. SEM images of ZIF-67.

Figure S2. SEM images of (A, B) CoSx polyhedrons, (C, D) CoSx-MWCNTs and (E) MWCNTs composites.

Figure S3. XRD patterns CoSx, CoSx-MWCNTs and MWCNTs.

Figure S4. The XPS spectra (A) the survey spectrum, (B) C1s spectrum, (C) Co2p spectrum, (D) S2p spectrum, (E) O1s spectrum.

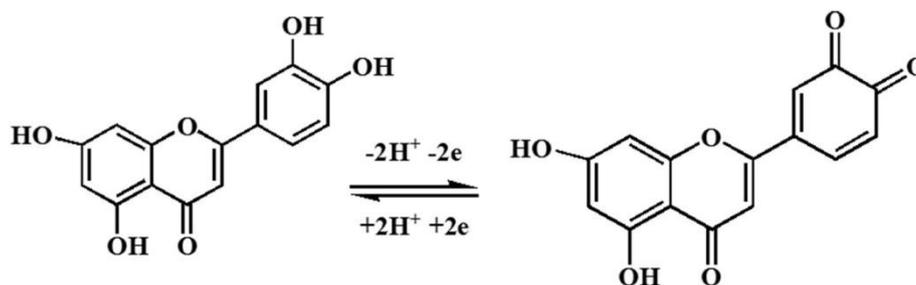
Figure S5. The DPV response (A) of 1 μM LU on modified electrodes of different. (B) Influence of accumulation potential on the oxidation peak current of 1 μM LU.

Accumulation time: 250 s. (C) Influence of accumulation time on the oxidation peak current of 1 μM LU. Accumulation potential: 0.2V (D) The peak currents of 1 μM LU on the CoS_x-MWCNTs/GQDs/GCE in 0.1 M PBS solution over a pH range of 4.5 to 8.0.

Figure S 6. CVs of 0.5 μM LU on bare GCE, CoS_x- MWCNTs/GCE, GQDs/GCE and CoS_x-MWCNTs-GQDs/GCE in 0.1 M PBS (pH=6.0). Scan rate of CV: 100 $\text{mV}\cdot\text{s}^{-1}$, Accumulation time: 1700 s and Enrichment potential: 0.2 V.

Table S1. Analytical Results for the LU detection from real samples (n = 3).

Scheme S 1



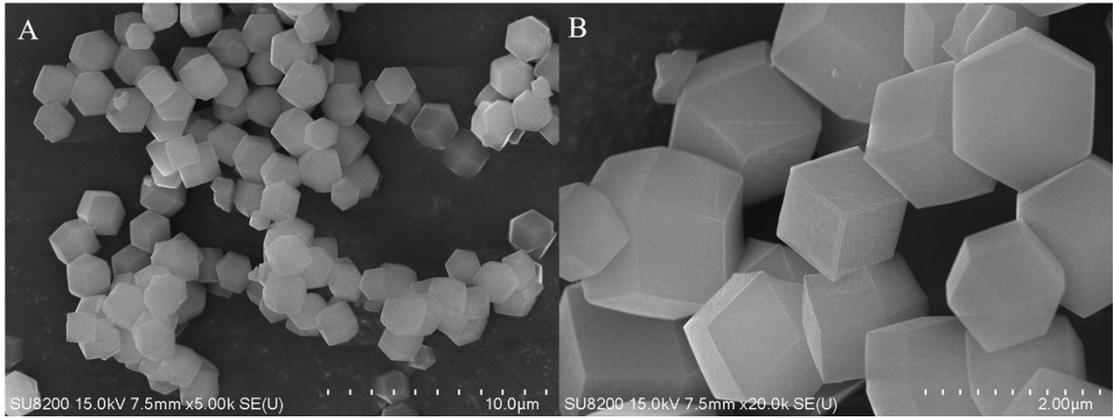


Figure S 1

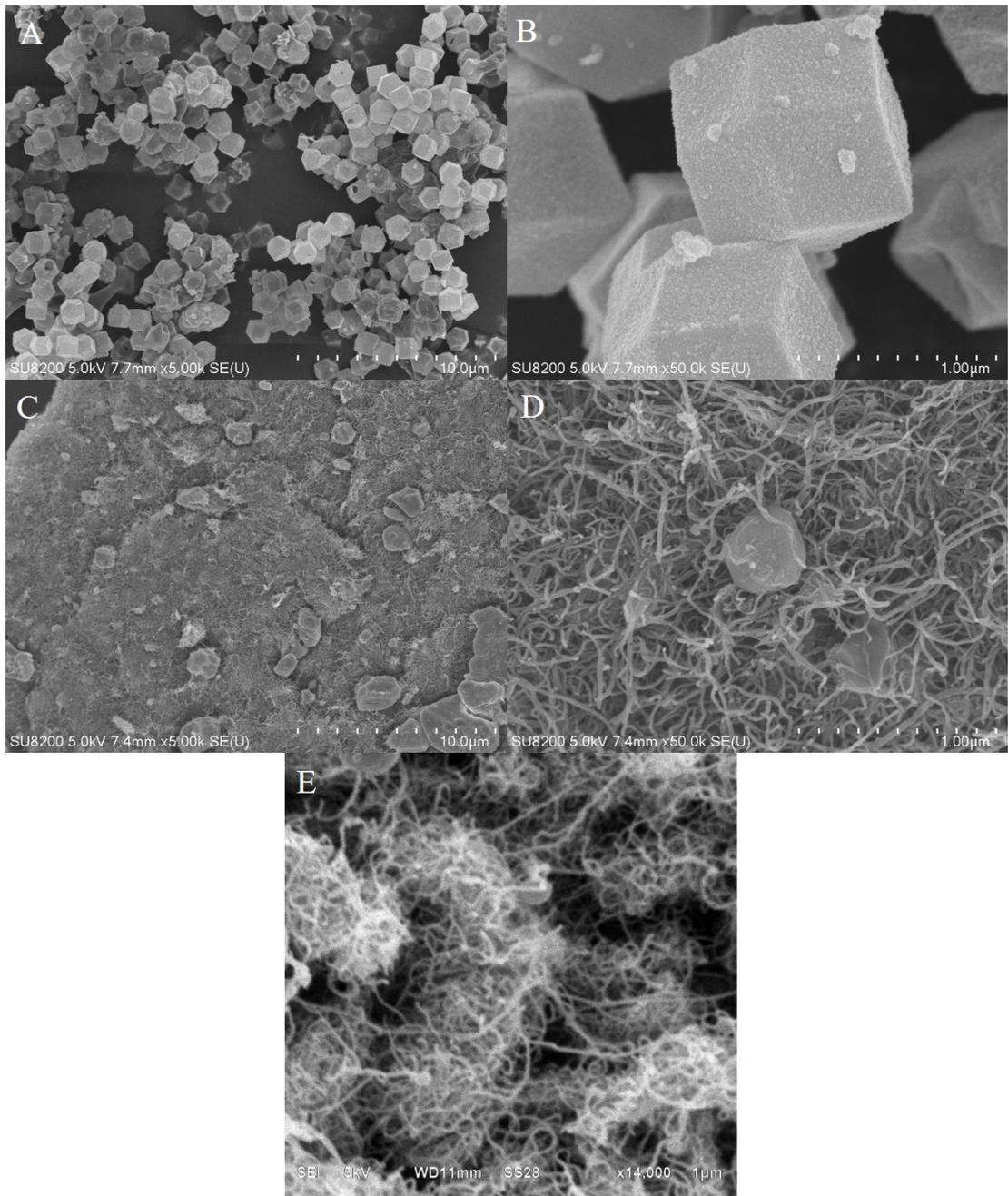


Figure S 2

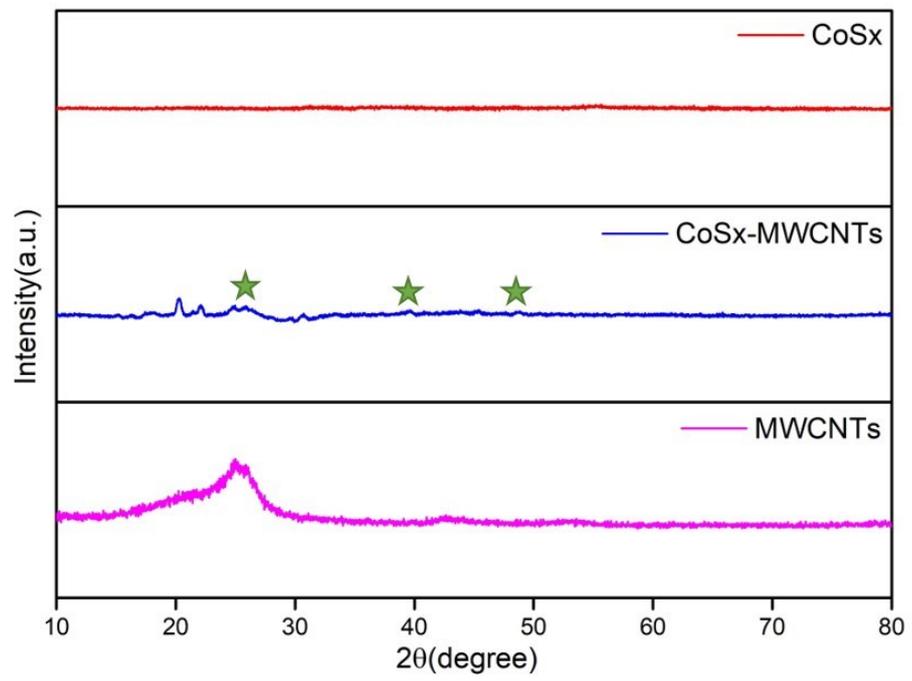


Figure S 3

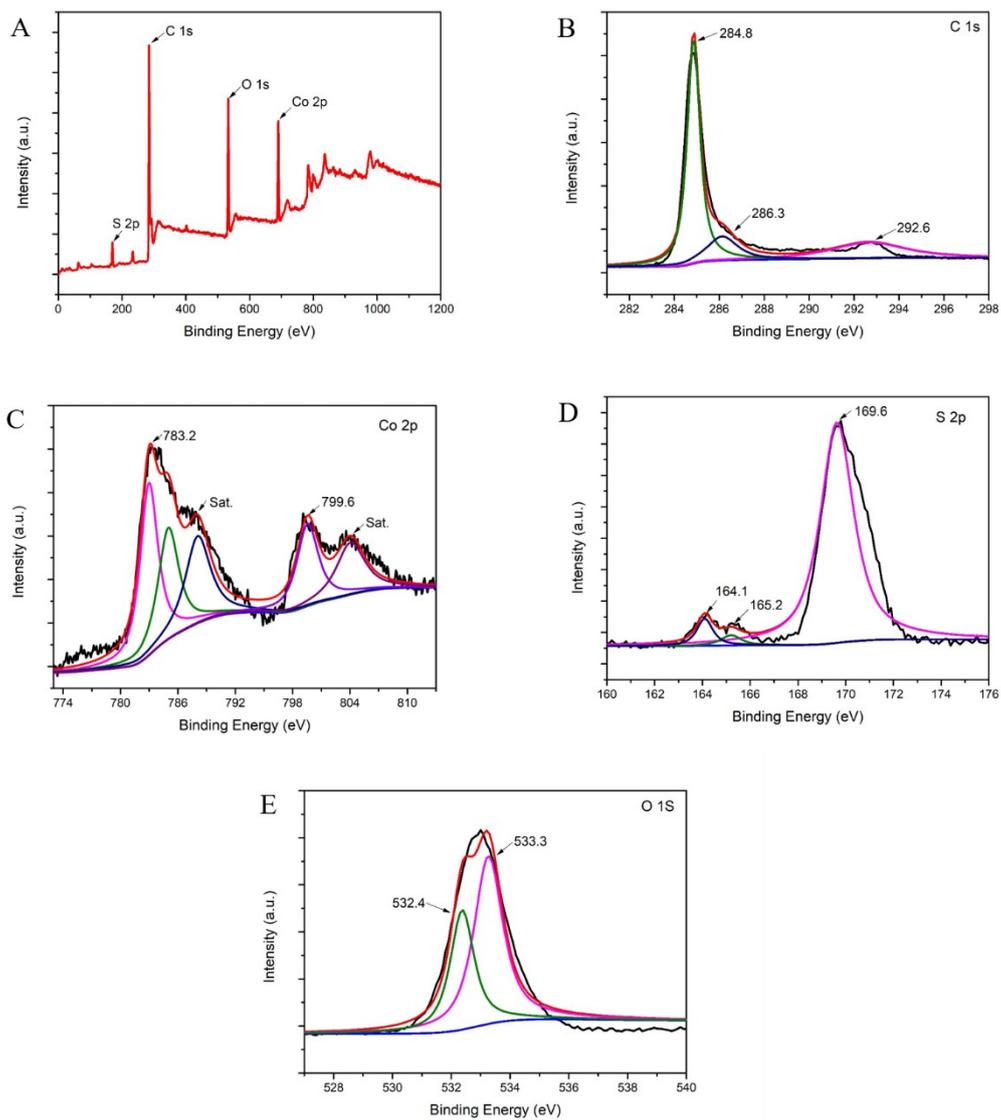


Figure S 4

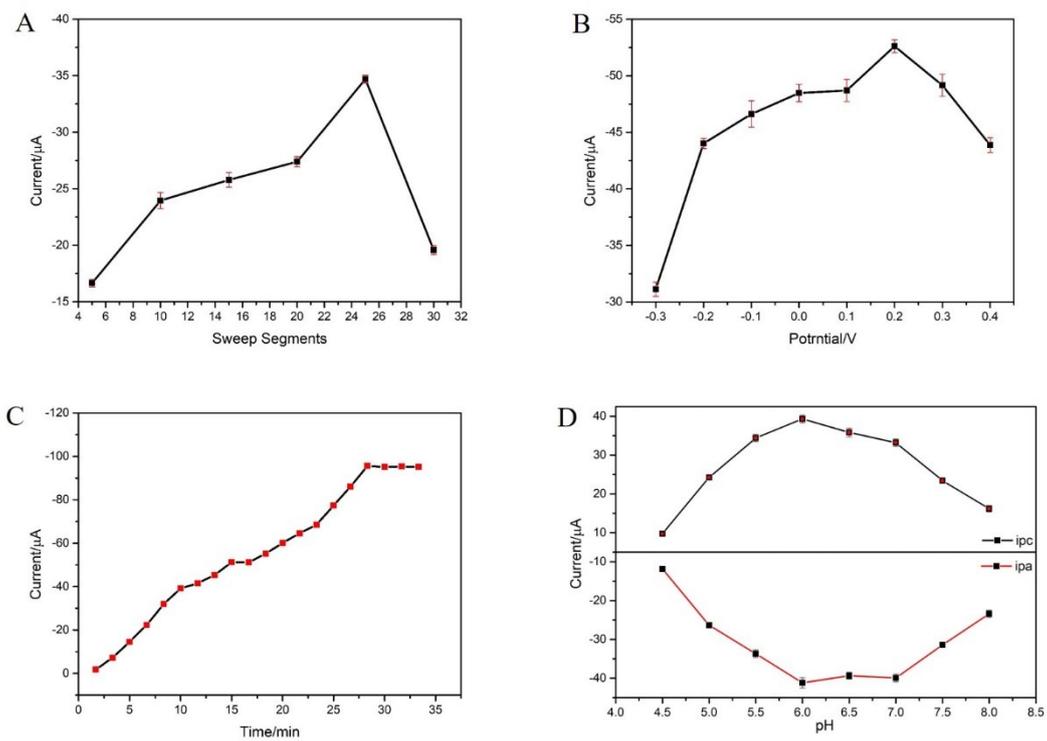


Figure S 5

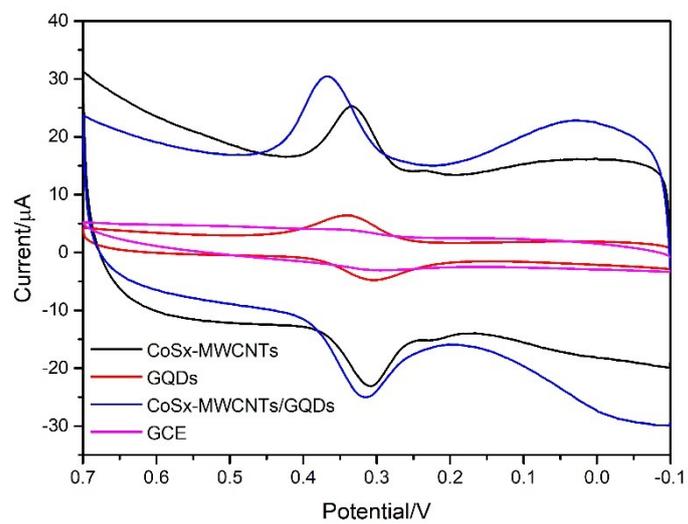


Figure S 6

Table S1

	Added (nM)	Founded (nM)	Recovery (%)	RSD (%)
1	0	55.27	-	-
2	20	75.65	101.9	1.8
3	80	133.26	97.5	0.56
4	100	160.40	105.1	2.1
5	180	239.28	102.2	0.63
6	300	351.27	98.7	0.29