Single-atom cobalt integrated flexible sensor for simultaneous detection of dihydroxybenzene isomers

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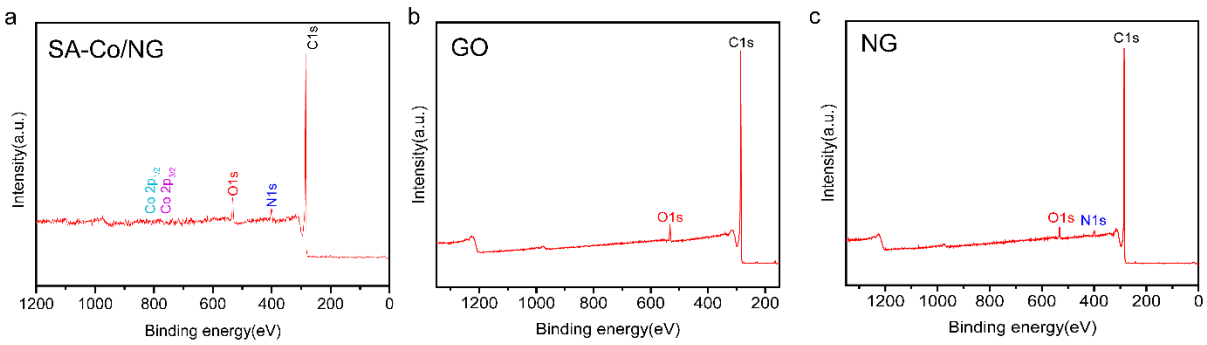

Fig. S1. (a) XPS spectrum of SA-Co/NG. (b) XPS spectrum of GO (c) XPS spectrum of NG

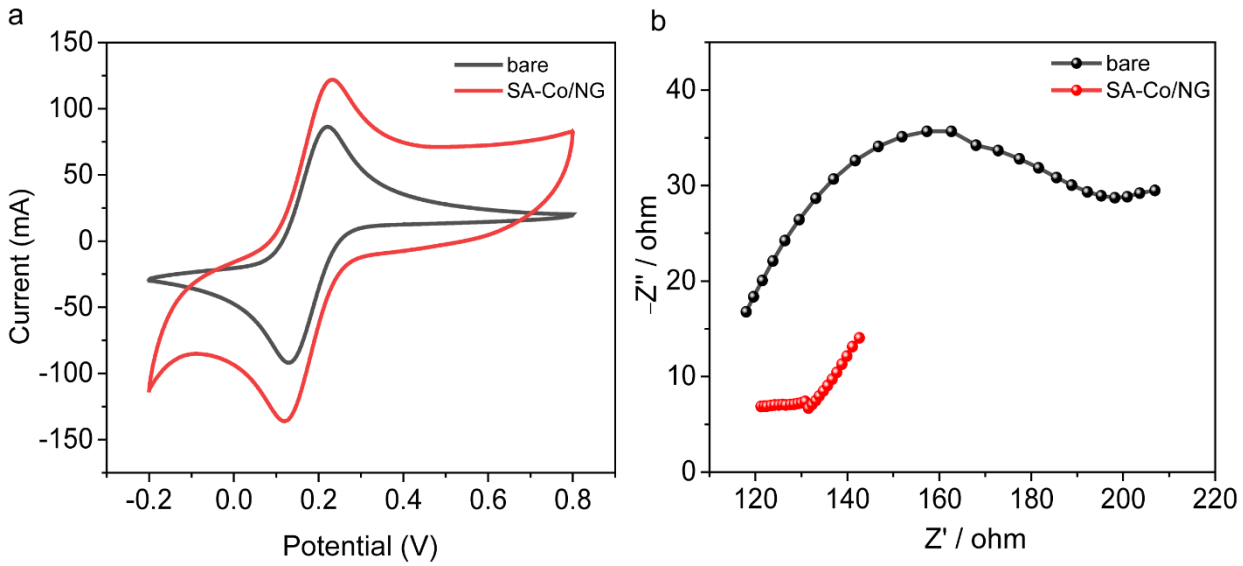

Fig. S2. The characterization of modification process (step by step) of SA-Co/NG/GCE through (a) CV and (b) EIS.

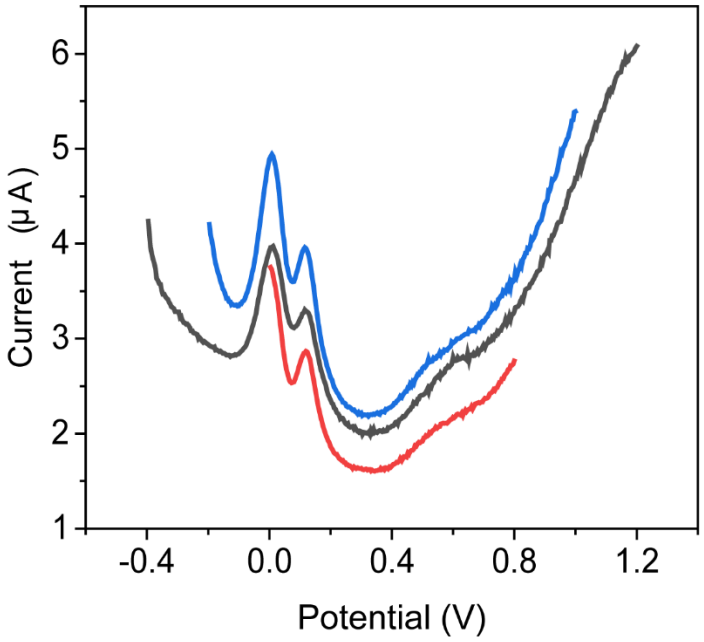

Fig. S3. DPV parameter optimization

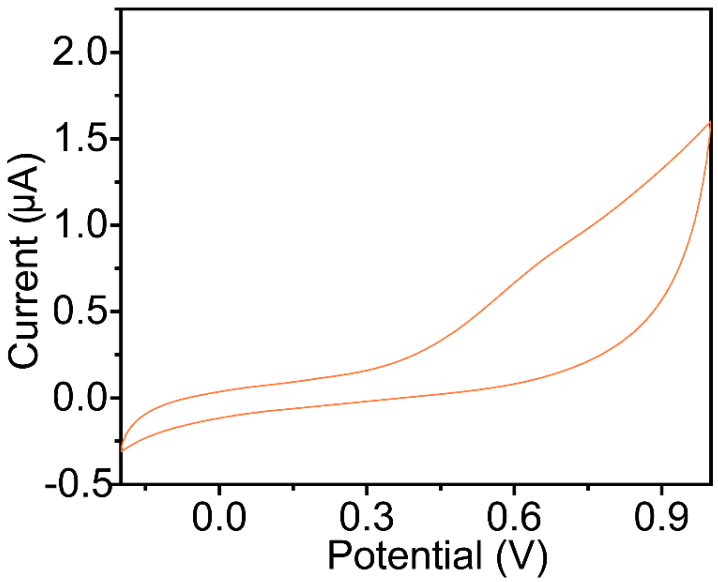

Fig. S4. CV response curves of bare electrode to bare PBS and a mixture of 0.5 mM HQ, CC and RS

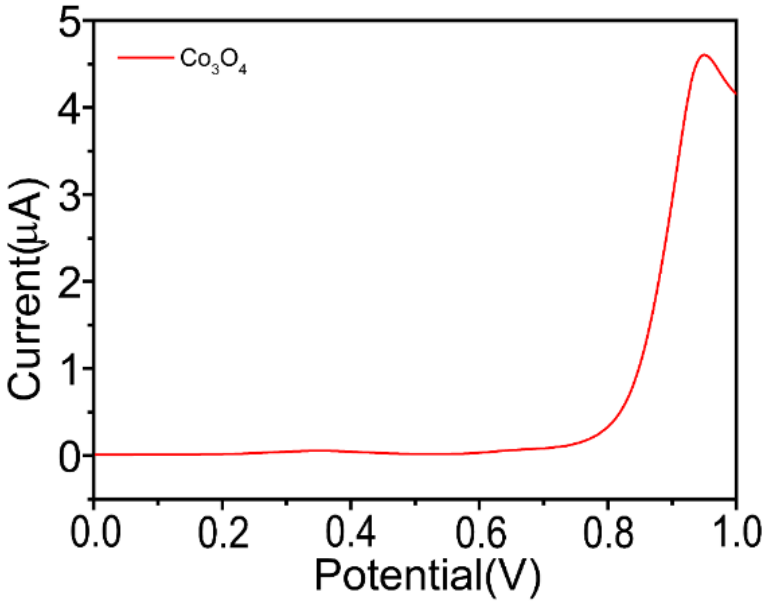

Fig. S5. DPV response curves of Co_3O_4 of 0.5 mM HQ, 0.5 mM CC and 0.5 mM RS in 0.5 M PBS

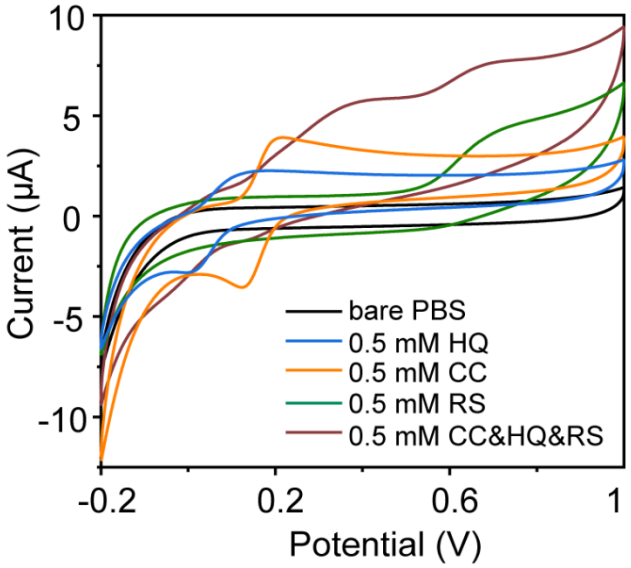

Fig. S6. CV response curves of SA-Co/NG to bare PBS, 0.5 mM HQ, 0.5 mM CC, 0.5 mM RS and a mixture of 0.5 mM HQ, CC and RS

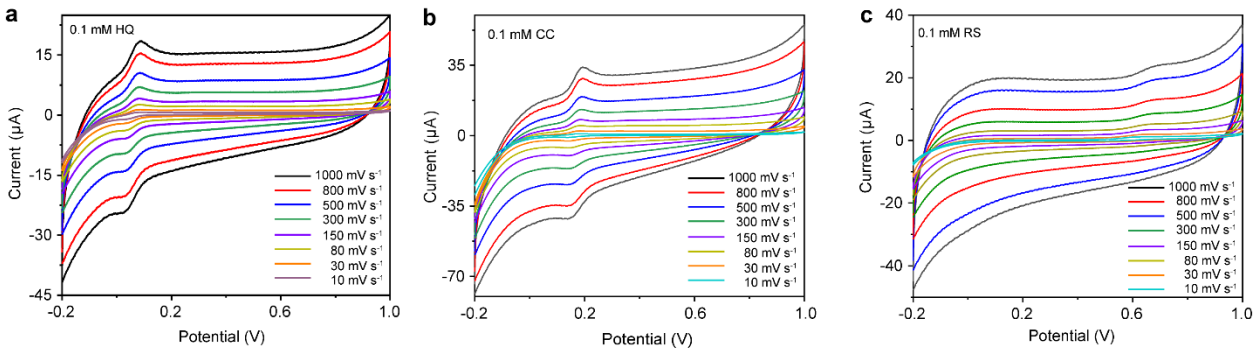

Fig. S7. (a) CV response curves of SA-Co/NG to 0.1 mM HQ, (b) 0.1 mM CC, (c) 0.1 mM RS at different scan rates

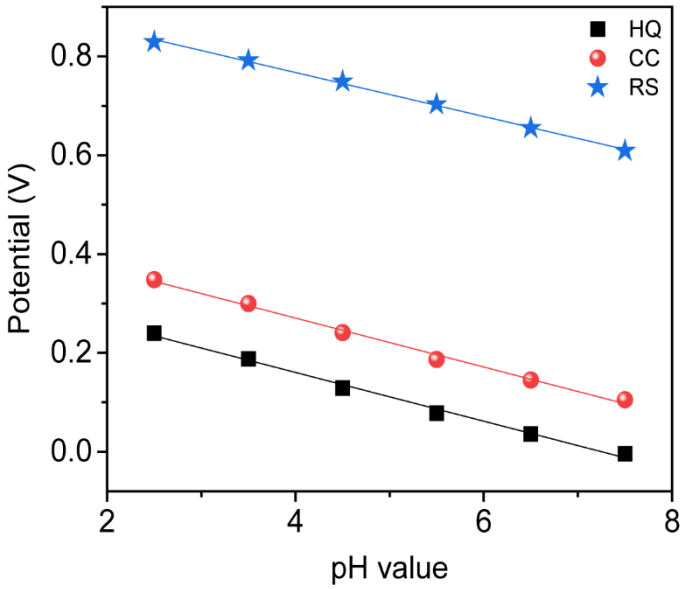

Fig. S8. Curve of peak potential and pH value

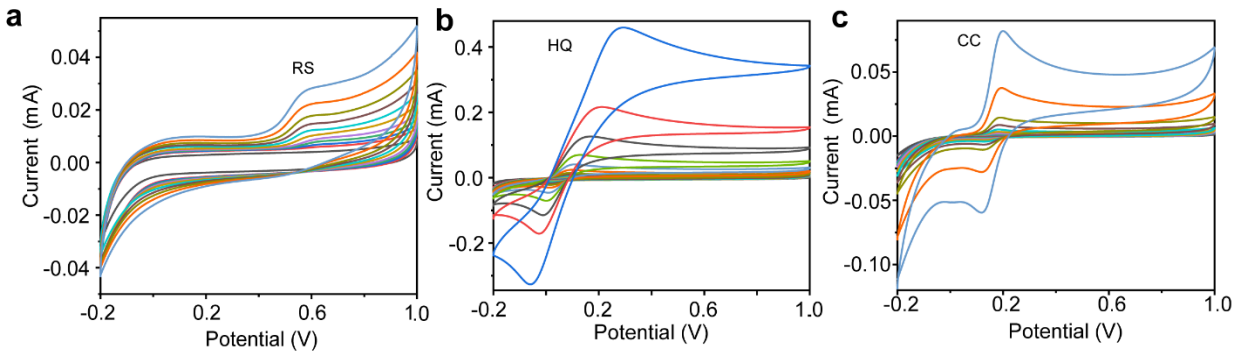

Fig. S9. (a~c) CV response curves of SA-Co/NG to different concentrations of RS, HQ and CC alone

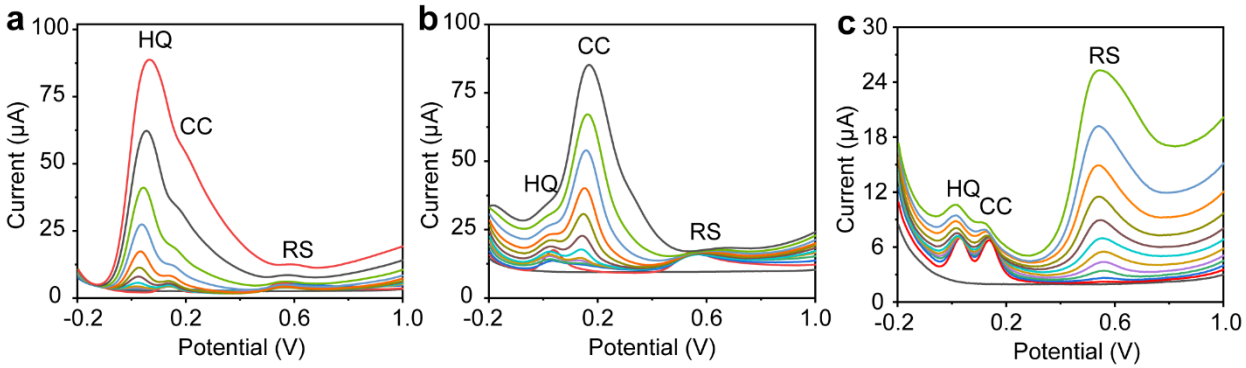

Fig. S10. (a) DPV response curves of SA-Co/NG with different concentrations of HQ under the condition of constant concentrations of CC and RS; (b) DPV of SA-Co/NG with different concentrations of CC under constant concentrations of HQ and RS Response curve; (c) DPV response curve of RS with different concentrations of SA-Co/NG under a certain concentration of HQ and CC

Table S1. Comparison of the electrochemical sensing performance for HQ, CC and RS.

Sensing materials	Linear Range(μM)			LOD (nM)			Ref.
	HQ	CC	RS	HQ	CC	RS	
NG	5−30, 30−200	5−200	—	380	1000	—	[1]
CNT	10−1000	20−1000	50−1000	1200	2710	5640	[2]
NCNF	1–400	1−400	2−500	300	400	800	[3]
NCNTFs	0.8−200	0.8−120	—	170	120	—	[4]
NDSBAC	0.5−300	0.5−300	—	110	90	—	[5]
BG	5−100	1−75	—	300	200	—	[6]
N-P-C	5−400	5−400	—	980	610	—	[7]
N, S-AGR	0.1−10，10−70	1−10，10−70	—	30	150	—	[8]
N, S-MPC	1−110	1−110	—	56	209	—	[9]
SA-Co/NG@C/PET	0.50−4950, 4950−31745	0.50−1567, 1567−5909	0.5−153.5	167	167	167	This work

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