Electronic Supplementary Material (ESI) for New Journal of Chemistry.

MOFs/PAN nanofibers-derived N-doped porous carbon materials with excellent electrochemical activity for simultaneous determination of catechol and hydroquinone

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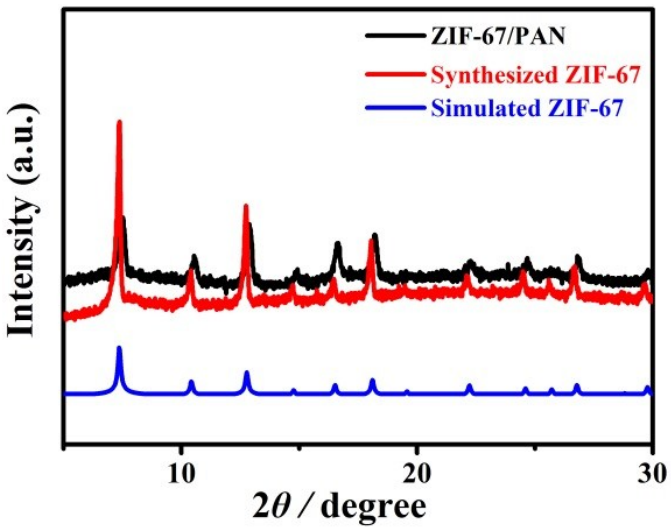

Figure S1 XRD patterns of ZIF-67and ZIF-67/PAN

Table S1 Elemental analysis results of different materials

Materials	C(%)	N(%)	O(%)	Co(%)
C-ZIF-67-800	86.75	4.96	8.07	0.22
C-ZIF-67/PAN-700	85.28	7.91	6.62	0.19
C-ZIF-67/PAN-800	87.09	6.33	6.37	0.21
C-ZIF-67/PAN-900	88.37	5.86	5.56	0.21

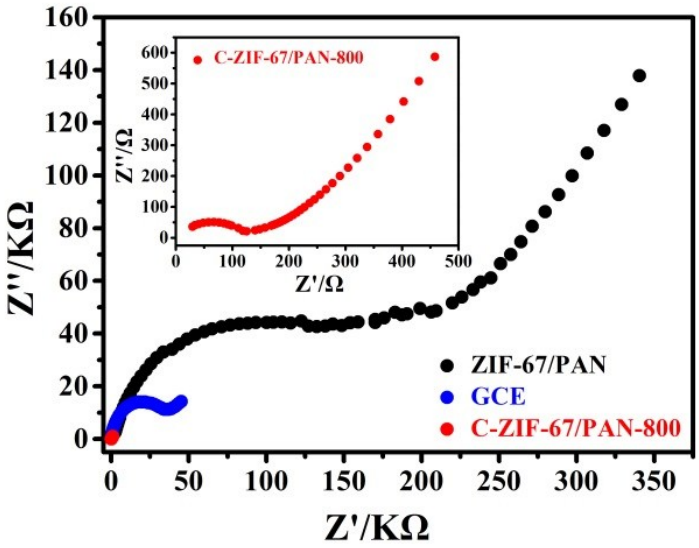

Figure S2 The EIS spectras of bare GCE, ZIF-67/PAN /GCE and C-ZIF-67/PAN-800/GCE

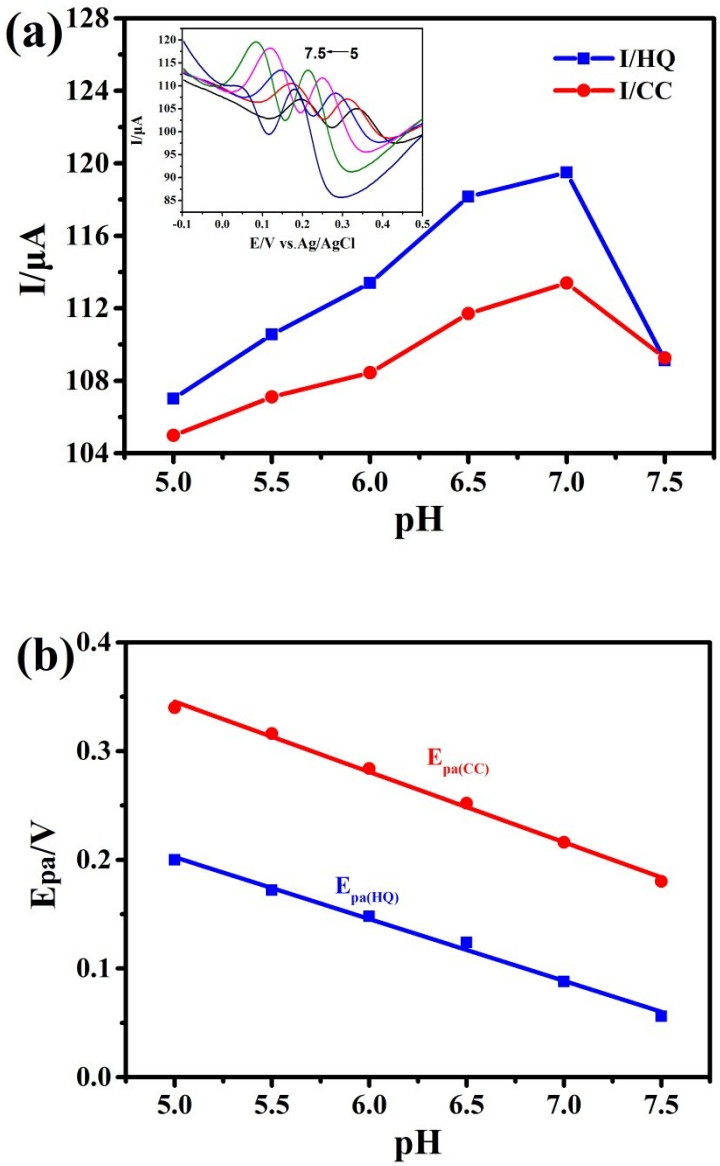

Figure S3 The effect of pH on the oxidation peak current (a) (Insert is the DPV curve)and oxidation peak potential (b) of HQ and CC in 0.1 mol/L PBS (pH 7.0)

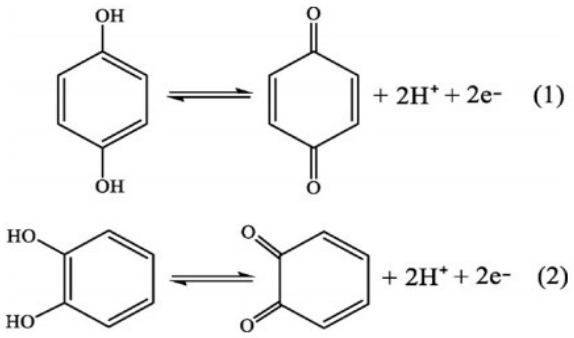

Figure S4 The redox mechanism of HQ and CC with equivalent protons and equivalent electrons.

Table S2 Comparison for the simultaneous determination of HQ and CC at different modified electrodes

Modified materials	Linear range (μmol L^{-1})		Detection limit (μmol L^{-1})		Reference
	HQ	CT	HQ	CT	
TiO_2/C_{900}	5-300	5-300	1.24	2.05	[1]
3DIPC	0.06-30	0.1-40	0.021	0.037	[2]
N,S-AGR	0.1-10	1-10	0.03	0.15	[3]
PE-CNT	5-300	5-300	1.5	0.7	[4]
CS/MWCNTs/PDA/AuNPs	0.1–10	0.1–10	0.035	0.047	[5]
PEDOT/NGE	1-10	1-10	0.18	0.26	[6]
PB-SPCE	4–90	4–90	0.117	0.428	[7]
CMWNTs–	10-120	5-80	2.3	1.0	[8]
MOF-derived carbon	1-200	1-300	0.215	0.278	[9]
Nano-Beta/CPE	0.15-400	0.15-400	0.1	0.13	[10]
$ZnO-Al_2O_3$/ AuNPs	0.13-1/1.5-56.6	0.5-40	0.19/15.0	3.1	[11]
C-ZIF-67/PAN-800/GCE	1- 120	1-200	1	1	This work

Table S3 Determination of CC and HQ in water samples（mean±SD，n=3）

Added(μM/L)	Found(μM/L)		RSD(%)		Recovery	
	HQ	CC	HQ	CC	HQ	CC
0	ND	ND	—	—	—	—
10	9.79±0.34	9.96±0.35	3.47	3.51	97.9	99.6
20	19.88±0.63	19.95±0.67	3.16	3.36	99.4	99.78
50	50.13±1.6	50.06±1.72	3.22	3.43	100.26	100.12

SD：standard deviation；ND：not detected；RSD：relative standard deviation；

References

1 Z. Y. Wang, M. S. Li, Y. X. Ye, Y. S. Yang, Y. Q. Lu, X. L. Ma, Z. J. Zhang, S. C. Xiang, *J Solid State Electrochem*., 2019, **23**, 81–89.

2 Y. H. Xiang, L. Li, H. Liu, Z. Shi, Y. B. Tan, C. Y. Wu, Y. X. Liu, J. S. Wang and S. H. Zhang, *Sensor Actuat B-Chem*., 2018, **267**, 302-311.

3 L. L. Xiao, J. Yin, Y. C. Li, Q. H. Yuan, H. J. Shen, G. Z. Hu and W. Gan, Analyst., 2016, **141**,5555-5562.

4 A. J. S. Ahammad, T. Akter, A. A. Mamun, T. Islam, M. M. Hasan, M. A. Mamun, S. Faraezi, F. Z. Monira and J. K. Saha, *J Electrochem Soc*., 2018,**165**, B390-B397.

5 Y. Wang, Y. Y. Xiong, J. Y. Qu, J. H. Qu and S. F. Li, *Sensor Actuat B-Chem*., 2016,**223**, 501-508.

6 W. M. Si, W. Lei, Z. Han, Q. L. Hao, Y. H. Zhang and M. Z. Xia, *Sensors and Actuators B: Chemical.*, 2014, **199**,154-160.

7 M. Buleandra, A. A. Rabinca, C. Mihailciuc, A. Balan, C. Nichita, I. Stamatin and A. A. Ciucu, *Sensor Actuat B-Chem.*, 2014, **203**, 817-824.

8 S. Q. Feng, Y. Y. Zhang, Y. M. Zhong, Y. C. Li and S. X. Li, *J Electroanal Chem*., 2014, **733**,1-5.

9 J. Y. Xu, J. F. Xia, F. F. Zhang and Z. H. Wang, *Electrochim Acta*., 2017, **251**, 71-80.

10 B. Kaur and R. Srivastava, *Electroanal*., 2014, **26**, 1739-1750.

11 M. Nazari, S. Kashanian, P. Moradipour and N. Maleki, *J Electroanal Chem*., 2018, **812**, 122-131.