

## Electronic Supplementary Information

### Facile one-pot synthesis and application of nitrogen, sulfur-doped activated graphene in simultaneous electrochemical determination of hydroquinone and catechol

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## 1. The optimal conditions

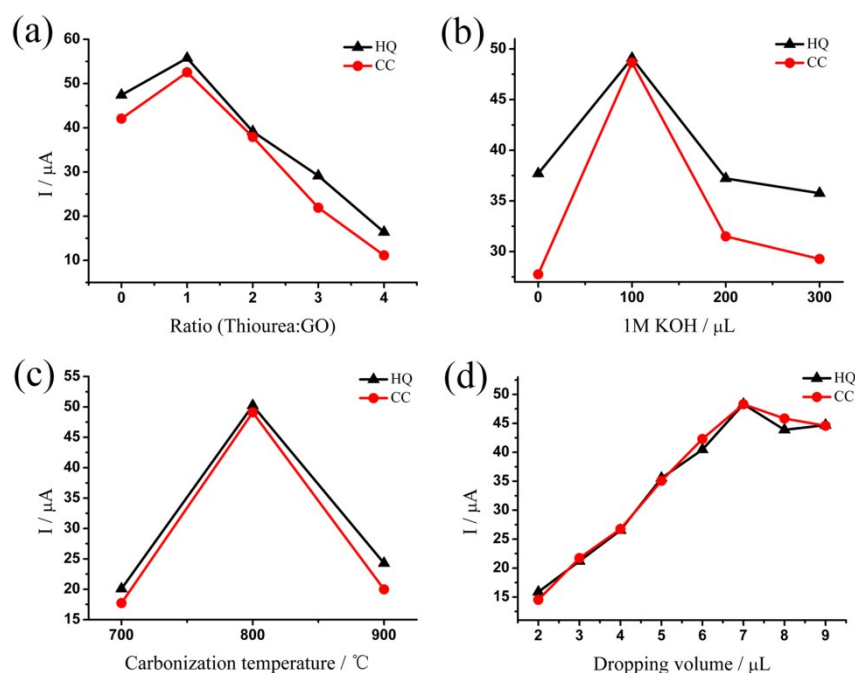


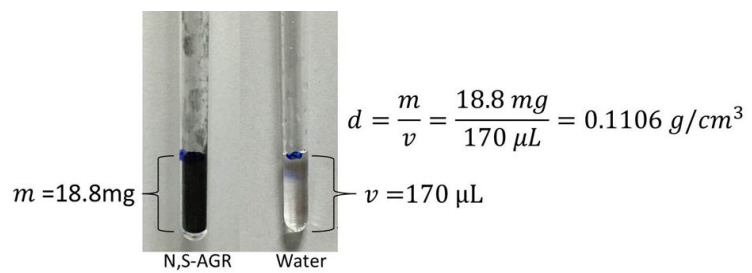
Fig. S1 Influence of (a) ratio of thiourea and GO, (b) amount of KOH, (c) carbonization temperature and (d) volume of N,S-AGR-DMF suspension on the peak currents of 50  $\mu\text{M}$  HQ and CC in 0.1 M HAC-NaAc (pH=5.0) at N,S-AGR/GCE.

## 2. Evaluation on the thickness of the modified electrode

Here we evaluated the thickness of N,S-AGR modified on GCE according to an

equation of 
$$l = \frac{m}{\pi R^2 d}$$
 reported by Kefala et al.,<sup>1</sup> assuming a uniform distribution of the N,S-AGR modifying film on the electrode surface. In the equation,  $l$  is the thickness of N,S-AGR modifier,  $m$  is the mass of the N,S-AGR modifier coated on the electrode surface (7  $\mu\text{g}$  in this work),  $R$  is the radius of glassy carbon electrode (1.5 mm in this work),  $d$  is the density of the N,S-AGR. In our work  $d$  was measured to be 0.1106  $\text{g cm}^{-3}$ , as indicated in the follow Scheme S1.

Based on the above equation, the thickness of the present N,S-AGR/GCE is about 9.0  $\mu\text{m}$ .



Scheme S1. The setup used to get the density of the N,S-AGR.

### Reference

1. G. Kefala, A. Economou and A. Voulgaropoulos, *Analyst*, 2004, **129**, 1082-1090.