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 μM 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.,\(^1\) 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 μg 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 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 μm.
Scheme S1. The setup used to get the density of the N,S-AGR.

Reference