

Support material:

Synthesis of nitrogen-doped activated graphene aerogel/gold nanoparticles and its application for electrochemical detection of hydroquinone and o-dihydroxybenzene

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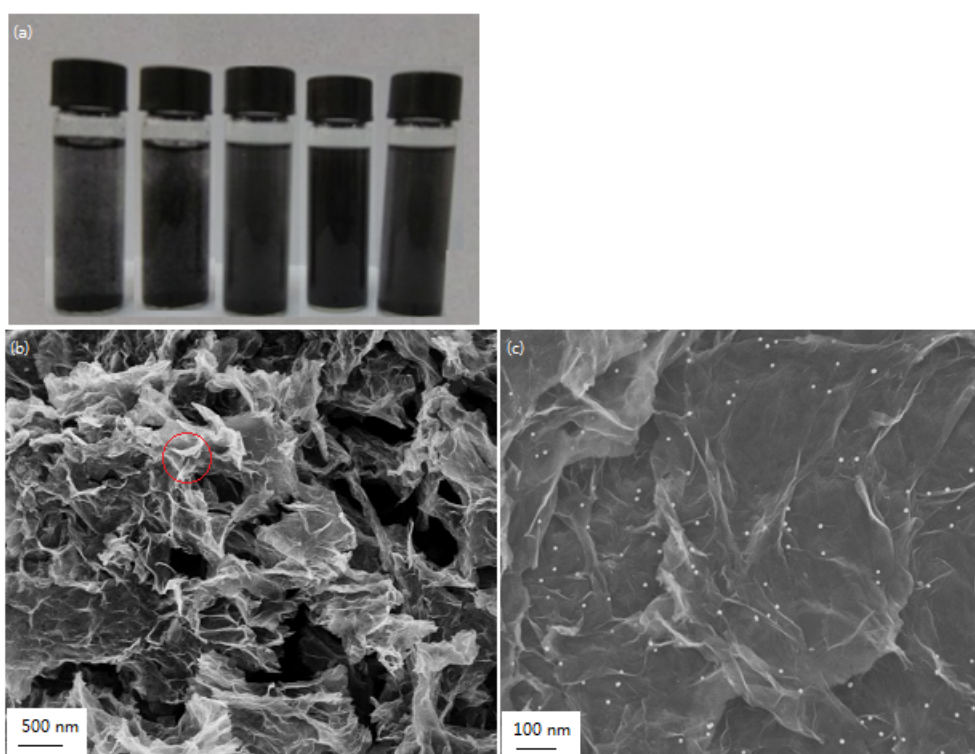


Fig.S1 Optical photographs (a) of N-doped AGA/GNs dispersed in water, methanol, ethanol ethyl acetate and acetone (from left to right), SEM (b) and enlarged SEM images (c) of N-doped AGA/GNs after dispersion was dried.

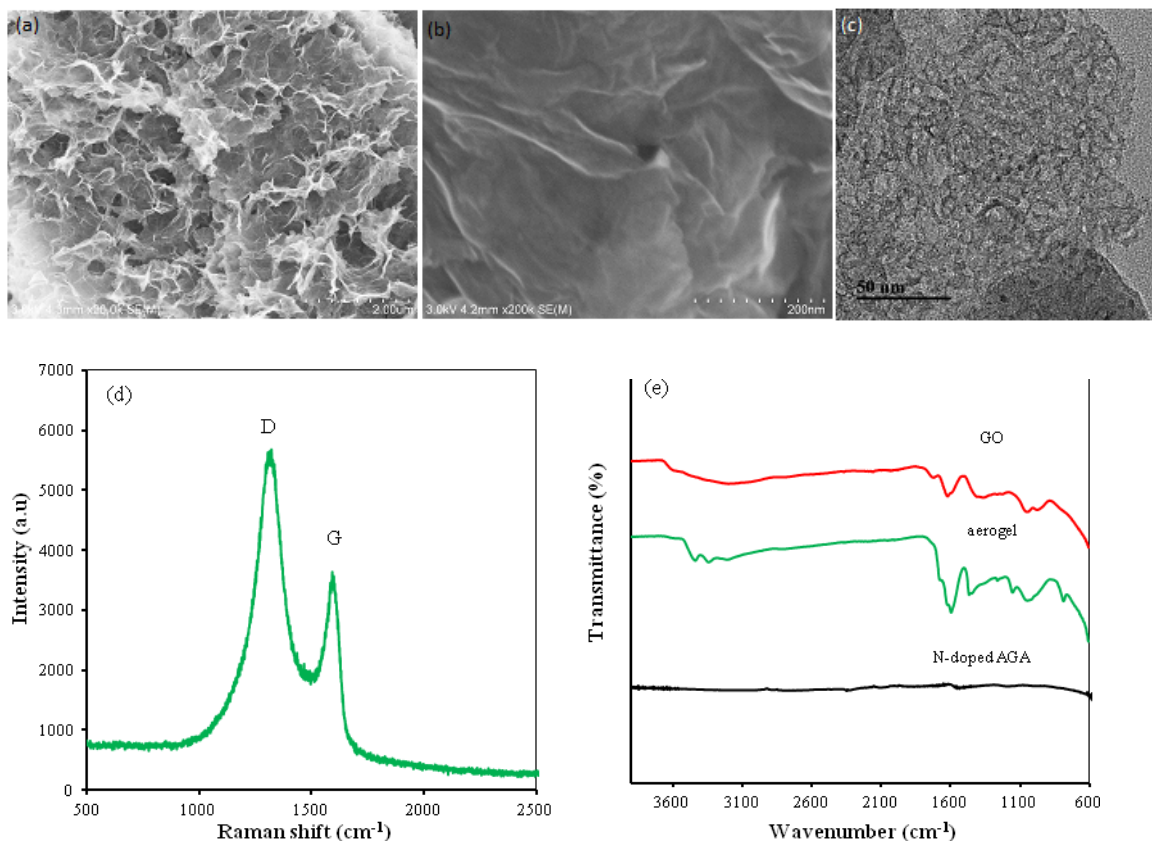


Fig.s2 The SEM (a), enlarged SEM (b) and TEM images (c), Raman spectrum (d) and IR spectrum (e) of the N-doped AGA

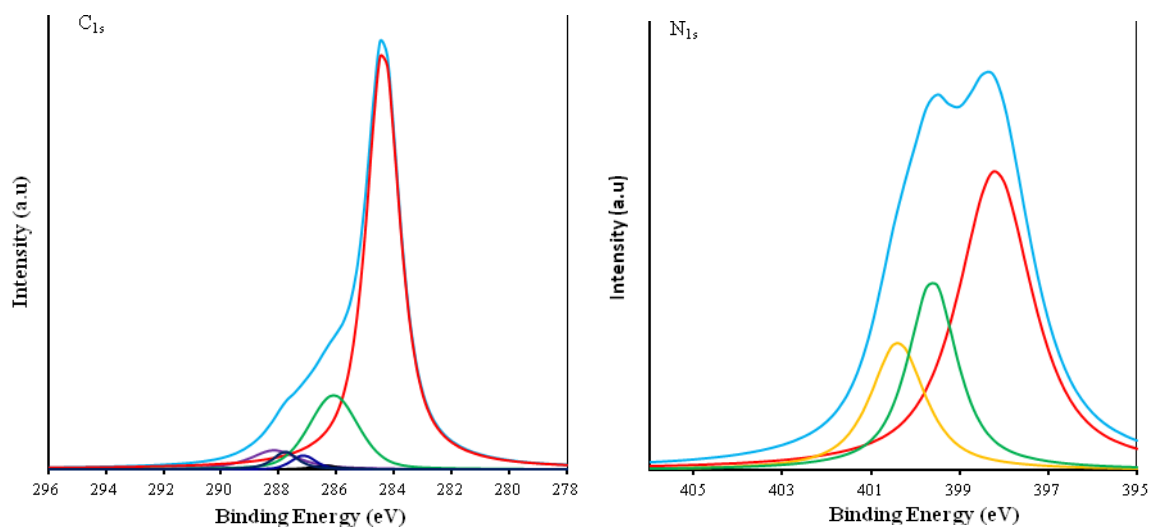


Fig.s3 Typical C_{1s} and N_{1s} XPS spectra of the N-doped AGA

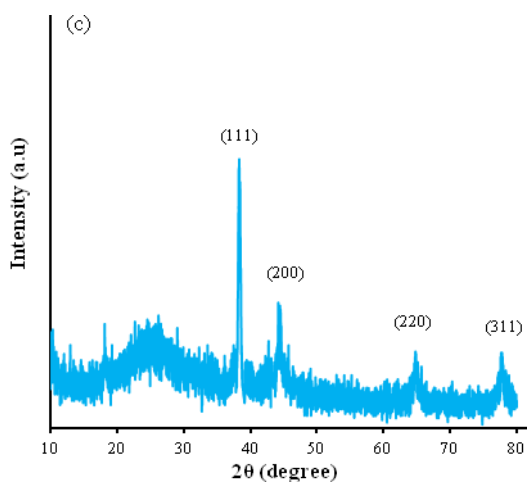
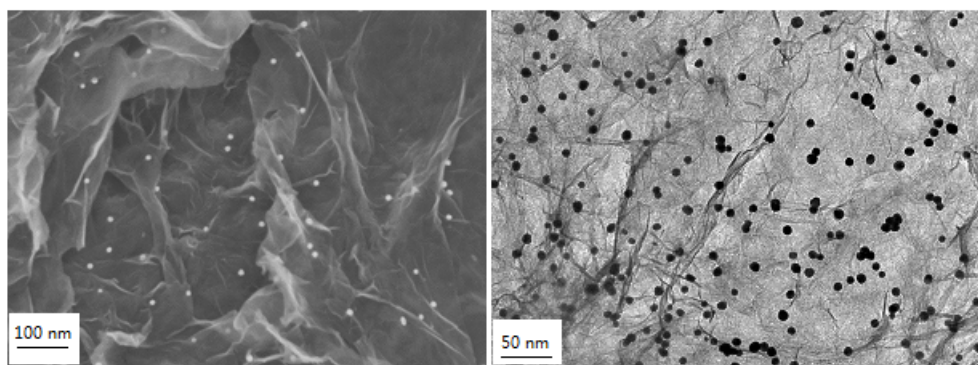


Fig.s4 Typical SEM (a), TEM (b) and XRD patterns (c) of N-doped AGA/GNs

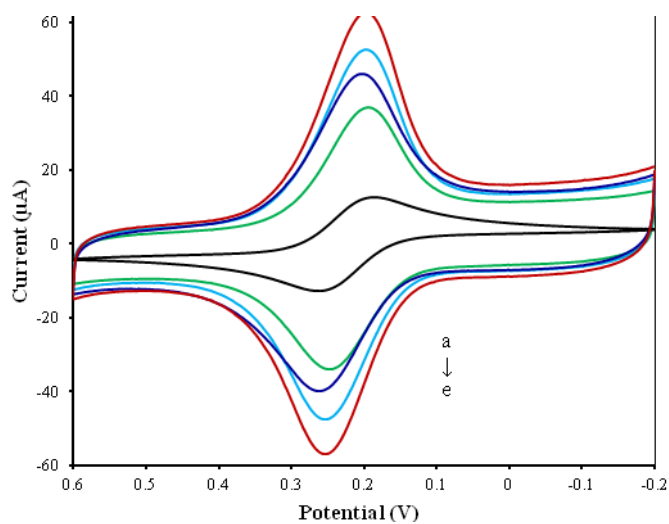


Fig.s5 The cyclic voltammetric curve of the bare GCE (a), the modified GCEs with common graphene (b), activated graphene aerogel (c), nitrogen-doped activated graphene aerogel (d) and nitrogen-doped activated graphene aerogel/gold nanoparticles composite (e) in pH 7.0 PBS containing 1.0 mM $[\text{Fe}(\text{CN})_6]^{3-/4-}$ with the scan rate of 100 mV s^{-1}

Table s1 The elemental composition and high resolution N1s spectra of graphen-based materials

Samples	Elemental composition (at%)				Nitrogen functional groups (BE, eV)		
	C	O	N	Au	Pyridinic N (398.4)	Amine or pyrrolic N (399.8)	Graphitic N (401)
G/GNs	93.22	5.81	-	0.99	-	-	-
AG/GNs	93.24	5.74	-	1.03	-	-	-
AGA/GNs	93.19	5.85	-	1.00	-	-	-
N-doped AGA/GNs	87.72	5.34	5.99	0.95	49.65	28.19	22.13
N-doped AGA	87.68	5.39	6.04	-	49.45	28.30	22.22

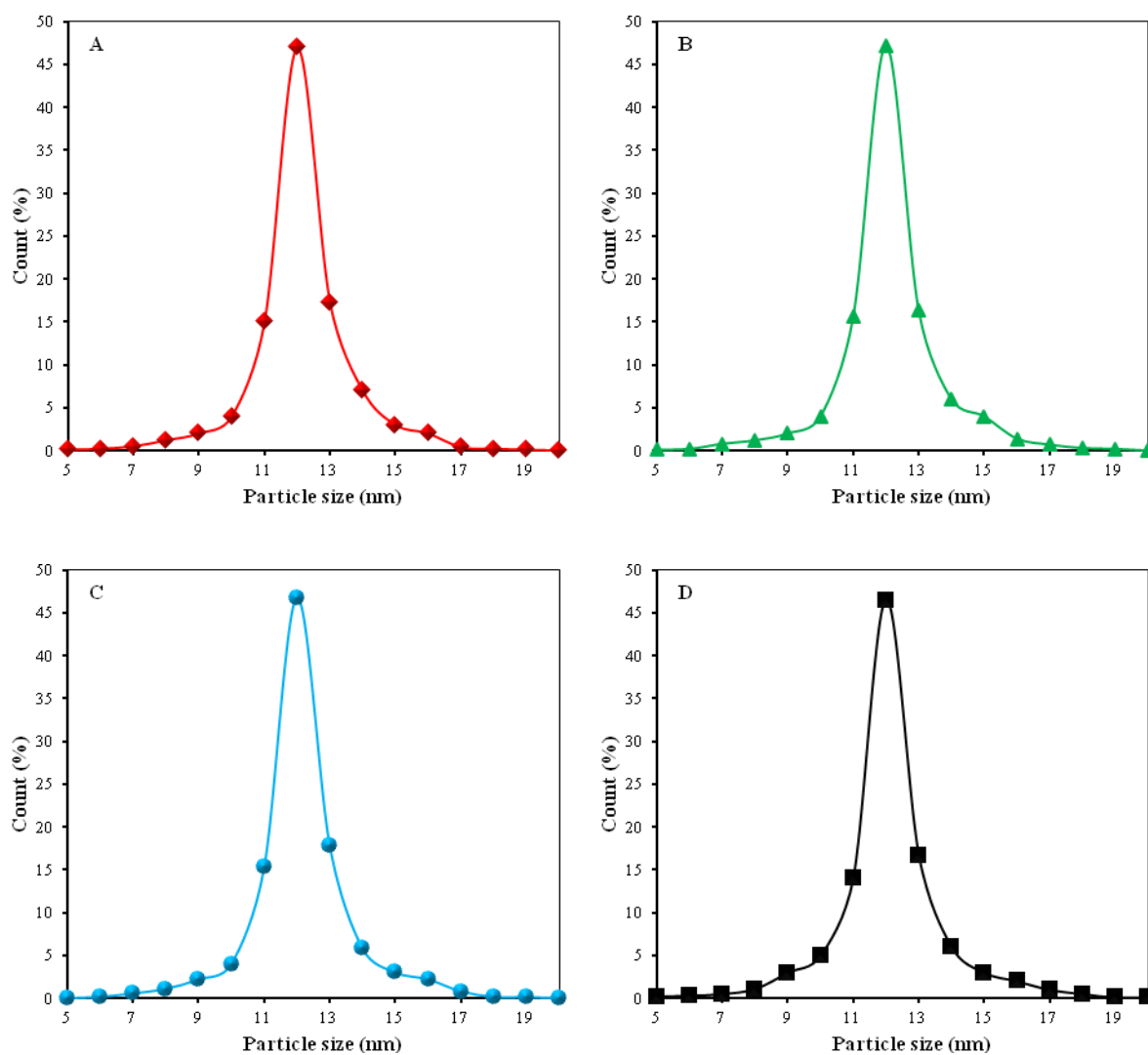


Fig.s6 The statistical results of particle size distribution of gold nanoparticles in G/GNs (A), AG/GNs (B), AGA/GNs (C) and N-doped AGA/GNs (D)