

Electronic Supplementary Information

Preparation of Ag Nanoparticle-Decorated Poly(m-phenylenediamine) Microparticles and Their Application for Hydrogen Peroxide Detection

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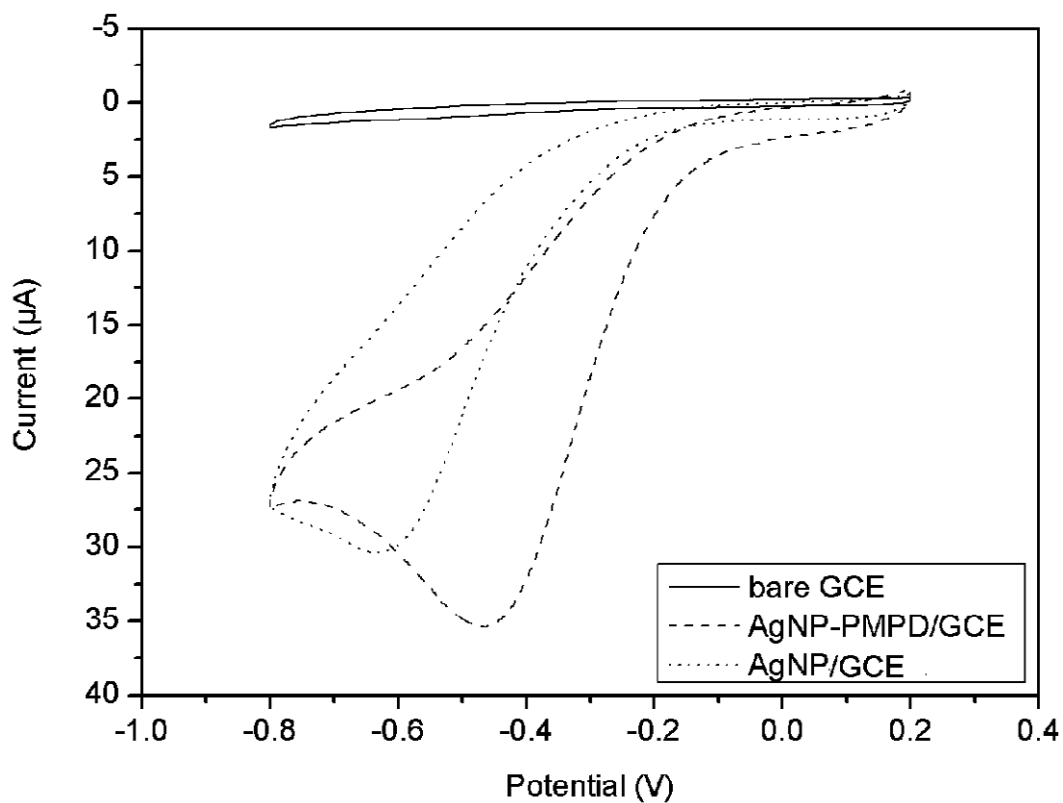


Figure S1 Cyclic voltammeters (CV)s of bare GCE, AgNPs decorated PMPD microparticles modified GCE (AgNP-PMPD/GCE), and citrate-protected AgNP-modified GCE (AgNP/GCE) in 0.2 M PBS at pH 6.5 in the presence of 1.0 mM H₂O₂ (scan rate: 0.02 V/s).

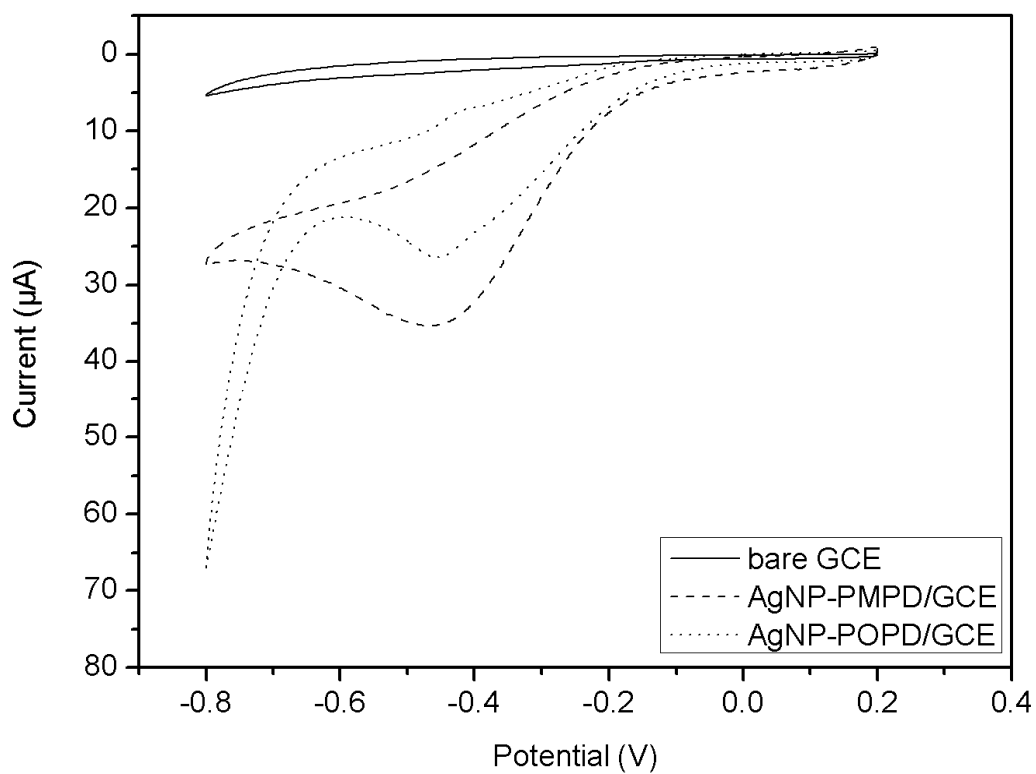


Figure S2 CV results of a bare GCE, a AgNP-PMPD modified GCE(AgNP-PMPD/GCE) and a AgNP-POPd modified GCE(AgNP-POPd/GCE) in N_2 saturated 0.2 M PBS at pH 6.5 in the presence of 1.0 mM H_2O_2 (scan rate: 0.02 V/s).

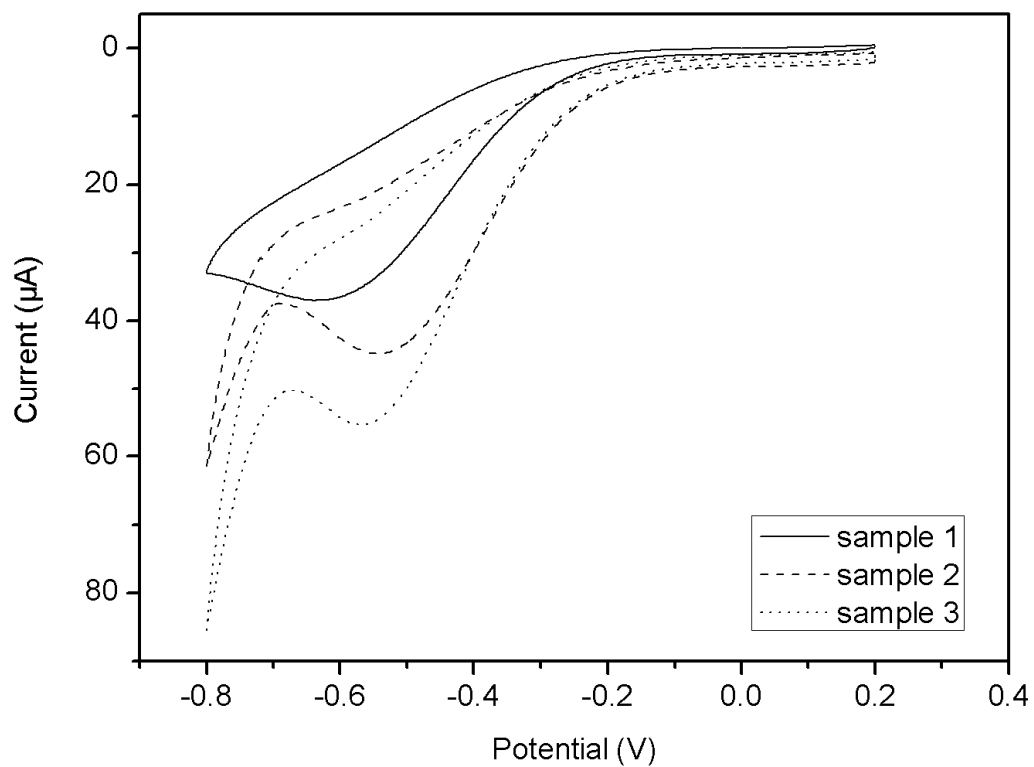


Figure S3 CVs of the products modified GCE when the amount of Ag^+ was up to 2-fold (sample 1), 4-fold (sample 2) and 8-fold (sample 3), respectively, in N_2 saturated 0.2 M PBS at pH 6.5 in the presence of 1.0 mM H_2O_2 (scan rate: 0.02 V/s)

Table S1 A comparison of this work with literature work regarding the performance of the H₂O₂ assay using Ag modified electrode.

Type of electrode	Performance		Ref.
	LOD (μ M)	Linear range (mM)	
PEDOT/AgNPs/GCE	7	-	1
AgNPS/PVA/Pt	1.0	0.04-6	2
Ag microspheres/GCE	1.2	0.25-2	3
AgNPs/collagen/GCE	0.7	0.005-40.6	4
AgNPs/DNA/GCE	1.7	0.004-16	5
AgNPs/GCE	2	-	6
AgNPs/SBA-1S/GCE	12	0.049-970	7
Roughed Ag electrode	6	0.01-22.5	8
AgNP-PMPD/GCE	4.7	0.1-30	This work

- 1 Balamurugan, A.; Chen, S. *Electroanalysis* **2009**, *21*, 1419.
- 2 Guascito, M. R.; Filippo, E.; Malitesta, C.; Manno, D.; Serra, A.; Turco, A. *Biosens. Bioelectron.* **2008**, *24*, 1057.
- 3 Zhao, B.; Liu, Z.; Liu, Z.; Liu, G.; Li, Z.; Wang, J.; Dong, X. *Electrochem. Commun.* **2009**, *11*, 1707.
- 4 Song, Y.; Cui, K.; Wang, L.; Chen, S. *Nanotechnology* **2009**, *20*, 105501.
- 5 Cui, K.; Song, Y.; Yao, Y.; Huang, Z.; Wang, L. *Electrochem. Commun.* **2008**, *10*, 663.
- 6 Welch, C. M.; Banks, C. E.; Simm, A. O.; Compton, R. G. *Anal. Bioanal. Chem.* **2005**, *382*, 12.
- 7 Lin, D.; Jiang, Y.; Wang, Y.; Sun, S. *J. Nanomater.* **2008**, *1*, 473791.
- 8 Lian, W.; Wang, L.; Song, Y.; Yuan, H.; Zhao, S.; Li, P.; Chen, L. *Electrochim. Acta* **2009**, *54*, 4334.