Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A

Electronic Supplementary Information

A promising electrochemical sensing platform based on a silver nanoparticles decorated copolymer for sensitive nitrite determination

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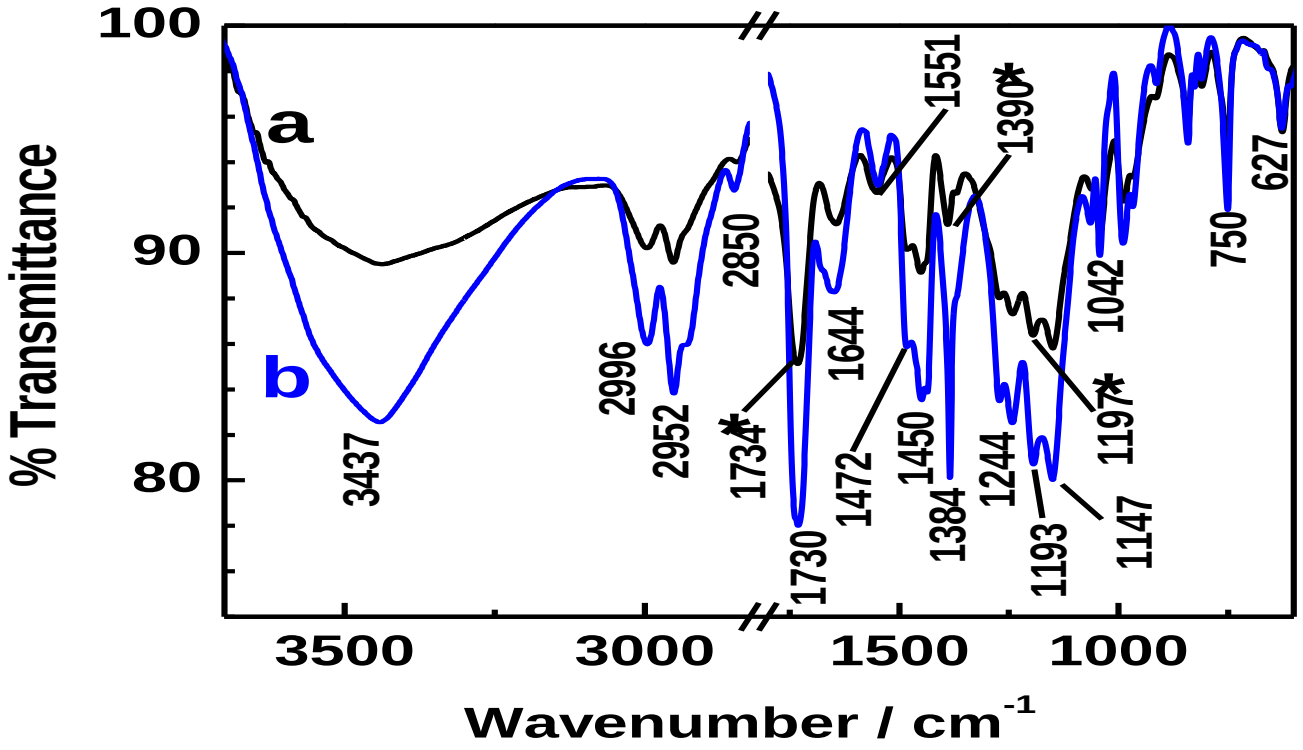

Fig. S1 FTIR spectra of (a) P(MMA-*co*-AMPS) and (b) Ag/P(MMA-*co*-AMPS).

* Represents changes in the peak positions

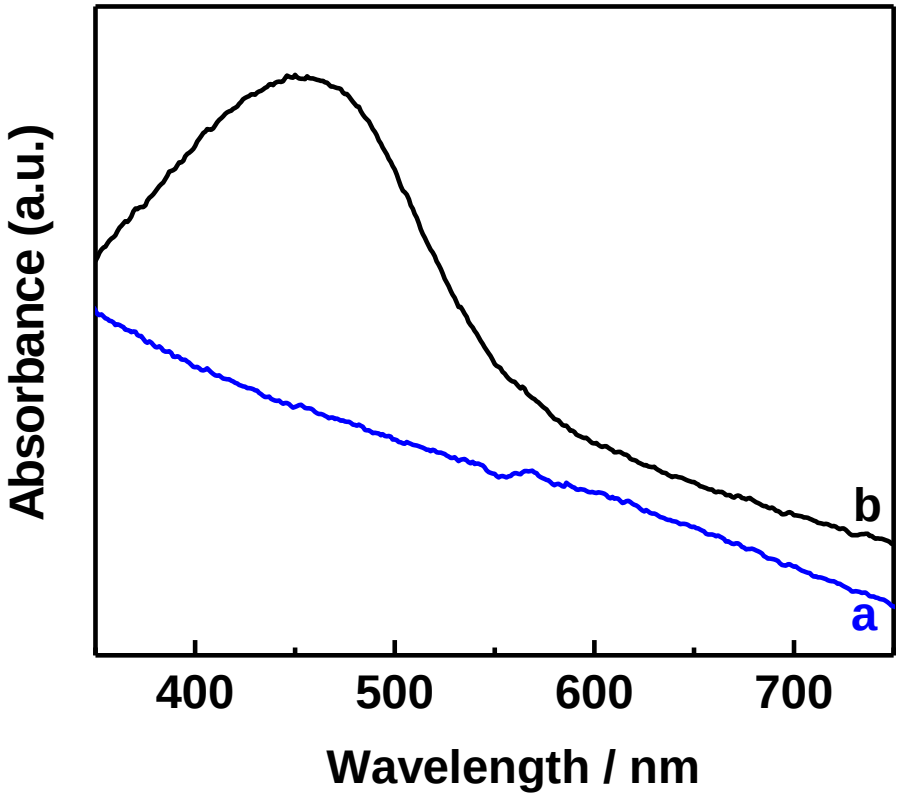

Fig. S2 UV-visible spectra for (a) P(MMA-*co*-AMPS) and (b) Ag-P(MMA-*co*-AMPS) coated on glass plate.

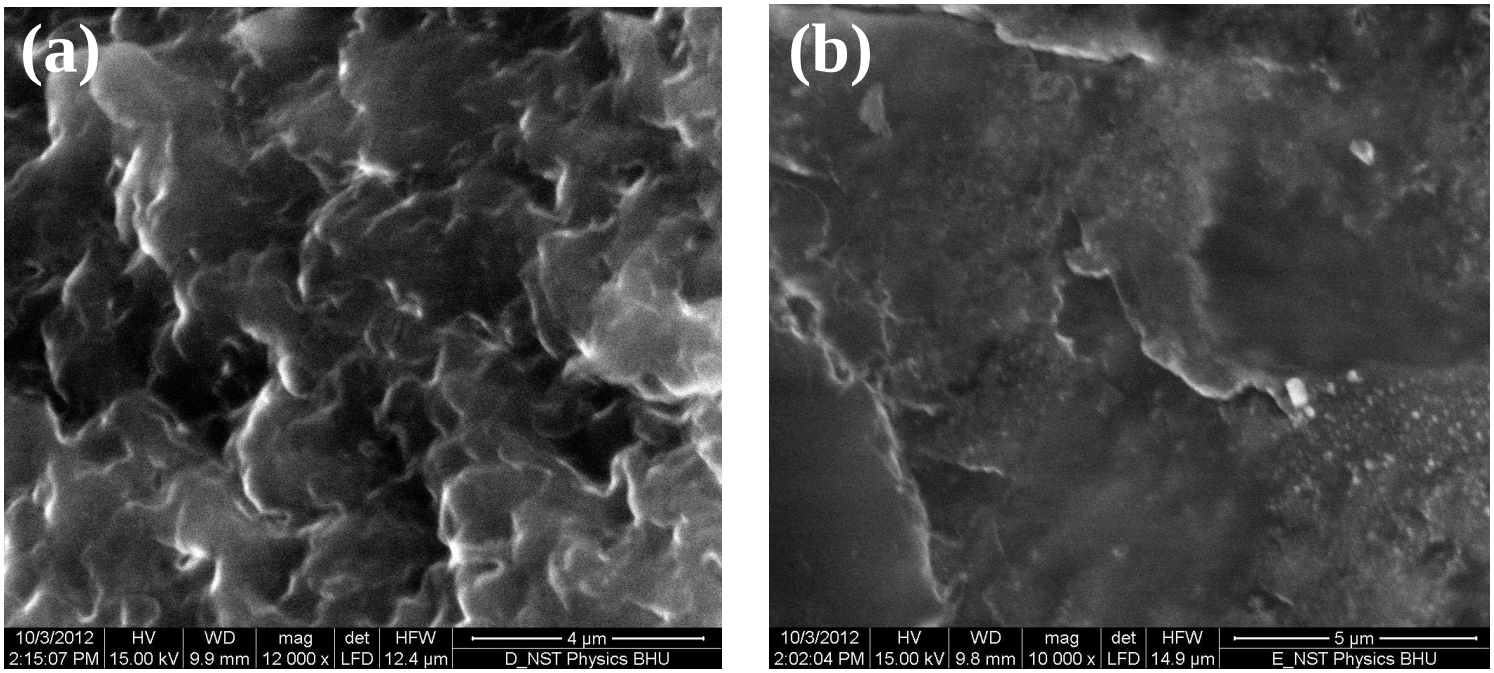

Fig. S3 SEM images of powder (a) P(MMA-*co*-AMPS) and (b) Ag-P(MMA-*co*-AMPS) materials.

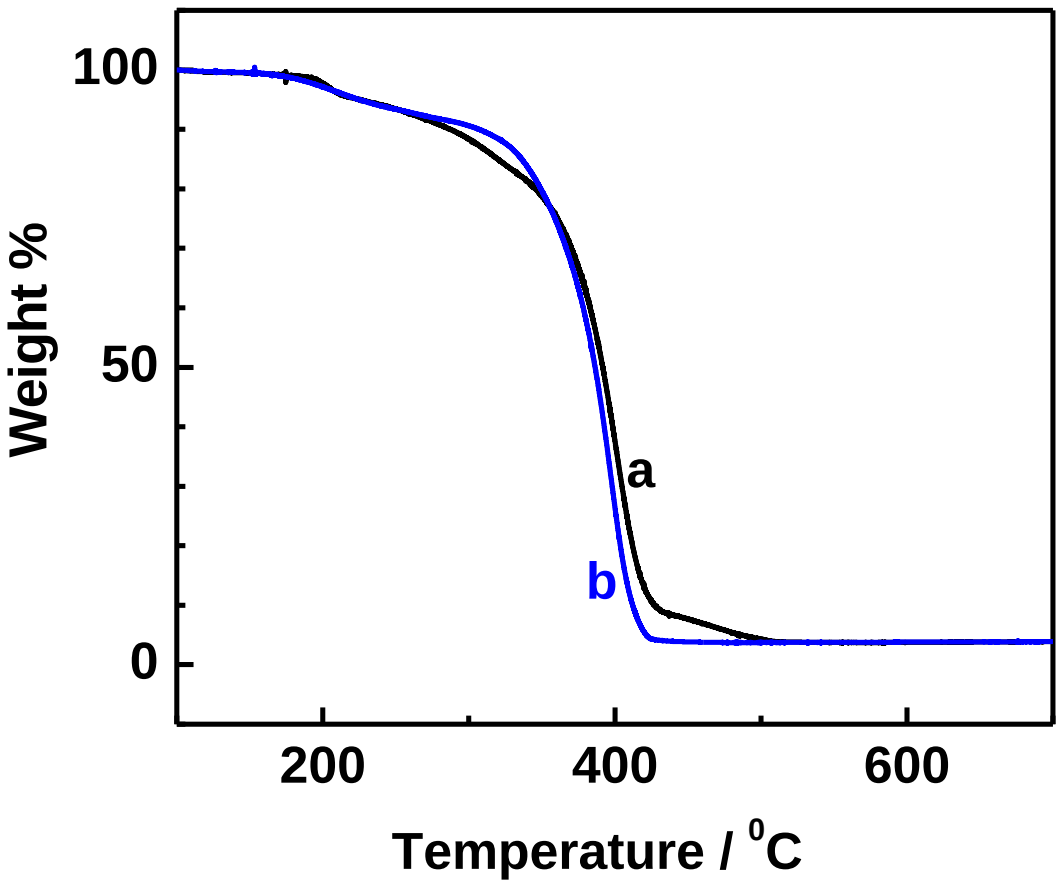

Fig. S4 TGA curves of (a) P(MMA-*co*-AMPS) and (b) Ag-P(MMA-*co*-AMPS) materials.

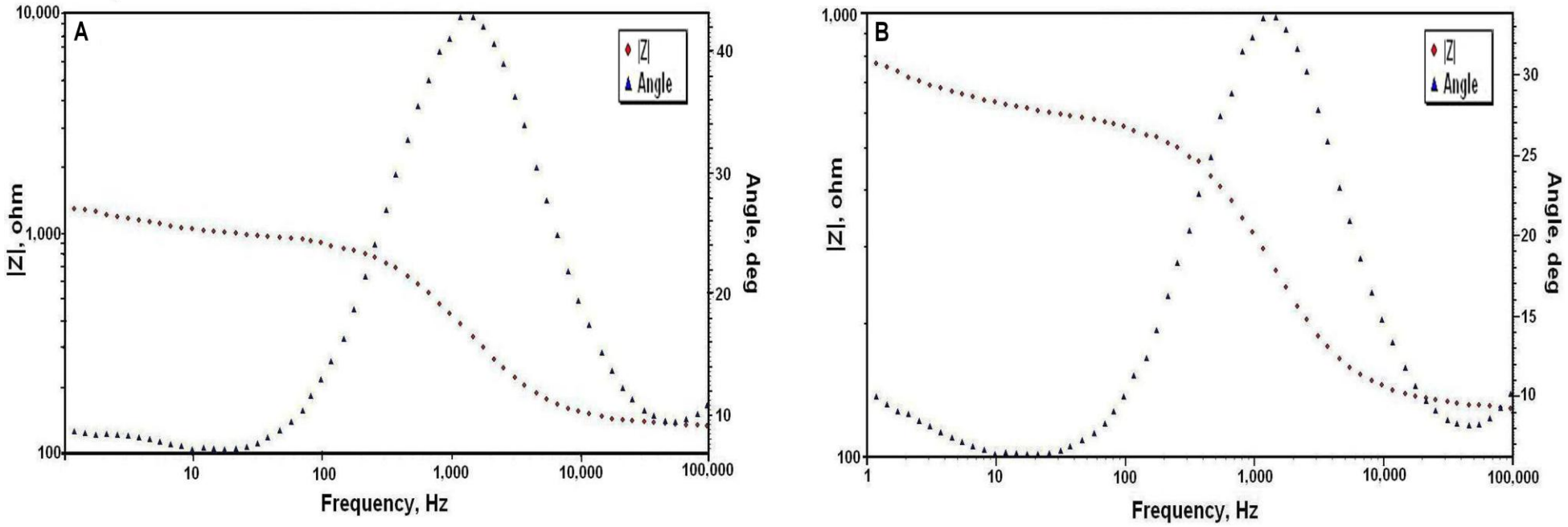

Fig. S5 Bode-phase angle and Bode amplitude plots for (A) GC/P(MMA-*co*-AMPS) and (B) GC/Ag-P(MMA-*co*-AMPS) electrodes in 10.0 mM $Fe(CN)_6^{3-}/Fe(CN)_6^{4-}$ (1:1 molar ratio) containing 0.1 M KCl solution.

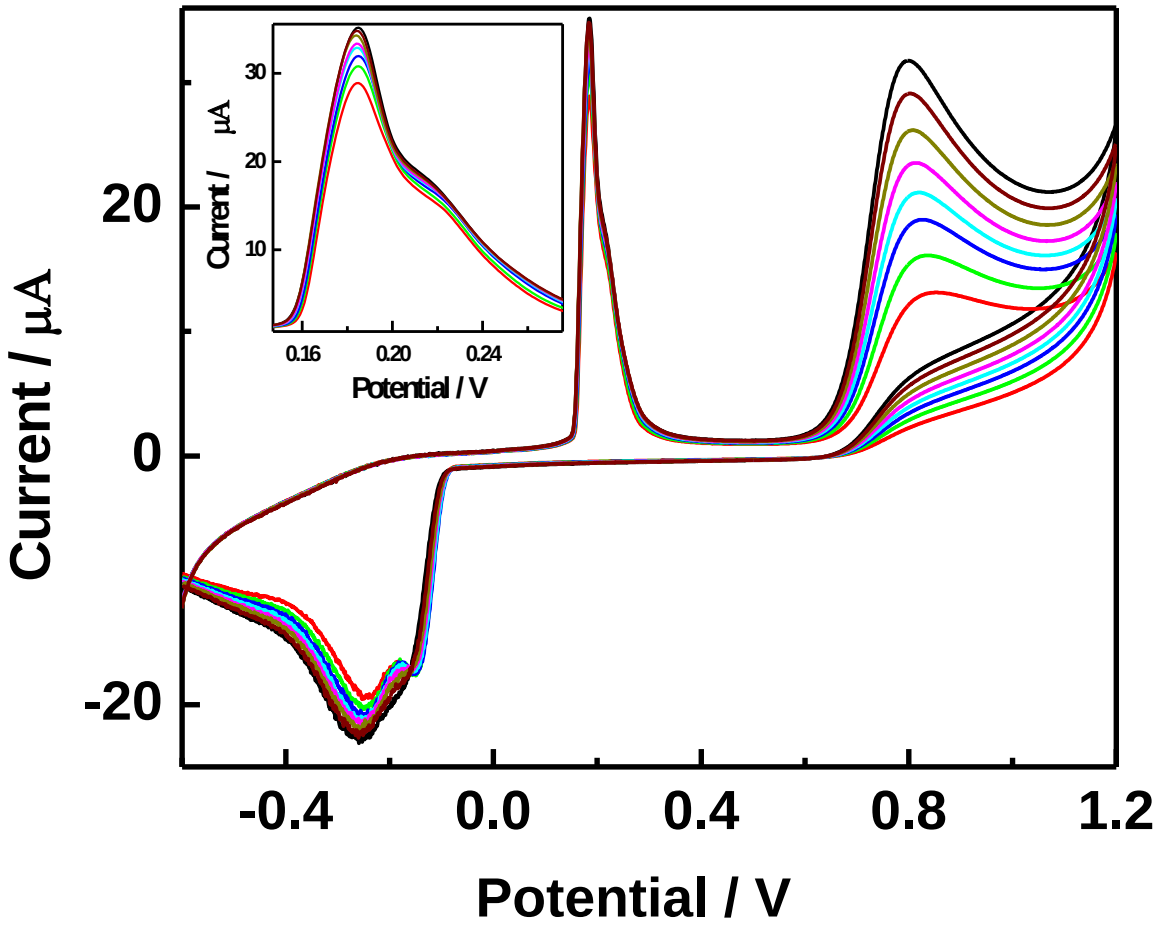

Fig. S6 CVs of different concentrations of NO_2^- at the GC/Ag-P(MMA-*co*-AMPS) in 0.1 M PBS (pH 7.0) at scan rate 20 mVs^{-1}. Insert shows enlarged view of oxidation peaks.

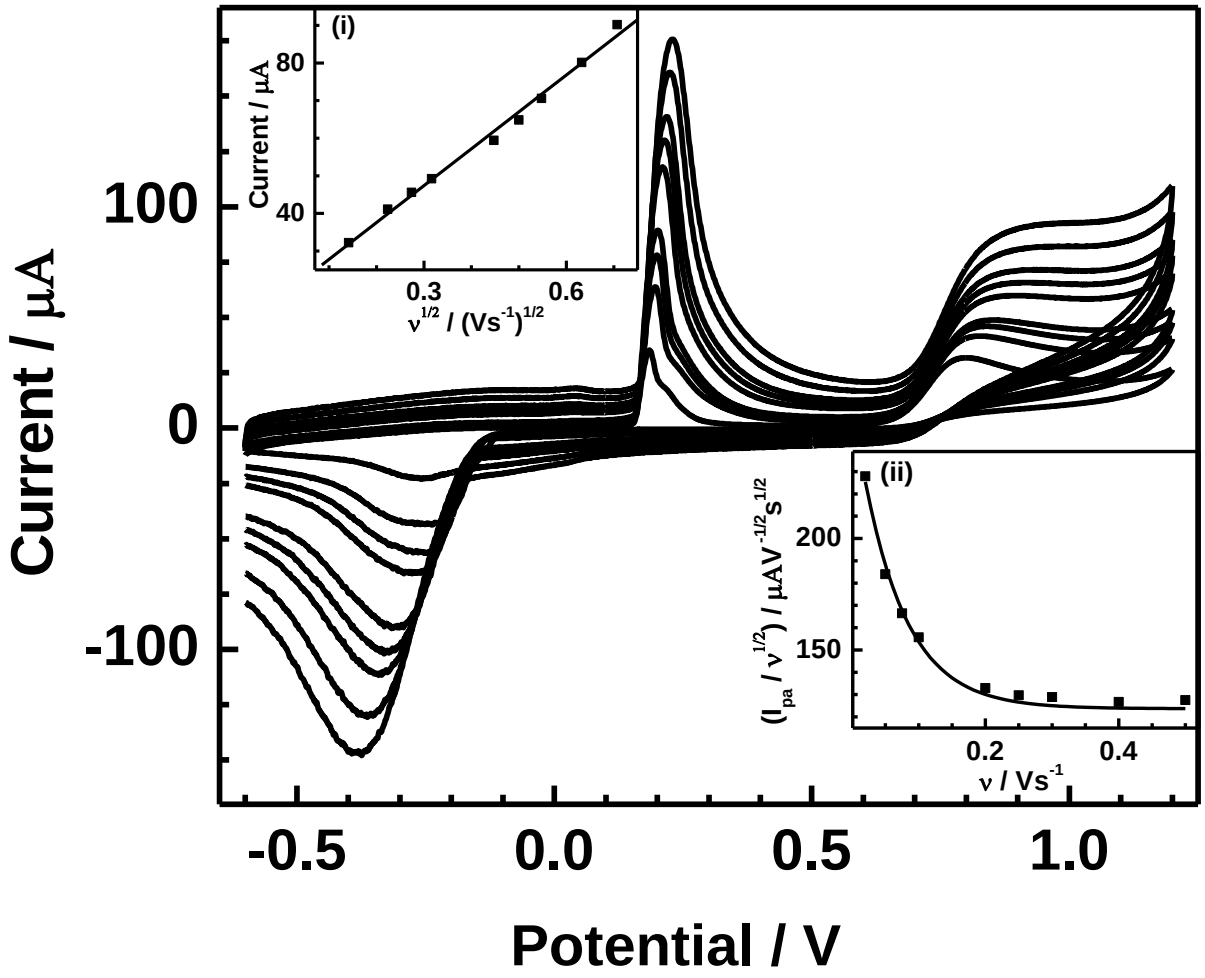

Fig. S7 CVs recorded at GC/Ag-P(MMA-*co*-AMPS) electrode in the presence of 1.0 mM NO_2^- at various scan rates (20, 50, 75, 100, 150, 200, 250, 300 and 400 mVs^{-1}). Inset (i) shows plot of anodic peak currents *vs*. the square root of scan rate ($v^{1/2}$) and inset (ii) shows plot of $I_{pa}/v^{1/2}$ *vs.* *v*. Supporting electrolyte: 0.1 M PBS (pH 7.0).

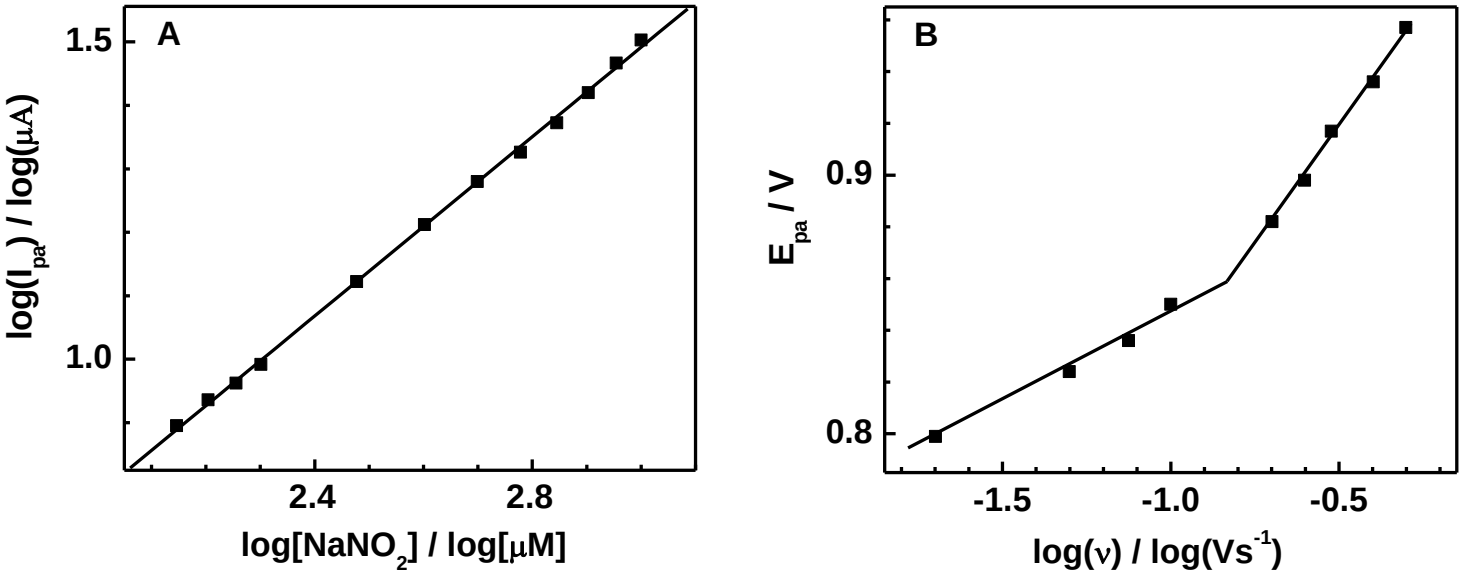

Fig. S8 Plots of (A) log(catalytic current) *vs.* log[NO_2^-] and (B) E_{pa} *vs.* log ν for GC/Ag-P(MMA-*co*-AMPS) electrode

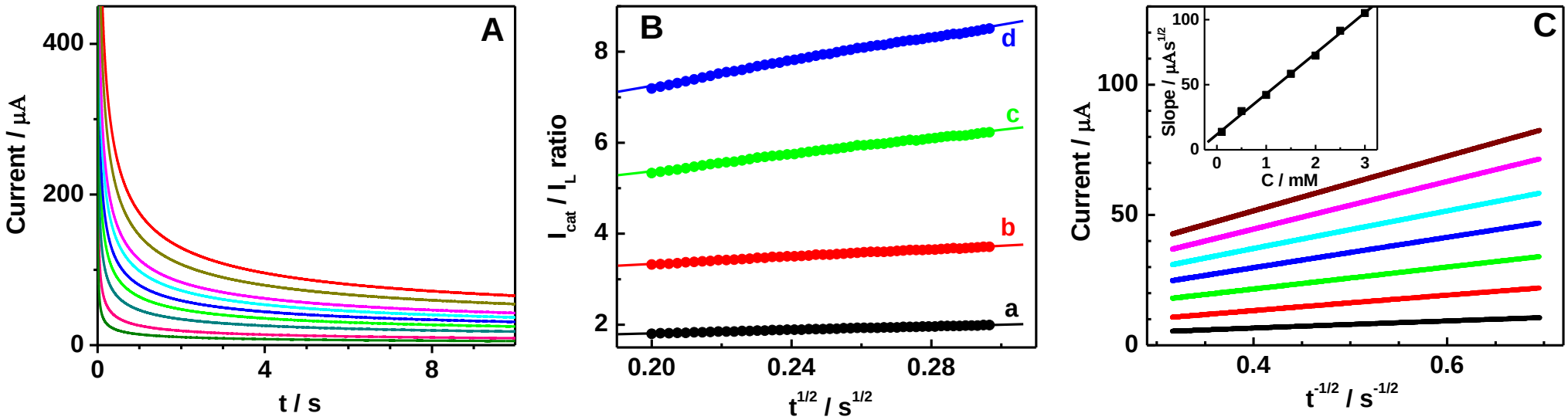

Fig. S9 (A). Chronoamperograms of different concentrations of NO_2^- in 0.1 M PBS (pH 7.0) at GC/Ag-P(MMA-*co*-AMPS). (B). Plot of I_{cat}/I_l *vs.* $t^{1/2}$ and (C). Plot of I *vs.* $t^{-1/2}$ (inset shows slope of resulting straight lines *vs.* concentration of NO_2^- plot).

Table S1 Impedance parameters at GC/P(MMA-*co*-AMPS) and GC/Ag-P(MMA-*co*-AMPS) electrodes

Parameter	**GC/P(MMA-*co*-AMPS)**	**GC/Ag-P(MMA-*co*-AMPS)**
R_s (Ω)	130	127
CPE	1.14×10^{-6}	1.92×10^{-6}
R_{ct} (Ω)	824	454
|Z| at lower frequency (Ω)	954	581
Phase angle (degree)	43	33
k_{et} (cms^{-1})	2.30×10^{-4}	4.19×10^{-4}