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Supplementary Materials

Effects of Acidic Solution on the One-Step Electrodeposition of Prussian Blue Nanocrystals on Screen-Printed Carbon Electrodes Modified with Magnetite Nanoparticles

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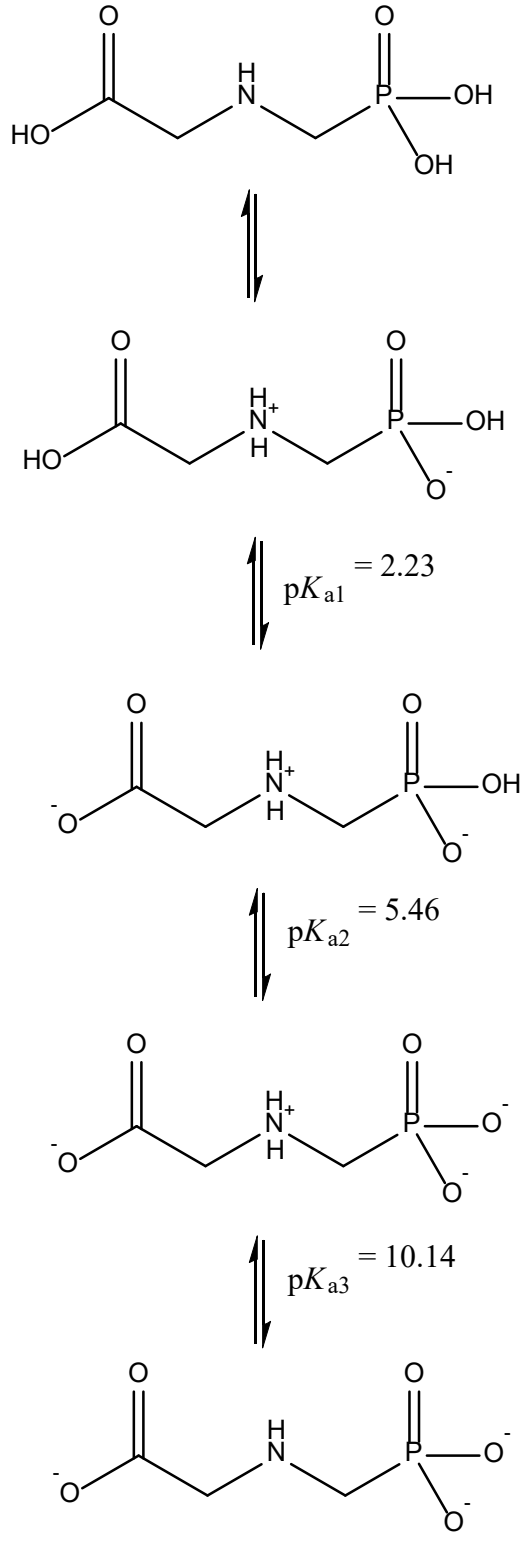
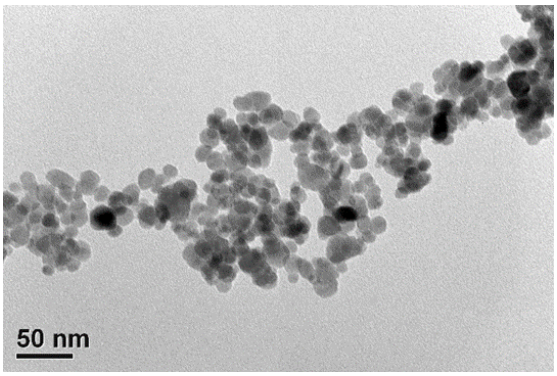
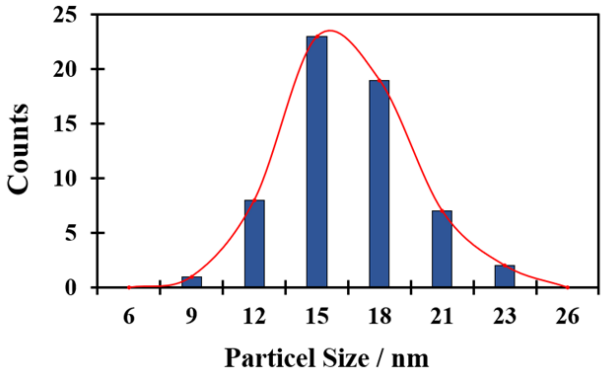


Figure S1. The acid dissociation constants of glyphosate and the related species.





(**A**) (**B**)

Figure S2. (**A**) TEM image of nano-Fe_3O_4 at 400,000X magnification. (**B**) The corresponding particle size distribution graphs (N = 60).

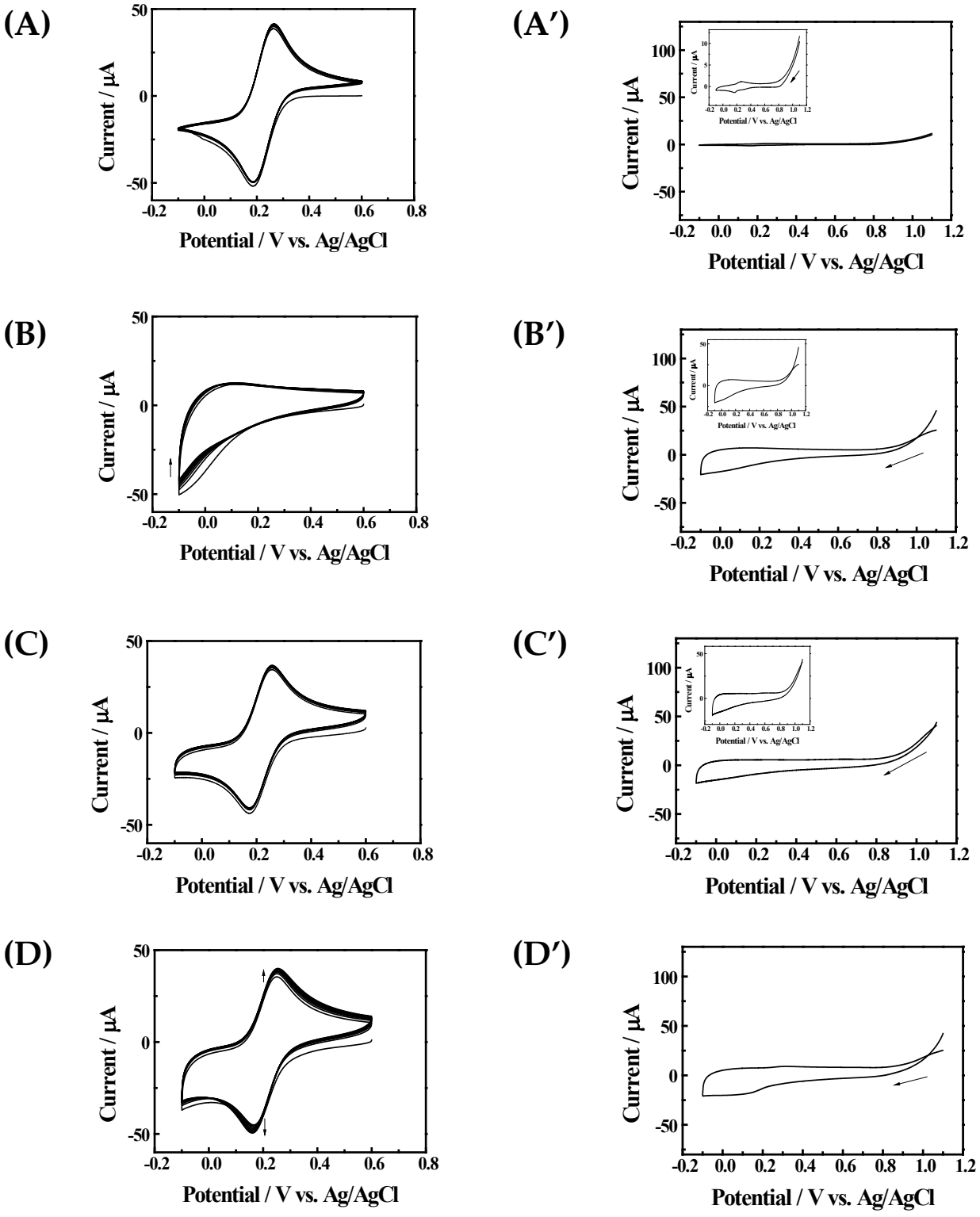


Figure S3. (**A**) Cyclic voltammograms of bare SPCE in solution I for 10 cycles. Cyclic voltammograms of SPCE/nano-Fe_3O_4 in a mixture solution of (**B**) 1.0 mM glyphosate and 0.1 M KCl (**C**) 1.0 mM $K_3Fe(CN)_6$ and 0.1 M KCl solution (**D**) 1.0 mM $K_3Fe(CN)_6$, 0.1 M KCl and 1.0 mM AMPA for 10 cycles. (**A′**)(**B′**)(**C′**)(**D′**) Cyclic voltammogram of the resultant electrode, which was obtained after the potential scanning in the corresponding solution and then transferring to 0.1 M KCl. Scan rate = 0.1 Vs^{-1}.

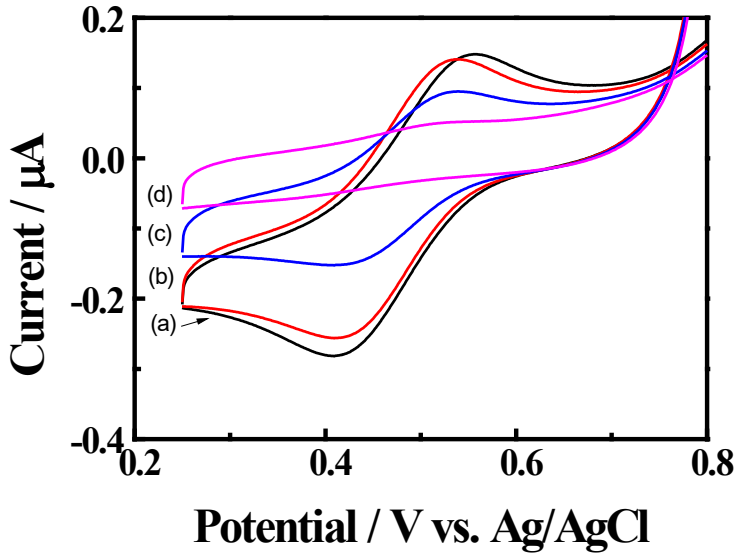


Figure S4. Cyclic voltammograms of bare GCE in 0.1 M KCl solution containing 0.2 mM $FeCl_3$ and (a) 0 mM, (b) 0.05 mM, (c) 0.1 mM, (d) 0.2 mM glyphosate. Scan rate = 0.005 Vs^{-1}.

Note:

1. Glassy carbon electrode is used instead of SPCE because of the latter gives redox peaks with large peak-to-peak potential separation.

2. The redox potential of Fe3+/Fe2+ shifts negatively from +0.482 V to +0.476 V in the presence of glyphosate (0.05 mM~0.1 mM).

3. Higher concentration of glyphosate (also Fe3+) results in precipitate products.