Supplementary Material

A HIGHLY SENSITIVE DISPOSABLE ELECTROCHEMICAL SENSOR BASED ON COPPER NANOPARTICLES FOR PESTICIDE IMIDACLOPRID DETERMINATION IN CONTAMINATED WATER SOURCES

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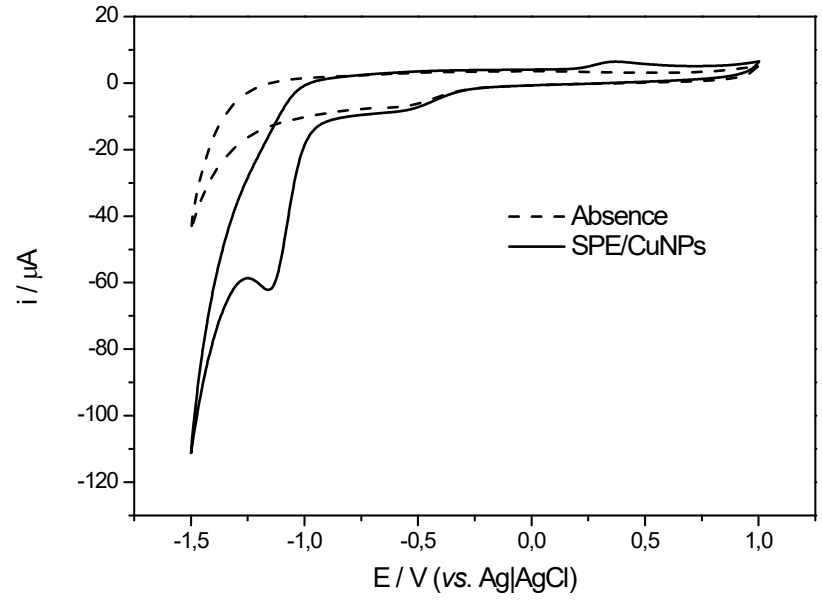
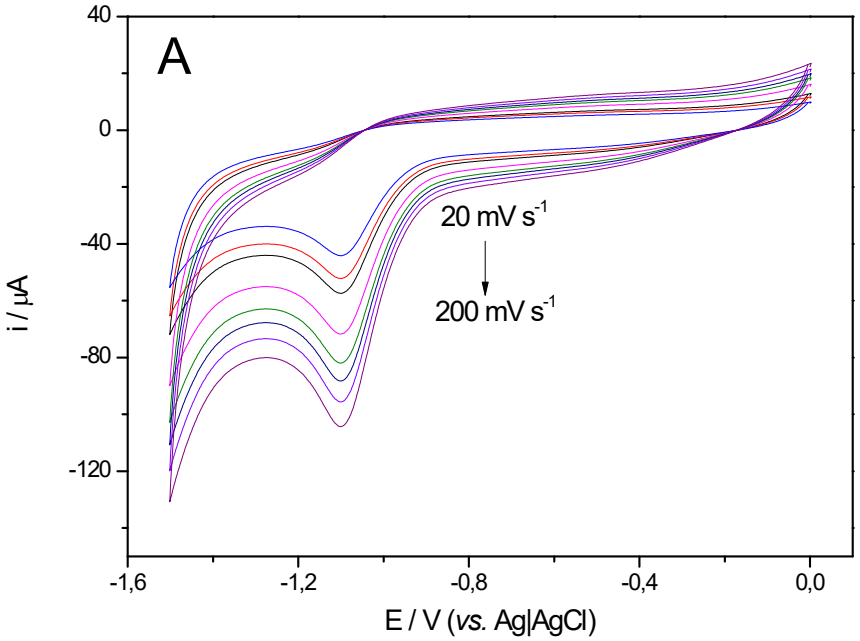


Fig. S1 Comparative voltammogram with SPE/CuNPs sensor in the absence and presence of 50.0 µmol L^{-1} of IMI pesticide in BR buffer solution 0.2 mol L^{-1} (pH 9.0) in potential range from -1.5 to +1.0 V.



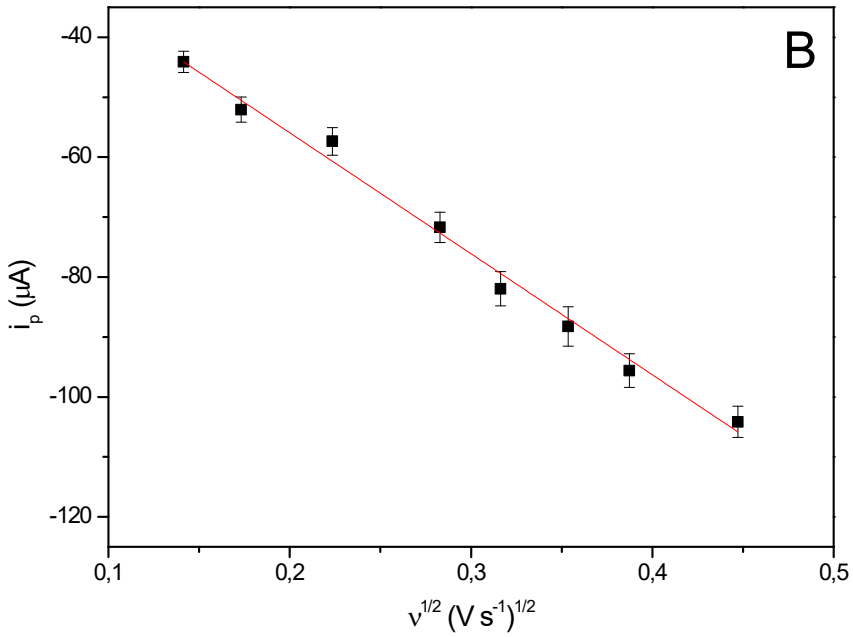
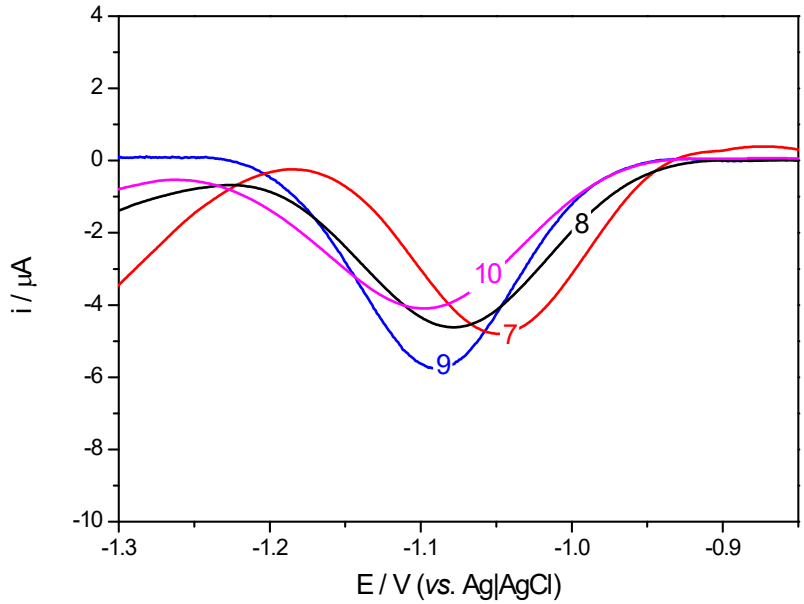


Fig. S2 Cyclic voltammograms recorded at different scan rates (20 – 200 mV s^{-1}) using SPE/CuNPs 50.0 µmol L^{-1} IMI in 0.2 mol L^{-1}BR buffer, pH 9.0 (A) and the relation of the peak current (i_p) *vs* square root of the scan rates ($v^{1/2}$) (B).



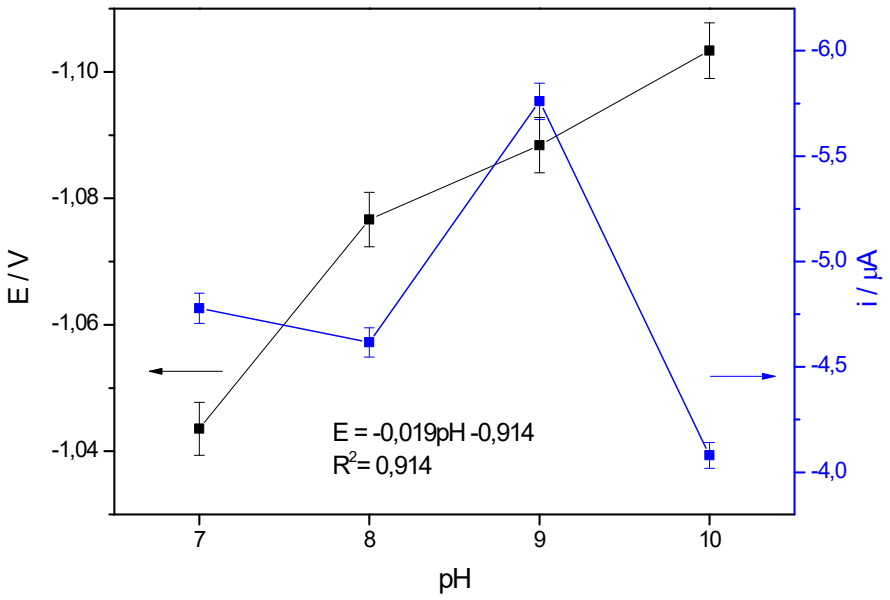
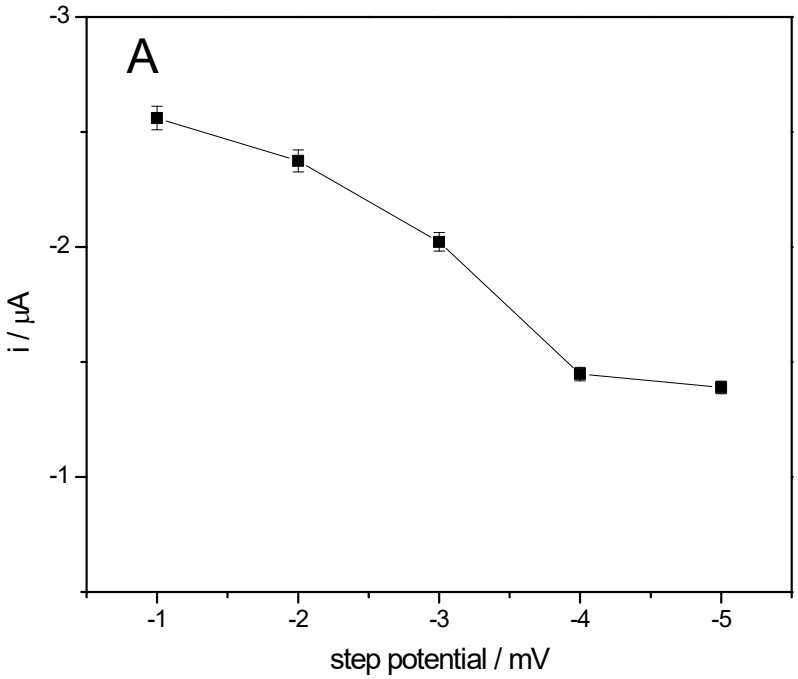
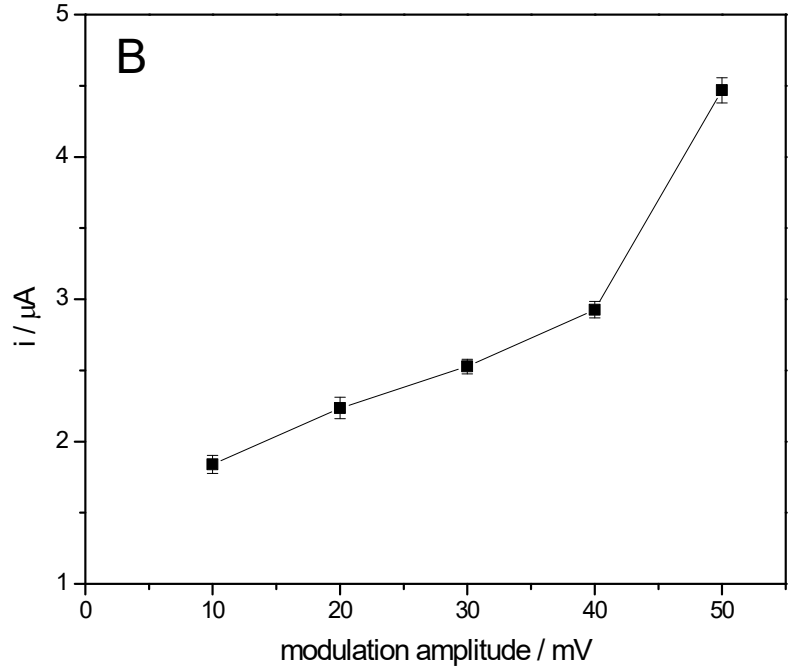


Fig. S3 Study of pH variation on E (V) and I (µA) of IMI 50.0 µmol L^{-1} in BR 0.2 mol L^{-1} buffer solution with SPE/CuNPs sensor.


A
-3
-2
-1
i / μA
-1
-2
-3
-4
-5
step potential / mV


B
5
4
3
2
1
i / μA
0
10
20
30
40
50
modulation amplitude / mV

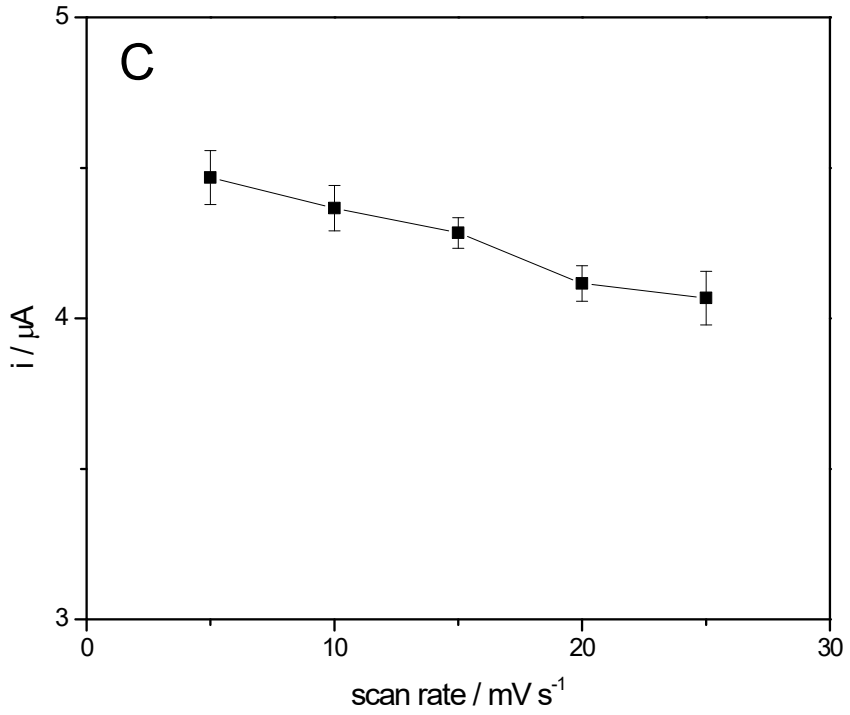


Fig. S4 Study of DPV parameters of SPE/CuNPs sensor: step -1 to -5 mV (A), modulation amplitude 10 to 50 mV (B), and scan rate 5 to 25 mVs^{-1} (C) (n = 3) at 50.0 µmol L^{-1} IMI in 0.2 mol L^{-1}BR buffer, pH 9.0.

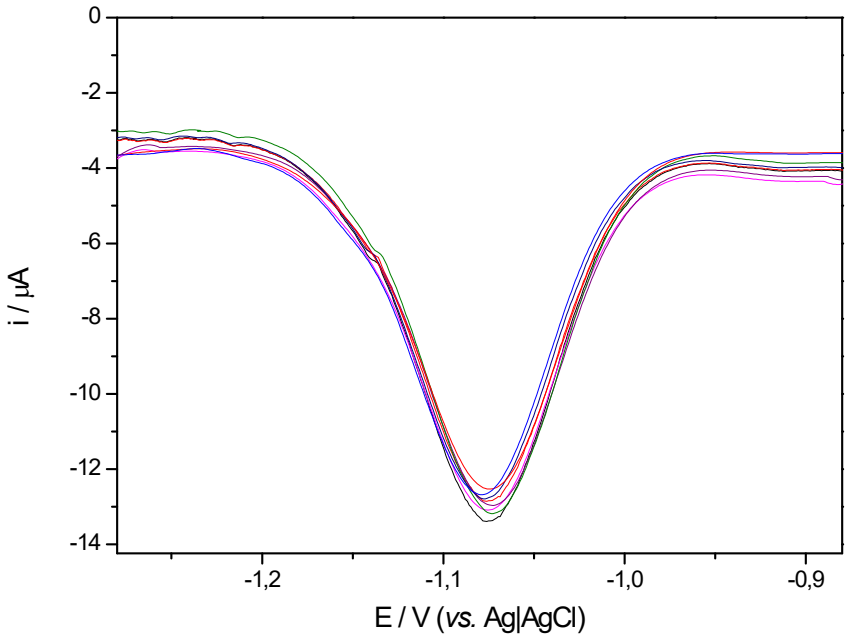


Fig. S5 DP voltammograms of reproducibility study using eight SPE/CuNPs different electrodes (optimized parameters) at 50.0 µmol L^{-1} IMI in 0.2 mol L^{-1}BR buffer, pH 9.0.