# Supplementary Material

**Lab-made stencil-printed electrode with silver nanoparticles-modified graphite for the determination of the antibiotic Sulfamethoxazole in different real samples**

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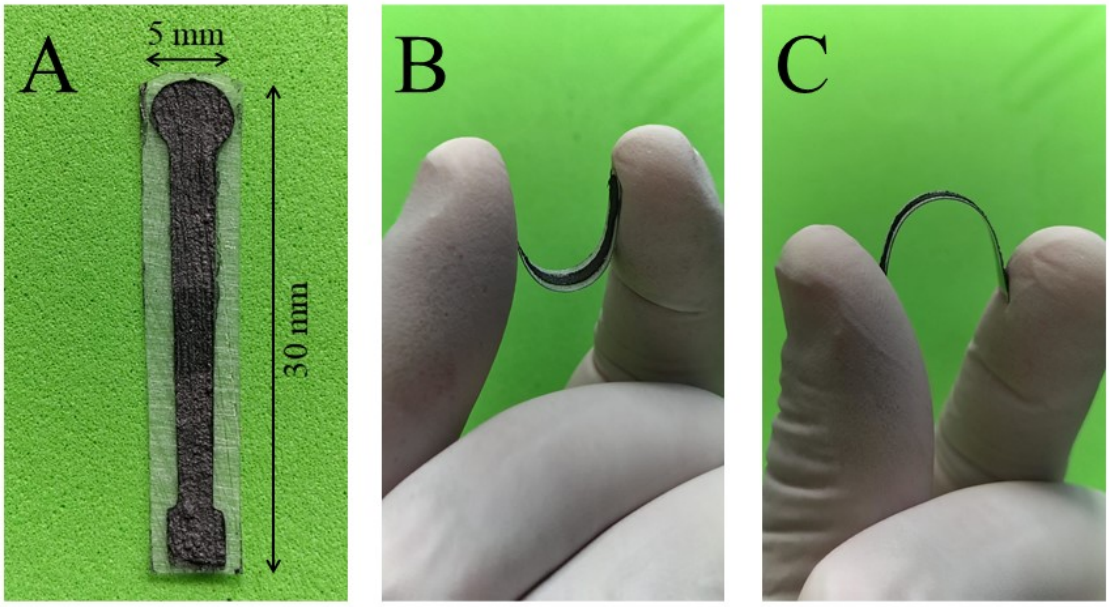


**Figure S1.** (A) Real image of the AgNPs@Gr/StPE sensor. Flexibility test of the AgNPs@Gr/StPE sensor at (B) concave and (C) convex angles.

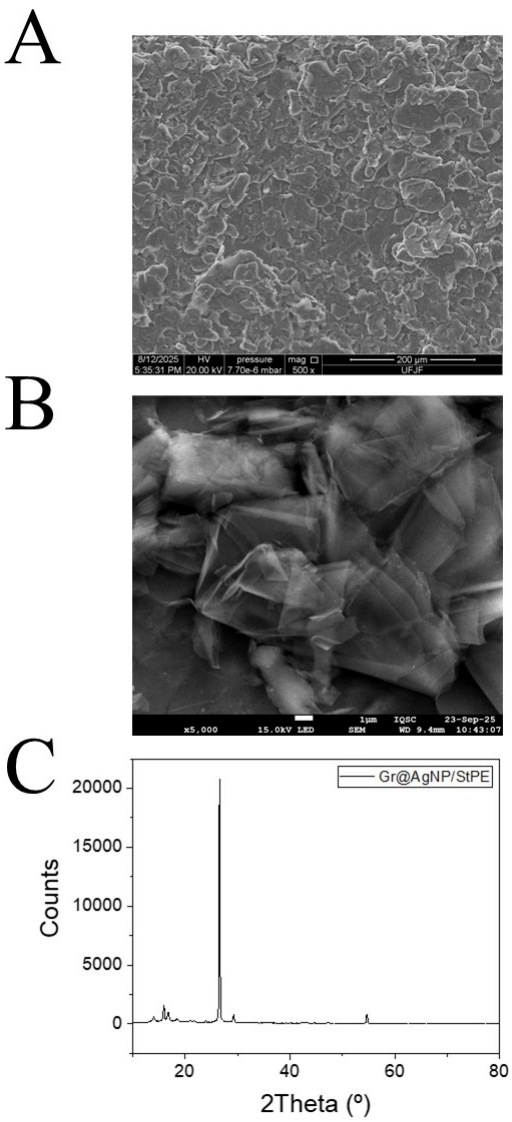


**Figure S2.** (A-B) SEM images of the surface of the Gr/StPE sensor. (C) XRD pattern of the AgNPs@Gr/StPE surface.

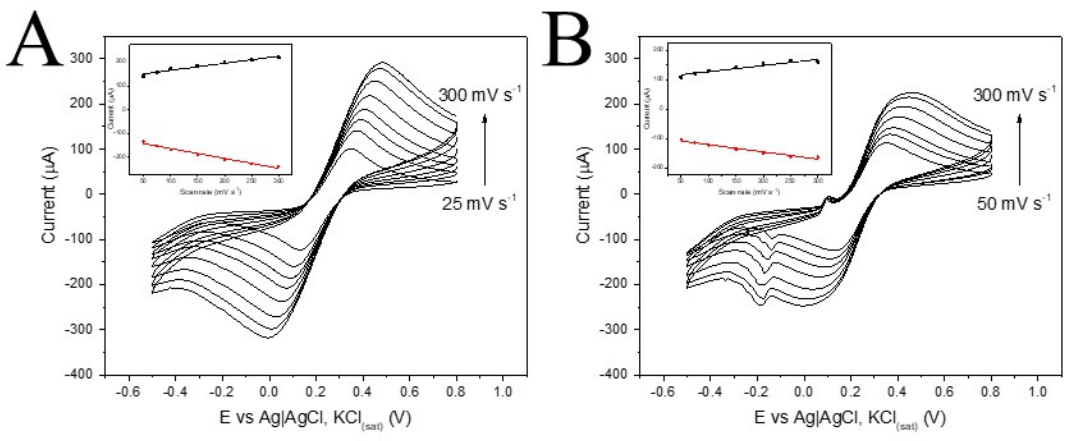


**Figure S3.** Cyclic voltammograms of $[Fe(CN)_6]^{-3/-4}$ in KCl solution for the study of scan rate in order to estimate the electroactive area of sensors (A) unmodified and (B) AgNPs@Gr/StPE electrode. Data: equations for the unmodified electrode – $Ipa = 0.2983\ v^{1/2} + 135.9$ ($R^2 = 0.976$) and $Ipc = -0.3175\ v^{1/2} - 122.6$ ($R^2 = 0.988$); equations for the modified electrode – $Ipa = 0.2095\ v^{1/2} + 106.8$ ($R^2 = 0.958$) and $Ipc = -0.2473\ v^{1/2} - 96.52$ ($R^2 = 0.980$).

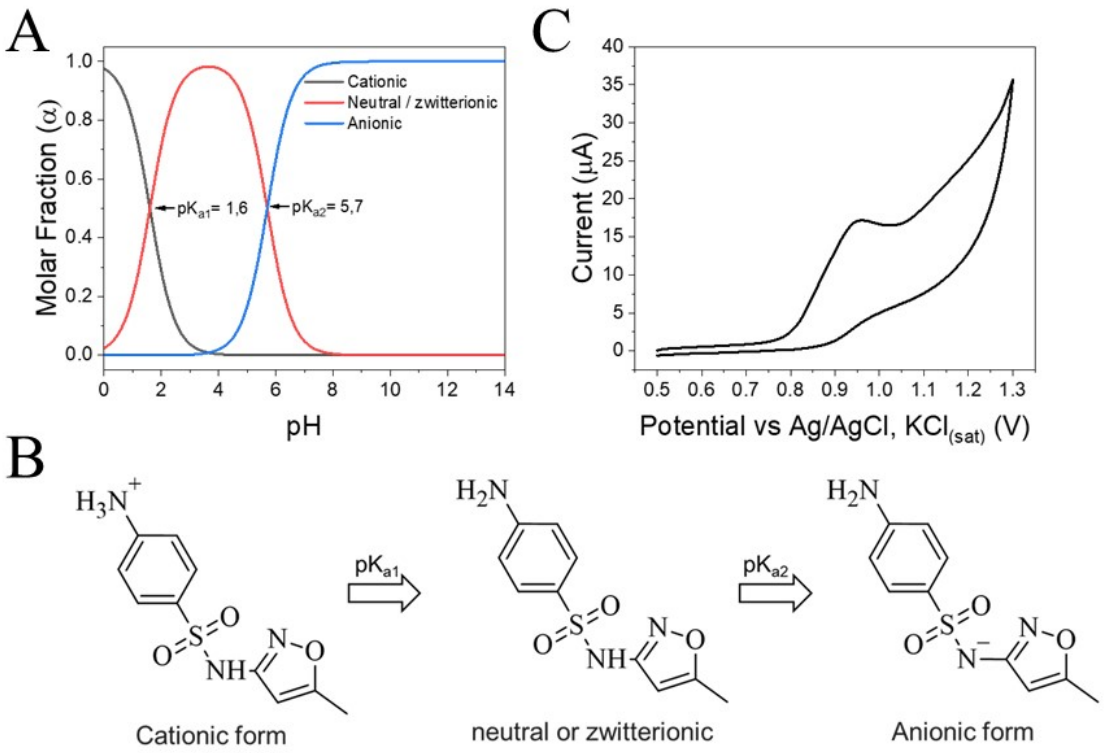


**Figure S4.** (A) SMZ species distribution and fraction at different pH values. (B) Species of SMZ present in each pH range. (C) CV voltammogram at pH 6.0 isolated from the pH study.

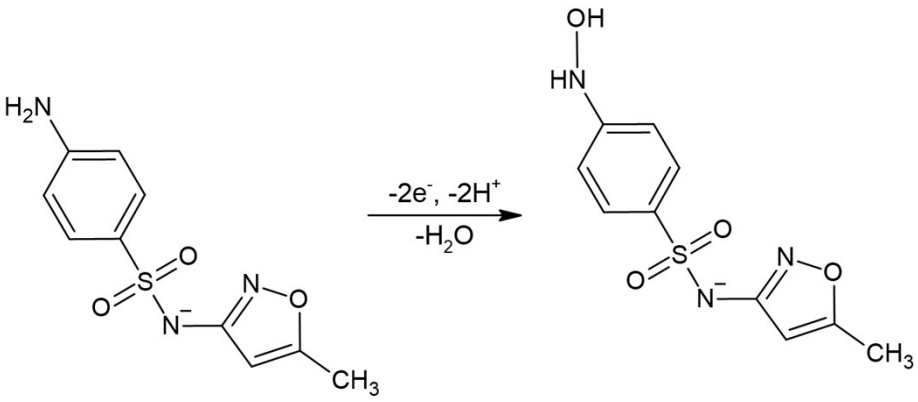


**Figure S5.** Electrochemical redox mechanism of SMZ at AgNPs@Gr/StPE surface.

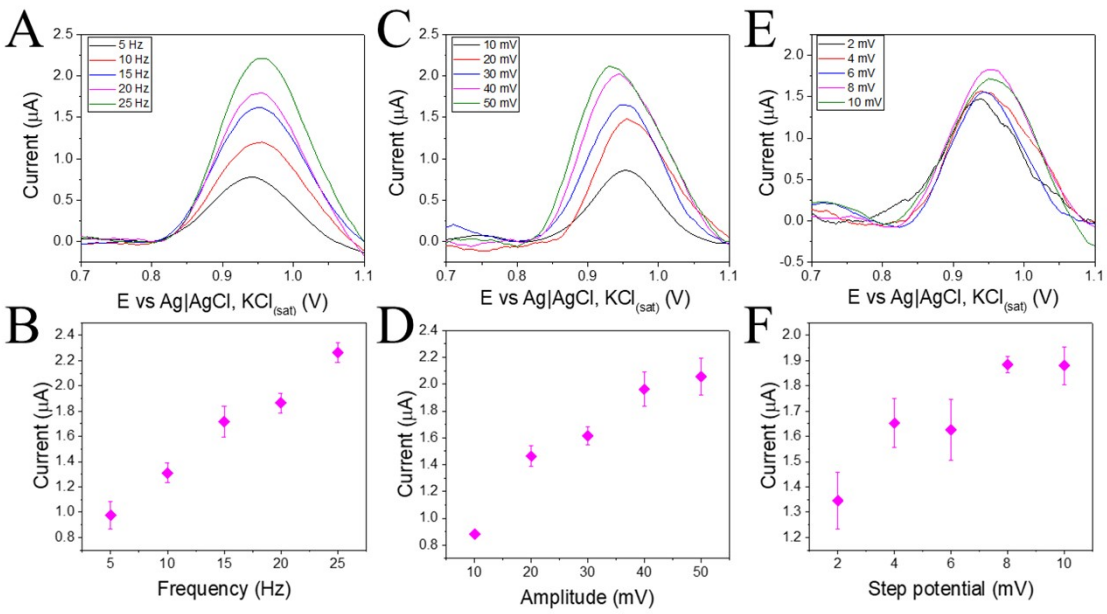


**Figure S6.** (A) Voltammogram obtained by SWV for frequency optimization. (B) Graph of peak current as a function of frequency variation from 5 to 25 Hz. (C) Voltammogram obtained by SWV for amplitude optimization. (B) Graph of peak current as a function of amplitude variation from 10 to 50 mV. (E) Voltammogram obtained by SWV for step potential optimization. (F) Graph of peak current as a function of step potential variation from 2 to 10 mV.