

Supplementary Material

A Novel Mesna-Based Electrochemical Sensor Embellished with Silver Nanoparticles for Ultrasensitive Analysis of Modafinil

Noha M. Hosny^{1*}, Mohamed I. Gadallah¹, Ibrahim A. Darwish²

¹ Pharmaceutical Analytical Chemistry Department, Faculty of Pharmacy, Assiut University, Assiut 71526, Egypt.

² Department of Pharmaceutical Chemistry, College of Pharmacy, King Saud University, P.O. Box 2457, Riyadh 11451, Saudi Arabia.

***Corresponding author:** Noha M. Hosny

Email: noha.hosni@aun.edu.eg

Mobile No: +2-011-44438525

Fax No: 0020-88-2080774

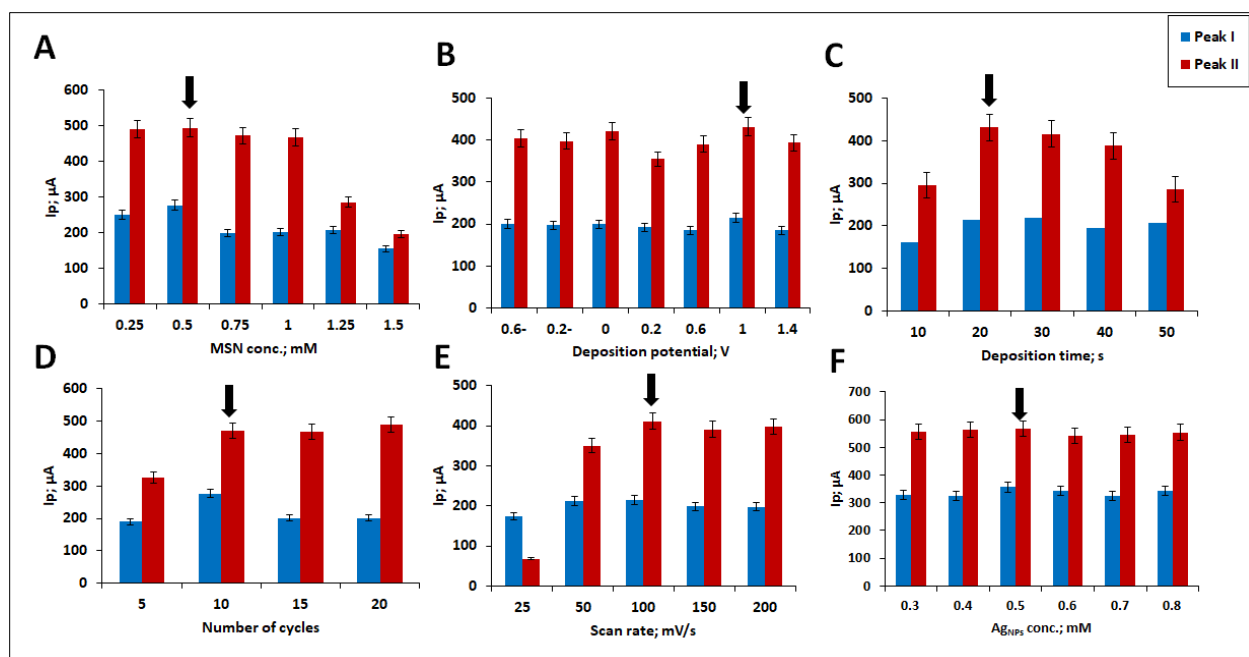


Fig. S1: Factors affecting the formation of MSN encrusted with silver nanoparticles on PGE surface: **A.** MSN concentration, **B.** deposition potential and **C.** time, **D.** number of cycles, **E.** scan rate, and **F.** silver nanoparticles concentration required for deposition process.

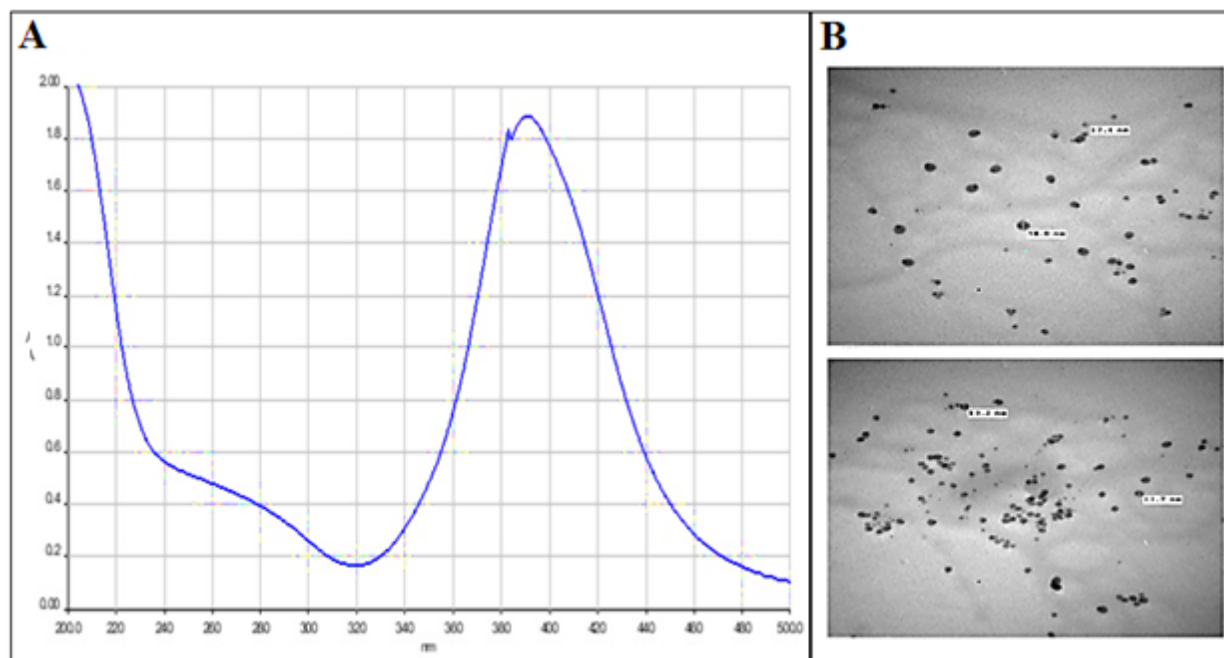


Fig. S2: **A.** UV spectrum and **B.** TEM images of the prepared AgNPs.

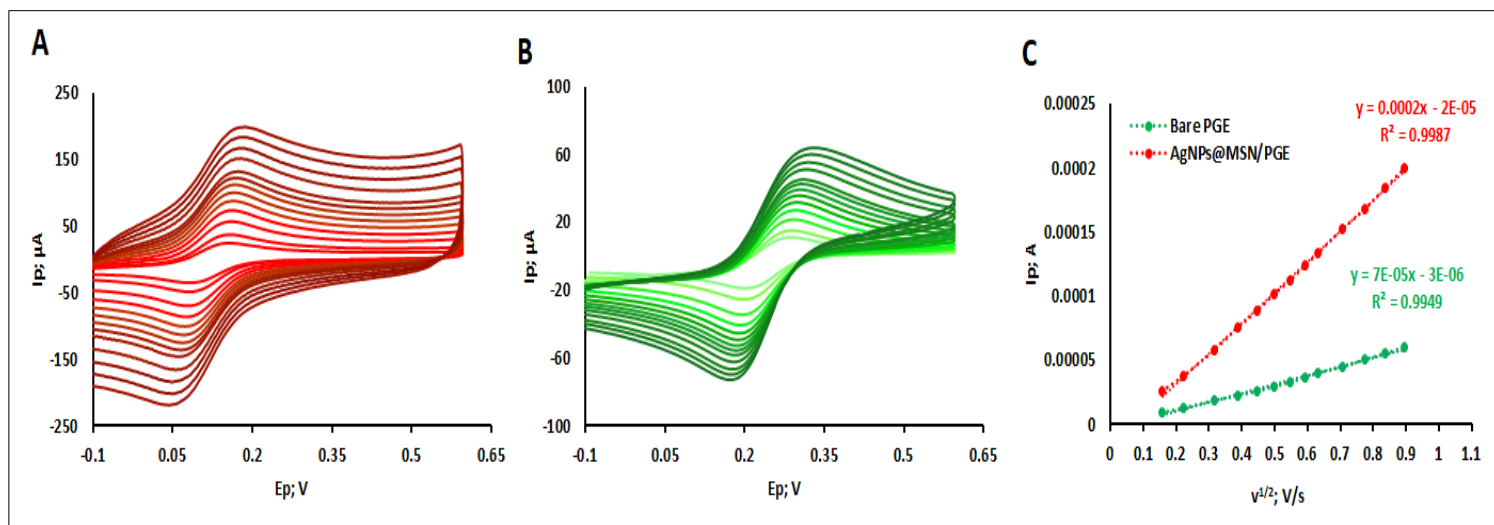


Fig. S3: Voltammograms of $[\text{Fe}(\text{CN})_6]^{3-}/[\text{Fe}(\text{CN})_6]^{4-}$ mixture (1.0 mM) in KCl (0.5 M) recorded at **A.** $\text{AgNPs}@/\text{MSN}/\text{PGE}$ and **B.** bare PGE electrodes over potential of -0.2 to 0.6 V and scan rate of 0.025-0.800 $\text{V} \cdot \text{s}^{-1}$. **C.** is the plot of peak current against the square root of scan rate.

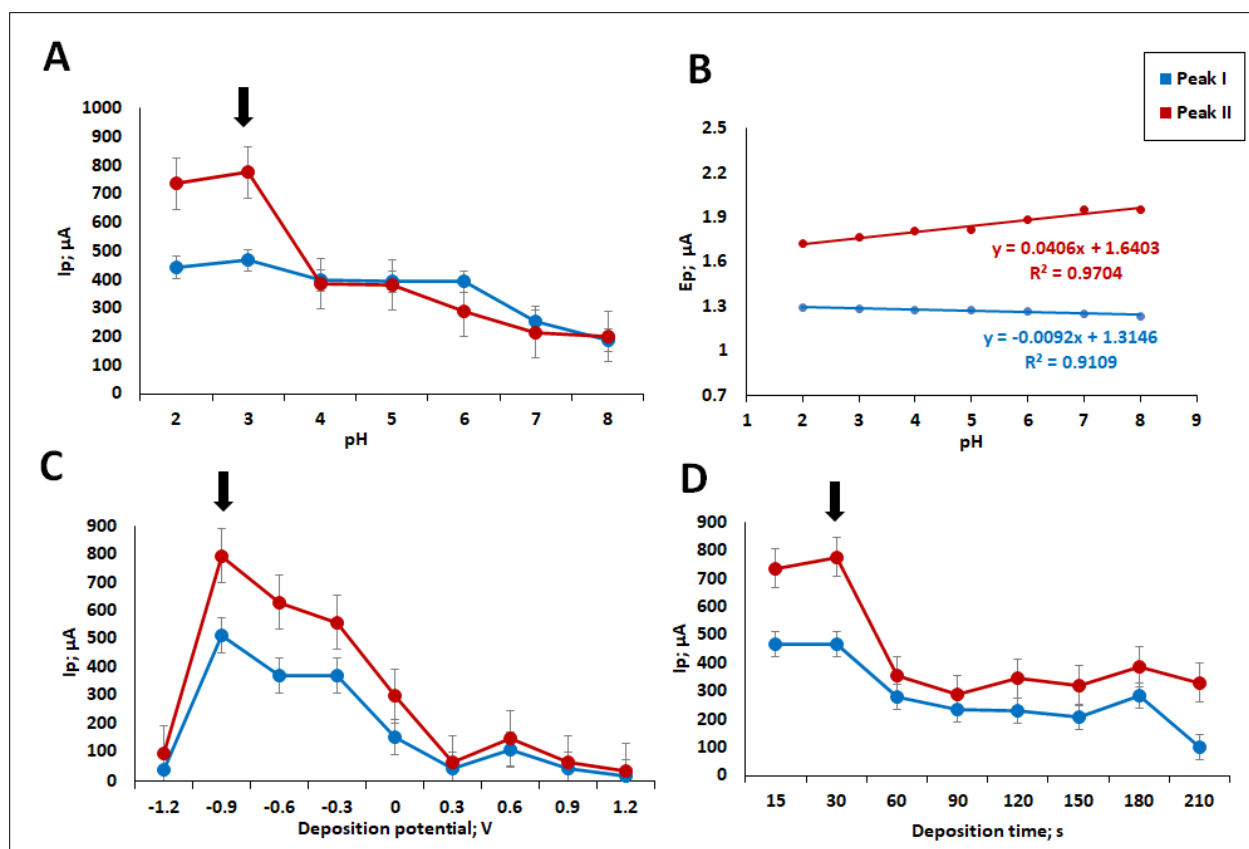


Fig. S4: **A.** The influence of different pHs of the supporting electrolyte (0.04 M of B.R buffer solutions) on the oxidation of MOD (0.3 mM) at AgNPs@MSN/PGE sensor. **B.** Linear curve of potential (E_p) against pH of the supporting electrolyte. **C** and **D** are the effects of deposition potential and time on the current intensities of MOD, respectively.