

Supporting Information

Nickel tetrasulfonated phthalocyanine decorated with AuNP as a double sensorial platform: SERS and electrochemical

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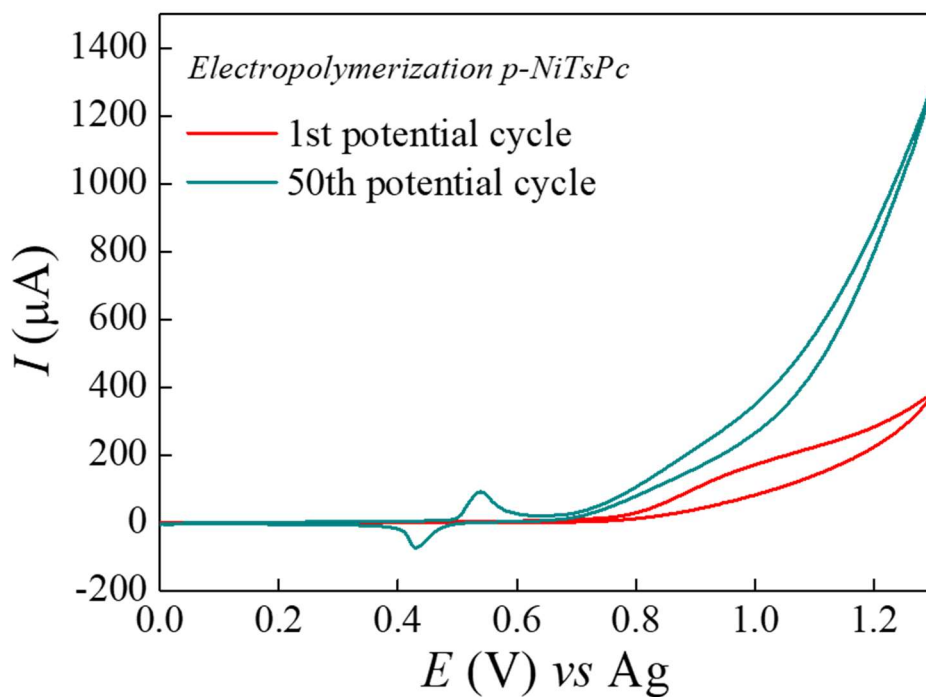


Figure S1. Cyclic voltammogram for the 1st and 50th potential cycle applied for electropolymerization of *p*-NiTsPc.

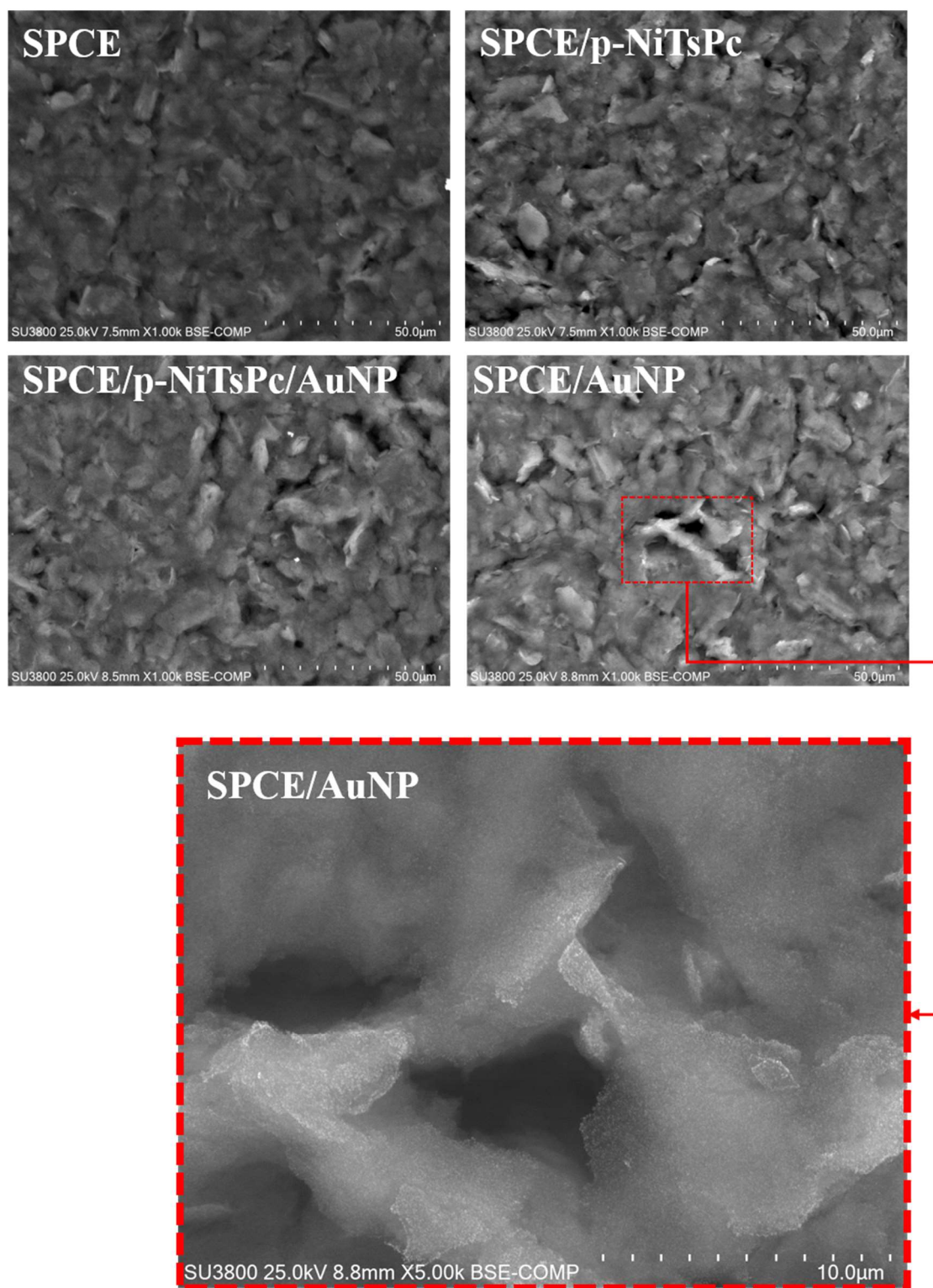


Figure S2. SEM images of the SPCE bare, SPCE/p-NiTsPc, SPCE/p-NiTsPc/AuNP, and the SPCE/AuNP.

Table S1. Raman band assignments for NiTsPc powder.

NiTsPc Powder (cm ⁻¹)	Assignments
509	Isoindole deformation [30,31]
603	Macrocycle breathing [30-32]
688	Macrocycle breathing [29-32]
751	Macrocycle vibration [30-32], C-H out-of-plane bending [15,29]
967	Benzene breathing [30-32]
1123	C-H bending [29-32]
1189	SO ₃ stretching [15,30,31][1,2,5]
1267	C-H bending [30,31]
1332	Pyrrole stretching [29-32]
1459	Isoindole stretching [30-32]
1550	C=C, C=N pyrrole stretching [29-32]

*references on main text.

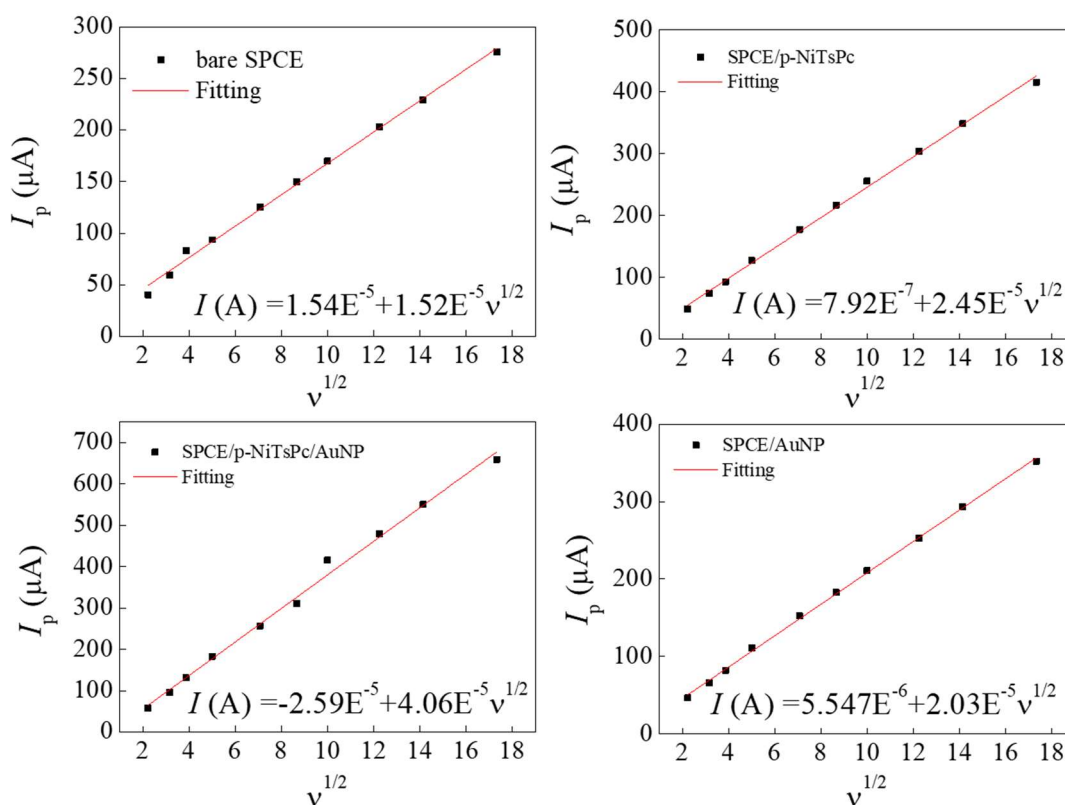


Figure S3. Variation of anodic peak current in function of the square root of scan rate. Scan rate study performed in 5 mmol/L [Fe(CN)₆]³⁻/[Fe(CN)₆]⁴⁻.

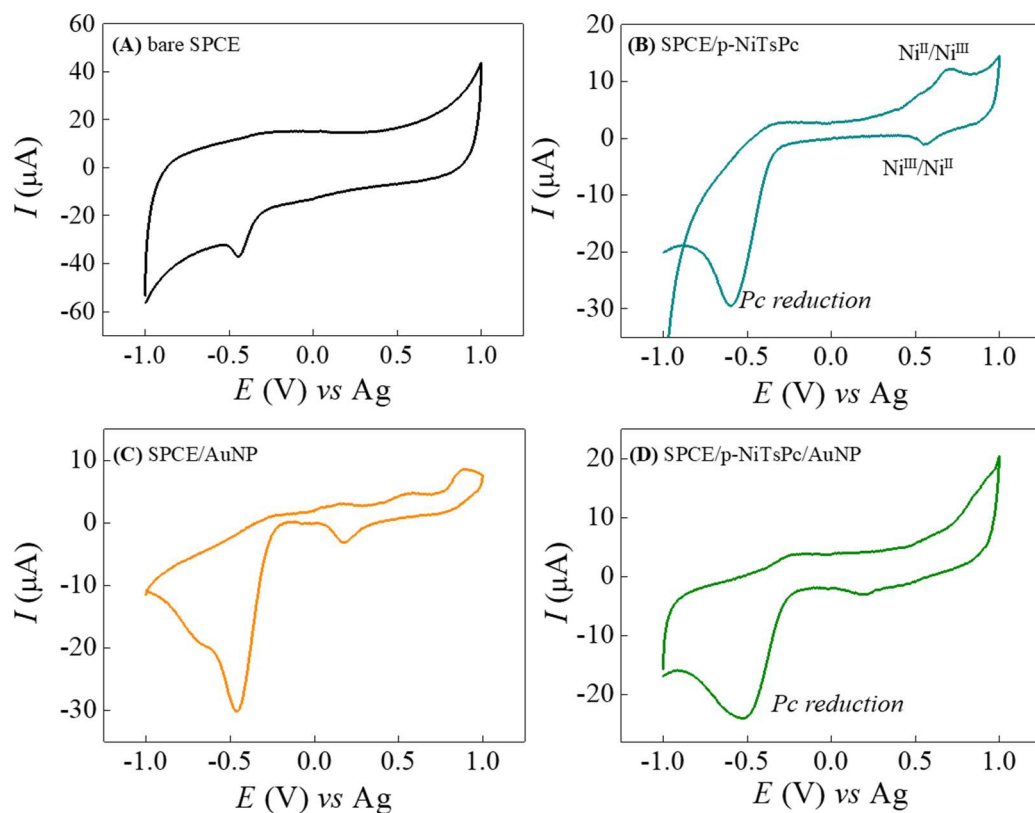


Figure S4. Cyclic voltammogram of SPCE (A) unmodified, modified with (B) p-NiTsPc, (C) AuNP, and (D) p-NiTsPc/AuNP recorded in the presence of 10^{-4} mol/L dopamine and containing 0.1 mol/L KCl at 50 mV/s.

Table S2. Peak potential, peak separation, and half-wave potential values obtained from the voltammogram are shown in Figure S4.

Electrode	E_{pa} (mV)	E_{pc} (mV)	ΔE	$E_{p/2}$
SPCE bare	257	23	234	140
SPCE/p-NiTsPc	198	55	143	126.5
SPCE/p-NiTsPc/AuNP	180	52	128	116
SPCE/AuNP	210	37	173	123.5

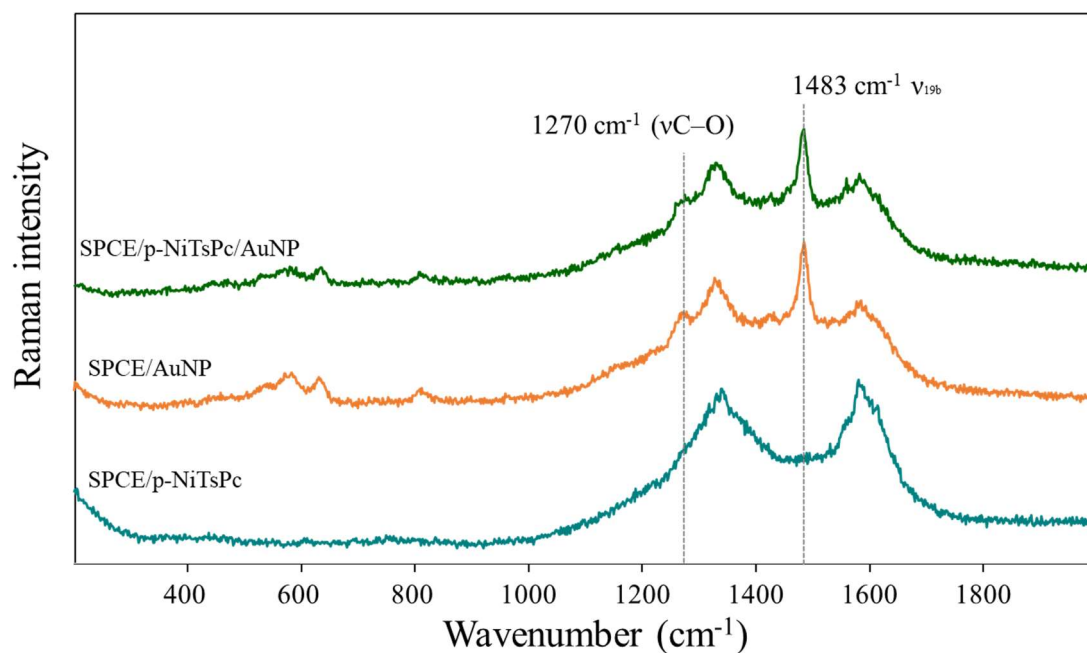


Figure S5. Raman spectra for SPCE/p-NiTsPc/AuNP, SPCE/AuNP, and SPCE/p-NiTsPc were collected with electrochemical cell off after the potential measurements in dopamine. Laser line at 633 nm. All the spectra were plotted with normalized intensity.

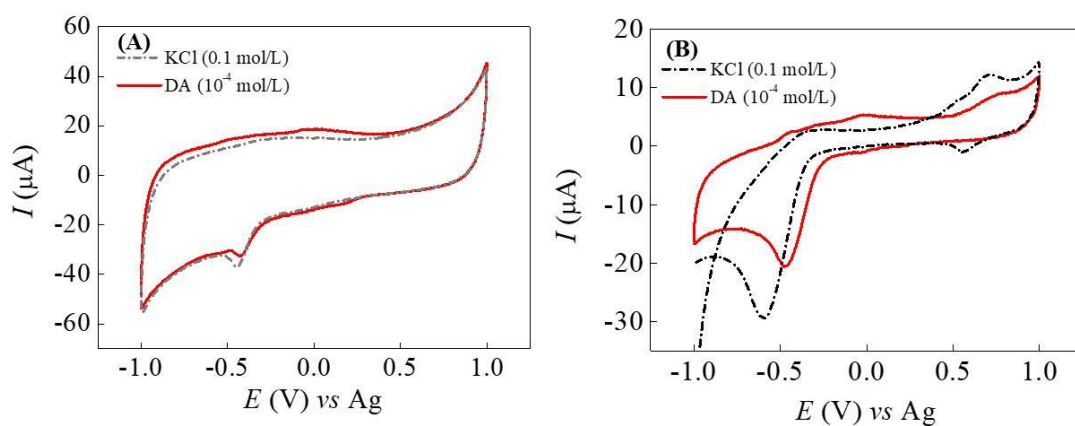


Figure S6. Cyclic voltammogram recorded to (A) bare SPCE and (B) SPCE/p-NiTsPc in 0.1 mol/L KCl in the absence and presence of dopamine (10^{-4} mol/L). Scan rate of 50 mV/s.

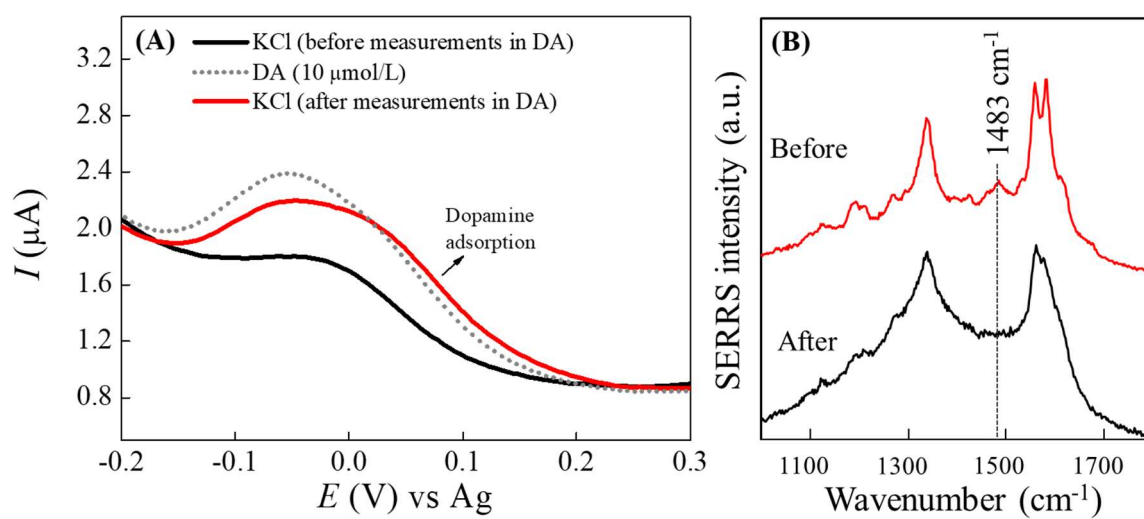


Figure S7. (A) Differential pulse voltammograms of SPCE/p-NiTsPc/AuNP in KCl 0.1 mol/L before and after measurements in DA solution. (B) SERRS spectra were collected at SPCE/p-NiTsPc/AuNP after and before measurements in DA solution (cell off).