

(Supporting Information)

Novel approach to fabricate stable graphene layers on electrode surfaces using simultaneous electroreduction of diazonium cations and graphene oxide

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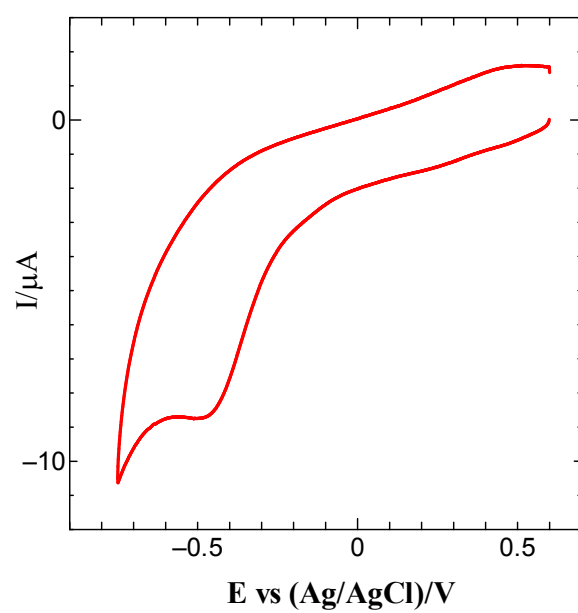


Figure S1. Cyclic voltammograms obtained for grafting of GCE at a scan rate of 20 mV s⁻¹ using 2 mM each melamine and NaNO₂ in 0.5 M HCl.

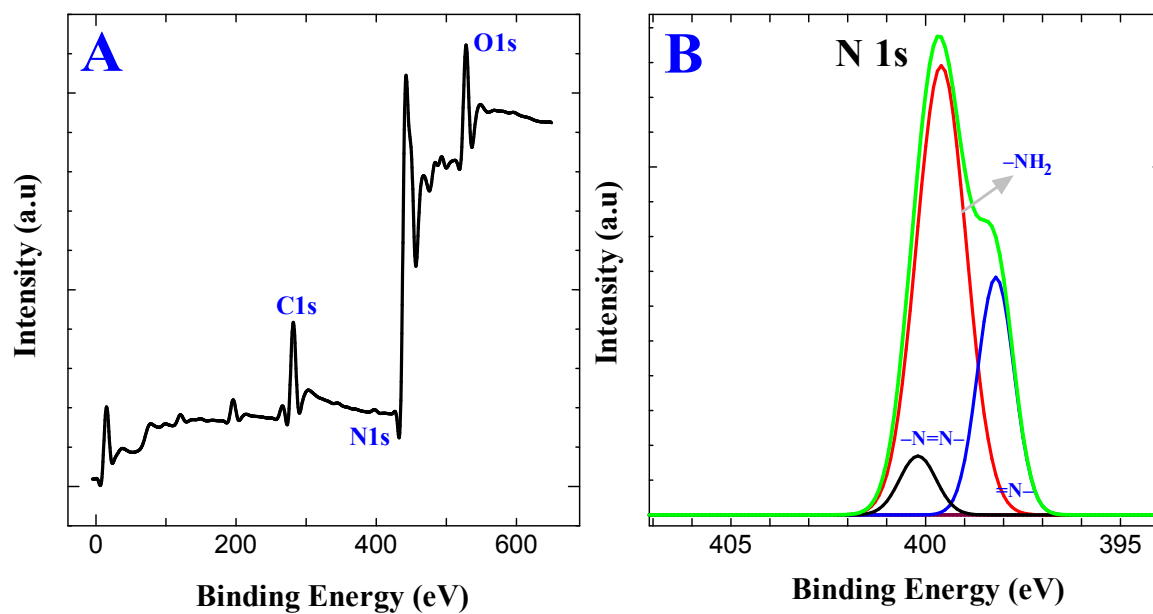


Figure S2. XPS of AT grafted ITO substrate: **(A)** Survey spectrum and enlarged spectra for **(B)** N 1s region of AT grafted ITO substrate.

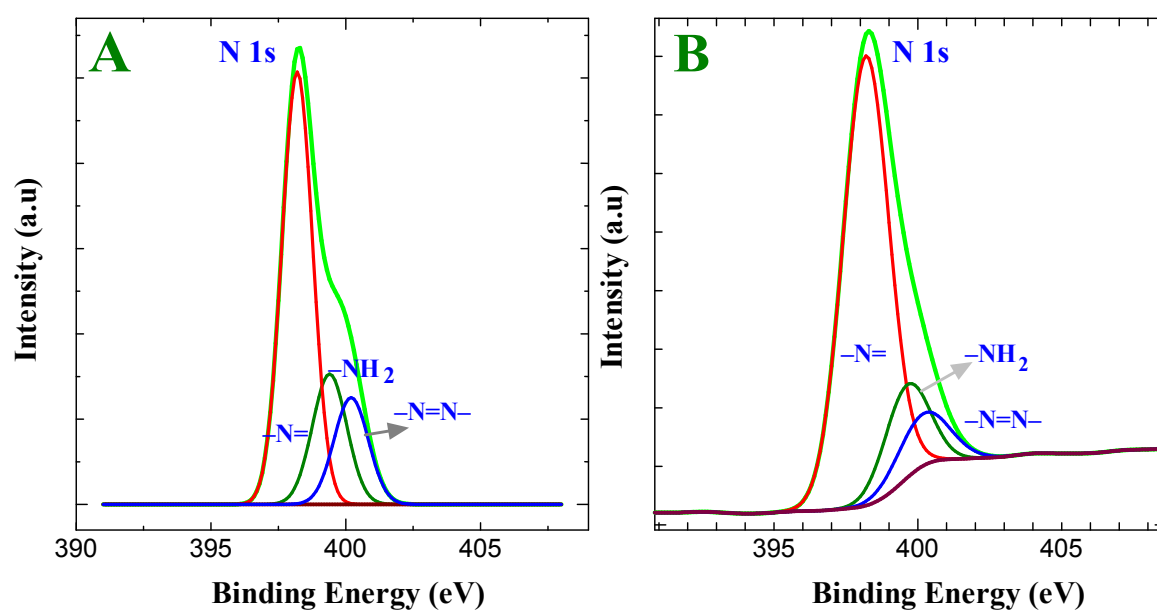


Figure S3. XPS of N 1s spectra obtained for **(A)** GO modified ITO and **(B)** graphene modified ITO substrates.

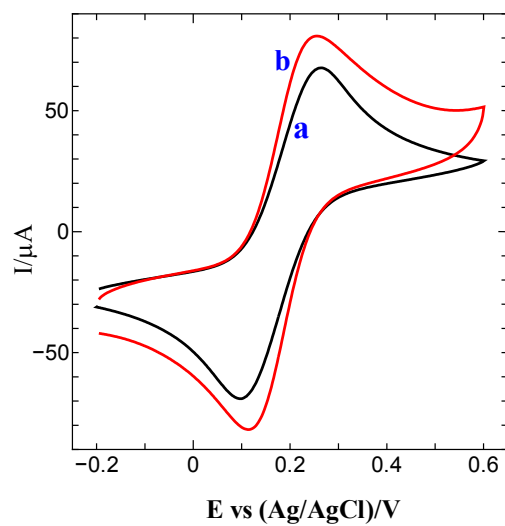


Figure S4. CVs obtained for 5 mM $[\text{Fe}(\text{CN})_6]^{3-}/[\text{Fe}(\text{CN})_6]^{4-}$ containing 0.1 M KCl at (a) bare, (b) graphene modified GC electrodes at a scan rate of 50 mV s^{-1} .

Table S1

Table for impedance data

parameter	Bare GC	Graphene modified GCE
CPE (CF)	3.986×10^{-6}	4.408×10^{-6}
R_{CT} (K Ω)	100.8	9.2
K_{et} (cm s ⁻¹)	3.77×10^{-5}	4.1×10^{-4}

Table S2. Peak assignments for XPS.

Sample	Bonding structure from XPS	
	C1s XPS: Peak position (eV) and assignments	C/O ratio
GO modified ITO	284.6 ~ sp ² C	0.58
	286.5 ~ C-OH	
	287.6 ~ C=O	
	289.1 ~ HO-C=O	
Graphene modified ITO	284.6 ~ sp ² C	3.78
	286.4 ~ C-OH	