

Electronic Supplementary Information

for

Framing of poly(arylene-ethynylene) around carbon nanotubes and iodine doping for the electrochemical detection of dopamine

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Section A. synthesis procedure and experimental plots

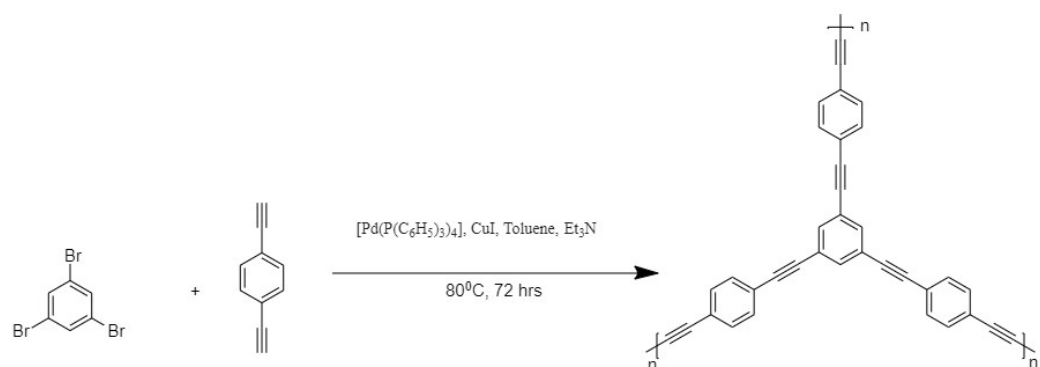


Figure S1. Reactants and synthesis method for CMP-4.

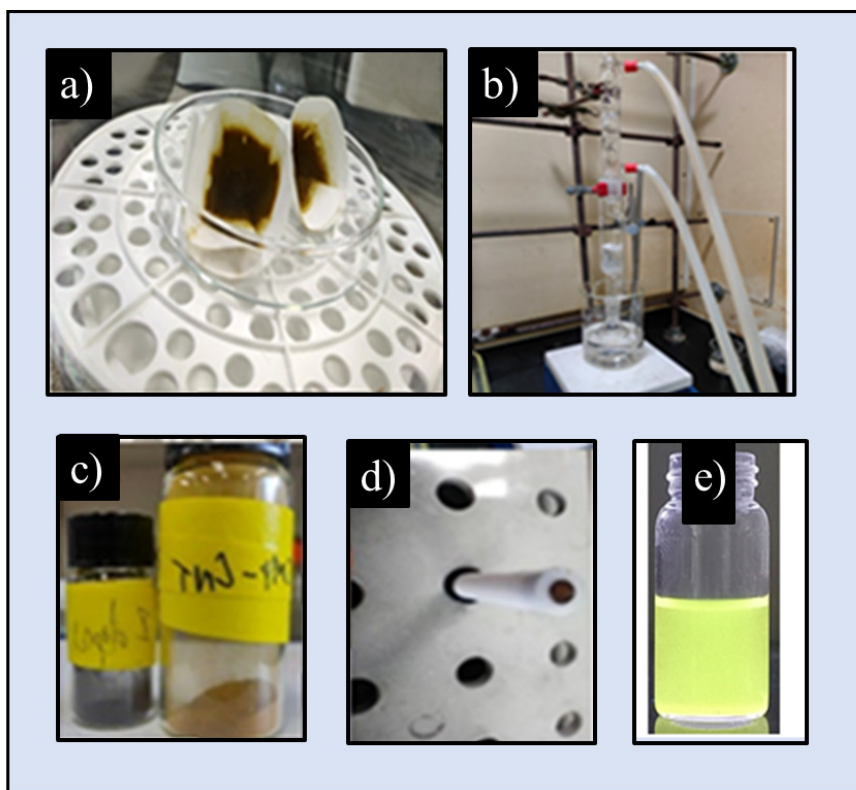


Figure S2. (a): Brown colored CMP-4, (b) Soxhlet method purification of CMP-CNT-4 in methanol, (c) Black colored I₂-CMP-CNT-4 and brown colored CMP-CNT-4, (d) I₂-CMP-CNT-4 modified GCE, (e) Fluorescence from CMP-4.

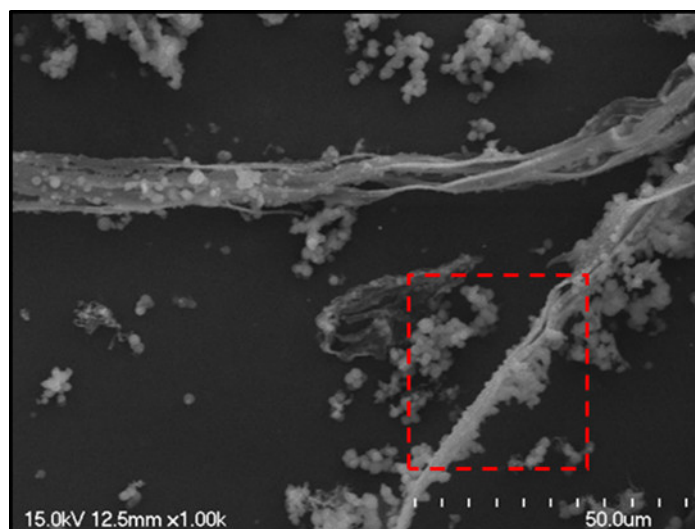


Figure S3. SEM image of CMP-CNT-4.

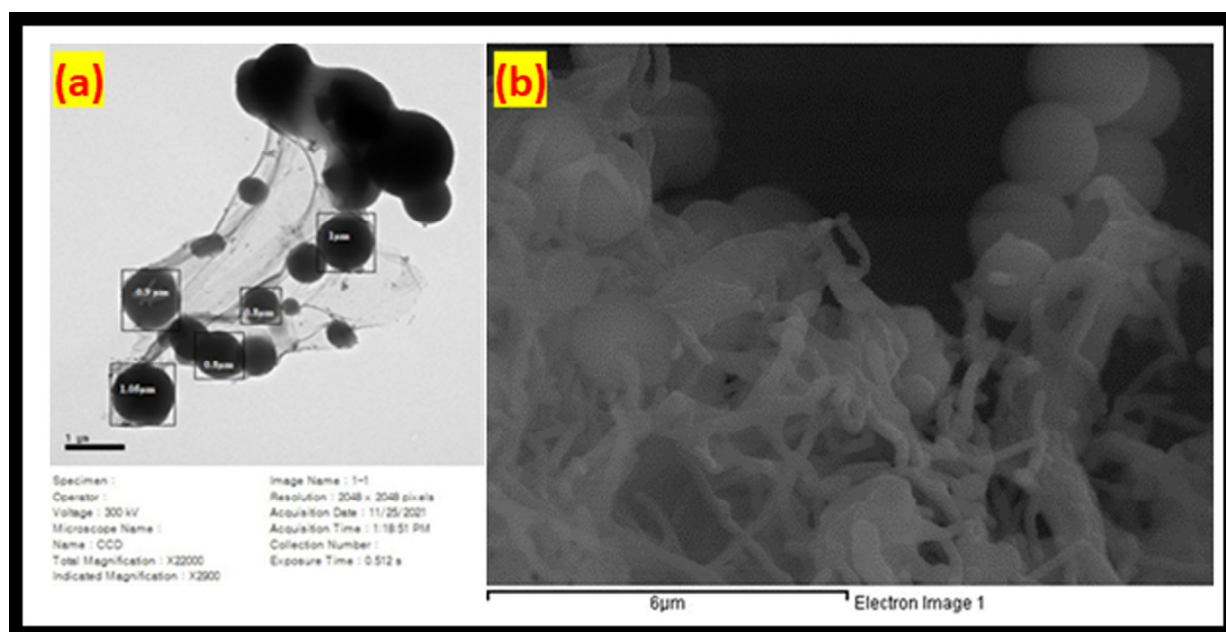


Figure S4. a: The TEM image shows the average size of CMP-4, **b:** SEM image of CMP-CNT

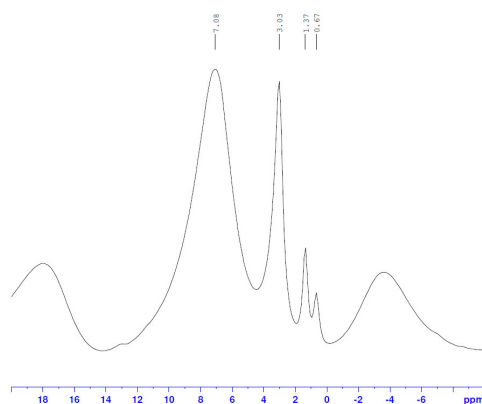


Figure S5. Solid state ^1H NMR spectrum of poly(arylene-ethynylene), a chemical shift in ppm.

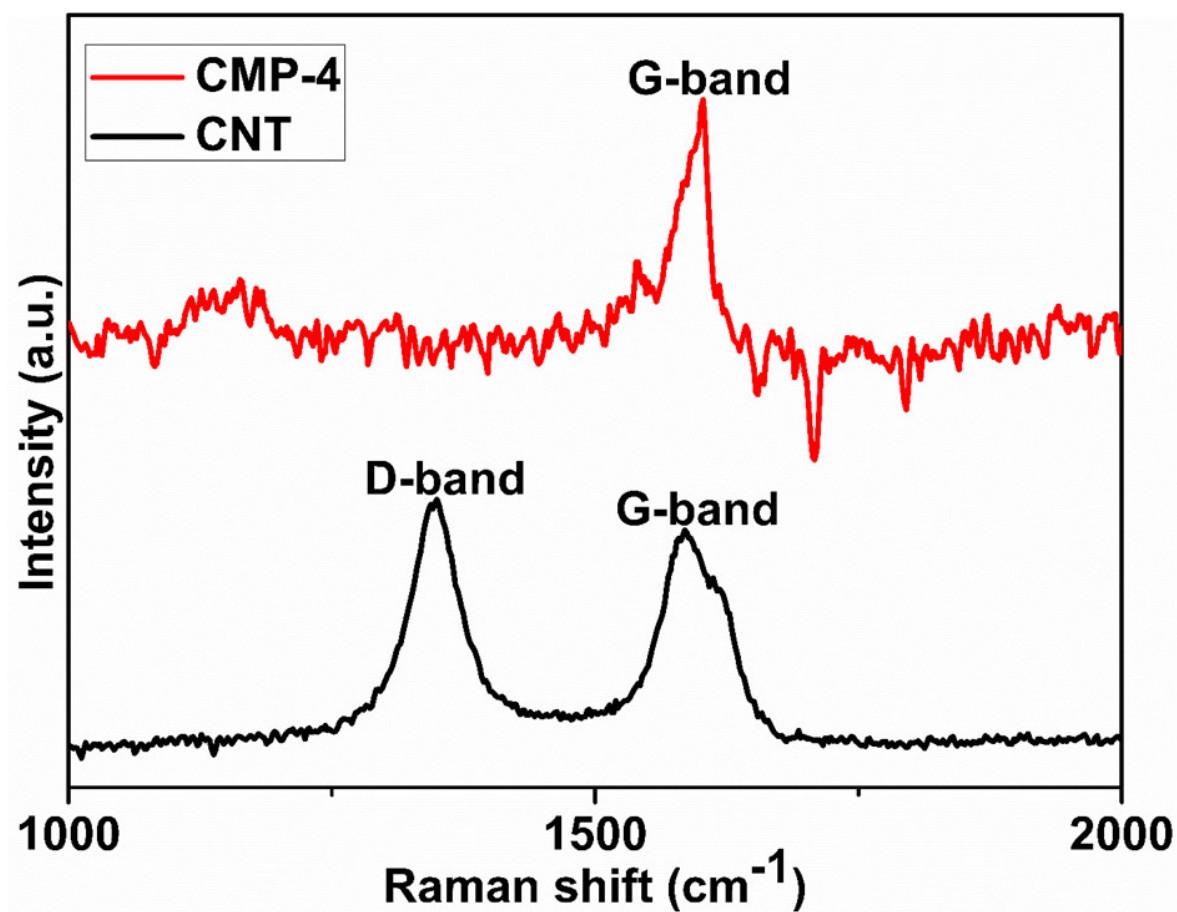


Figure S6. Raman plot for CMP-4 and CNT.

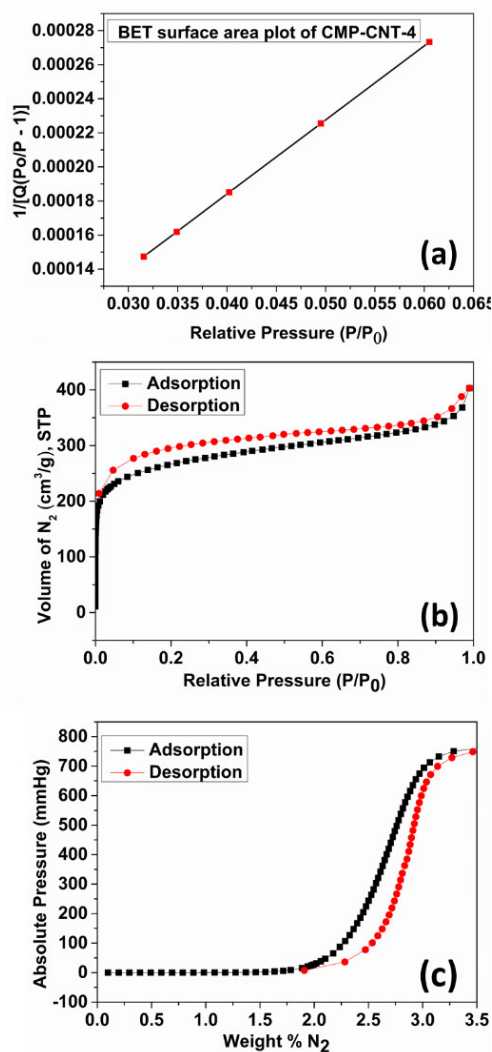


Figure S7. (a) BET surface area plot of CMP-CNT-4, (b) Isotherm adsorption-desorption plot for CMP-CNT-4, (c) Isotherm pressure composition plot for CMP-CNT-4.

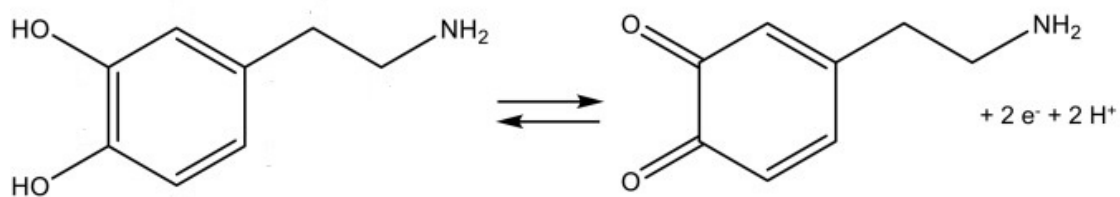


Figure S8. Electrochemical redox reaction in DA.

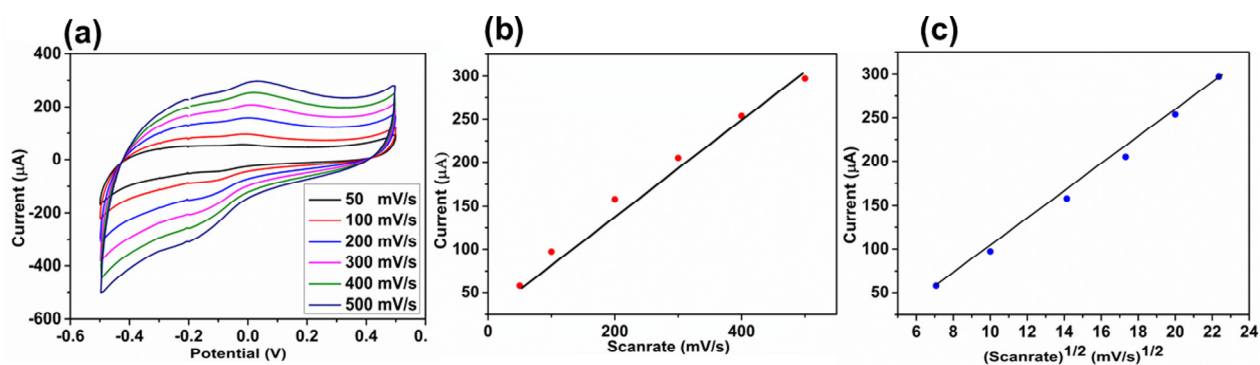


Figure S9. **a)** Scan rate (4 μM) from 50 – 500 mV/s, **b)** current vs scan rate, **c)** current vs (scan rate)^{1/2}.

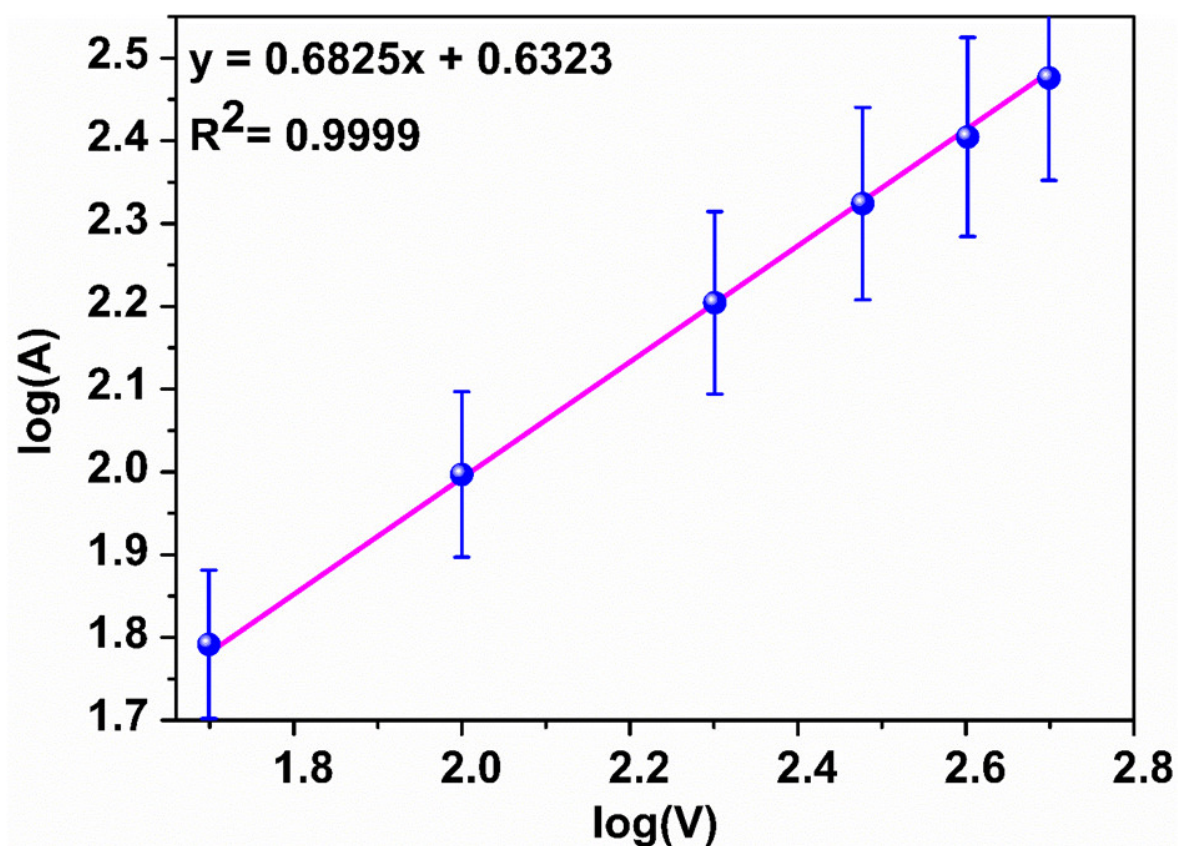


Figure S10. $\log(V)$ Vs $\log(A)$ plot 4 μ M DA in PBS (7.4 pH).

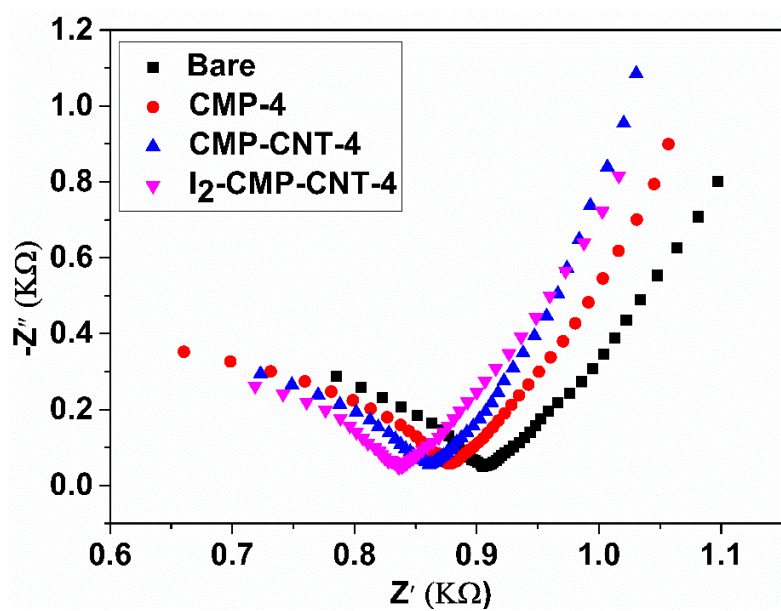


Figure S11. Nyquist plot for Bare GCE, CMP-4 modified GCE, CMP-CNT-4 modified GCE and I_2 -CMP-CNT-4 modified GCE.

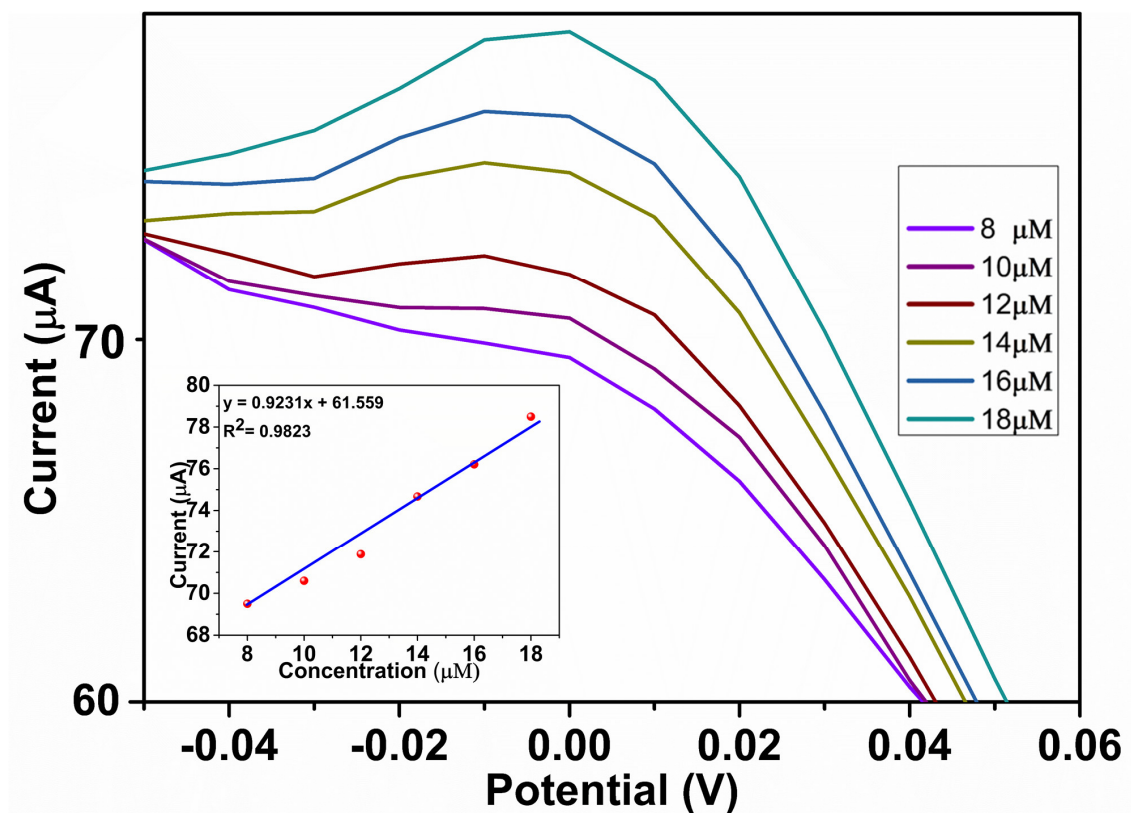


Figure S12. DPV plot for DA in FBS and linear regression equation from 8- 18 μM DA.

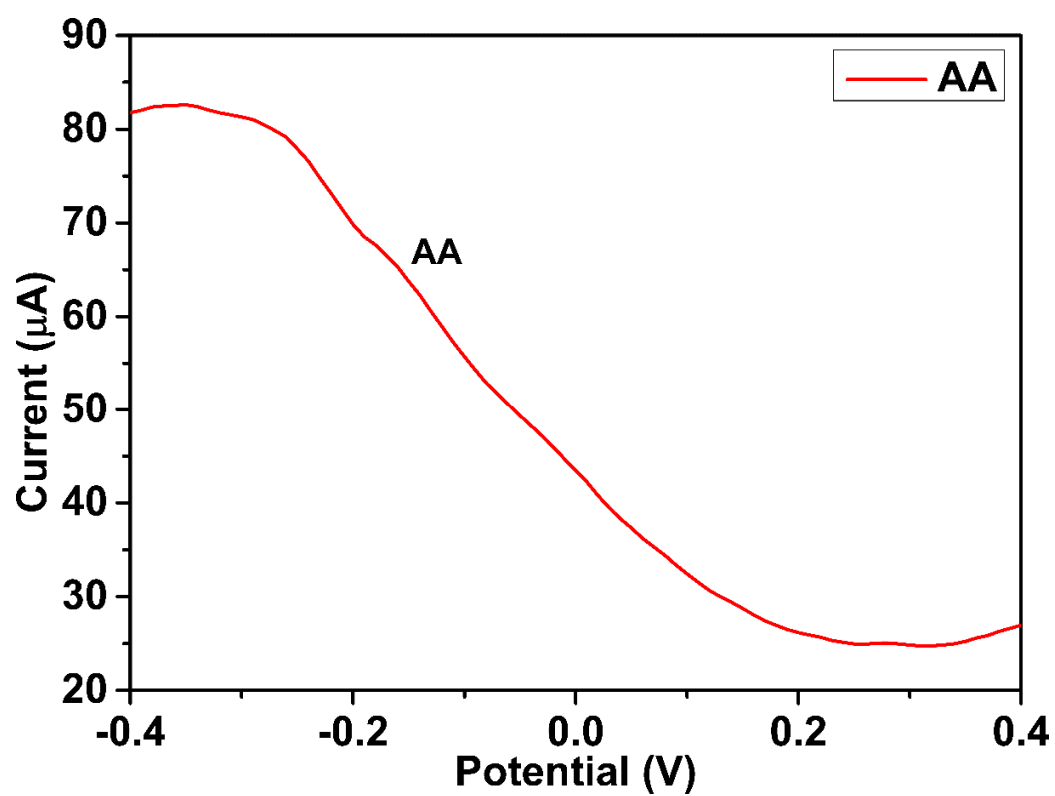


Figure S13. DPV plot of 1 μM AA in PBS (7.4 pH).

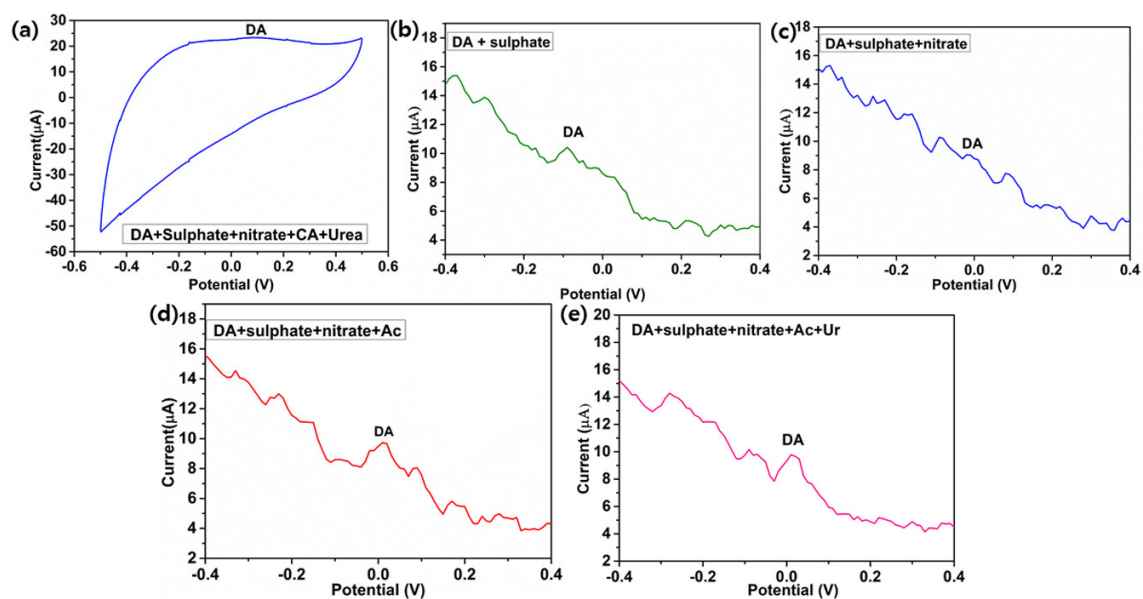


Figure S14. (a) CV plot for the interference of anions, (b-e) DPV plot for the interference of anions.

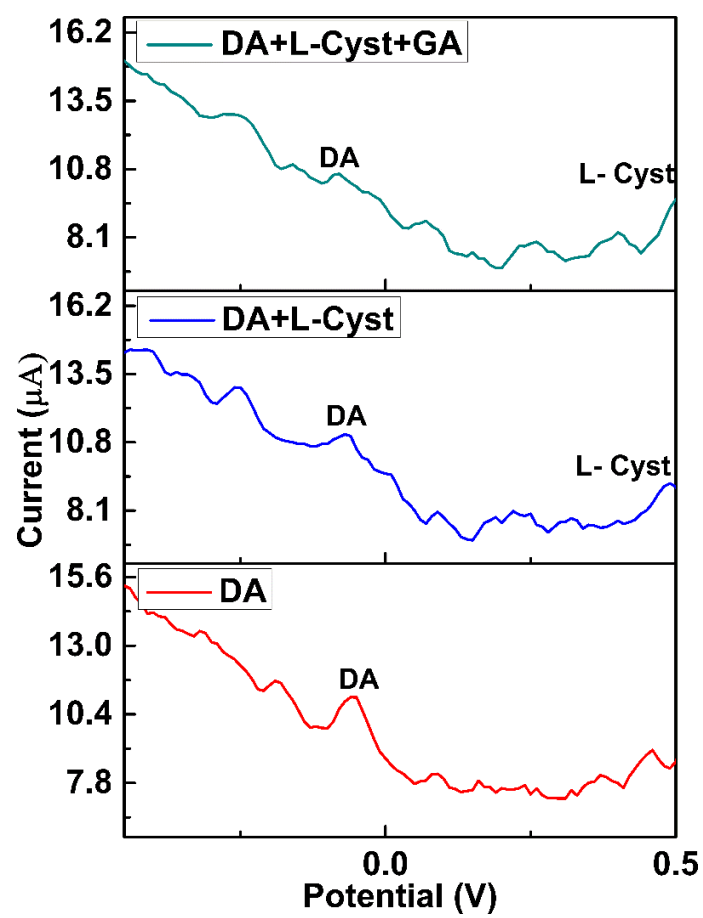


Figure S15. Interference DPV plot of DA, L-Cyst & GA.

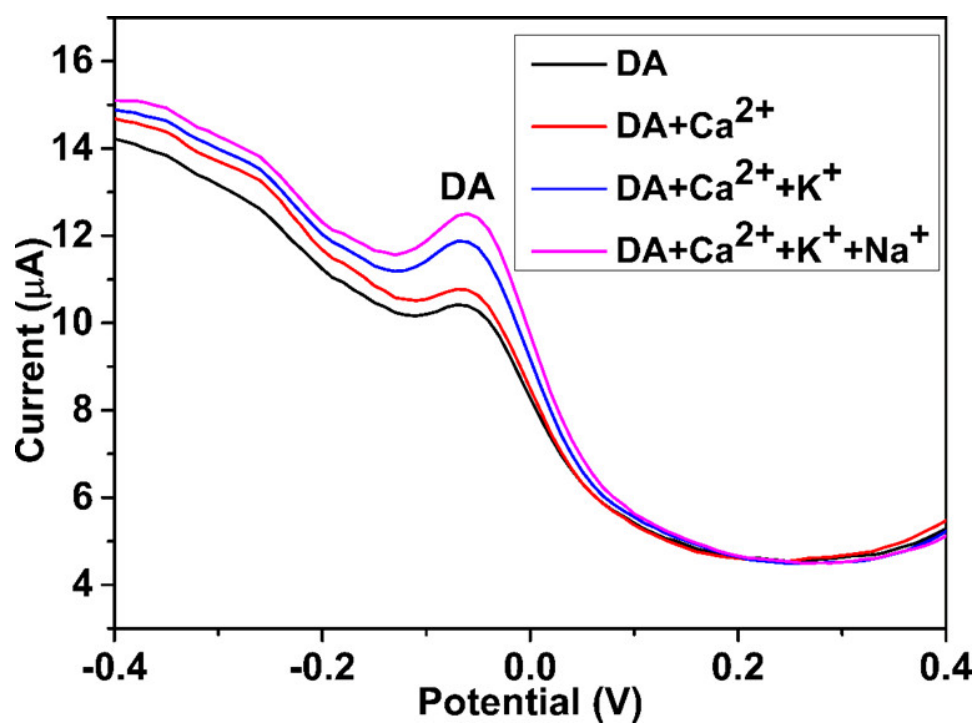


Figure S16. Interference DPV plot of DA in Ca^{2+} , K^{+} & Na^{+} .

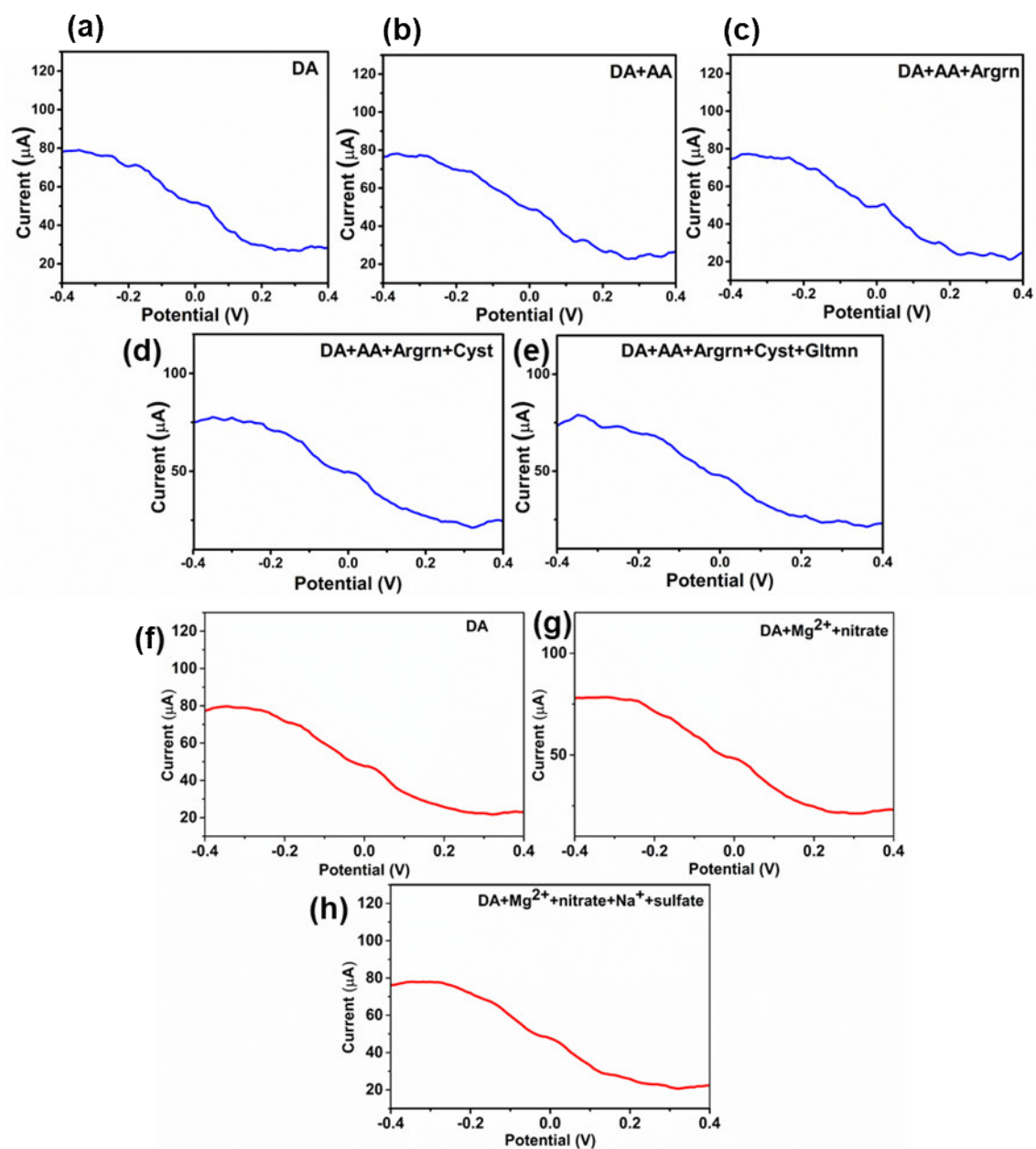


Figure S17. Interference plot in FBS medium for 6 μM DA in presence of AA, amino acids, cations, and anions.

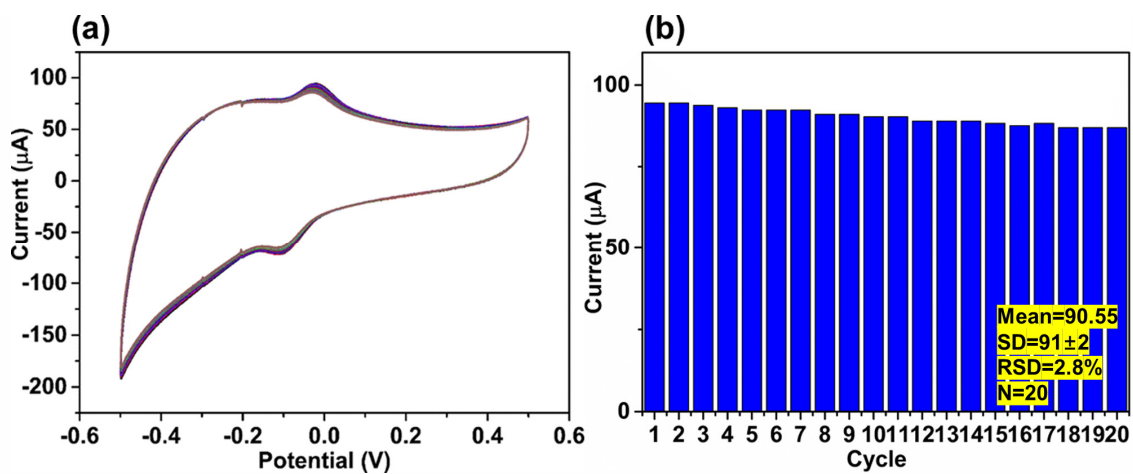


Figure S18. **a)** Current VS. potential CV plot of 5 μM DA (7.4 pH) in 20 cycles for stability studies, **b)** Current Vs. cycle plot of I₂-CMP-CNT-4 modified GCE in 20 cycles.

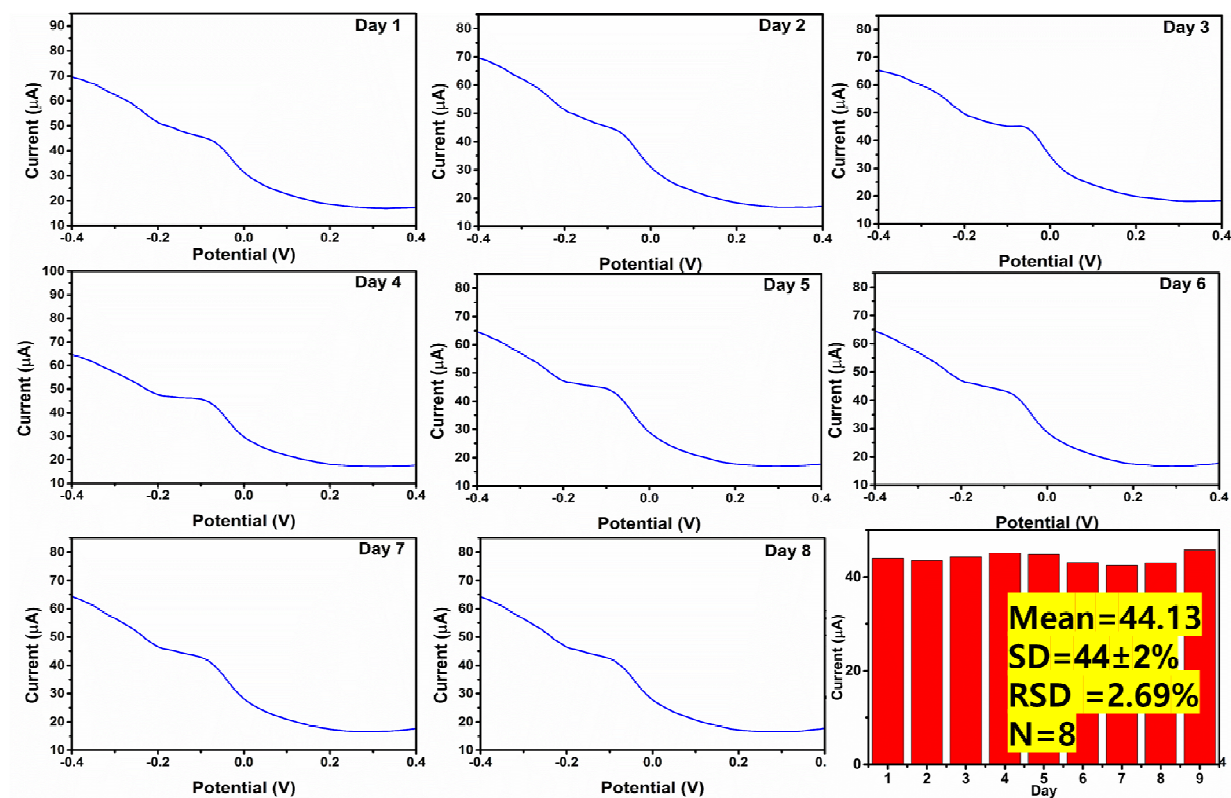


Figure S19. Peak reproducibility DPV plot of 5 μ M DA (7.4 pH) in 8 days, and Current Vs. day plot and RSD value.

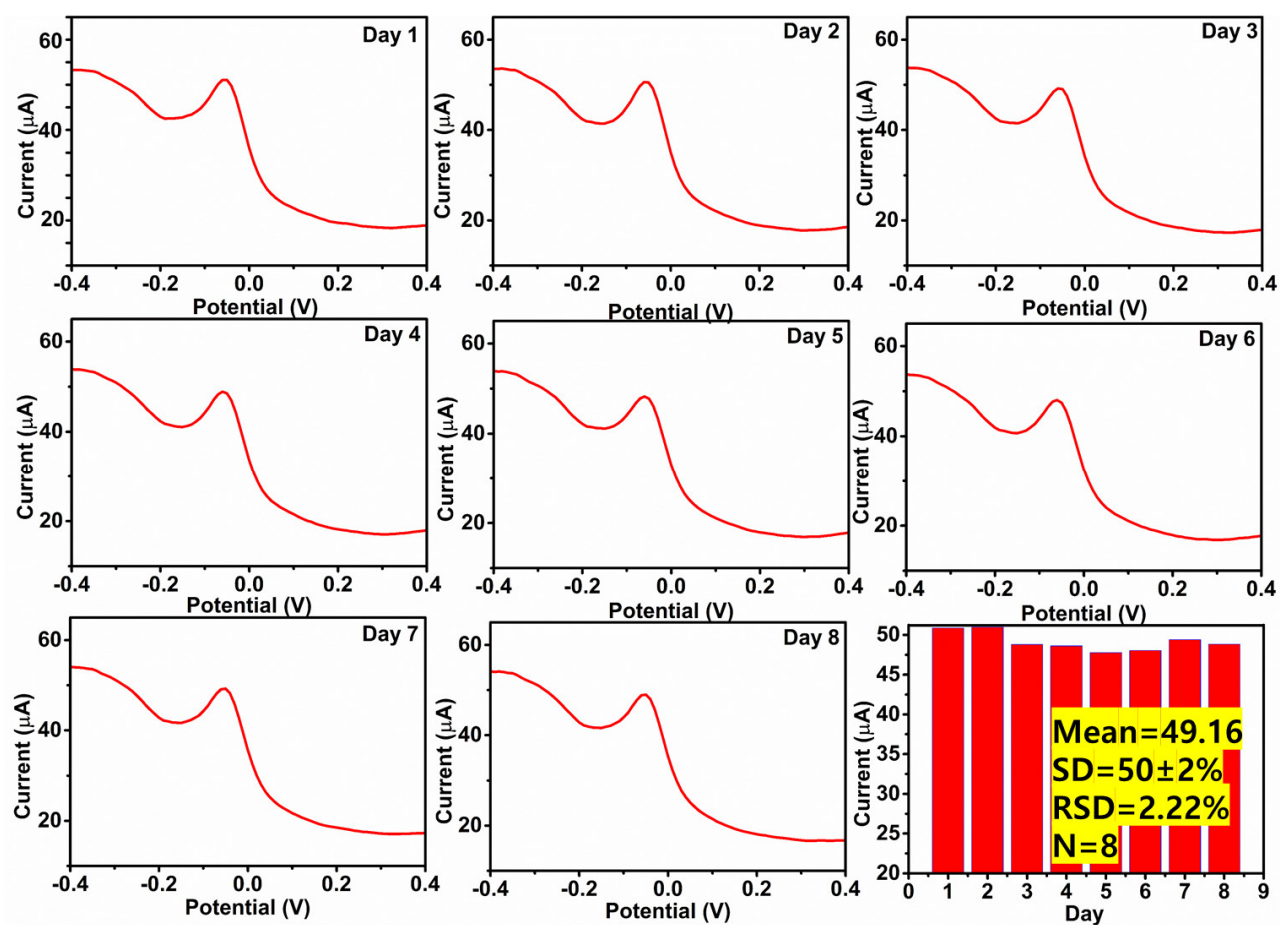


Figure S20. Peak reproducibility DPV plot of 6 μM DA (7.4 pH) in 8 days, and current Vs. day plot and RSD value.

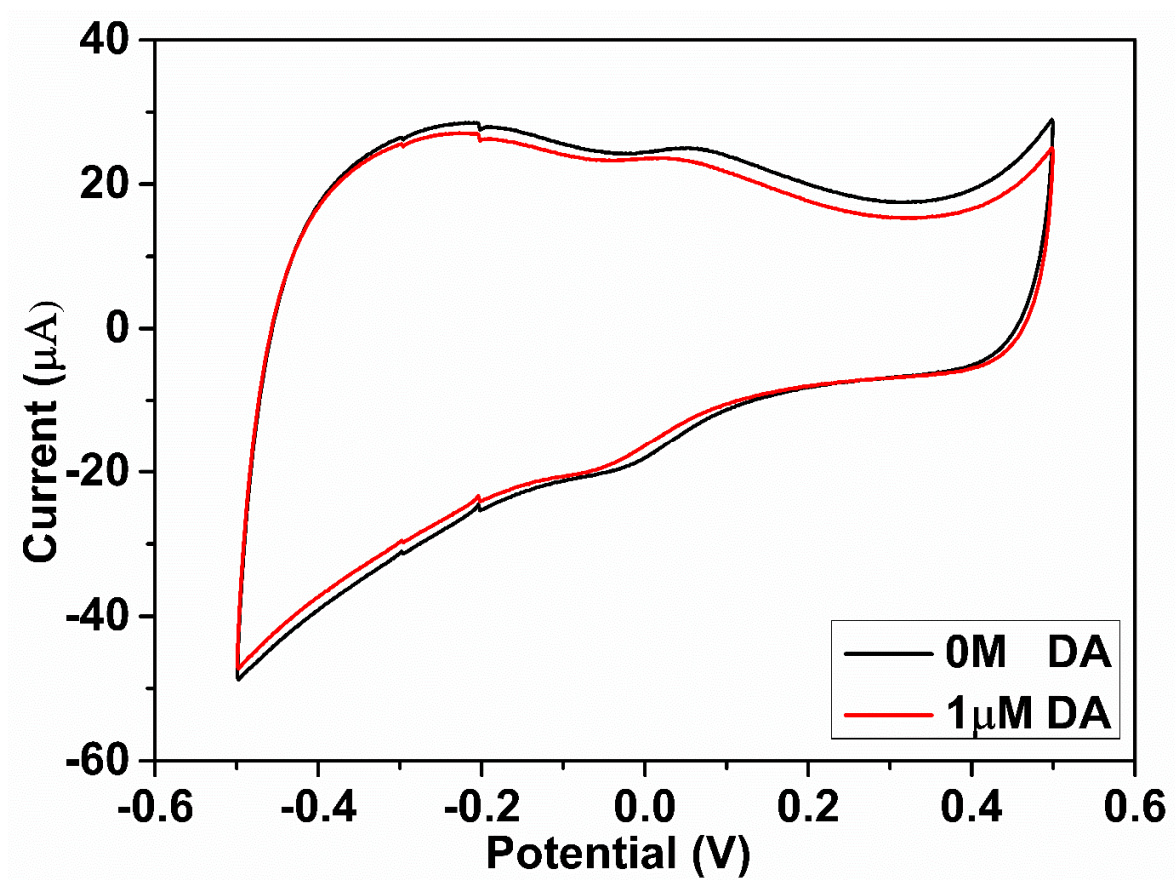


Figure S21. CV plot for the electrochemical behavior of CNT-modified GCE towards DA.

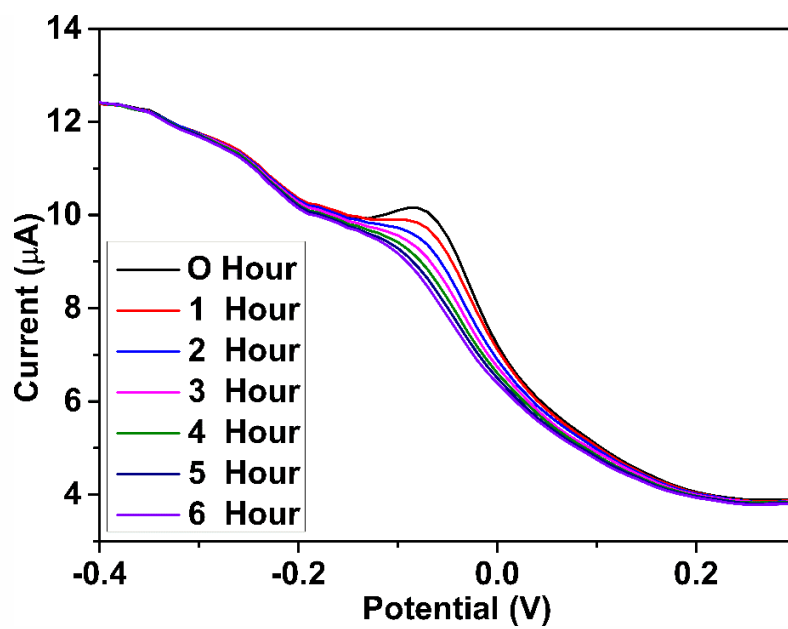


Figure S22. Stability study of I₂-CMP-CNT-4 (1 μM DA) at various time duration in PBS (7.4 pH).

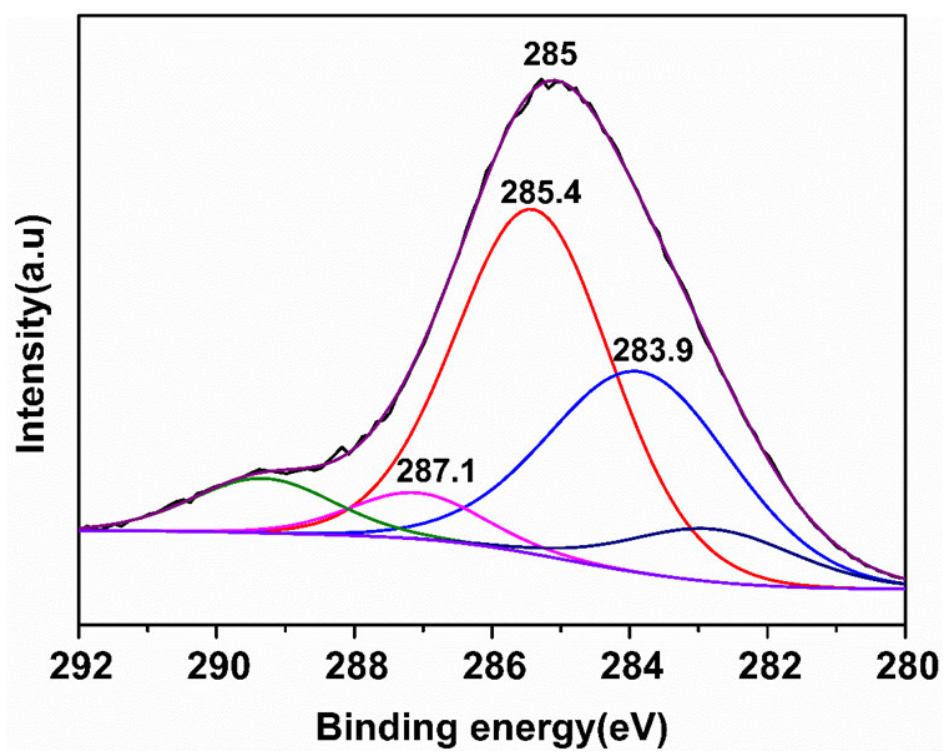


Figure S23. C(1s) deconvolution spectra of CMP-CNT-4.