Supplementary information for

Reduced Graphene Oxide Carbon Yarn Electrodes for Drug Sensing

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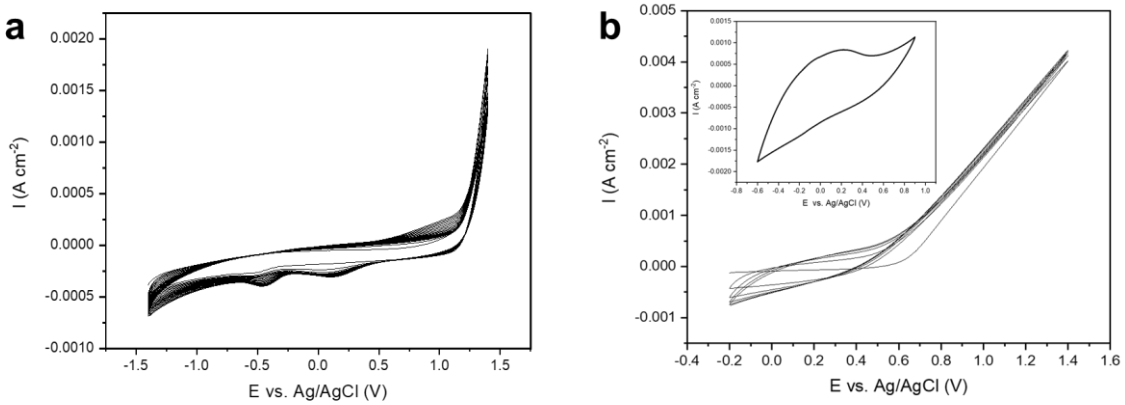

Figure S1. ***(a)*** *Cyclic voltammograms during electrochemical reduction of GO into rGO using 20 CV scans with the scan rate of 100 mV s^{-1} on carbon fibre electrode;* ***(b, main graph)*** *Electropolymerisation of pyrrole onto rGO fibre electrode from the solution containing of 0.2 M pyrrole and 0.2 M SDS using 5 CV scans with the scan rate of 50 mV s^{-1};* ***(b, inset)*** *a post polymerisation CVs recorded at 50 mV s^{-1}.*

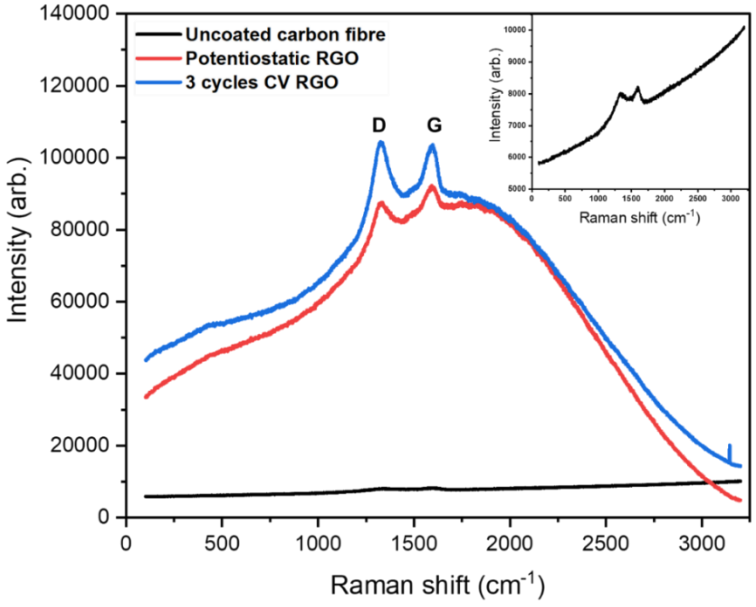

Figure S2. *Raman spectrum of uncoated carbon fibre (black line), potentiostatic deposition of RGO on carbon fibre (red line) and 3 scans CV deposition of RGO on carbon fibre (blue line).*

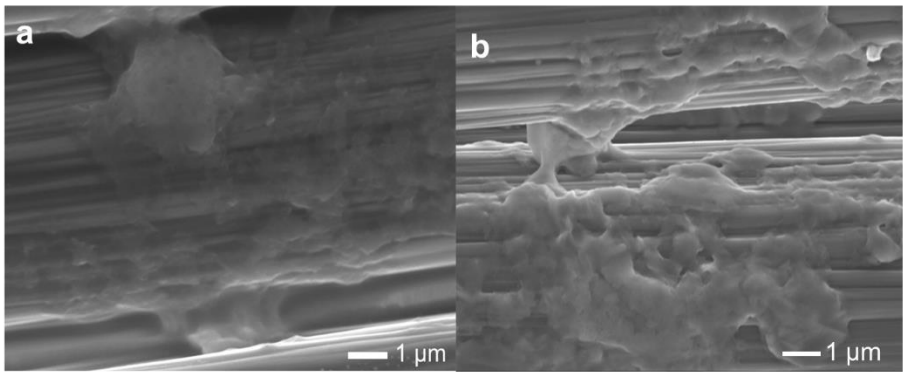

Figure S3. *Scanning electron microscopy (SEM) images of:* ***(a)*** *Potentiostatic deposition of rGO coated carbon fibre; and* ***(b)*** *10 CV scans rGO coated carbon fibre.*

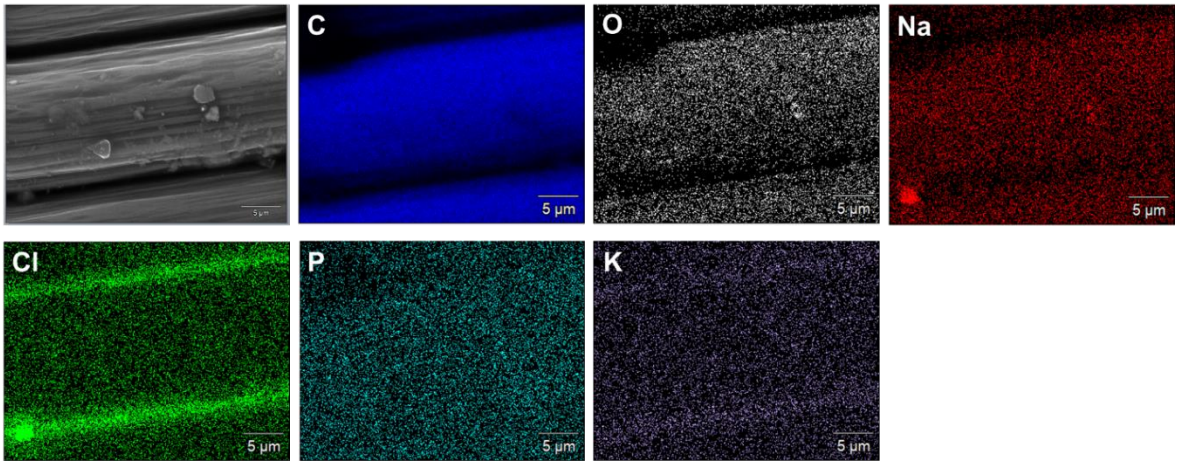

Figure S4. *Energy-dispersive X-ray spectroscopy (EDS) - mapping images of 20 scans CV deposition rGO coated carbon fibre consisting of Carbon, Oxygen, Sodium, Chlorine, Phosphorous and Potassium.*

Table S1. *EDS measurement of chemical composition.*

EDS	%C	%O	%N	%S	%Na	%Cl	%P	%K
Potentiostatic rGO	79.2	1.8	–	–	–	10.6	8.4	–
3 CV scans rGO	39.3	38.8	–	–	6.9	2.5	7.2	5.3
5 CV scans rGO	50.3	35.8	–	–	8.1	1.4	4.4	–
10 CV scans rGO	78.5	17.3	–	–	–	3.9	–	0.3
15 CV scans rGO	77.4	20.1	–	–	0.5	2.0	–	–
20 CV scans rGO	78.5	20.5	–	–	0.6	0.2	0.1	0.1
PPy-rGO	70.1	15.2	6.2	7.6	0.6	0.3	–	–

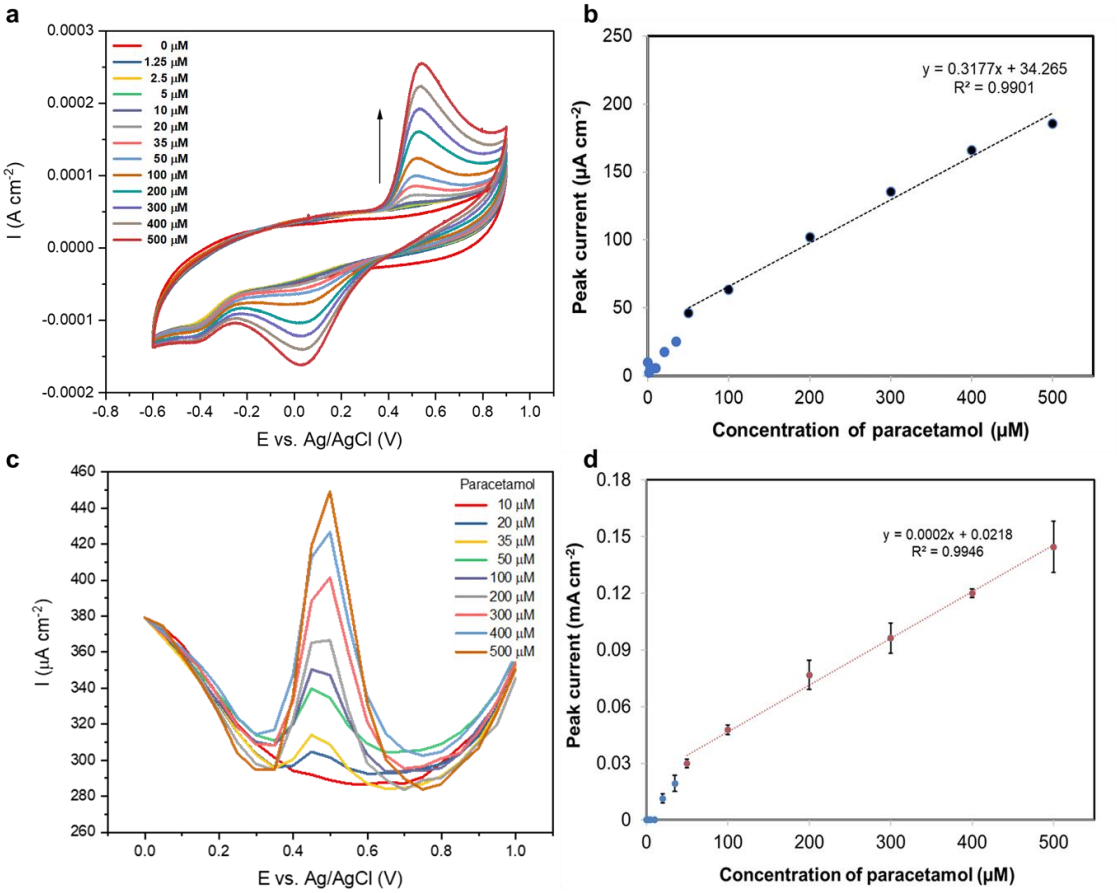

Figure S5. ***(a)*** *Cyclic voltammograms (50 mVs^{-1}) of a rGO-coated carbon fibre (made using 15 CV scans) with various concentrations of paracetamol in aqueous 0.1 M PBS solution;* ***(b)*** *The resulting oxidation peak currents vs. paracetamol concentration (n = 3);* ***(c)*** *Differential pulse voltammograms of rGO-coated carbon fibres (made using 15 CV scans) with various concentrations of paracetamol in aqueous 0.1 M PBS solution;* ***(d)*** *The resulting oxidation peak currents vs. paracetamol concentration (n = 3).*

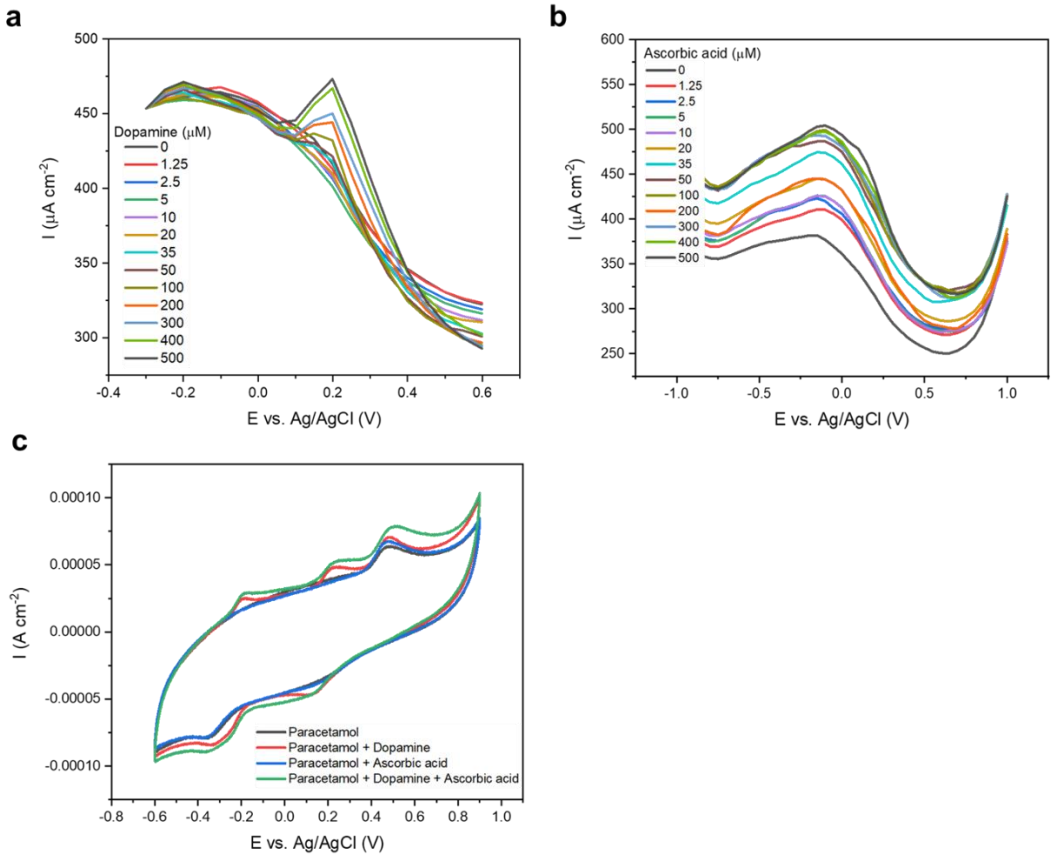

Figure S6. ***(a)*** *Differential pulse voltammograms of a rGO-coated carbon fibre (made using 20 CV scans) with various concentrations of dopamine in aqueous 0.1 M PBS solution;* ***(b)*** *Differential pulse voltammograms of a 20 CV scans rGO coated carbon fibre with various concentrations of ascorbic acid in aqueous 0.1 M PBS solution;* ***(c)*** *CV curves recorded with 100 μM paracetamol (black), 100 μM paracetamol with the presence of 100 μM dopamine (red), 100 μM paracetamol with the presence of 100 μM ascorbic acid (blue), and 100 μM paracetamol with the presence of 100 μM dopamine and 100 μM ascorbic acid (green)*

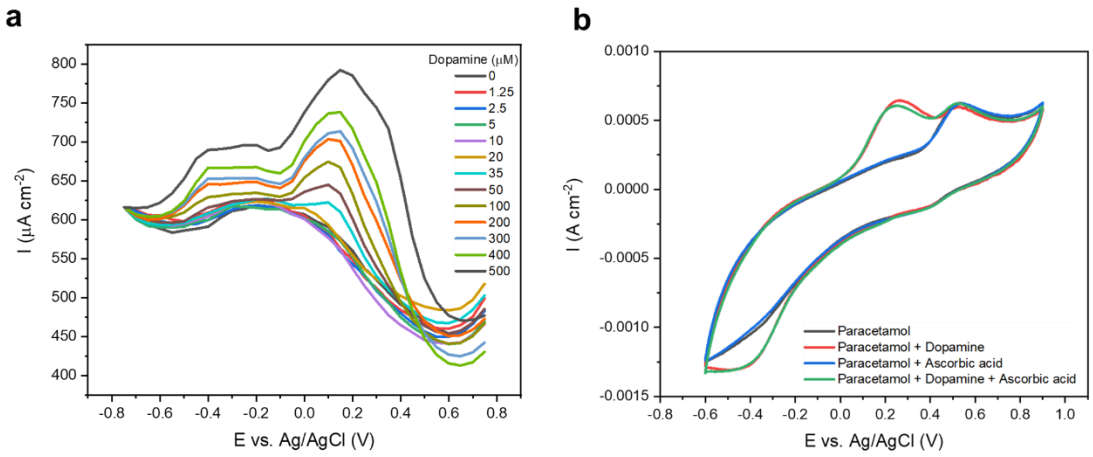

Figure S7. ***(a)*** *Differential pulse voltammograms of a PPy- rGO coated carbon fibre with various concentrations of dopamine in aqueous 0.1 M PBS solution;* ***(b)*** *CV curves recorded with 100 μM paracetamol (black), 100 μM paracetamol with the presence of 100 μM dopamine (red), 100 μM paracetamol with the presence of 100 μM ascorbic acid (blue), and 100 μM paracetamol with the presence of 100 μM dopamine and 100 μM ascorbic acid (green).*