Electronic Supplementary Material (ESI) for Analytical Methods.
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Electrochemically synthesized partially reduced graphene oxide modified glassy carbon electrode for individual and simultaneous voltammetric determination of ascorbic acid, dopamine and uric acid

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Supporting information

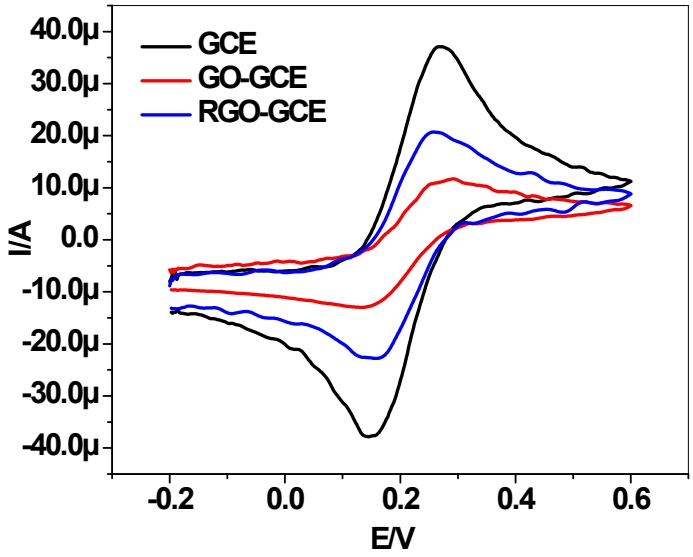

Fig. S1: Cyclic voltammetric response of 5×10^{-3} M of $K_3[Fe(CN)_6]$ in 1×10^{-1} M KCl at bare GCE, GO-GCE and RGO-GCE modified electrodes at scan rate of 50mVs^{-1}

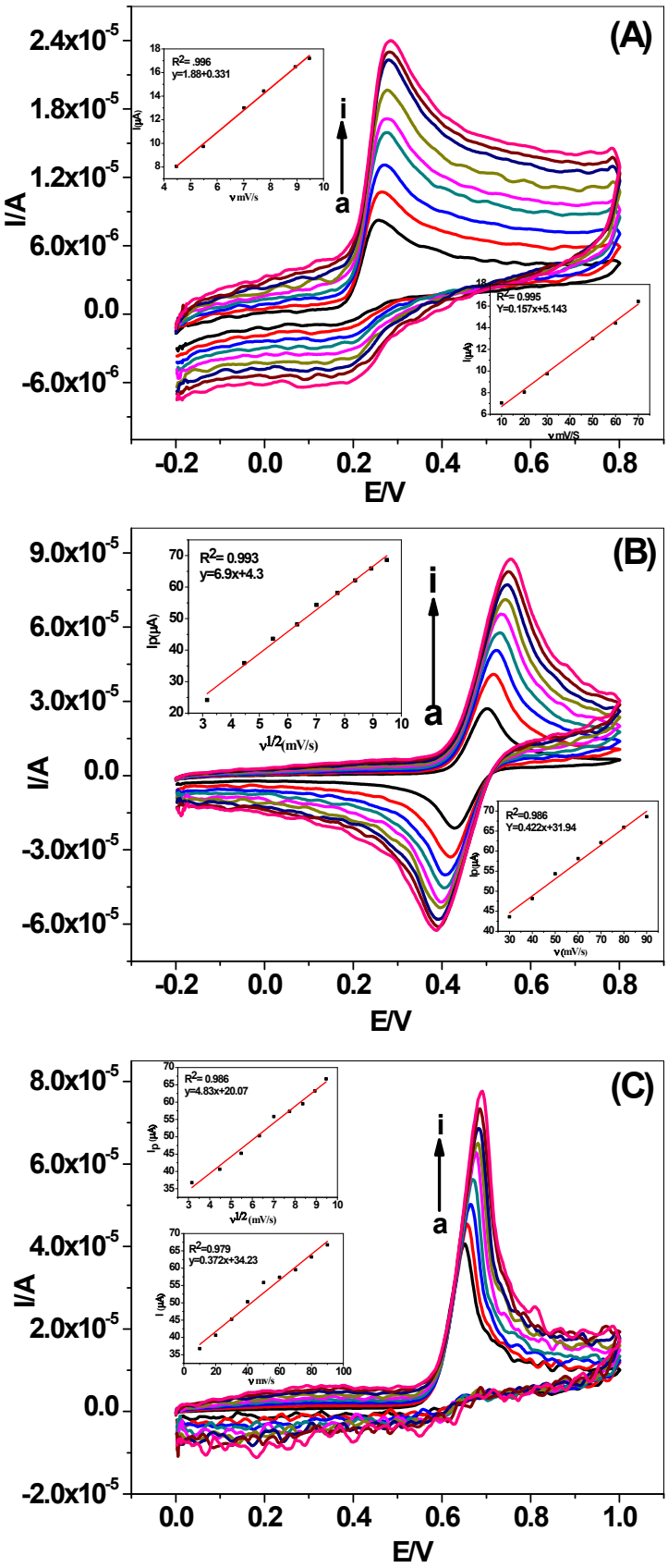

Fig. S2 (A, B andC): Cyclic voltammograms of 1×10^{-3} Mof AA, DA and UA at various scan rates (10 to 90mVs^{-1}) at RGO-GCE, Insets: corresponding IpVs $\nu^{1/2}$and IpVsυ plots.

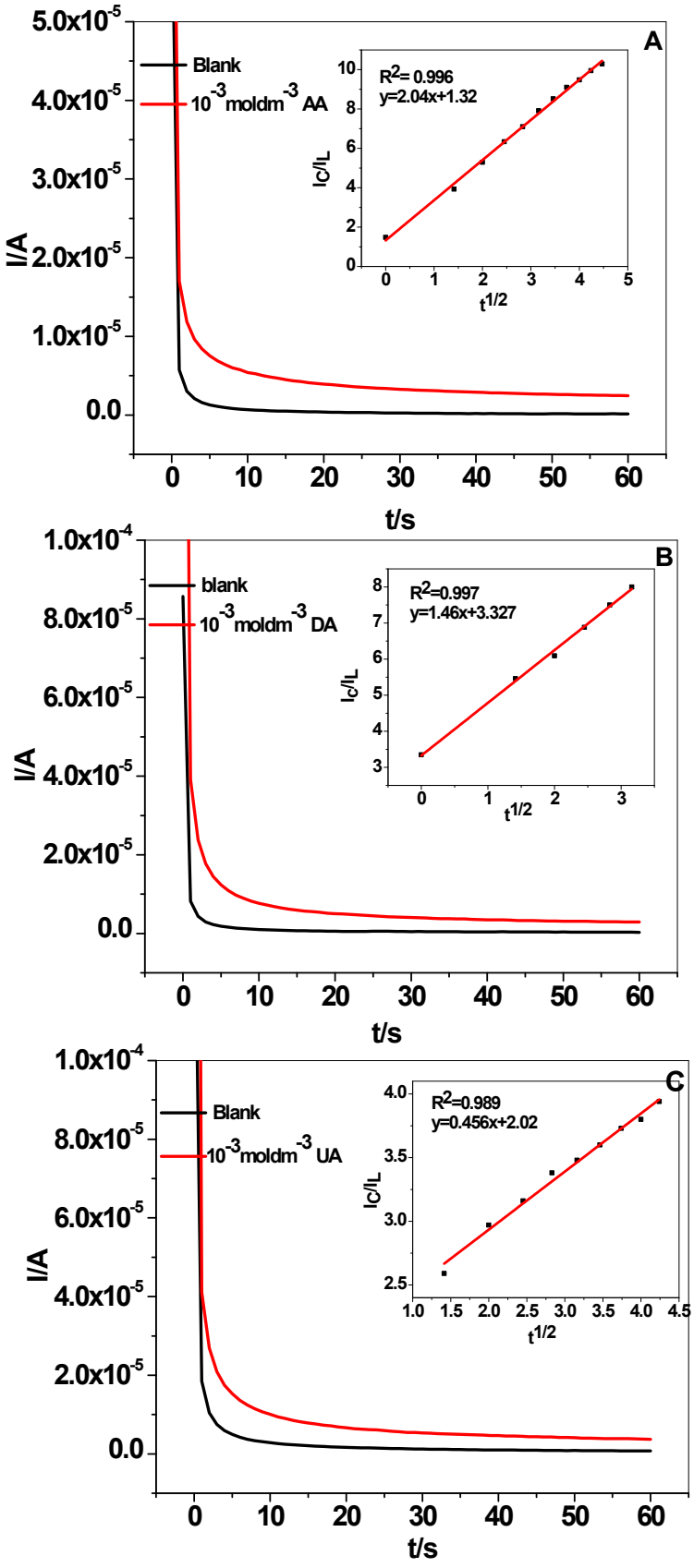

Fig. S3 (A, B &C): Current-time curves of RGO-GCEin the absence and presence of 1×10^{-3} M of AA, DA and UA, respectively in 0.1M phosphate buffer (pH=3) and inset shows the corresponding dependence of I_C/I_L on $t^{1/2}$.

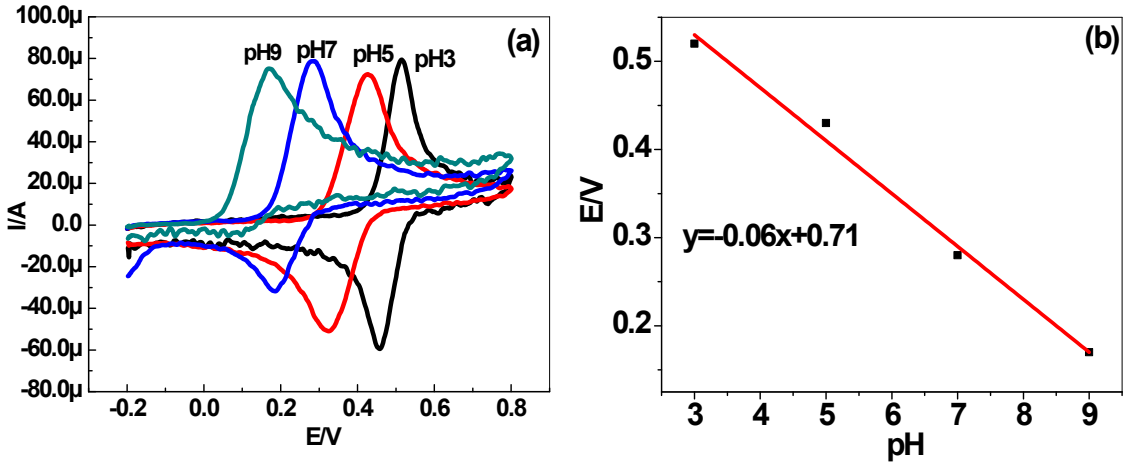

Fig. S4. CVs of 1×10^{-3} MDA at the RGO-GCE at different pH's (3.0, 5.0, 7.0 and 9.0) Figure (b) shows the relationship between the peakpotential and pH.

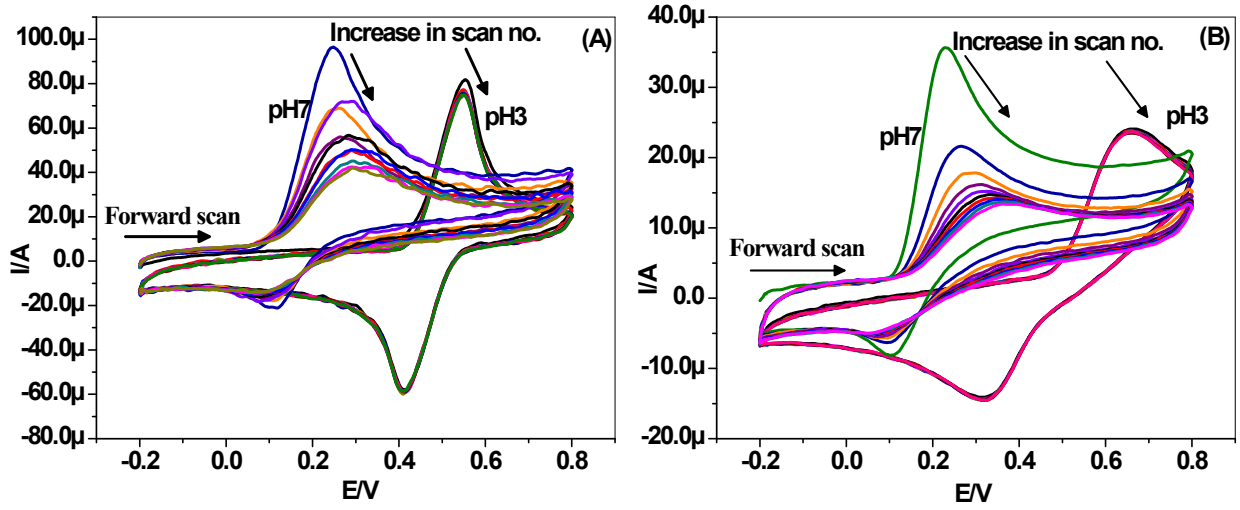

Fig. S5 Repetitive cycling for the electro-oxidation of 1×10^{-3}M DA in 0.1M phosphate buffer at pH 3.0 & 7.0 (A) RGO-GCE (B) Bare GCE.

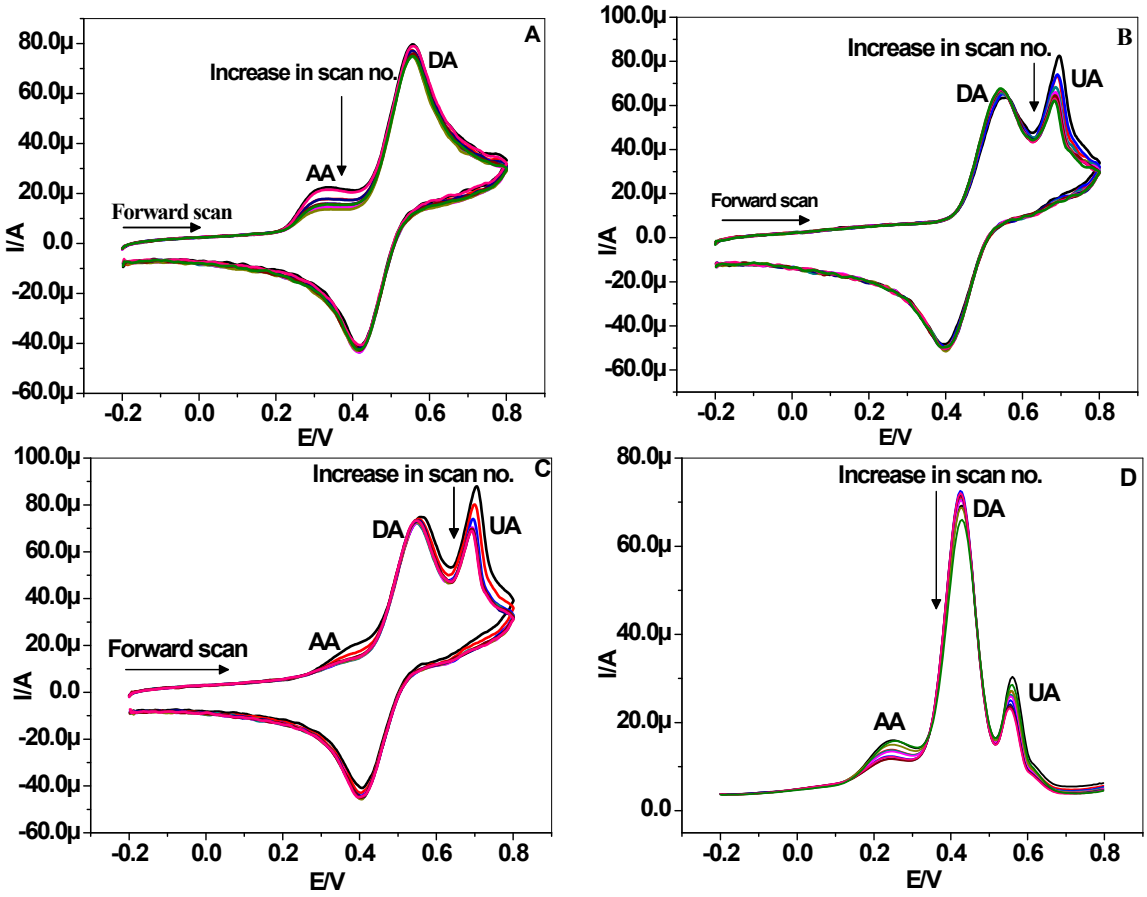

Fig. S6 Repetitive cycling for the simultaneous electro-oxidation of 1×10^{-3}M of AA, DA and UA in phosphate buffer at pH 3.0 (A, B & C) and corresponding DPV profile (D).

Table S1: Comparative account of recently reported electrochemical sensors for individual and simultaneous determination of AA, DA and UA.

Electrode	Linear range (10^{-6}M)			Detection Limit (10^{-6}M)			References
	AA	DA	UA	AA	DA	UA	
PoPD/E-RGO[a]	-	10-800	-	-	7.5	-	27
e-FGPE[b]	20-400	0.5-35	0.5-35	2	0.01	0.02	33
GEF/CFE[c]	45.4-1483.2	0.7-45.21	3.78-183.87	24.7	0.5	2	34
CTAB-GO/MWNT[d]	5-300	5-500	3.0-60	1.0	1.5	1.0	35
PImox-GO[e]	75-2275	12-278	3.6-249.6	18	0.63	0.59	36
IL-G/GCE[f]	-	5-275	1-400	-	0.812	0.513	37
Pt/RGO	-	10-170	10-130	-	0.25	0.45	38
(Fe3O4-NH2)@(GS)[g]	5-1600	0.2-38	1.0-850	0.074	0.126	0.056	39
ERGO[h]	500-2000	0.5-60	0.5-60	250	0.5	0.5	40
SDS-MWCNTs/GCE	400-3500	0.8-80	4-30	3	0.01	0.04	41
RGO[i]	-	-	0.1-10	-	-	0.05	42
PdNPs/GR/CS/GCE[j]	100-4000	0.5-200	0.5-200	20	0.1	0.17	43
PEDOT-modified Ni/Si MCP	20-1400	12-48	36-216	10	1.5	2.7	44
Methoxypolyethylene glycols/GCE	-	1-140	-	-	0.0468	-	45
CPE/GNS [k]	-	2-1000	-	-	0.85	-	20
TNCs1-GCE	80-1400	0.4-60	10-70	14±0.56	0.28±0.02	1.6±0.05	46
AuNPs@MIPs	-	0.02-.54	-	-	0.0078	-	47
PPy-RGO[l]	-	0.06-8	-	-	0.006	-	48
BPPG/MWCNT/HQ [m]	40-280	0.01-0.07	2-14	1.94	0.003	0.1	49
SGN/NiPc[n]	25-1050	0.25-10	5.0-175	0.12	0.08	0.22	50
N-PCNPs[o]	80-2000	0.5-30	4-50	0.74	0.01	0.02	51
Nano-Cu-PSAIII/GCE [p]	0.30-730	0.02-65	0.25-107	0.15	0.01	0.10	52
Poly(tyrosine)/MWCNT [q]	50-1000	0.1-30	1-350	2.0	0.02	0.30	53
Modified GCE	25-300	3-300	5-70	23.38	2.67	4.70	54
P-4-ABA/GCE [r]	20-800	5.0-100	1.0-80	5.0	1.0	0.5	55
DpAu/PTCA-Cyst/GCE [s]	20-700	2-402	0.40-252	6.40	0.67	0.12	56
Graphene modified electrode	-	2.5-100	-	-	0.5	-	57
AuNW[t]	-	0.2-600	-	-	0.026	-	58
NG [u]	5-1300	0.5-170	0.1-20	2.2	0.25	0.045	59
PVP/Graphene	-	5×10^{-4}-1.13×10^{3}	-	-	0.002	-	60
Cysteamine-Functionalized MWCNT	-	0.2-100	1-100	-	0.02	0.1	61

Pre-treated GCE	-	0.1-12	-	-	0.03	-	62
N-CNRs [v]	-	0.008-15	-	-	0.009	-	63
Graphene	-	-	2-120	-	-	0.6	64
RGO-GCE [w]	40-1000	0.1-100	0.8-800	4.2	0.008	0.6	Present work

[a] poly(o-phenylenediamine) (PoPD)/E-RGO hybrid composite, [b]Exfoliated flexible graphite paper, [c] Graphene flowers/Carbon fiber, [d] CTAB functionalizedgrapheneoxide/multiwalledcarbon nanotube composite, [e]Overoxidizedpolyimidazole and grapheneoxide, [f] Ionic liquid functionalized graphene, [g] amino-group functionalized mesoporous Fe_3O_4@graphene sheets, [h] electrochemically reduced graphene oxide, [i] reduced grapheneoxide, [j] Palladium nanoparticle/graphene/chitosan/glassy carbon electrode, [k] Carbon paste electrode modified with graphene nanosheet, [l] polypyrrole-reduced graphite oxide core–shell microspheres, [m] basal plane pyrolytic graphite (BPPG) electrode modified with 1,4-naphthoquinone (NQ)adsorbed on multiwalled carbon nanotubes (MWCNT), [n] Nickel(II) phthalocyanine on mesoporous SiO_2/C carbon ceramic matrices, [o] Nitrogen doped porous carbon nanopolyhedra, [p] Cu nanoparticles (nano-Cu)–poly(sulfonazo III) (PSA III) modified glassy carbon electrode, [q] poly (tyrosine)/carboxyl functionalized multi-walled carbon nanotubes composite film, [r] A polymerized film of 4-aminobutyric acid on the surface of glassy carbon electrode, [s] Deposited gold nanocrystals enhanced porous PTCA–Cys layer, [t] Gold nanowire modified, [u] Nitrogen doped graphene, [v] Nitrogen-doped carbon nanorods, [w] Partially reduced graphene oxide modified GCE.