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Sensitive electrochemical determination of dopamine and uric acid using AuNPs_(EDAS)-rGO nanocomposites

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Table S1

Analytical parameters for the amperometric determination of DA and UA using AuNPs_(EDAS)-rGO/ GC electrodes

Analyte	Linear range ($\mu\text{mol L}^{-1}$)	Linear regression equation $I_{pa}(\mu\text{A}), C(\mu\text{mol L}^{-1})$	Correlation coefficient (R^2)	Sensitivity $\mu\text{A } \mu\text{M}^{-1}$	Detection limit ($\mu\text{mol L}^{-1}$)	
					Exp. ^a	Cal. ^b
DA	0.05 - 9	$I_{DA} = 1.1985C_{DA} + 0.8718$	0.9937	1.19	0.05	0.03
UA	0.1 – 11	$I_{UA} = 1.1308C_{UA} + 0.9842$	0.9935	1.13	0.1	0.06

^athe detection limit was measured by applying real experiments.

^bthe detection limits were calculated using extrapolation methods shown in inset of Fig. 11.

Table S2

Comparison of literature results for the detection of DA and UA using different electrodes and this work

Electrode	Detection method	Dynamic range (μM)			Limit of detection (μM)			Ref
		AA	DA	UA	AA	DA	UA	
AuNPs-Graphene/GC	Amperometry	-	-	2-60	-	-	0.2	65
AuNP- β -CD-graphene	DPV	30-2000	0.5-150	0.5-60	10.0	0.15	0.21	66
$\text{Fe}_3\text{O}_4/\text{rGO}/\text{GCE}$	DPV	1-9	0.5-100	-	0.42	0.12	-	67
GONR(200 W)/GC	Amperometry	0.1-8.5	0.15-12.15	0.15-11.4	0.6	0.08	0.07	68
PANI-GO/GC	DPV	25-200	2-18	2-18	20	0.5	0.2	69
SPGE	DPV	4-4500	0.5-2000	0.8-2500	0.95	0.12	0.2	70
MWNTs/MGF/GCE	DPV	100-6000	0.3-10	5-100	18.2	0.06	0.93	71
NG/GCE	DPV	5-1300	0.5-170	0.1-20	2.2	0.25	0.045	72
chitosan-graphene-GC	DPV	50-1500	1-32	2-65	50	1.0	2.0	73
AuNPs _(EDAS) -rGO/GC	Amperometry	-	0.05	0.1	-	0.03	0.06	This work

Table. S3

Determination of DA and UA levels in real samples using the AuNPs_(EDAS)-rGO modified electrode

Samples	Added (μM)	Found (μM)	Recovery %	RSD% (n = 3)
DA hydrochloride injection (labeled 40 mg mL^{-1})	-	74.6	-	2.9
	25	101.3	104.2	2.1
DA hydrochloride injection (labeled 20 mg mL^{-1})	-	44.2	-	2.5
	55	100.3	101.4	1.8
Urine1	-	86.0	-	2.4
	25	113.5	102.5	2.6
Urine2	-	26.4	-	1.9
	40	67.2	100.8	2.2