Supplementary Information

Ti$_3$C$_2$T$_x$ (MXene)/Pt nanoparticles electrode for accurate detection of DA coexisting with AA and UA

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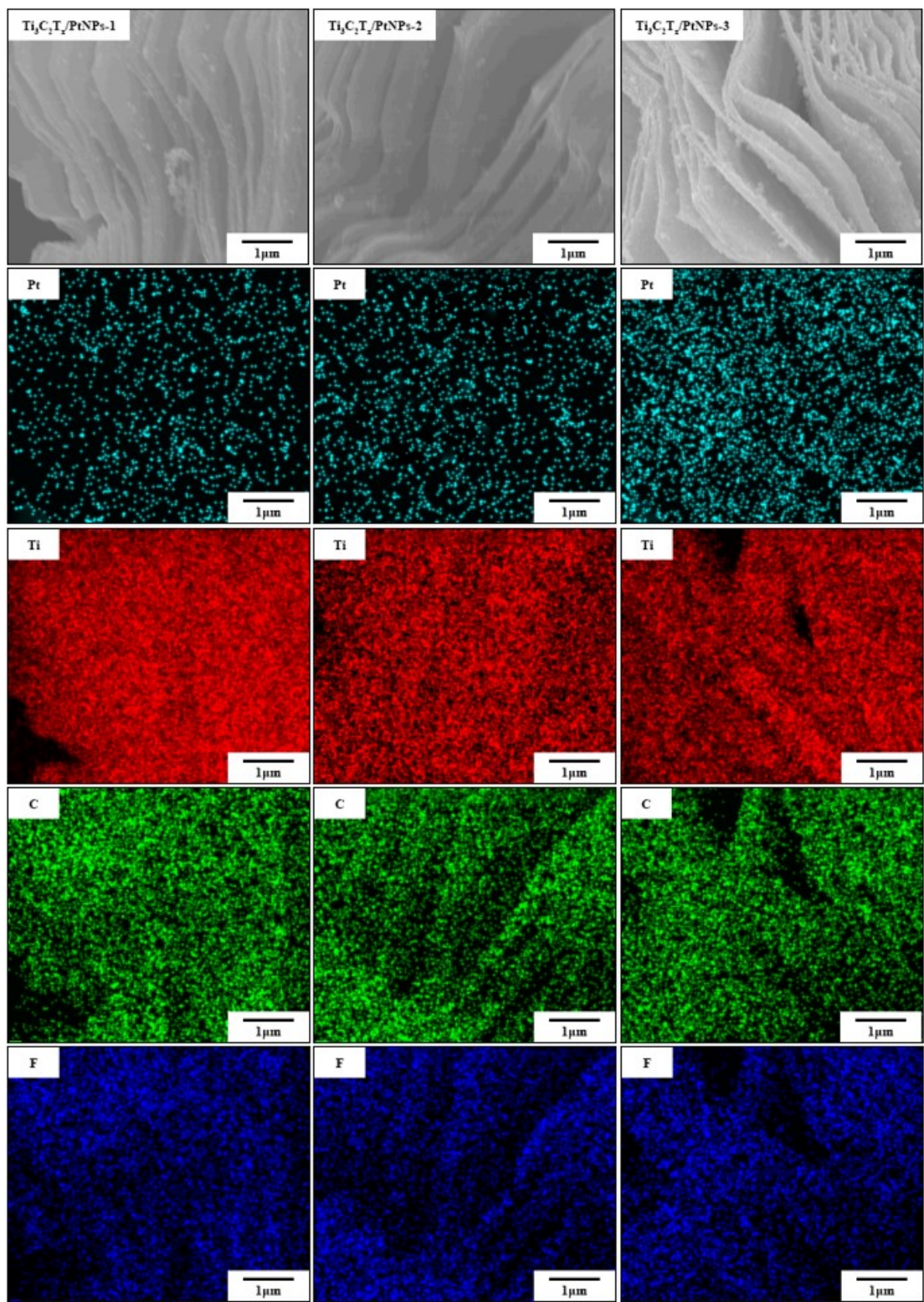

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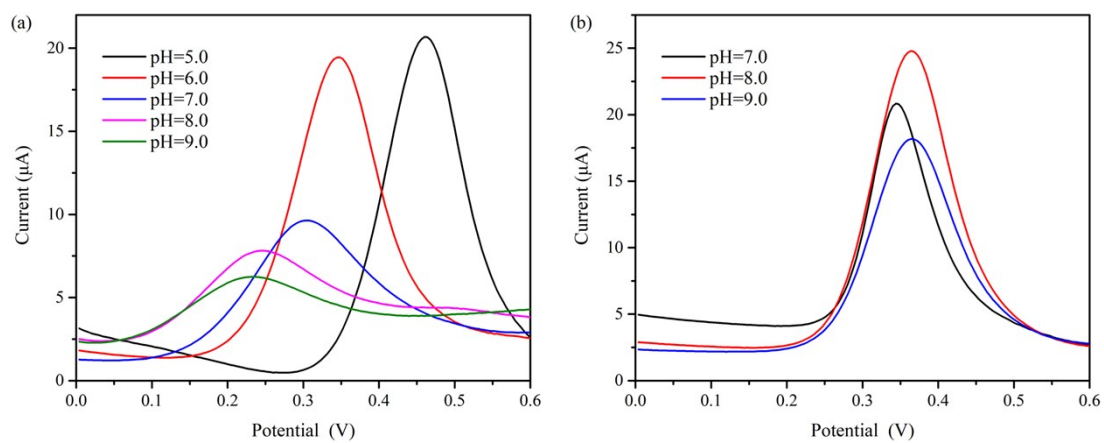**Fig. S1** The corresponding elemental mapping images of sample.

Fig. S2 The DPV curves of Ti$_3$C$_2$T$_x$/PtNPs-2/GCE in 1 mM DA (a) and 1 mM UA (b) in 0.1 M PBS
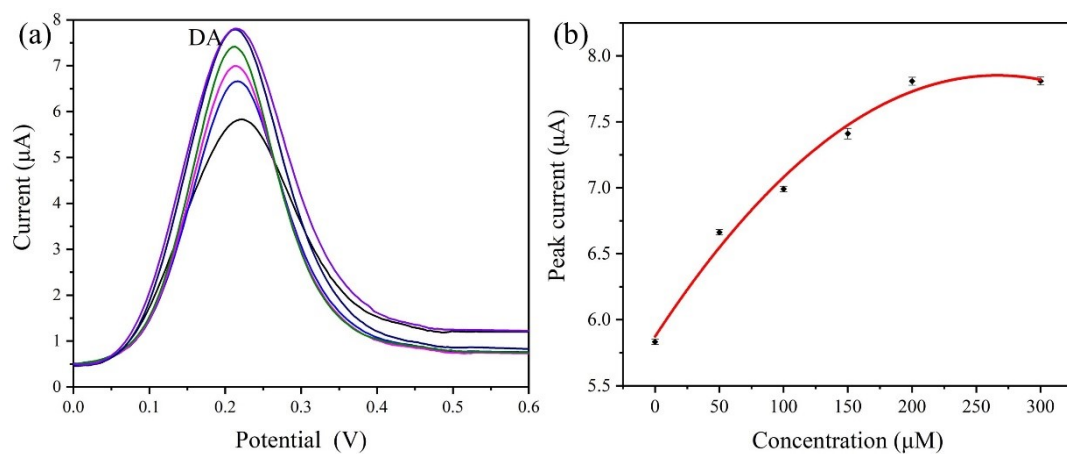
with various pH.

Fig. S3 The DPV curves of 100 μM DA in the presence of different AA (0, 20, 50, 100, 150, 200, 300 μM)(a). The fitting plot of oxidation peak current with different concentration of AA(b).

Table S1 Performances of different sensors for electrochemical detection of DA.

Electrode	LOD (μM)	Linear range (μM)	Refs.
Pd Pt/RGO/GCE	0.04	4-200	[1]
TiN-rGO/GCE	0.159	5-175	[2]
Reduced graphene oxide -ZnO	1.08	3-330	[3]
AuNPs@GO/PPy/CFP	0.115	0.2-60	[4]
Screen-printed Graphene electrode	0.12	0.5-2000	[5]
Glass Carbon/Pt	0.03	0.03-8.1	[6]
Au/RGO/GCE	1.4	6.8-41	[7]
RGO-CNT-Au/GCE	3.3	100-320	[8]
$Ti_3C_2T_x$/GCE	0.06	0.5–50	[9]
$Ti_3C_2T_x$/PtNPs/GCE	0.48/0.38	5-180	This work

Table S2 Determination results of DA in real sample.

Sample	Initial solution (μmol/L)	Added DA (μmol/L)	Found DA (μmol/L)	Calibrated DA (μmol/L)	Recovery (%)	RSD (%, n=3)
1	100 AA	20	24	19	99.1	3.7
2	100 AA	40	44	40	100.0	1.5
3	100 AA	60	65	61	101.3	2.2
4	Urine (46 AA)	20	21	20	100.0	2.7
5	Urine (58 AA)	40	41	41	103.3	2.4
6	Urine (70 AA)	60	62	61	101.4	1.9

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