Table S1

Anodic peak current *(i_{pa})*, peak potential difference (ΔE_p) and the heterogeneous electron transfer rate constant (k^0) estimated from CV in 0.1M PBS (pH 7.0) containing 5mM $[Fe(CN)_6]^{3-/4-}$ at scan rate = 50 mV s^{-1}

Electrode	i_{pa}**(μA)**	ΔE_p **(mV)**	k^0 **(cm** s^{-1}**)**
GCE	80	143	1.599×10^{-3}
Ch/GCE	145	89	5.490×10^{-3}
DWNTs/Ch/GCE	201	81	8.133×10^{-3}

Table S2

Summary of the oxidation currents and oxidation potentials for the electrochemical detection of AA, DA and UA using GCE, Ch/GCE, DWNTs/GCE and DWNTs/GCE

Analyte	**Type of electrode**	E_{pa} **(V)**	I_{pa} **(μA)**
AA	**GCE**	0.227	8
	Ch/GCE	0.012	24
	DWNTs/GCE	0.045	43
	DWNTs/Ch/GCE	0.025	72
DA	**GCE**	0.237	13
	Ch/GCE	0.205	34
	DWNTs/GCE	0.254	95
	DWNTs/Ch/GCE	0.261	188
UA	**GCE**	0.341	23
	Ch/GC	0.347	42
	DWNTs/GCE	0.395	111
	DWNTs /Ch/GCE	0.418	209

Table S3

Determination of ascorbic acid in pharmaceutical and fruit juices

Samples	Added (µM)	Found (µM)	Recovery (%)
Vitamin C tablet	20	20.73(±0.04)	103.6
Orange juice	15	15.18(±0.07)	101.2
Lemon juice	10	10.18(±0.10)	101.8

Determination of dopamine in urine samples

Samples	Added (µM)	Found (µM)	Recovery (%)
1	3	2.96(±0.03)	98.7
2	4	4.06(±0.05)	101.5
3	5	4.95(±0.02)	99.0

Determination of uric acid in urine samples

Samples	Added (µM)	Found (µM)	Recovery (%)
1	2	2.16(±0.01)	108.0
2	4	4.21(±0.10)	105.2
3	8	8.05(±0.04)	100.6

Numbers in the parenthesis show the standard deviation for n =3

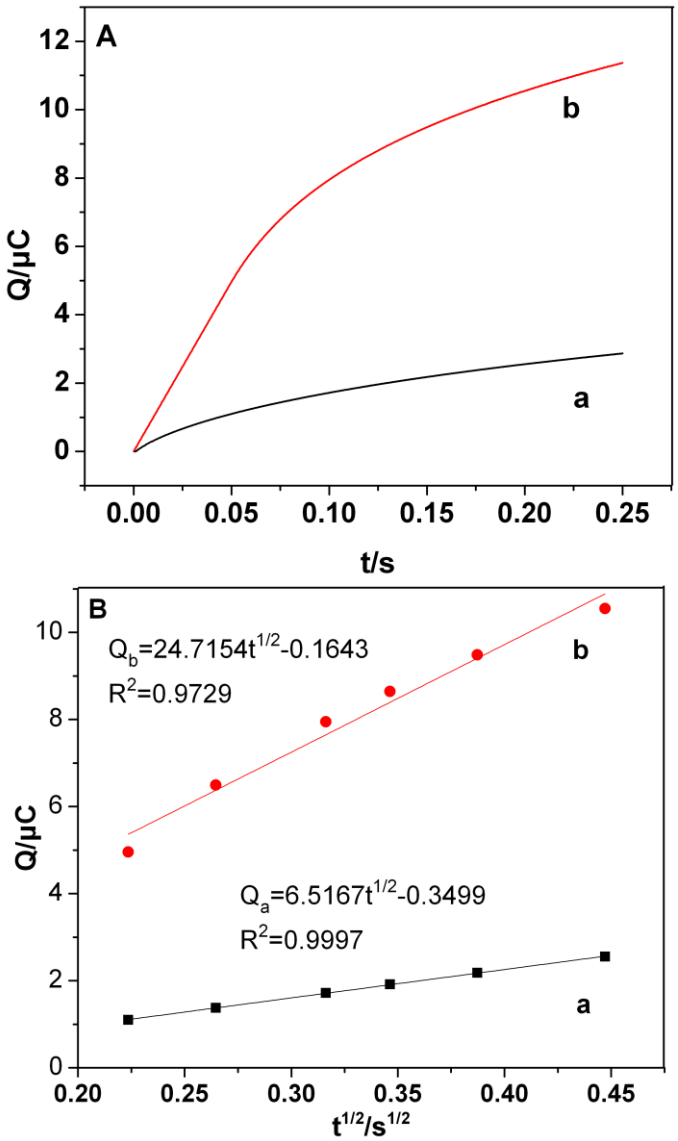

Fig.S1. Plot of Q-t curves for the GCE (a) and DWNTs/Ch/GCE (b) in 0.5mM $K_3[Fe(CN)_6]$ containing 0.5M KCl (A); plot of Q-$t^{1/2}$ curves for the GCE (a) and DWNTs/Ch/GCE (b) in 0.5mM $K_3[Fe(CN)_6]$ containing 0.5M KCl (B).

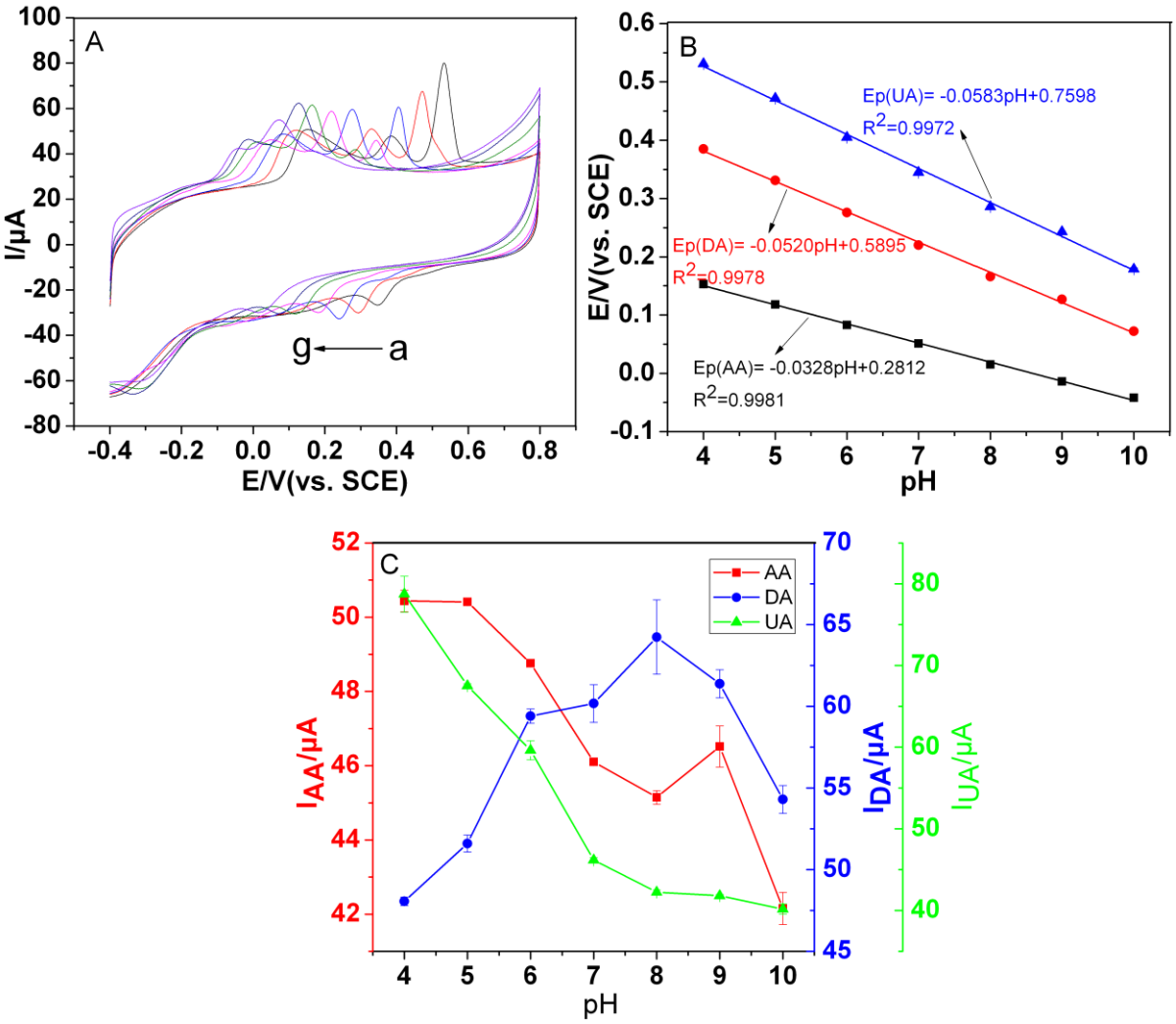

Fig. S2. (A) CVs of the DWNTs/Ch/GCE to AA, DA and UA in 0.1M PBS (pH 7.0) of different pH (curves from a to g are obtained in pH of 4-10); (B) Effect of pH on the potential; (C) Effect of pH on the current.

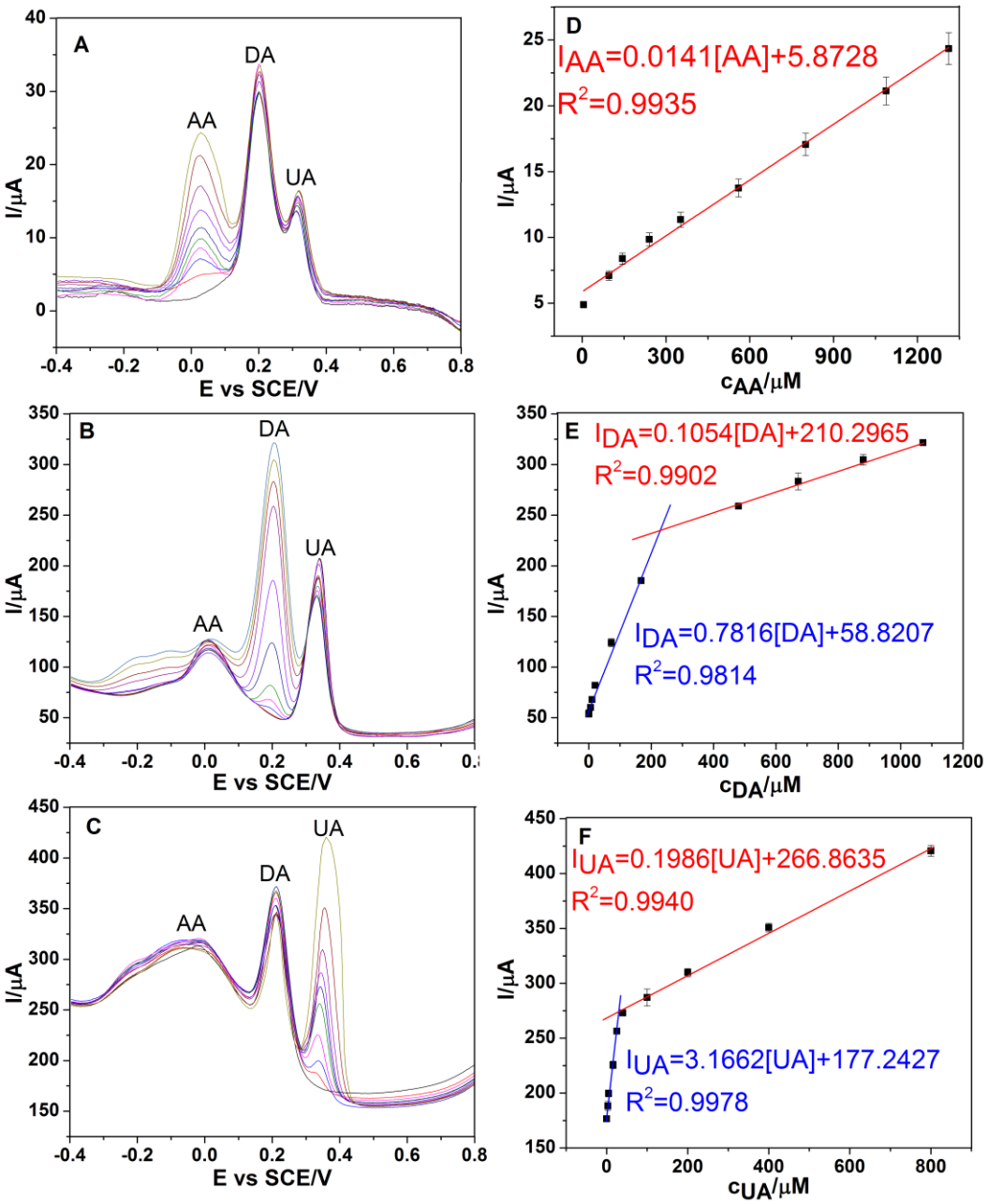

Fig. S3. DPVs at DWNTs/Ch/GCE in 0.1M PBS (pH 7.0) (A) containing DA (16μM), UA (36μM) and different concentrations of AA (from inner to outer): 0, 5, 96, 144, 240, 352, 560, 800, 1088 and 1312μM; (B) containing AA (800μM), UA (600μM) and different concentrations of DA (from inner to outer): 0, 0.6, 5.8, 10.4, 20, 72, 168, 480, 672, 880 and 1072μM; (C) containing AA (800μM), DA (48μM) and different concentrations of UA (from inner to outer): 0, 3, 5, 16, 25, 40, 100, 200, 400 and 800μM. Corresponding calibration curves of (D) AA, (E) DA, (F) UA.

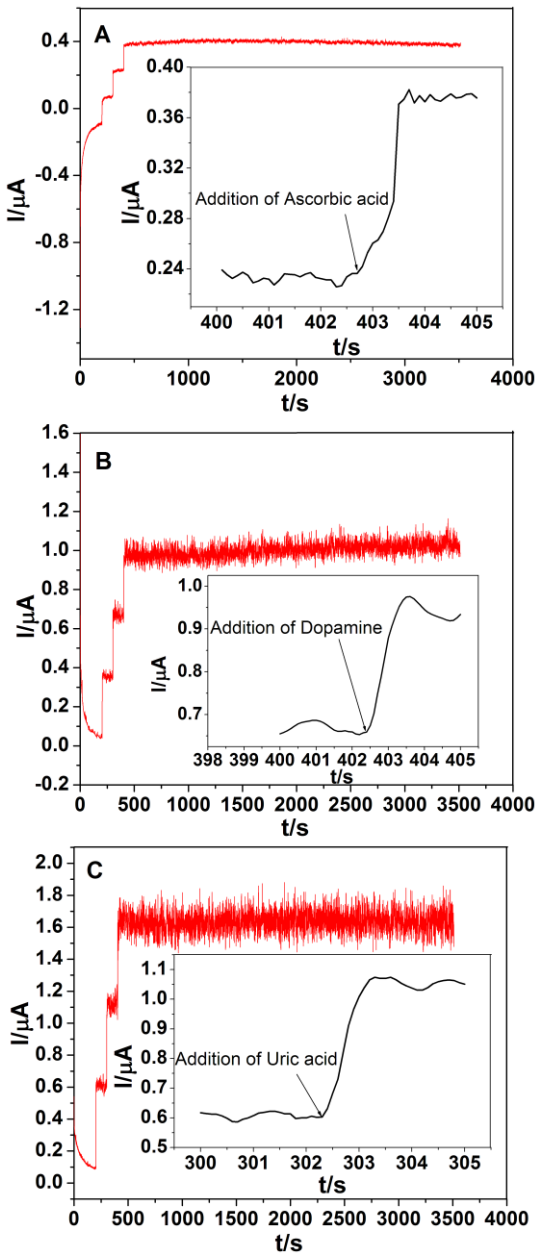

Fig. S4. Amperometric responses of (A) 20μM AA at 0.00V, (B) 8μM DA at 0.25V, (C) 10μM UA at 0.40V in 0.1M PBS (pH 7.0) + 0.1M KCl over a long period of operational time, 3000s. Insets: the response time of DWNTs/Ch/GCE to achieve steady-state current for (A) 0.57s, (B) 0.66s, (C) 0.83s (n=3).

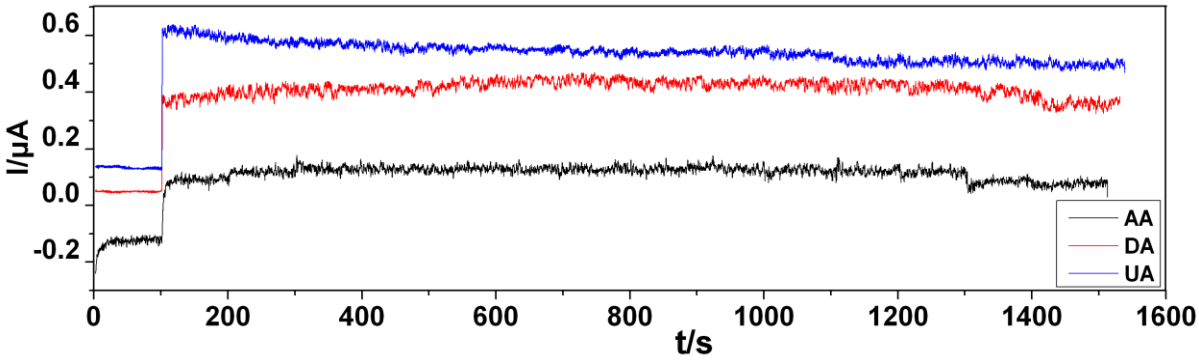

Fig. S5. The amperometric responses of the interference test in 0.1M PBS (pH 7.0) + 0.1M KCl at 0.00V of AA, 0.25V of DA, and 0.40V of UA with 20μM, 8μM, and 10μM, respectively, and other interference species in a certain molar ratio.