

Supporting Information

Carbon Nanotubes Implanted Manganese-based MOFs for Simultaneous Detection of Biomolecules in Body Fluids

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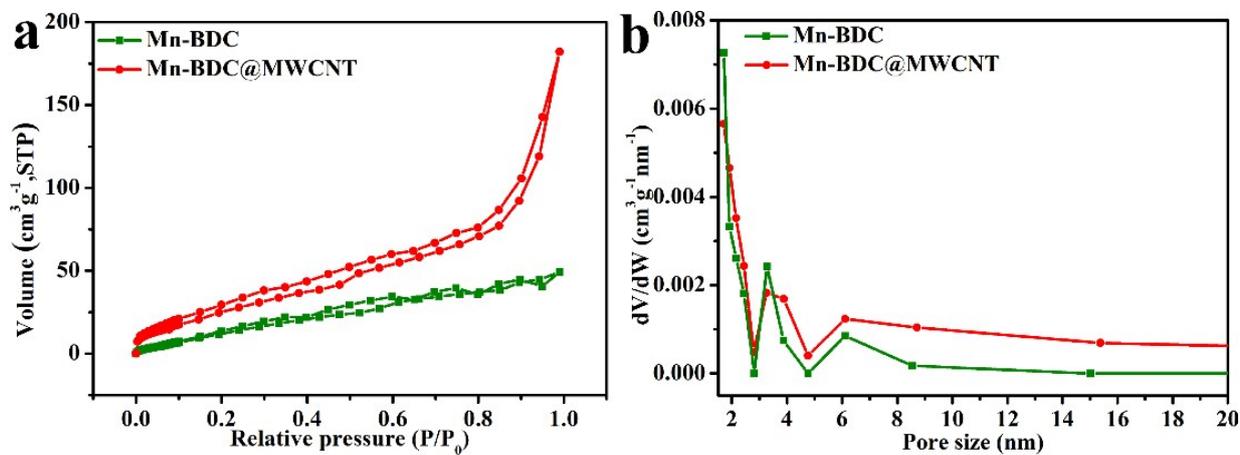


Fig.S1. Nitrogen adsorption-desorption isotherms at 77 K for (a) pure Mn-BDC and Mn-BDC@MWCNT composites and (b) their pore size distributions.

Table. S1 The BET surface area, pore volume and average pores radius of all samples.

Samples	BET Surface Area (m ² /g)	Pore Volume (cc/g)	Average Pores Radius (nm)
Pure Mn-BDC	77.91	0.085	17.008
Mn-BDC@MWCNT composites	112.72	0.256	17.035

Table S2 Comparison of the response characteristics of different modified electrodes

Electrode	Linear response range (μM)			Limit of detection (μM)			RSD (%)			Ref
	AA	DA	UA	AA	DA	UA	AA	DA	UA	
GO-PAN/GCE	150-1050	1-14	3-26	50	0.5	1	1.45	4.75	4.22	1
PDAox-PTCA/GCE	76-3900	0.6-253	1.8-238	25.3	0.2	0.6	Less than 7.8			2
GC/MWCNT-FeNAZ-CH	7.77-833	7.35-833	0.23-83.3	1.11	1.05	0.033	-	-	-	3
MWCNT-PEDOT	100-2000	10-330	10-250	100	10	10	3.1	2.3	3.9	4
PG-GCE	9-2314	5-710	6-1330	6.45	2.00	4.82	-	-	-	5
Mn-BDC@MWCNTs/GCE	0.1-1150	0.01-500	0.02-1100	0.01	0.002	0.005	2.1	1.8	2.5	This work

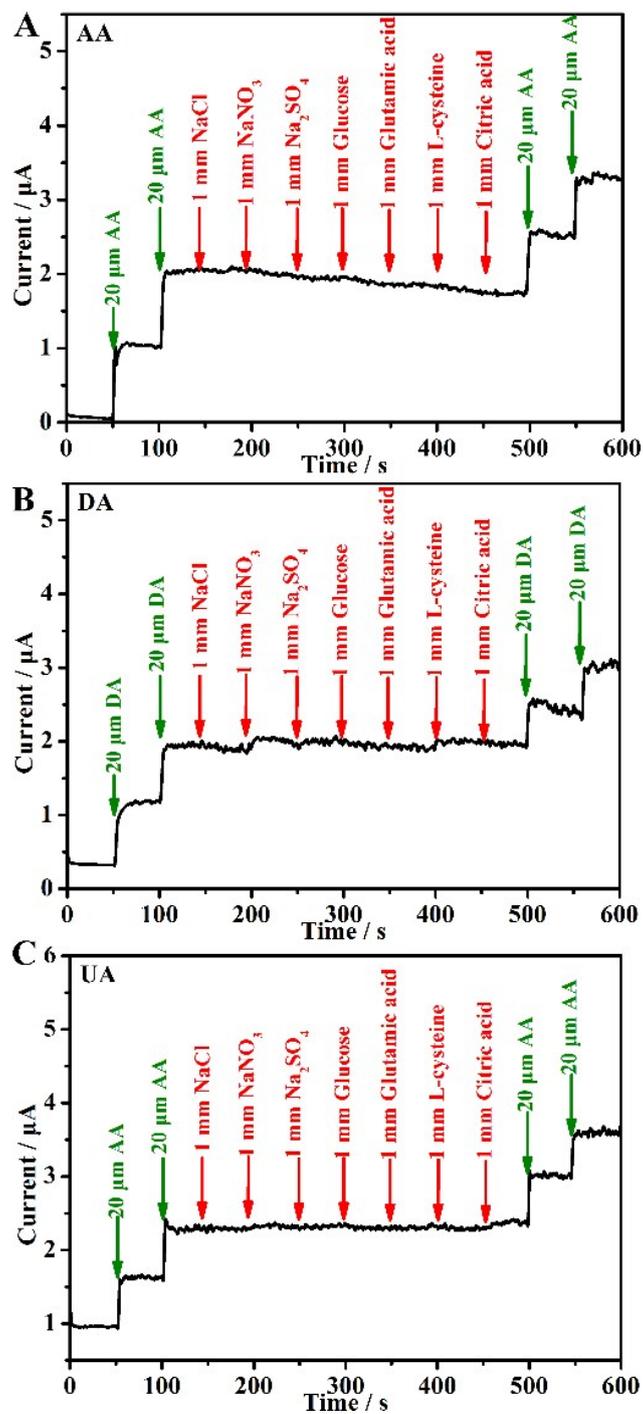


Fig. S2. Current-time response curve of the Mn-BDC@MWCNTs/GCE sensor upon successive addition of (A) 20 μM AA, (B) 20 μM DA, and (C) 20 μM UA and other chemicals in a pH=7.5 buffer with applied potentials of -0.09, 0.12, and 0.27 V for AA, DA, and UA, respectively.

Table S3 Results of the recovery analysis of AA, DA and UA in real samples at Mn-BDC@MWCNTs/GCE

Sample	Analyte	Detected (μM)	Spiked (μM)	Found (μM)	Recovery (%)
Urine 1	AA	-	40	39.3	98.25
	DA	-	20	19.3	96.50
	UA	57.1	15	71.3	98.89
Urine 2	AA	-	30	30.4	101.30
	DA	-	30	29.1	97.00
	UA	32.4	20	51.7	98.66
Urine 3	AA	-	100	98.6	98.60
	DA	-	50	50.4	100.80
	UA	44.3	20	64.1	99.69

References

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