

## Supporting Information

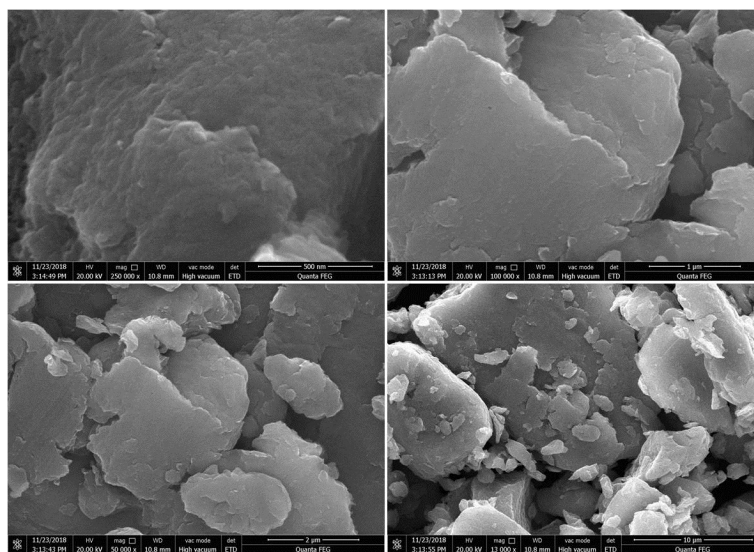
### **A label-free colorimetric strategy for facile and low-cost sensing of ascorbic acid using MnO<sub>2</sub> nanosheets**

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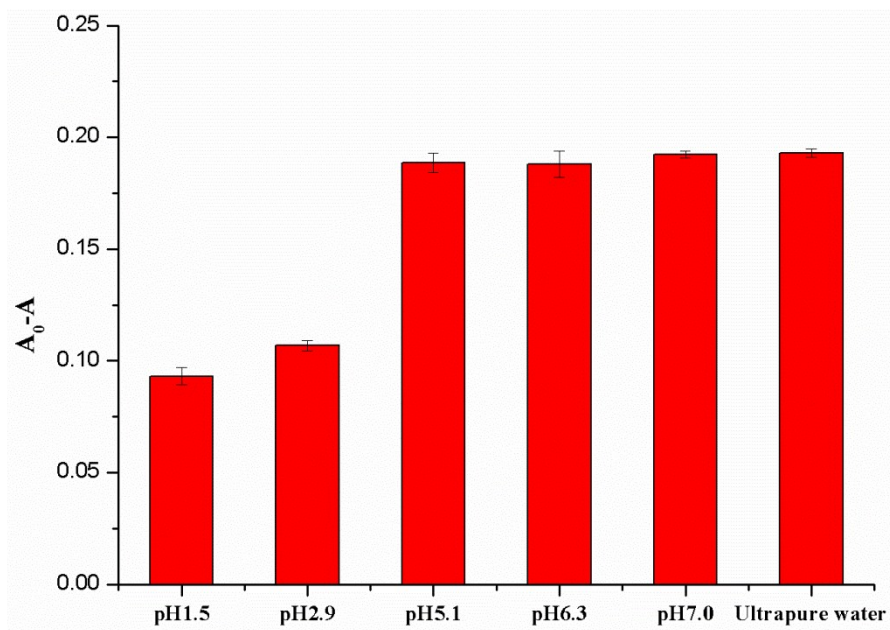
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**Fig. S1** SEM images of the as-prepared MnO<sub>2</sub>.



**Fig. S2** The absorbance changes ( $A_0 - A$ ) of  $MnO_2$  nanosheets solution in different pH values and ultrapure water, where  $A_0$  and  $A$  are the absorbance signals at 370 nm of  $MnO_2$  nanosheets solution (98  $\mu M$ ) in the absence and presence of AA (10  $\mu M$ ), respectively. Error bars are the standard deviations of three repetitive experiments.

**Table S1** Comparison of different methods for the determination of AA

Methods	Nanomaterials	Linear range	LOD	Ref.
		( $\mu\text{M}$ )	( $\mu\text{M}$ )	
Electrochemistry	Graphitic carbon nitride nanosheets	0.25-100	0.12	1
Electrochemistry	Chrysanthemum-like titanium nitride	50-1500	1.52	2
Electrochemistry	Carbon nano-onions	0-50	0.34	3
Fluorometry	N,S,P Co-Doped Carbon Nanodot	5.0-300	1.20	4
Fluorometry	Sulfanilic acid functionalized graphene quantum dots	0.5-20	0.16	5
Fluorometry	Graphene quantum dots-based two-photon nanoprobe	1-30	0.27	6
Colorimetry	Reduced graphene oxide nanosheets functionalized with poly(styrene sulfonate)	0.8-60	0.15	7
Colorimetry	Copper Nanoparticle@Carbon Nanocomposites	10-1000	1.41	8
Colorimetry	Silver nanoclusters with papain	0.25-50	0.079	9
Colorimetry	MnO <sub>2</sub> nanosheets	0.1-20	0.098	This work

**Table S2** Analytical results of AA in commercial fruits juices

Sample	Initial amount ( $\mu\text{M}$ )	Added amount ( $\mu\text{M}$ )	Total found ( $\mu\text{M}$ )	Average recovery (%)	RSD (%, n = 3)
1 <sup>a</sup>	3.55	3.31	6.50	95	4.4
		6.62	10.45	103	1.0
2 <sup>b</sup>	4.49	3.31	7.91	101	0.3
		6.62	11.25	101	0.8
3 <sup>c</sup>	3.08	3.31	6.07	95	5.0
		6.62	10.18	105	0.3

<sup>a</sup> *Minute Maid Juice*, manufactured by Coca-Cola Co., Ltd., Shanghai, China.

<sup>b</sup> *Fruits Blend*, manufactured by Nongfu Spring Co., Ltd., Hangzhou, China.

<sup>c</sup> *Peach Juice Drink*, manufactured by Hangzhou Wahaha Group Co.,Ltd., China.

## References

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