Electronic Supplementary Information (ESI)

Facile one-pot synthesis of Mn_3O_4 nanorods and their analytical application

Lijun Xu[a,1], Lu Yang[b,1], and Aihua Liu[a,*]

[a]Institute for Chemical Biology & Biosensing, College of Life Sciences, Qingdao University, 308 Ningxia Road, Qingdao 266071, China

[b]Key Lab of Advanced Technologies of Materials, Ministry of Education, School of Materials Science and Engineering, Southwest Jiaotong University, Chengdu 610031, Sichuan, China

[1]These authors contributed equally to this work.

*Corresponding author.

E-mail: liuah@qdu.edu.cn (A. Liu)

Additional Figures and Tables

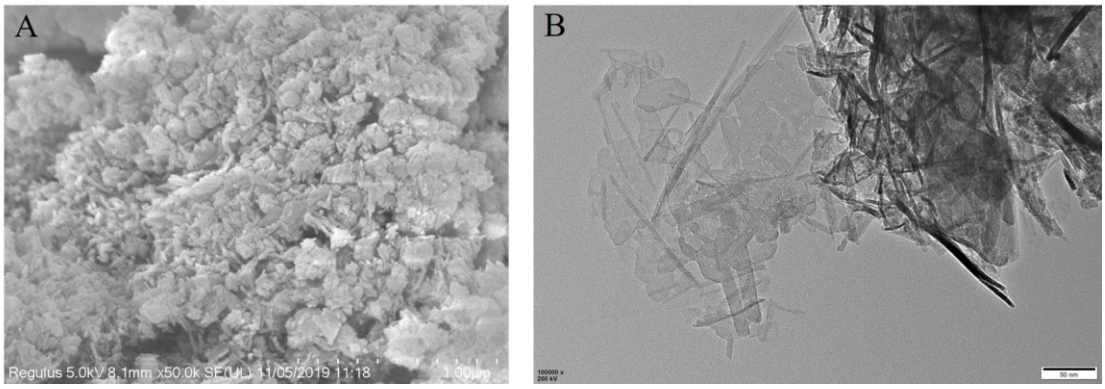

Fig. S1 The large-scale (A) SEM and (B) TEM images of Mn_3O_4 nanorods.

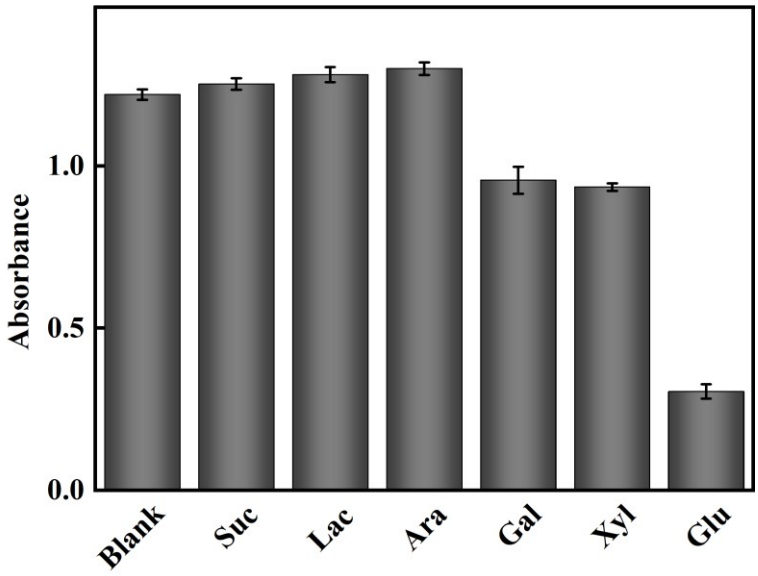

Fig. S2 Selectivity of the proposed method for glucose detection. The concentration of Suc, Lac, Ara, Gal, Xyl and Glu is 2 mM, respectively. Error bars shown are standard deviations (n=3).

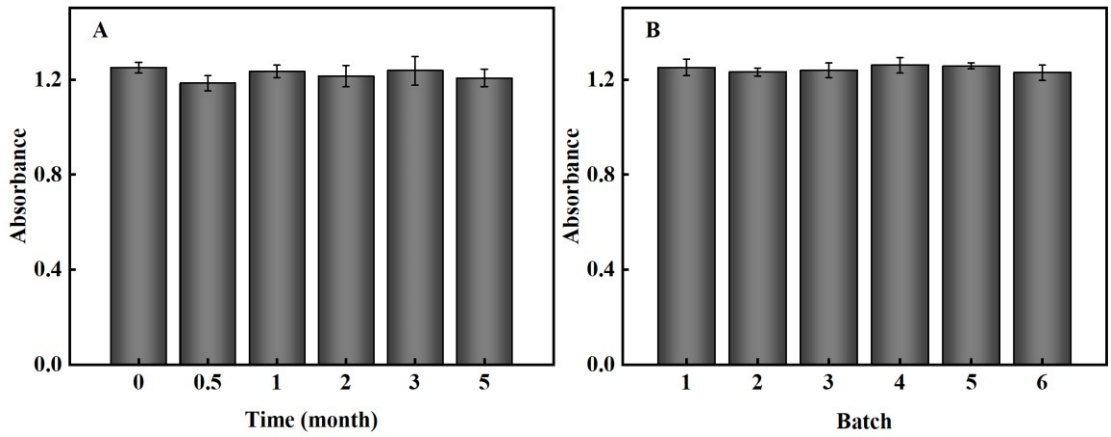

Fig. S3 (A) The stability of Mn_3O_4 after storing different time. (B) The activity of Mn_3O_4 prepared in different batches. Error bars shown are standard deviations (n=3).

Table S1 Comparison of this method with some others for H_2O_2 detection.

Method	Materials and reagents	Linear range (μM)	LOD (μM)	Ref.
Colorimetry	Fluorescein	80-1200	30	1
Colorimetry	Acetate	6.0-200	3	2
Colorimetry	Au NPs[a]	ND[b]	2	3
Colorimetry	MoS_2	5-100	1.5	4
Colorimetry	Co_3O_4	50-25000	10	5
Fluorometry	Cu nanoclusters	0.5-10	0.4	6
Fluorometry	CeO_2-DNA	0-1	0.13	7
Colorimetry	Mn_3O_4	2-100	1.7	This work

[a]NPs: nanoparticles. [b]ND: not determined.

Table S2 Comparison of this method with some others for glucose detection.

Method	Materials and reagents (Besides GOx)	Linear range (μM)	LOD (μM)	Ref.
Colorimetry	Acetate	6-150	4	2
Fluorometry	Cu nanoclusters	10-100	8	6
Fluorometry	CeO_2-DNA	10-200	8.9	7
Colorimetry	Block copolymer	300-10000	200	8
Colorimetry	CoO-OMC[a]	100-5000	68	9
Colorimetry	HRP[b]-test paper	20-4000	14	10
Colorimetry	ATP-Fe_3O_4	0-4000	50	11
Fluorometry	Graphene QDs[c]	100-10000	30	12
Colorimetry	Au@p-SiO_2[d]	20-500	20	13
Electrochemistry	GA-bacteria/GDH-bacteria/MWNTs/GCE[e]	100-2000	40	14
Electrochemistry	M13-E4@MnO_2[f]	5-2000	1.8	15
GC-MS[g]	BA-MIPs[h]	2.8-168	0.7	16
Colorimetry	Mn_3O_4	5-200	4.4	This work

[a]OMC: ordered-mesoporous carbon. [b]HRP: ghorseradish peroxidase. [c]QDs: quantum dots. [d]Au@p-SiO_2: Au nanoparticles encapsulated within porous silica; [e]GA-bacteria/GDH-bacteria/MWNTs/GCE: glucoamylase-displayed bacteria (GA-bacteria) and glucose dehydrogenase-displayed bacteria (GDH-bacteria) were co-immobilized on multi-walled carbon nanotubes (MWNTs) modified glassy carbon electrode (GCE). [f]M13-E4@MnO_2: genetically engineered M13 phages-templated MnO_2 nanowires. [g]GC-MS: gas chromatograph equipped with a mass spectrometer. [h]BA-MIPs: boronate affinity-molecular imprinted polymers.

Table S3 Performance of the proposed method for serum samples.

Sample	Known conc. (mM)	Spiked (mM)	Detected conc. (mM)	RSD (%)
# 1	4.65	2	6.78±0.24	3.53
# 2	6.96	2	9.12±0.19	2.08
# 3	13.13	2	15.27±0.61	3.99

References

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