SUPPORTING INFORMATION FOR

Fe_3O_4@C Magnetite Nanocomposite: An Artificial Peroxidase Nanozyme for Development of A Colorimetric Glucose Biosensor

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Table SI. 1. *Mass of chemicals and reagents for FeC samples preparations*

Sample code	Mass ratio of Fe_3O_4:glucose	$Fe@Cl_3.6H_2O$ (gam)	$Fe(NH_4)_2(SO_4)_2.6H_2O$ (gam)	Glucose (gam)	Note
Fe_3O_4@C100	1:0	5,95	4,31	0	Neat Fe_3O_4
Fe_3O_4@C101	1:1	5,95	4,31	2,5	Carbon coated Fe_3O_4
Fe_3O_4@C102	1:2	5,95	4,31	5,0	Carbon coated Fe_3O_4
Fe_3O_4@C103	1:3	5,95	4,31	7,5	Carbon coated Fe_3O_4
Fe_3O_4@C105	1:5	5,95	4,31	12,5	Carbon coated Fe_3O_4
Fe_3O_4@C107	1:7	5,95	4,31	17,5	Carbon coated Fe_3O_4
Fe_3O_4@C110	1:10	5,95	4,31	25,0	Carbon coated Fe_3O_4

Table SI.2. *Detected glucose concentration in reference sample 0.55mM glucose and diluted the 5% intravenous glucose solutions using the developed biosensor*

Samples	**A_{652nm}**	**Glucose concentration, mM**		
		Detected concentration(*)	Diluted ratio	Original concentration
Refence sample	0.331	0.562	1	0.562
Diluted1/300	0.480	0.966	300	289.90
Diluted1/200	0.528	1.095	200	219.09
Diluted1/100	0.793	1.808	100	180.80

Note: (*) Extracted from the calibration curve;

Table SI.3. *Detected glucose concentration in real samples (reference sample and 10 folds diluted human sera: (b) serum #1; (c) serum #2; (d) serum #3) using the developed biosensor*

Samples	**A_{652nm}**	**Glucose concentration, mM**		
		Detected concentration(*)	Diluted ratio(s)	Original concentration
Refence sample	0.322	0.545	N/A (*)	0.545
Serum #01	0.416	0.7943	1/10	7.943
Serum #02	0.268	0.3965	1/10	3.965
Serum #03	0.298	0.4772	1/10	4.77

Note: (*) Extracted from the calibration curve;

(**) N/A: no application;

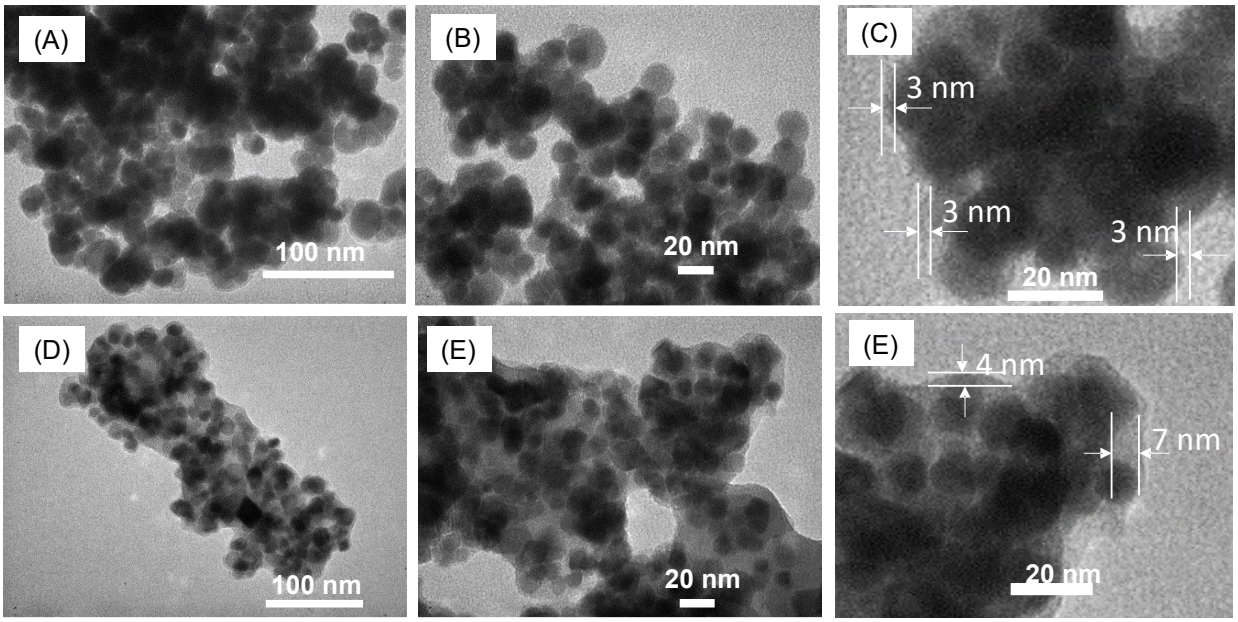

Figure SI1. *TEM images of (A,B, C) Fe_3O_4@C102 and (D, E, F) Fe_3O_4@C107*

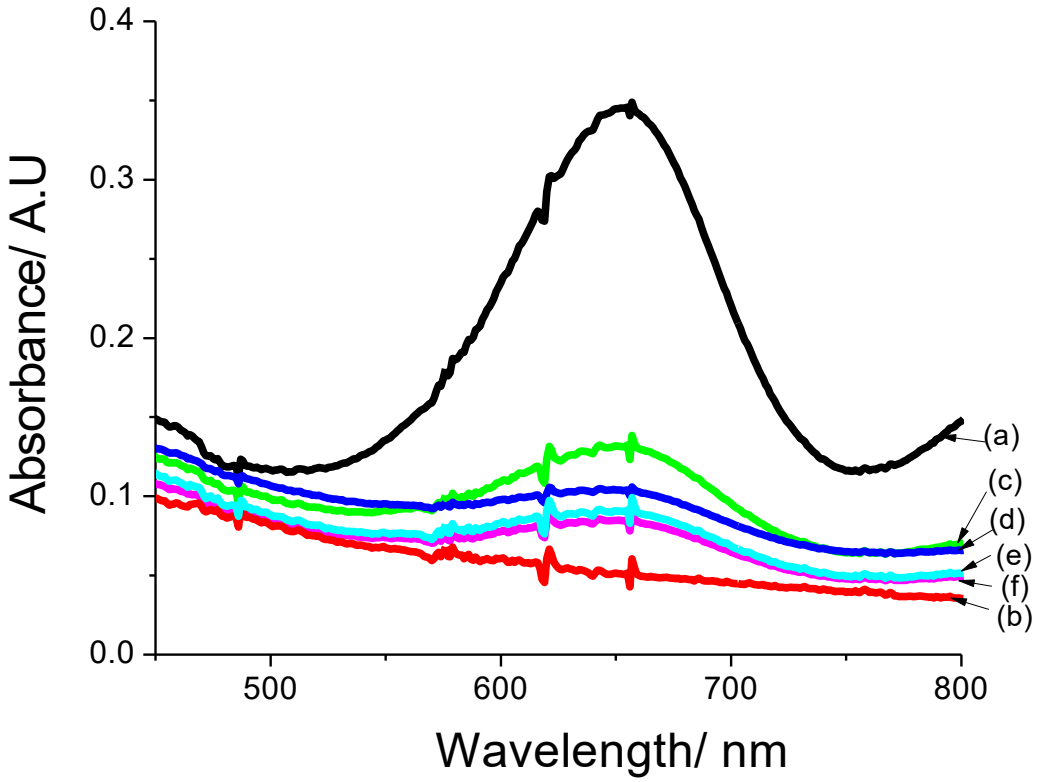

Figure SI.2. *UV-vis spectra developed biosensors with diffirent subtrates were used: (a) glucose; (b) acid ascorbic, (c) galactose, (d) sacarose and (e) saccarose. Conentration of all subtrates were 0. 2 mM;*

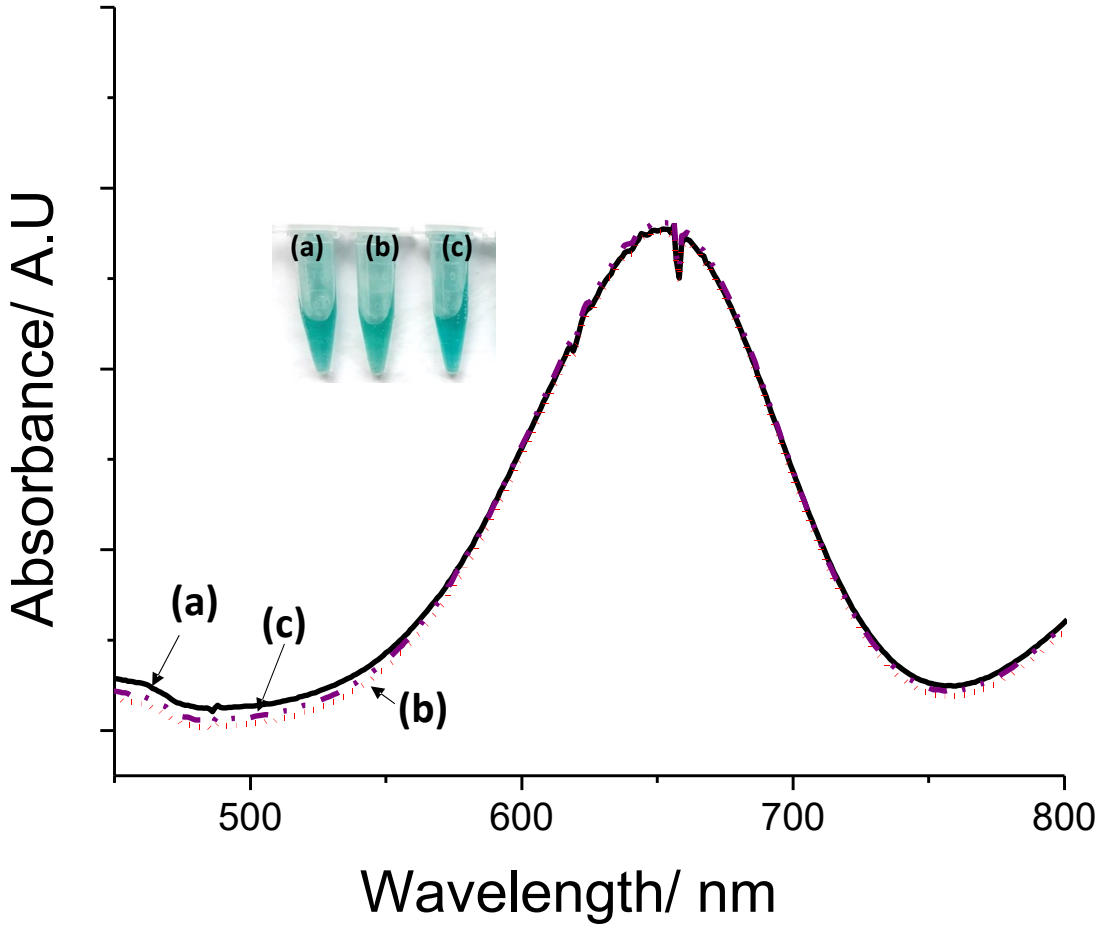

Figure SI.3. *UV-vis spectra developed H_2O_2 sensor with Fe_3O_4@C103 nanozyme with different storage time: (a) as synthesized, (b) 6 months and (c) 1 year. Storage conditions: $_{Fe3O4}$@C103 nanozyme was kept in vaccumm bag and at 4 ^{o}C (in a fridge).*

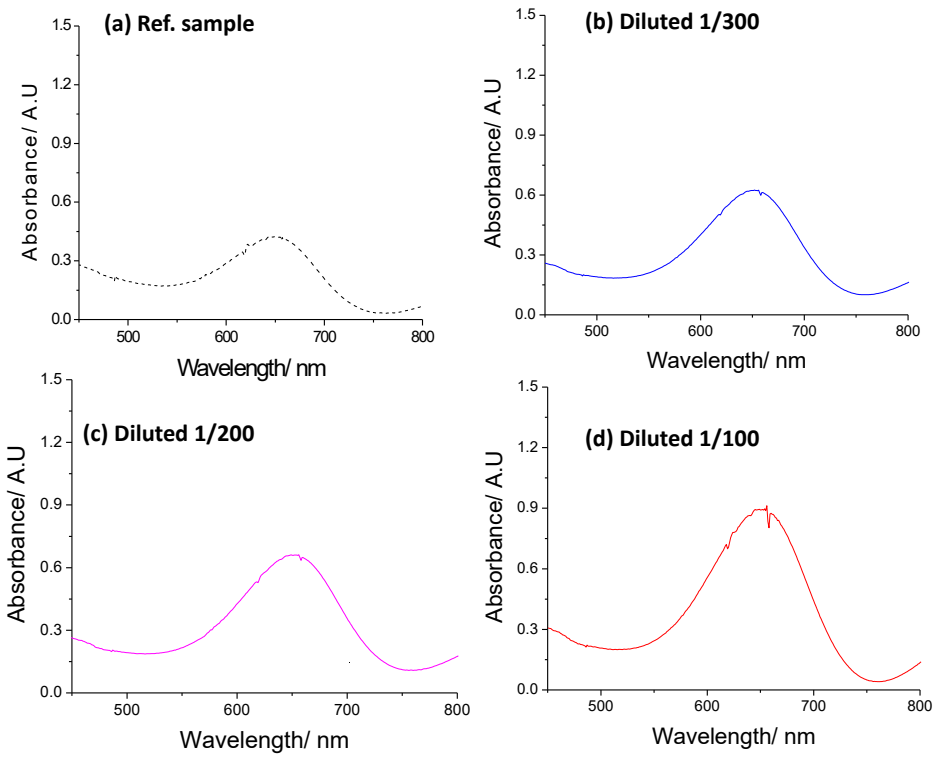

Figure SI.4. *UV-vis spectra of the developed biosensor was tested with real samples: (a) control sample, (b-d) the 5% intravenous glucose solution was diluted by D.I water with dilution ratios v/v of (b) 1:300, (c) 1:200 and (d) 1:100, respectively.*

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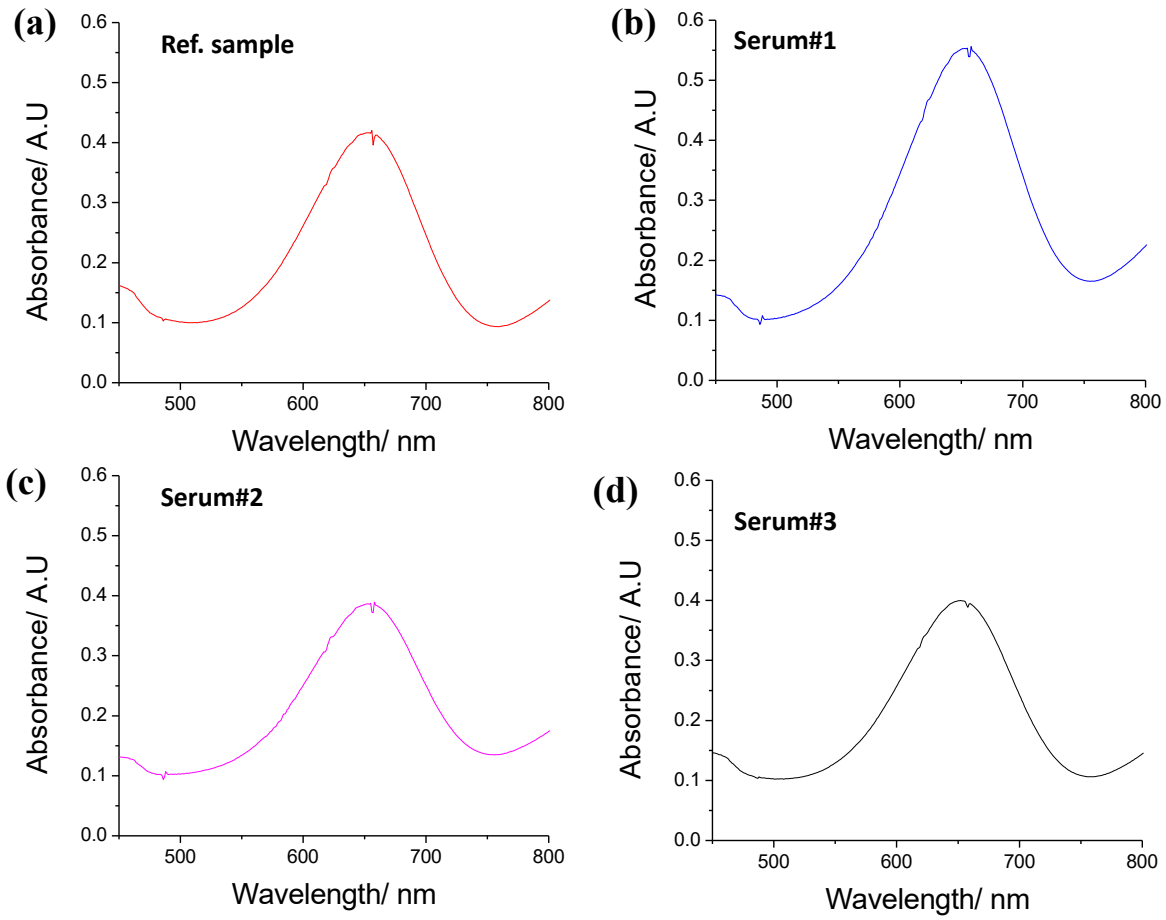

Figure SI.5. *Response UV-vis spectra of the developed biosensor tested with real samples: (a) reference sample; (c-d) 10 folds diluted human serum sample (b) serum #1; (c) serum #2; (d) serum #3*