Supplementary Information

Colorimetric hydrogen peroxide and glucose sensors based on the destruction of micelle-protected iron (II) complex probes

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Fig. S1 The effect of thiocyanate concentration for complexing Fe^{3+} ions to form $[FeSCN]^{2+}$ towards analyte (H_2O_2) sensing based on the Fenton reaction. Condition: H_2O_2 (5.0 mM in final volume of 1.0 mL), Fe^{2+} (0.10 M), Dz (1.0 mM), TX-114 (0.1 %v/v), incubation time (5 min).

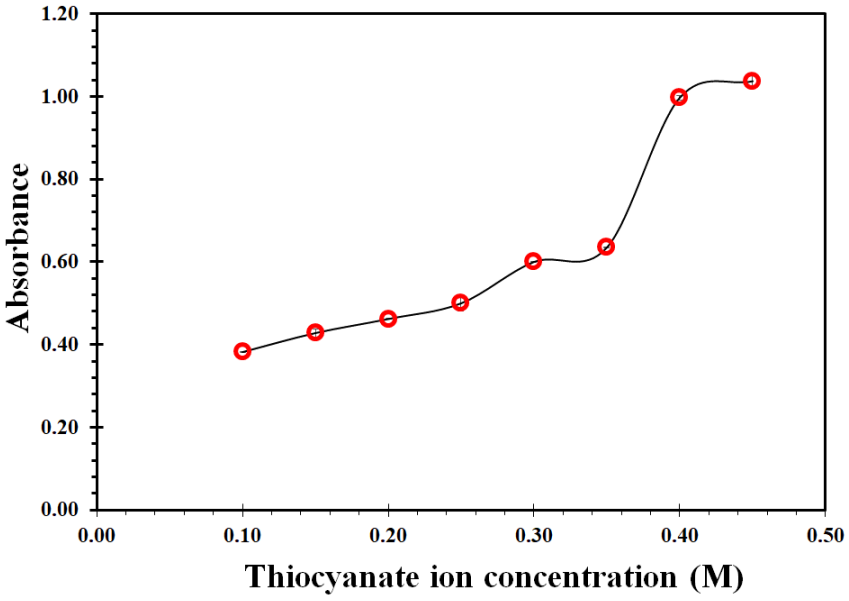


Fig. S2 The effect of the reaction time considered from H_2O_2 injection on micelle probes (Fe^{2+}-Dz-TX-114) until $[FeSCN]^{2+}$ color development for spectrophotometric measurement, by absorbance signal.

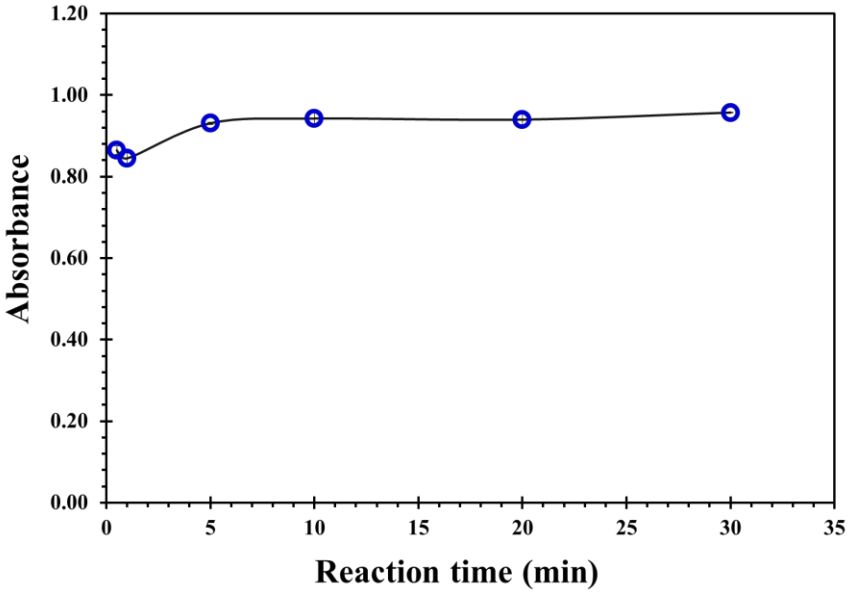
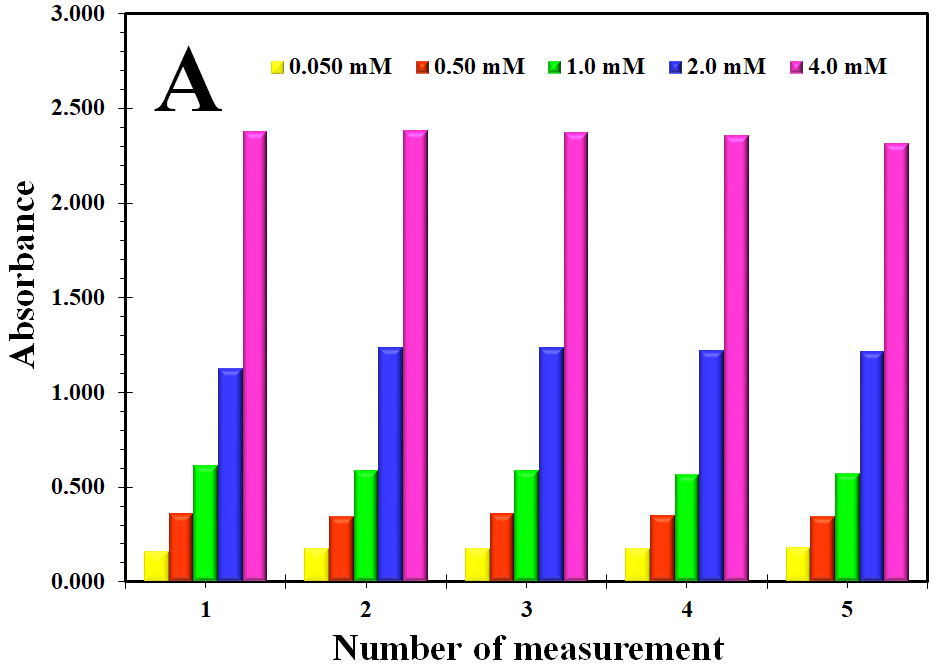


Fig. S3 (A) The signals obtained from five measurement of H_2O_2 (0.050, 0.50, 1.0, 2.0 and 4.0 mM) by one sensor and (B) the signals obtained from five of the developed sensors toward different H_2O_2 concentrations (0.050, 0.50, 1.0 and 2.0 mM).



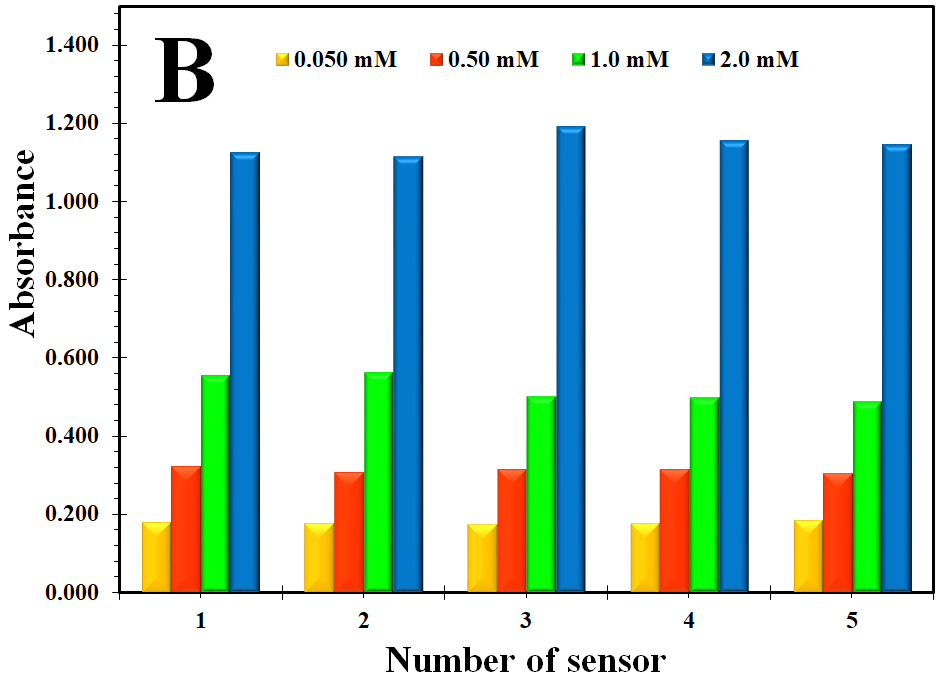
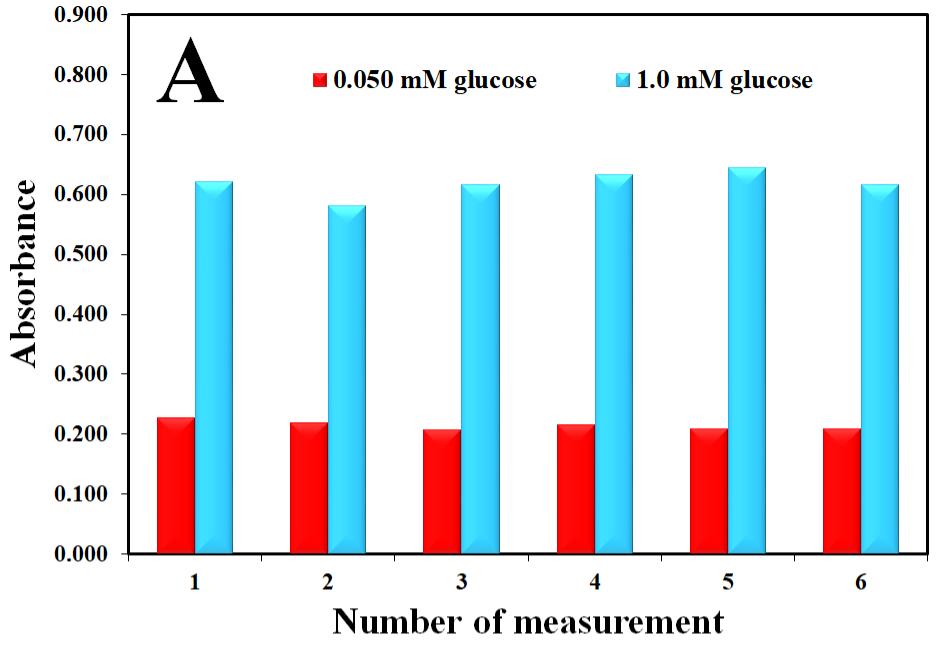


Fig. S4 (A) The signals obtained from six measurement of glucose (0.050 and 1.0 mM) by one sensor and (B) the signals obtained from six of the developed sensors toward different glucose concentrations (0.050 and 1.0 mM).



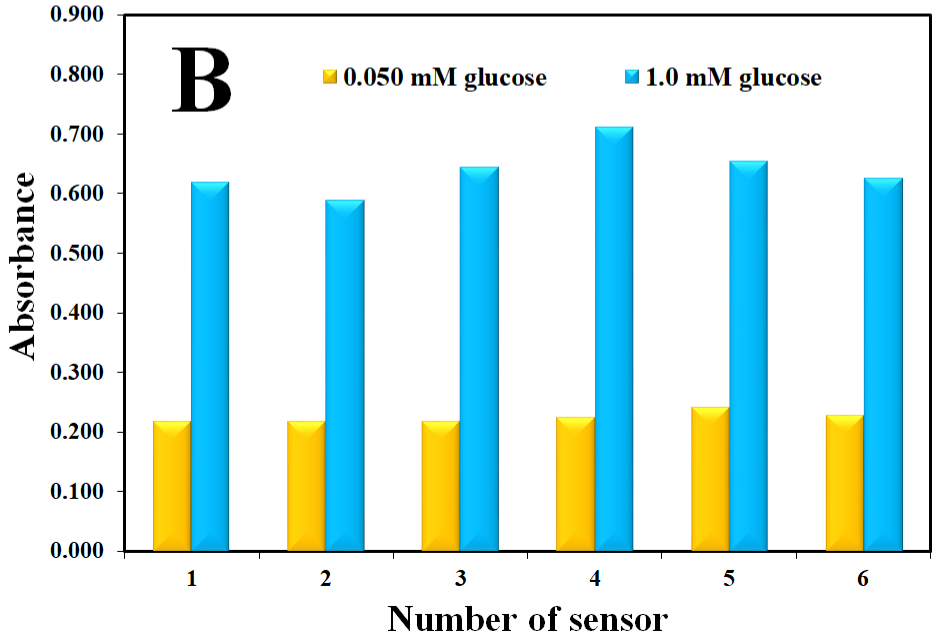


Fig. S5 Quantification of glucose concentration in human blood plasma of (A) sample 1, (B) sample 2 and (C) sample 3. Inset: photographs of the colored solutions of Fe^{2+}-Dz-TX-114 micelles after solution of GOx mixed with samples and were spiked with different concentrations of glucose standard solution and SCN^- (0.40 M). Condition: glucose added 0.0, 0.050, 1.0, 2.0 and 4.0 mM in final volume of 1.0 mL; GOx (10 mg/mL); Fe^{2+} (0.10 M); Dz (1.0 mM); TX-114 (0.1 %v/v); incubation time in enzyme system (30 min); incubation time in spectrophometric measurement system (5 min). All samples were diluted 200 times in final volume before measuring.

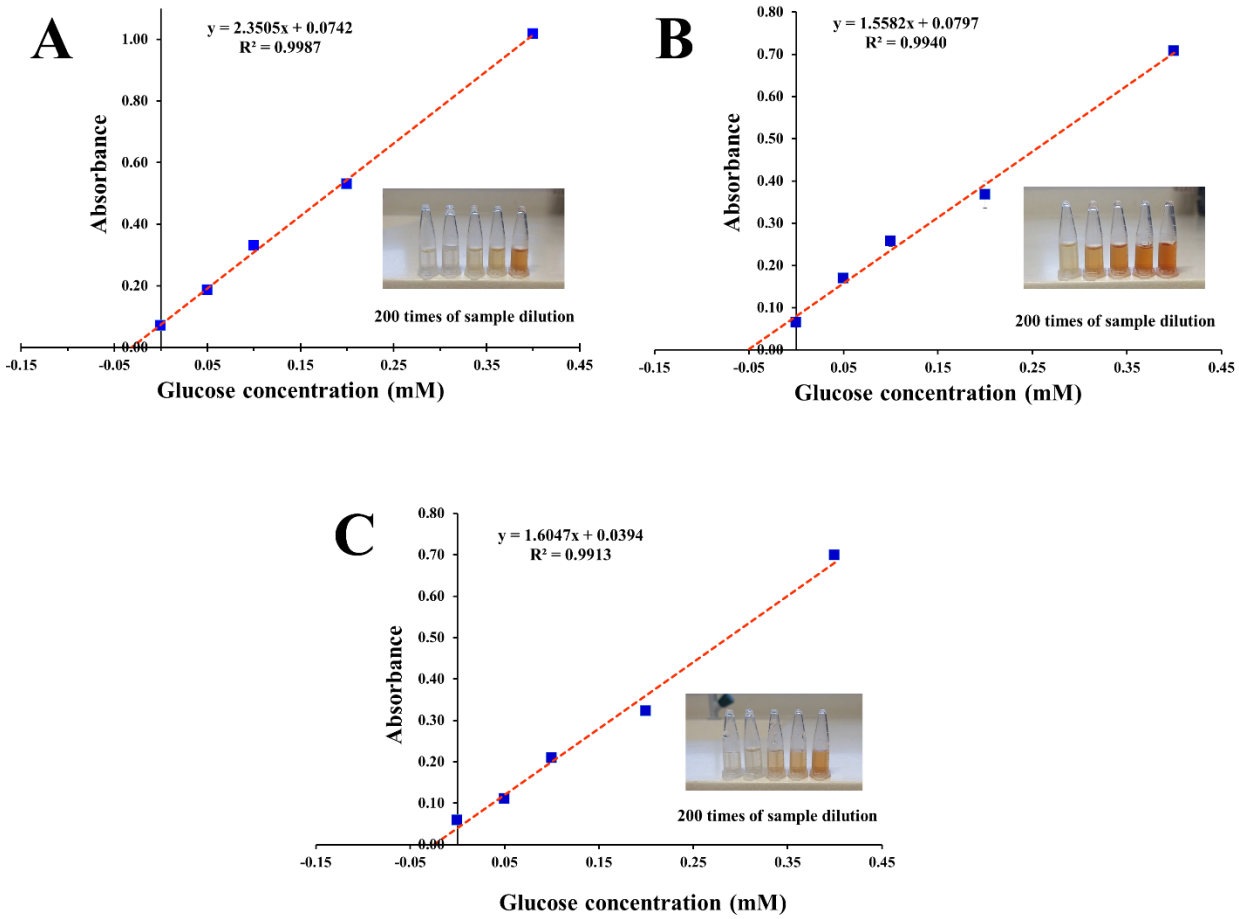


Table S1. Results of glucose determination in spiked plasma samples using the developed sensor.

Sample	Added (mM)	Found (μM)	Recovery (%)	RSD (%)
1	0.050	0.049±0.004	97.9	8.5
2	0.100	0.111±0.006	104.1	5.0
3	0.200	0.195±0.002	97.7	0.8
4	0.400	0.403±0.003	100.7	0.7