

Support information

Visual colorimetric detection of triacetone triperoxide based on Fe (II)-promoted thermal decomposition process

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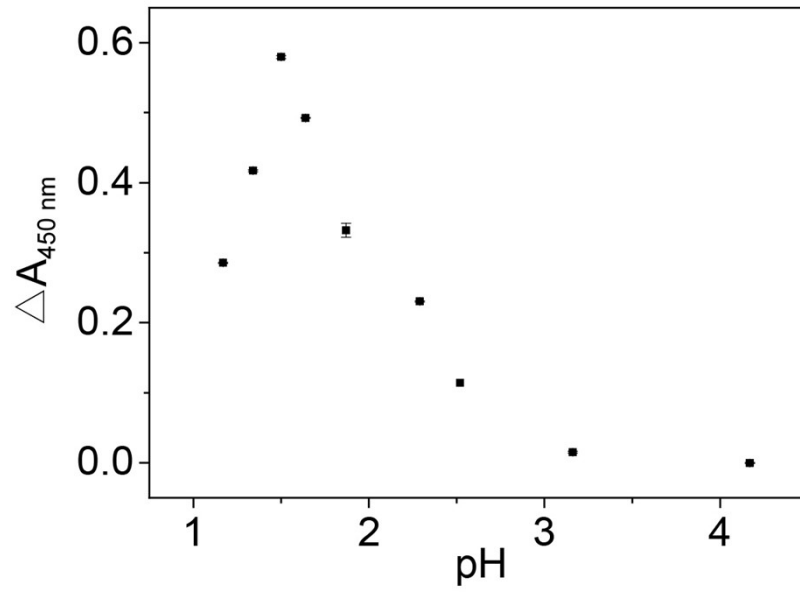


Figure S1. Optimization of the pH of the detection system. Reaction conditions: 47 μM Fe^{2+} , 7 μM TATP, 10 μM TMB, and incubation at 60 $^{\circ}\text{C}$ for 10 min.

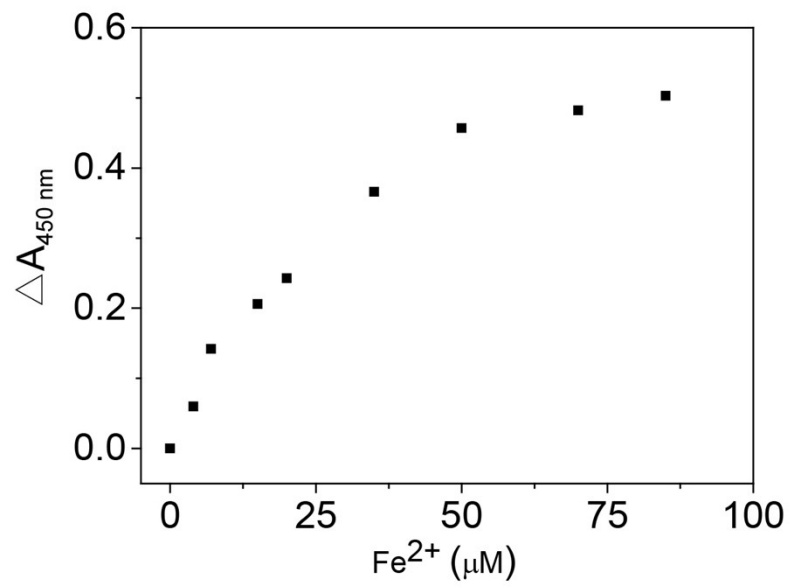


Figure S2. Optimization of the Fe²⁺ concentration of the detection system. Reaction conditions: 7 μM TATP, 33 μM TMB, pH 1.5, and incubation at 60 °C for 10 min.

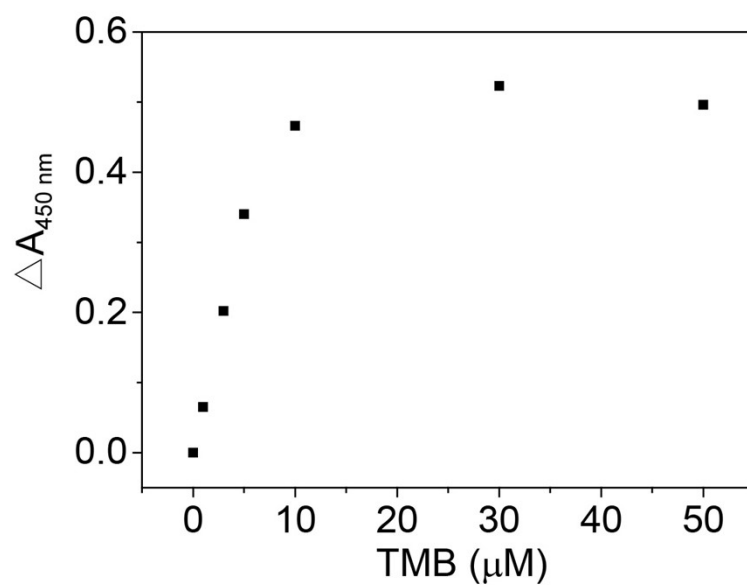


Figure S3. Optimization of the TMB concentration of the detection system. Reaction conditions: 7 μM TATP, 33 μM TMB, pH 1.5, and incubation at 60 °C for 10 min.

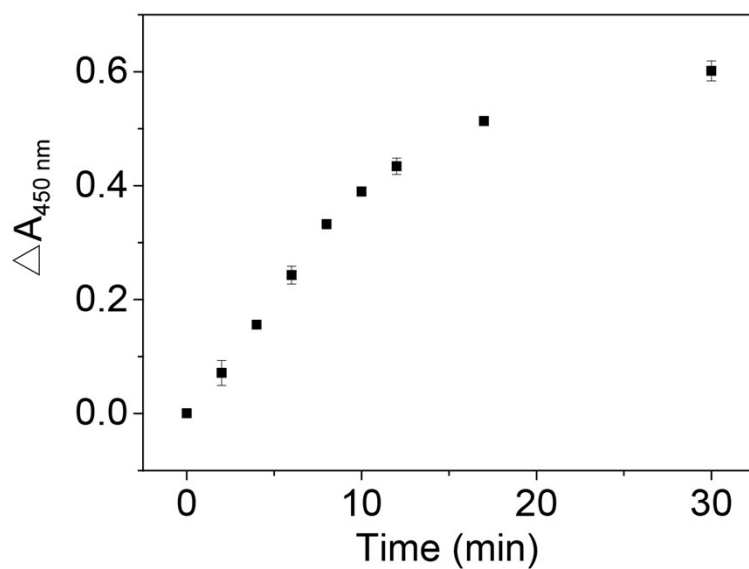


Figure S4. Optimization of the reaction time of the detection system. Reaction conditions: 47 μM Fe^{2+} , 7 μM TATP, 10 μM TMB, pH 1.5, and incubation at 60 $^{\circ}\text{C}$ for 10 min.

Table S1 An overview on recently reported assays for TATP

Method applied	Materials used	Linear range (μM)	LOD (μM)	Reference
Fluorescence	2-formylphenylboronic acid; $\text{Zn}(\text{ac-etate})_2$		0.01	[S1]
Fluorescence	The azetidine derivative of naphthalene diimides (NDI)	2.2-36	2.2	[S2]
Fluorescence	the parent fluorenylboronate ester		0.01	[S3]
Fluorescence	mono-or-dibromo-Perylenediimides	$0-54 \times 10^3$	3300	[S4]
Fluorescence	Catalase, peroxidase, p-hydroxyphenylacetic acid	3-50	0.8	[S5]
Colorimetry	Nafion membrane and CuCl_2	2.4-24.3	0.9	[S6]
Colorimetry	TMB, AgNO_3 and Amberlyst-15	5.6-140.6	1.4	[S7]
Colorimetry	Catalase, acetonitrile, peroxidase and ABTS	30-100	8	[S5]
Electrochemistry	Fe^{II} -ethylenediaminetetraacetate complex	0-1600	0.89	[S8]
Electrochemistry	Prussian blue	22.5-450	11	[S9]
Colorimetry	TMB and Fe^{2+}	0.5-30	0.12	This work

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