Supporting Information

Thioglycolic acid-modified AuNPs as a colorimetric sensor for the rapid determination of the pesticide chlorpyrifos

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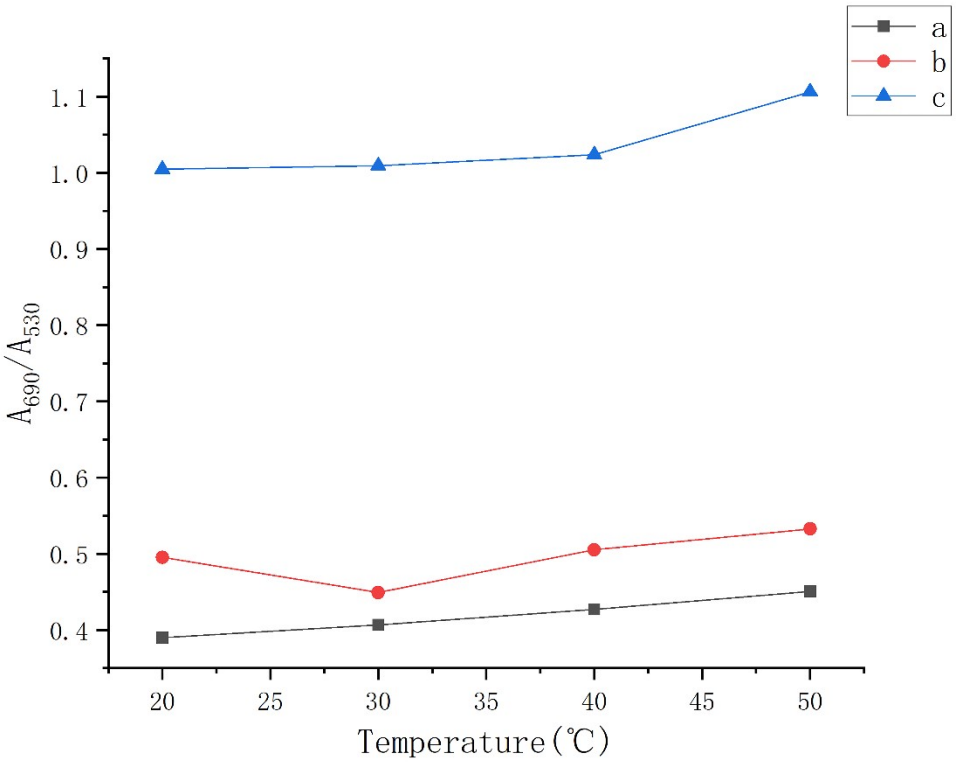

Fig. S1. Dependence of the temperature on the absorption ratio (A_{690}/A_{530}) of TGA@AuNPs in the (a) absence and (b) presence of 0.01 μg·L^{-1} (c) presence of 0.05 μg·L^{-1} chlorpyrifos.

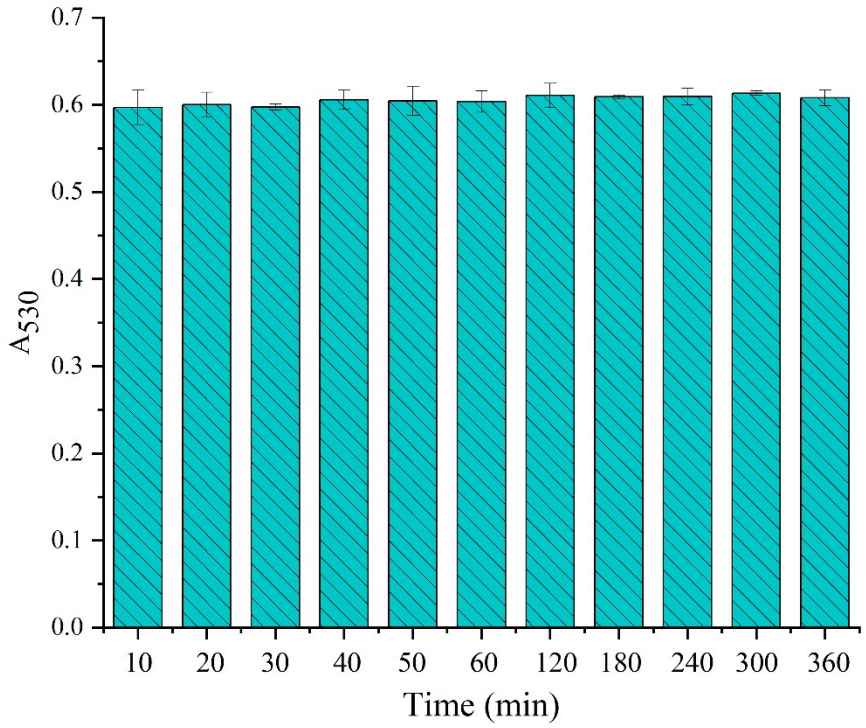

Fig. S2. Dependence of the modification time of thioglycolic acid on the absorption (A_{530}) of AuNPs.

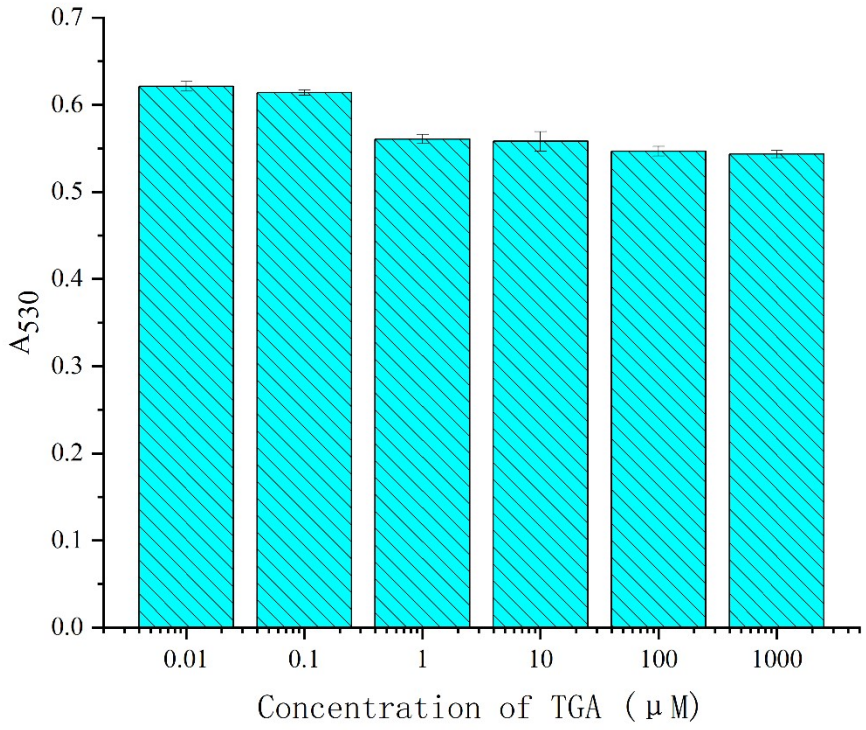

Fig. S3. Dependence of the concentration of TGA on the absorption ratio (A_{690}/A_{530}) of TGA@AuNPs.

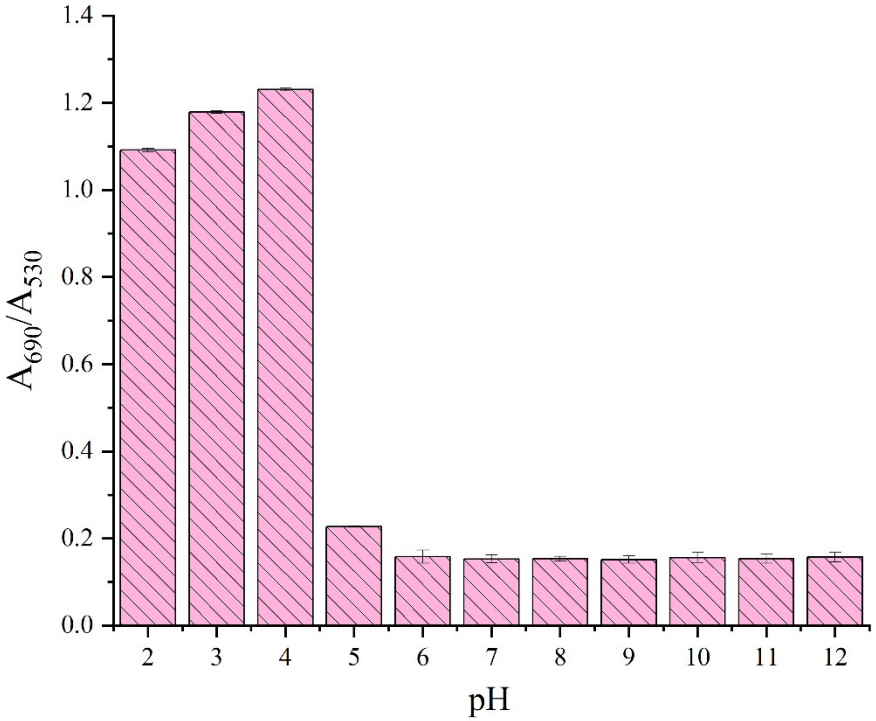

Fig. S4. Dependence of the pH on the absorption ratio (A_{690}/A_{530}) of TGA@AuNPs.

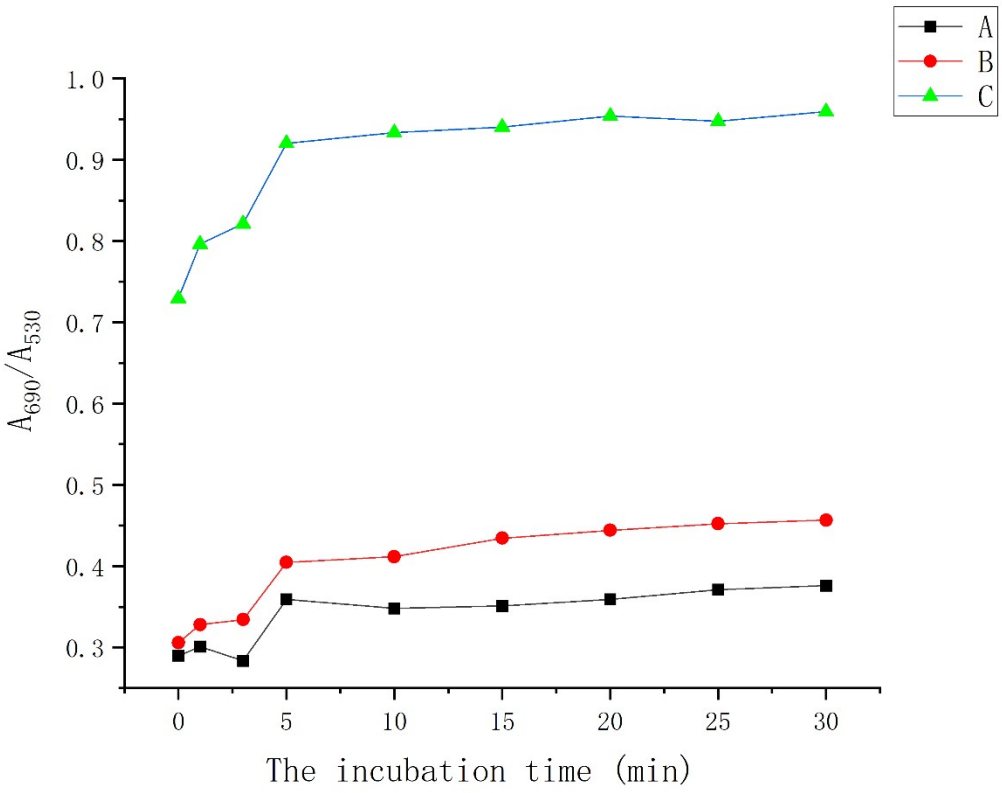

Fig. S5. Dependence of the incubation time on the absorption ratio (A_{690}/A_{530}) of TGA@AuNPs in the (A) absence and (B) presence of 0.01 μg·L^{-1} (C) presence of 0.05 μg·L^{-1} chlorpyrifos.

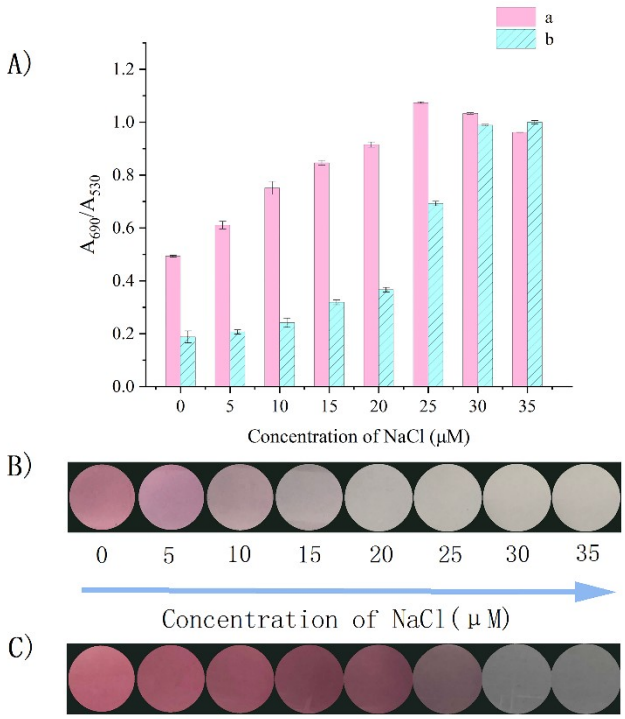

Fig. S6. (A)Dependence of the concentration of NaCl on the absorption ratio (A_{690}/A_{530}) of TGA@AuNPs in the (a) presence of 30.0 μg·L^{-1} (b) presence of 0 μg·L^{-1} chlorpyrifos. (B) System changes under the addition of 0 μg·L^{-1} chlorpyrifos. (C) System changes under the addition of 30.0 μg·L^{-1} chlorpyrifos

Table S1. Zeta Potential of gold nanoparticles and thioglycolic acid @goldnanopaticles based colorimetric sensor in the absence and presence of 50.0 μg·L-1

Samples	**AuNPs**	**TGA@AuNPs**	**TGA@AuNPs+Chlorpyrifos(50μg·L-1)**
Zeta Potential (mV)	-10.8±1.2	-3.7±3.3	0.9±1.6

Mean±SD， n=3

Table S2. Comparison with other methods based on the sensor for chlorpyrifos detection

Methods	Linear range (µg/L)	LOD (µg/L)	Time	Recovery (%)	Ref.
GC-MS	2.50-501.34	1.6	13.3 min	83-95	***1***
Spectrofluorimetric	0.50-2.50	0.15	20 s	102.6–104.2	***2***
DLLME/HPLC-UV-Vis	0.27-1090.32	5.01	5 min	87.3–117.6	***3***
DPV	0.007-35058	0.09	10 s	NM	***4***
PEC	17.53-3505.86	0.34	15 min	96–101.2	***5***
MIP/Flow cytometry	20.02-200.18	9.99	120 min	92.8	***6***
Colorimetry	NM	5.12	NM	96.2-105.6	*7*
Colorimetry	0.4-100	20	2 min	98-104.3	This work

NM: Not mentioned

References:

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