

Aptamer-based colorimetric biosensing of abrin using catalytic gold nanoparticles

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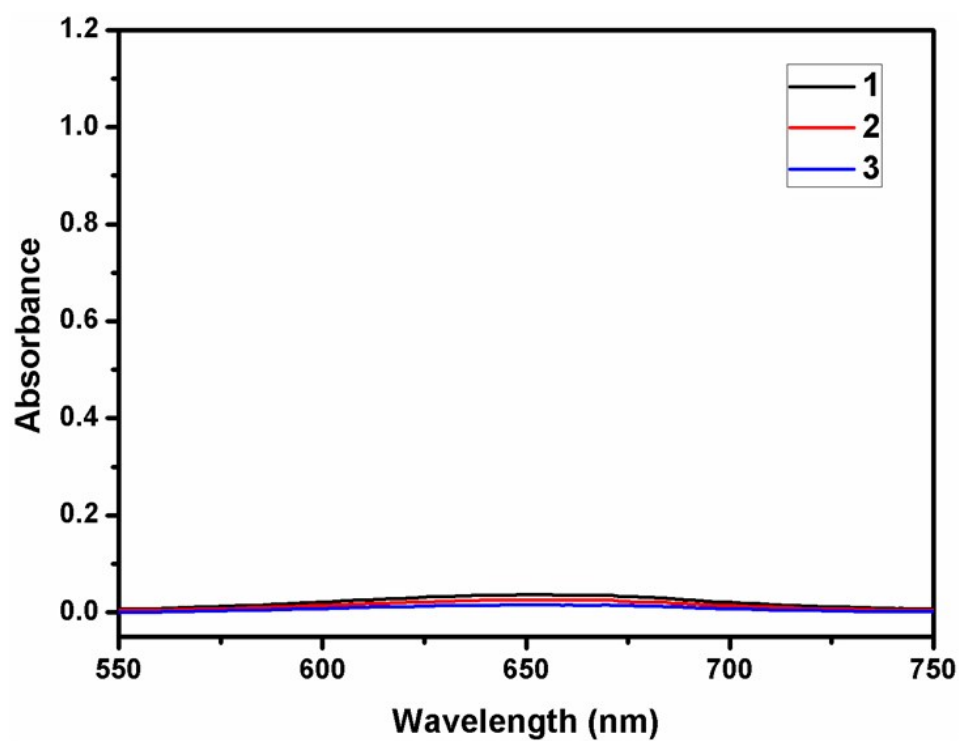


Fig. S1. UV-vis spectra in the presence of TMB and H_2O_2 under different conditions of (1) 0.5 μM ABA (2) 0.5 μM ABA + 1 nM abrin (3) 1 nM abrin.

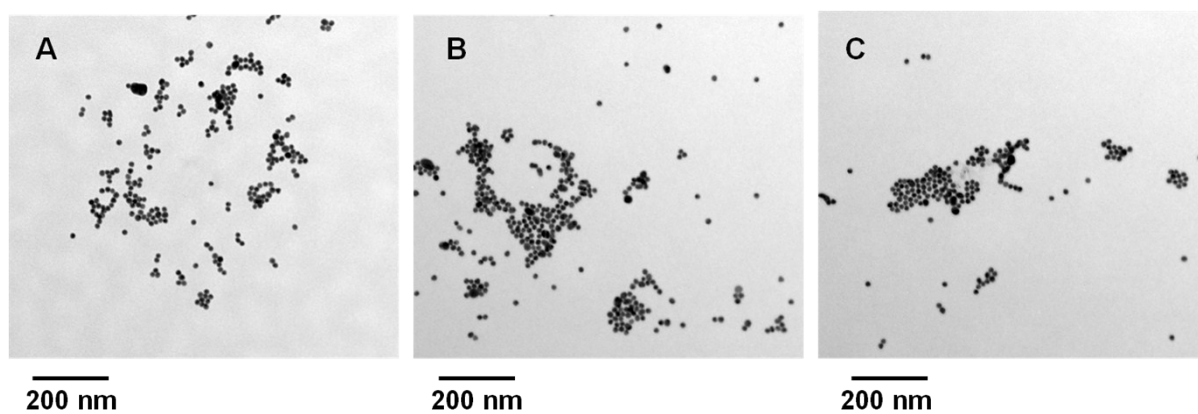


Fig. S2. TEM images of AuNPs under different conditions. (A) 1.3 nM AuNPs. (B) 1.3 nM AuNPs mixed with 0.5 μ M ABA . (C) 1.3 nM AuNPs mixed with 0.5 μ M ABA and 5 nM abrin.

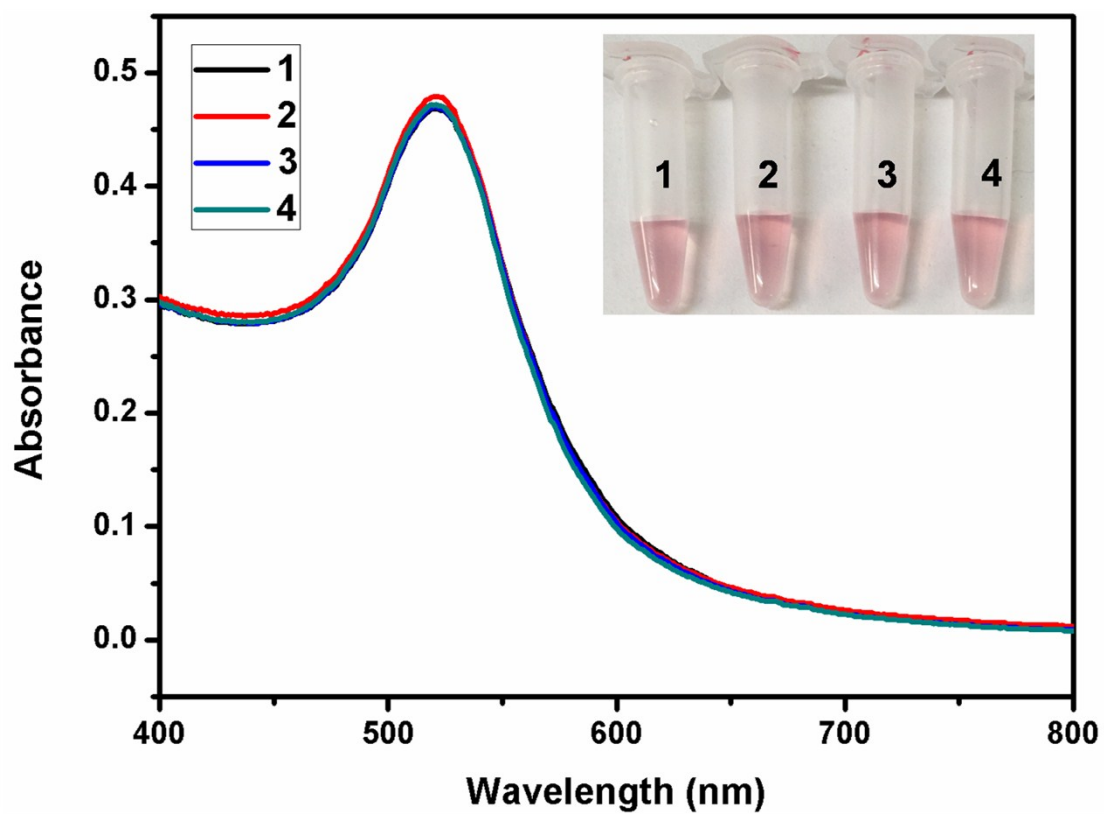


Fig. S3. UV-vis spectra of AuNPs under different conditions. (1) 1.3 nM AuNPs. (2) 1.3 nM AuNPs in the presence of 0.5 μ M ABA. (3) 1.3 nM AuNPs in the presence of 0.5 μ M ABA and 5 nM abrin. (4) 1.3 nM AuNPs in the presence of 5 nM abrin. Inset shows the corresponding digital images.

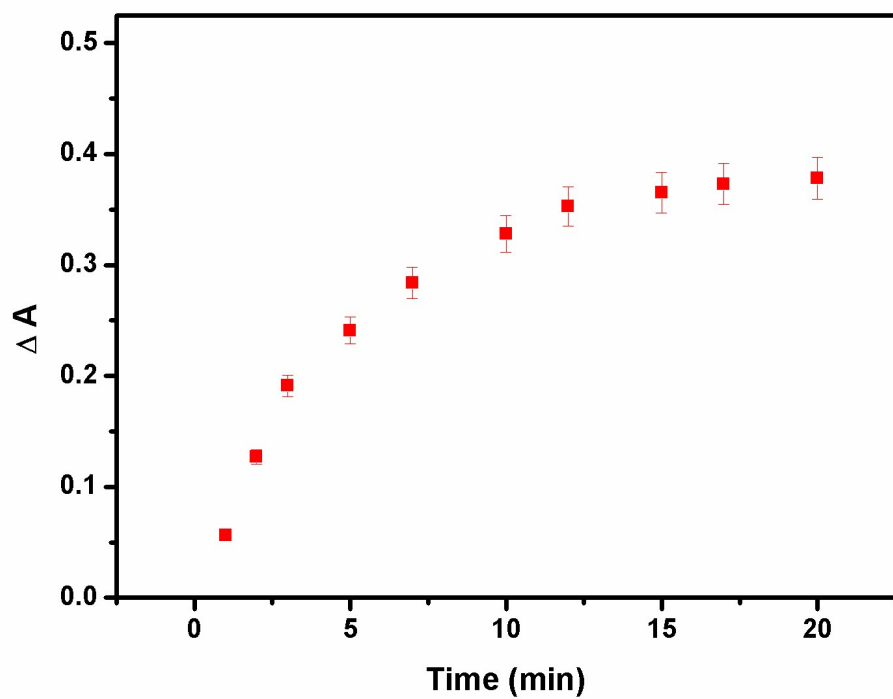


Fig. S4. Effect of the reaction time on the sensitivity of abrin detection. Reaction conditions: ABA: 0.5 μ M; TMB: 0.75 mM; H₂O₂: 0.75 M; temperature: 25 $^{\circ}$ C; pH value: 7.4; AuNPs size: 13 nm.

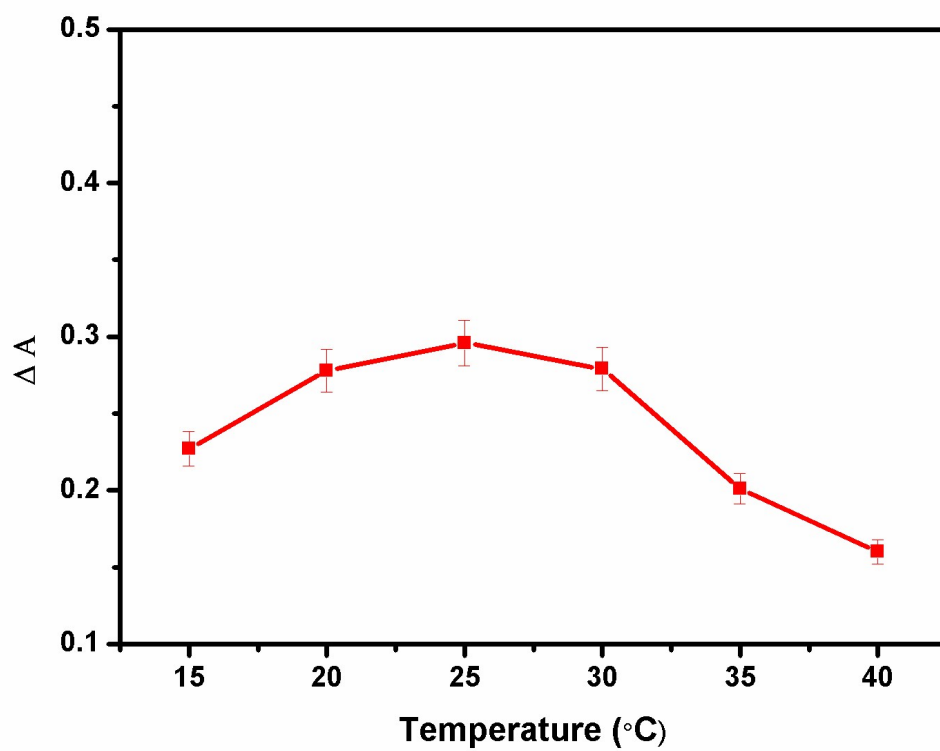


Fig. S5. Effect of the incubation temperature on the sensitivity of abrin detection.

Reaction conditions: ABA: 0.5 μ M; TMB: 0.75 mM; H₂O₂: 0.75 M; time: 10 min; pH value: 7.4; AuNPs size: 13 nm.

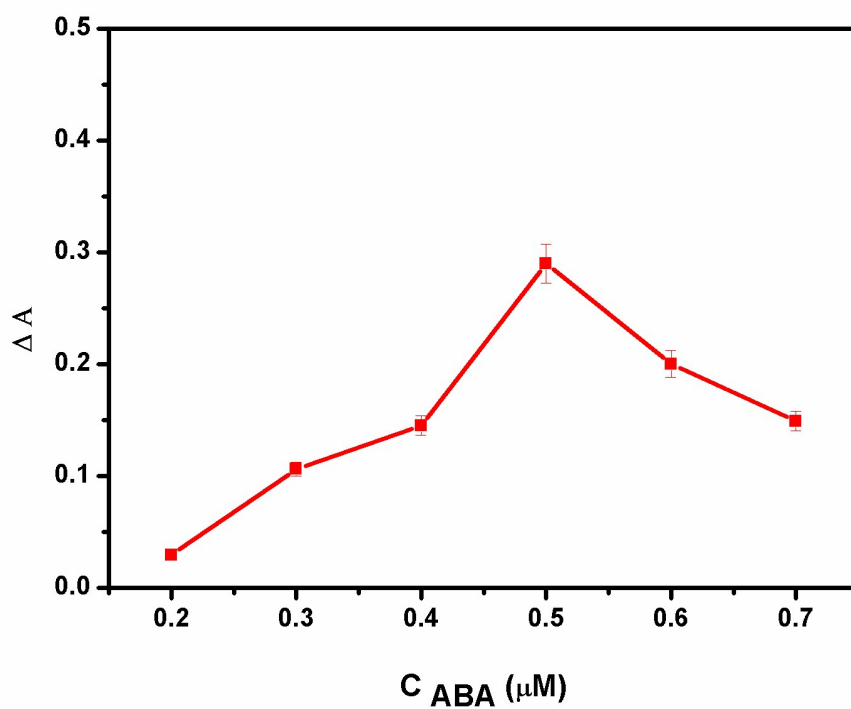


Fig. S6. Effect of aptamer concentrations on the sensitivity of abrin detection.

Reaction conditions: TMB: 0.75 mM; H_2O_2 : 0.75 M; time: 10 min; temperature: 25

$^{\circ}C$; pH value: 7.4; AuNPs size: 13 nm.

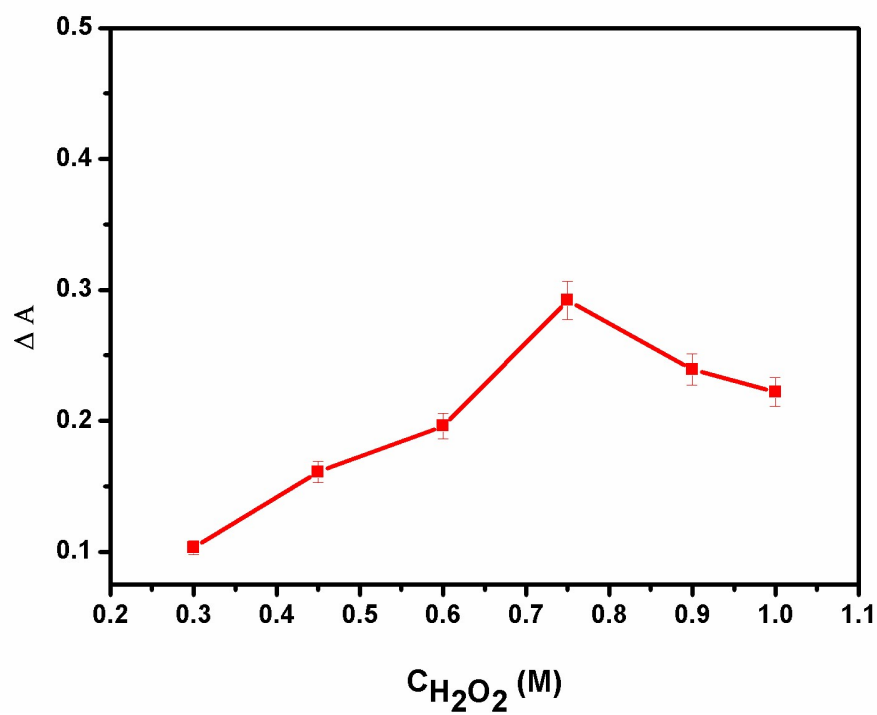


Fig. S7. Effect of H_2O_2 concentrations on the sensitivity of abrin detection. Reaction conditions: ABA: $0.5 \mu M$; TMB: $0.75 mM$; time: 10 min; temperature: $25^\circ C$; pH value: 7.4; AuNPs size: 13 nm.

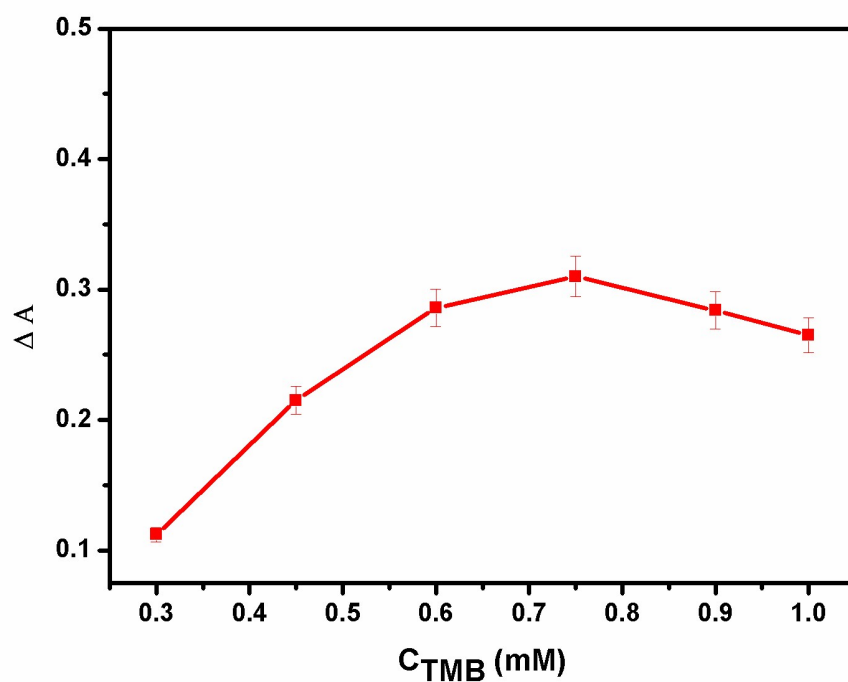


Fig. S8. Effect of TMB concentrations on the sensitivity of abrin detection. Reaction conditions: ABA: 0.5 μ M; H_2O_2 : 0.75 M; time: 10 min; temperature: 25 $^{\circ}$ C; pH value: 7.4; AuNPs size: 13 nm.

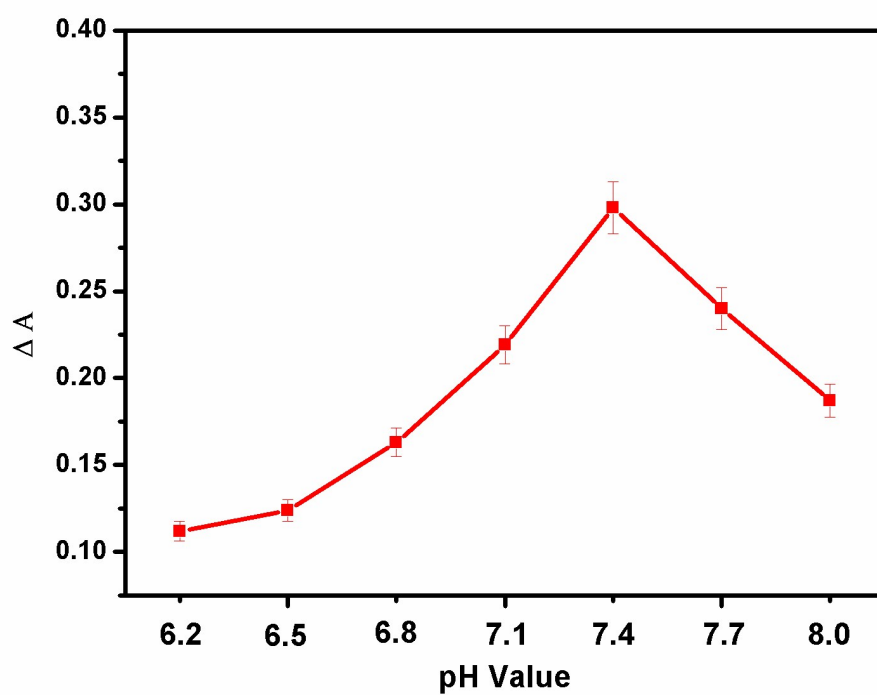


Fig. S9. Effect of pH value on the sensitivity of abrin detection. Reaction conditions:
ABA: 0.5 μ M; H_2O_2 : 0.75 M; TMB: 0.75 mM; time: 10 min; temperature: 25 $^\circ\text{C}$;
AuNPs size: 13 nm.

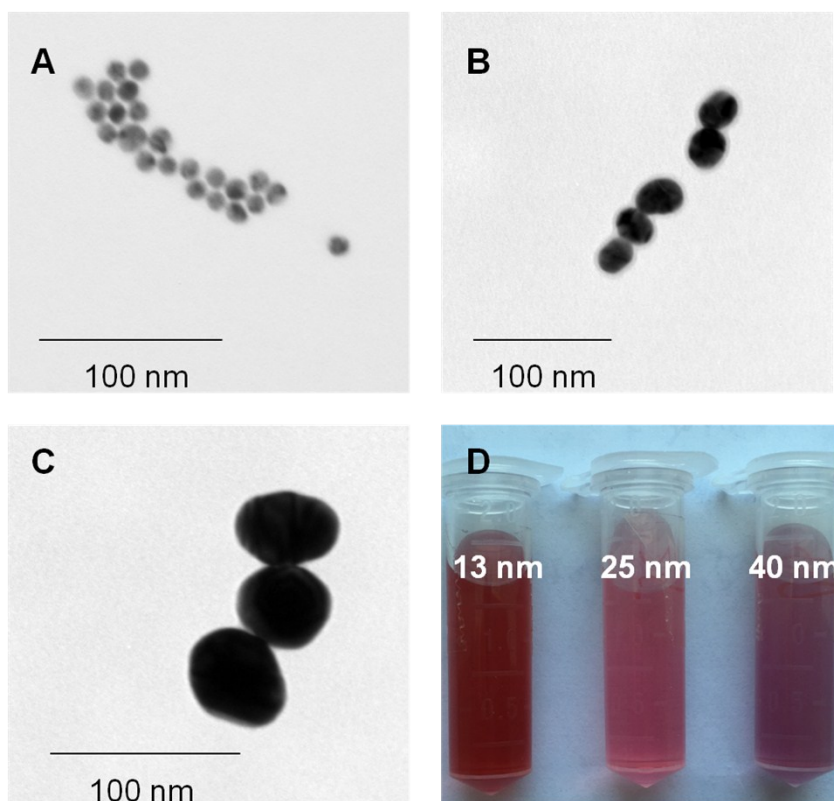


Fig. S10. TEM images of AuNPs with different size. (A) 13 nm (B) 25 nm (C) 40 nm (D) digital images of AuNPs with different size.

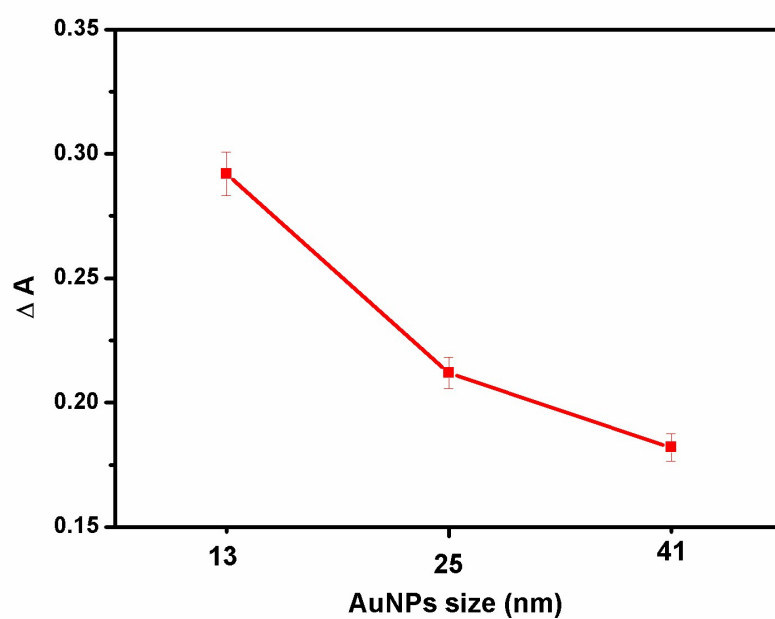


Fig. S11. Effect of AuNPs size on the sensitivity of abrin detection. Reaction conditions: ABA: 0.5 μ M; H₂O₂: 0.75 M; TMB: 0.75 mM; time: 10 min; temperature: 25 °C; pH value: 7.4.