Electronic Supplementary Material (ESI) for Analytical Methods

Supporting information

A facile colorimetric assay for determination of salicylic acid in tobacco leaves using titanium dioxide nanoparticles

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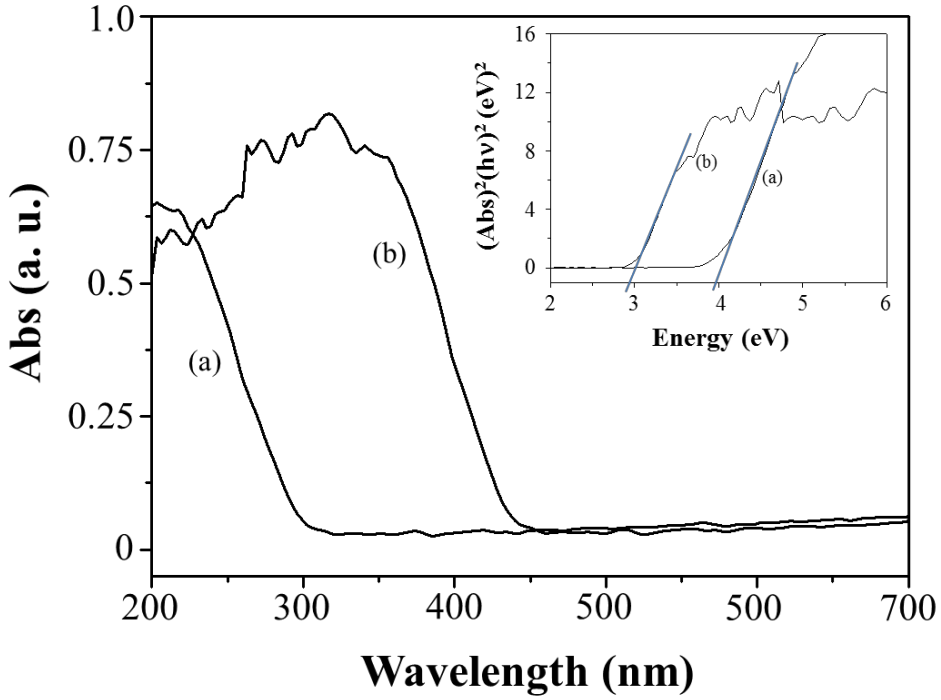

Fig S1. Diffuse reflectance spectra of (a) TiO_2 NPs and (b) TiO_2 NPs with SA (1.0 mM). Inset is the absorption^2 versus energy curve for (a) TiO_2 NPs and (b) TiO_2 NPs with SA (1.0 mM).

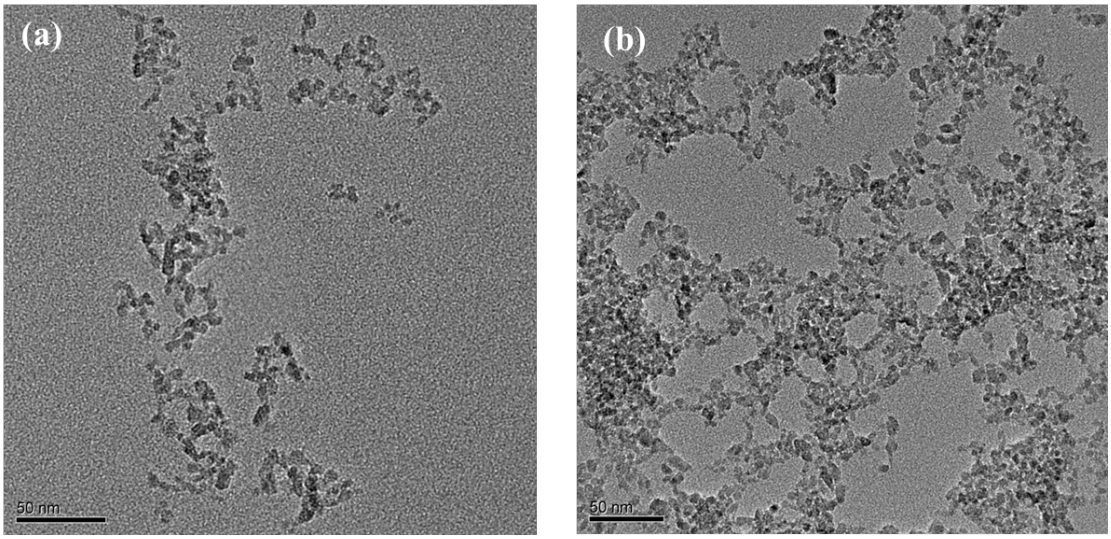

Figure S2. TEM images of a 5 mM, pH 5.5 sodium acetate buffer solution of (a) 24 μM TiO_2 NPs and (b) 24 μM TiO_2 NPs in the presence of SA (1.0 mM).

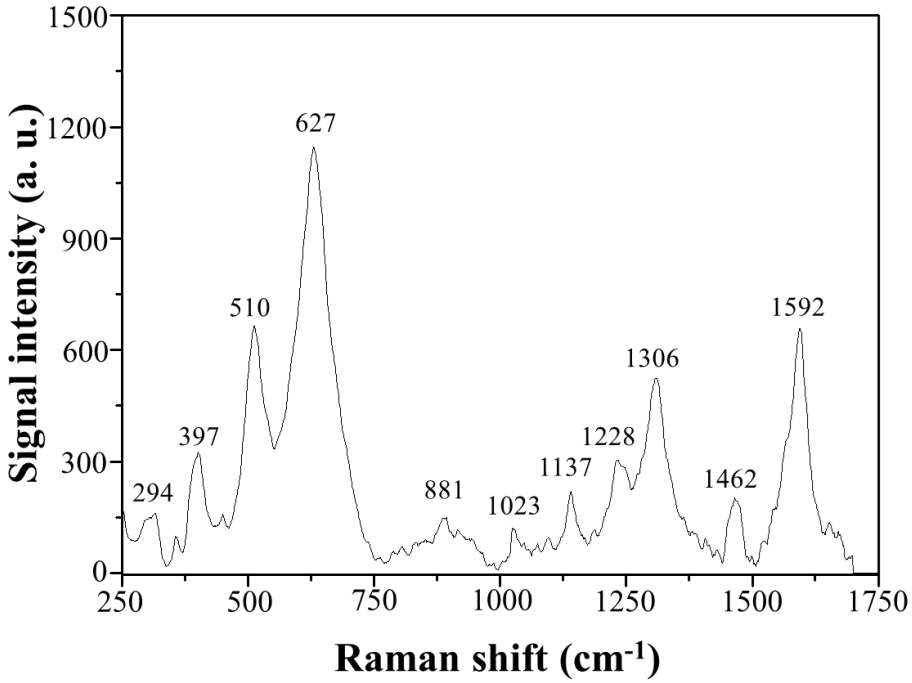

Figure S3. Raman spectrum of 24 μM TiO_2 NPs in the presence of SA (1.0 mM).

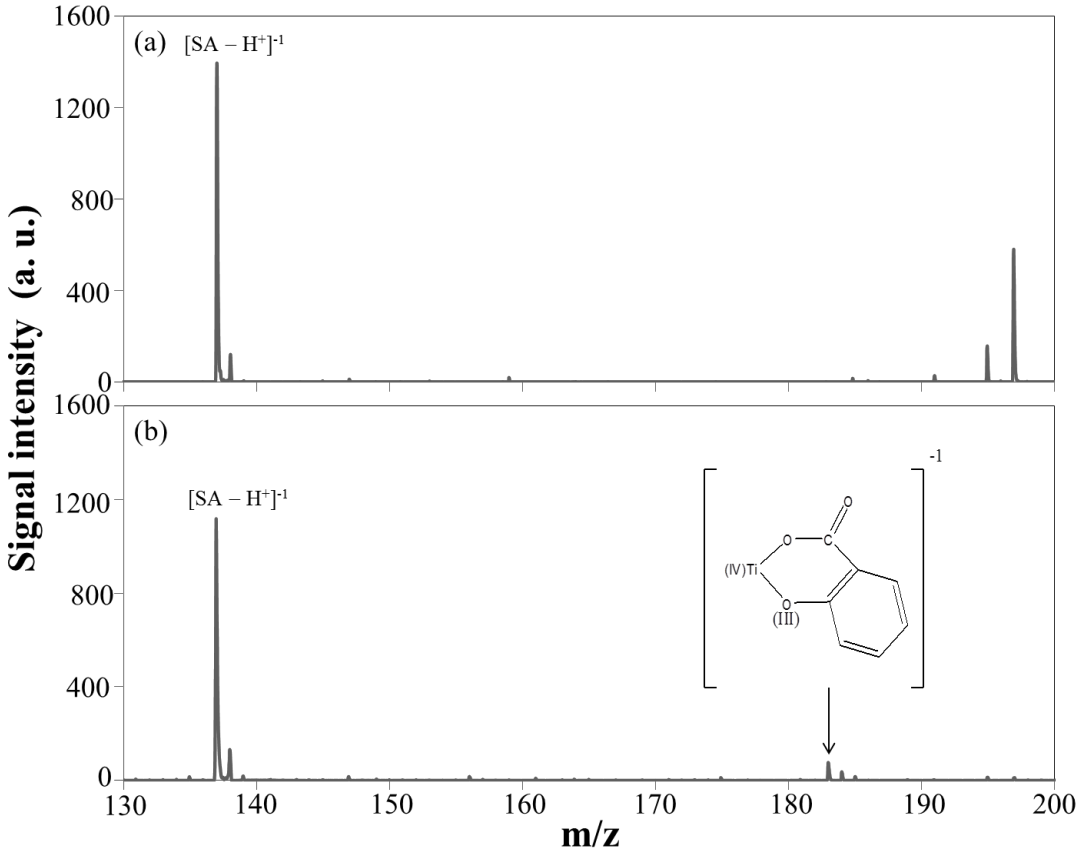

Figure S4. MS spectra of (a) 1.0 mM SA and (b) 24 μM TiO_2 NPs in the presence of SA (1.0 mM).

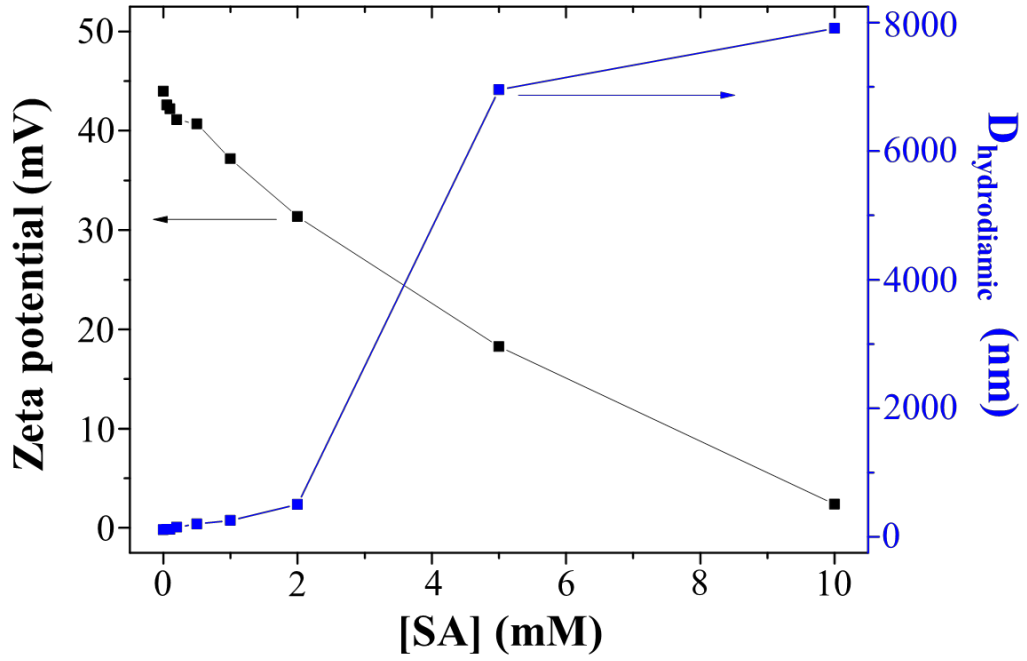

Figure S5. Zeta potential and hydrodynamic diameter of 24 μM TiO_2 NPs in the presence of different concentrations of SA (0–10 mM).

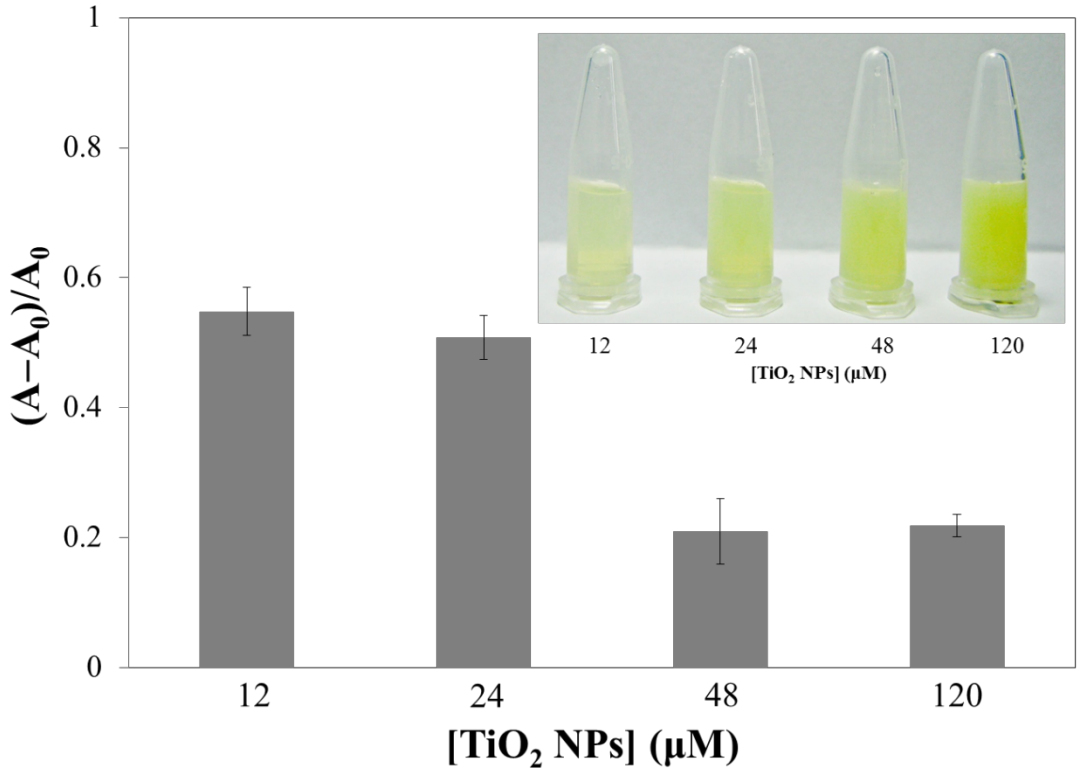

Figure S6. Effect of TiO_2 NPs concentration (12–120 μM) on the values for $(A-A_0)/A_0$, where A and A_0 represent that absorbance at 420 nm of TiO_2 NPs in the presence and the absence of SA (1.0 mM), respectively (n = 3). Inset: Photographic images of TiO_2 NPs (12–120 μM) solutions in the presence of SA (1.0 mM).

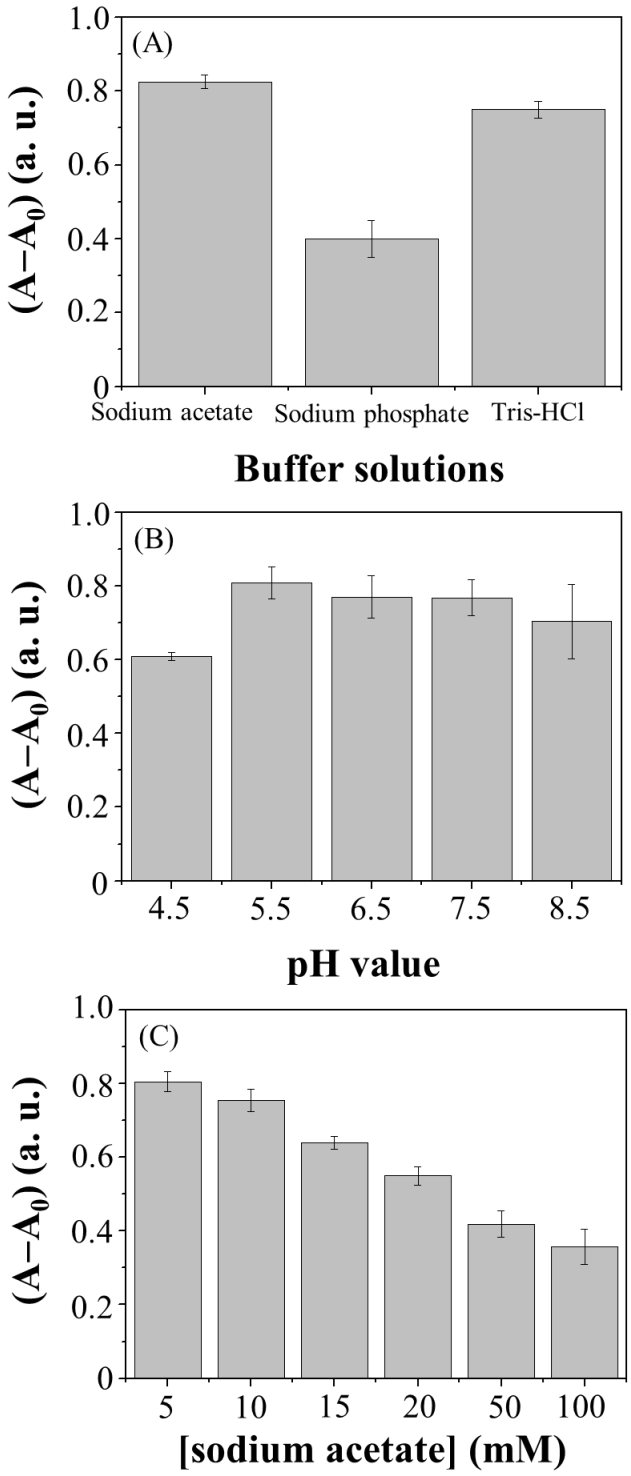

Figure S7. Effect of (A) the buffer system, (B) pH, and (C) concentration of sodium acetate buffer solution on the absorbance difference ($A-A_0$), where A and A_0 represent the absorbance at 420 nm of TiO_2 NPs in the presence and absence of SA (1.0 mM), respectively (n = 3).

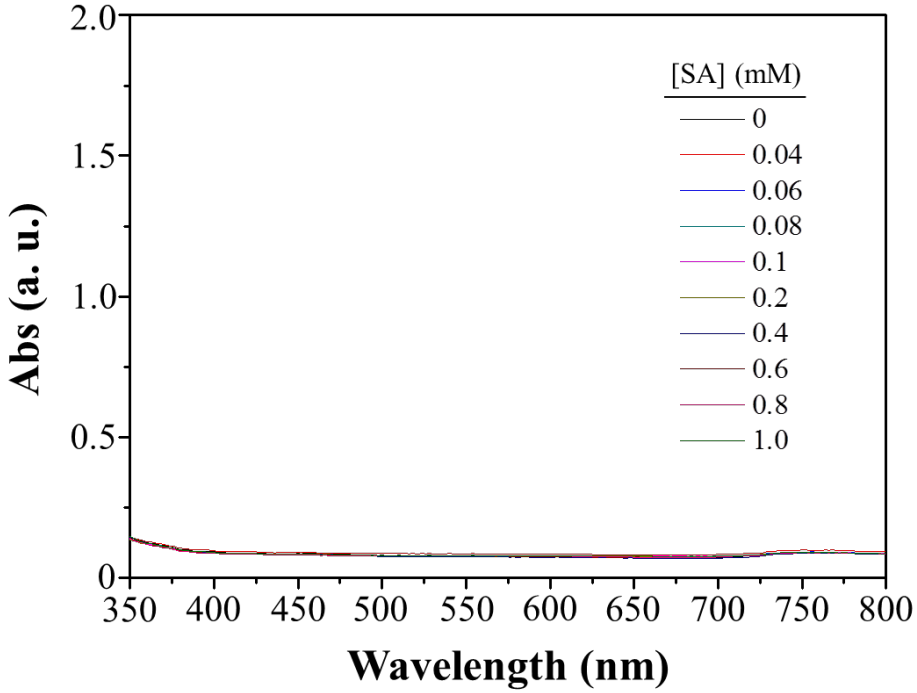

Figure S8. UV-Vis spectra of various concentrations of SA (0.04 to 1.0 mM) in the absence of TiO_2 NPs.

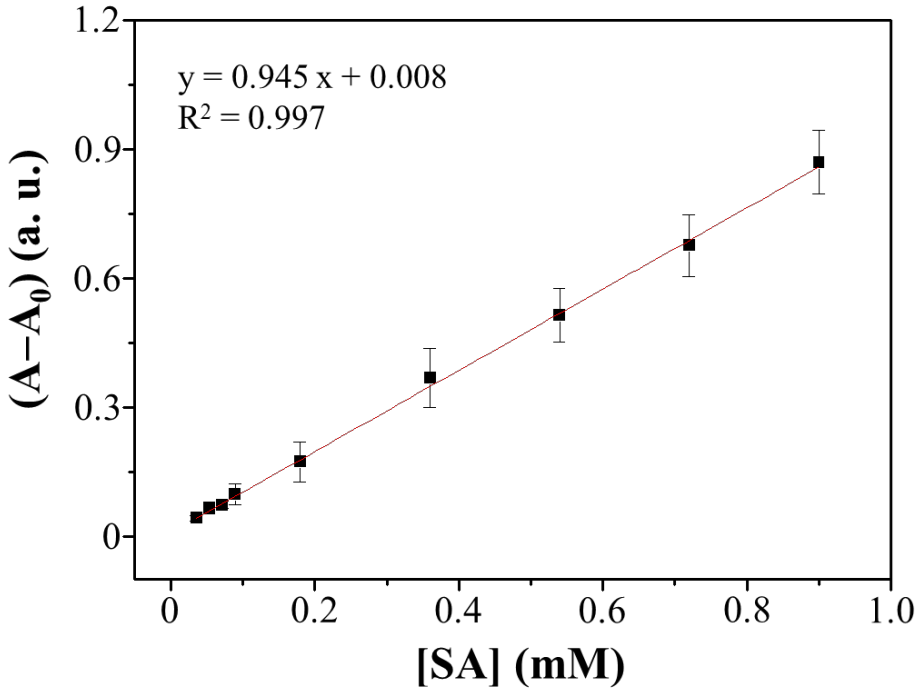

Figure S9. Analysis of tobacco leaf extracts (aliquots spiked with SA (0.04–0.9 mM)) using 24 μM TiO_2 NPs (n = 3). Other conditions were the same as those described in Figure 3.