

## **Supporting Information**

### **Small and Sharp Triangular Silver Nanoplates Synthesized Utilizing Tiny Triangular Nuclei and Their Excellent SERS Activity for Selective Detection of Thiram Residue in Soil**

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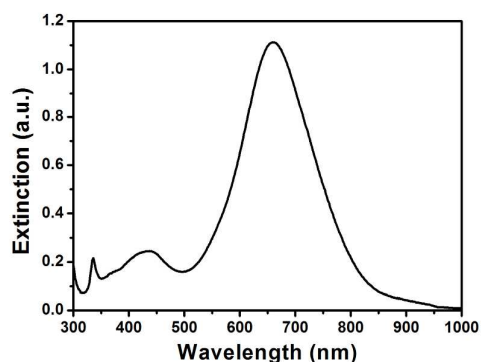
jjunli@mail.xjtu.edu.cn (Jian-Jun Li)

**Address:** School of Life Science and Technology,

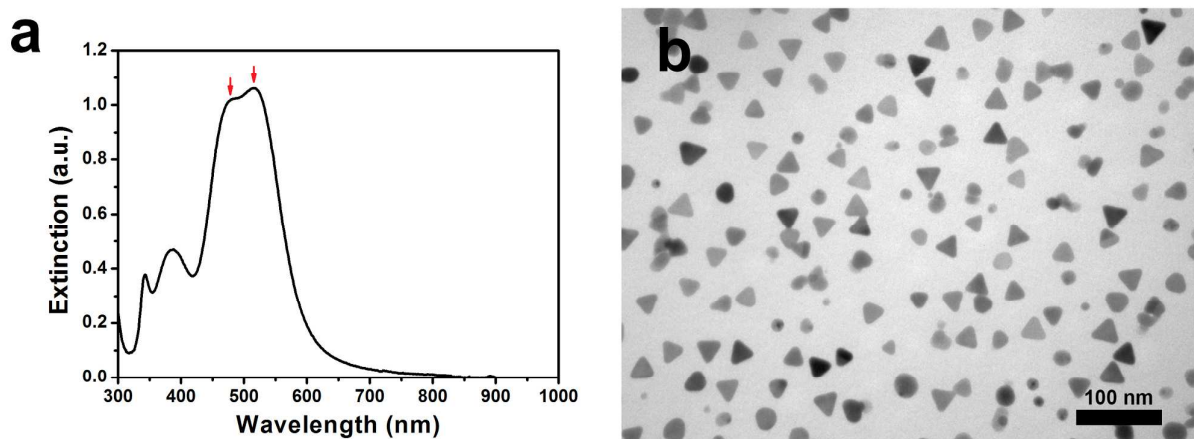
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Xi'an, 710049,

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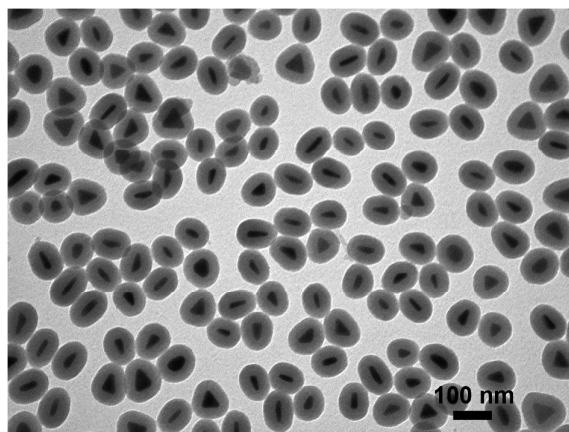


**Figure S1.** The spectrum of the TSNPs after growth using the seeds synthesized with PVP and 500  $\mu\text{L}$  of  $\text{NaBH}_4$ .

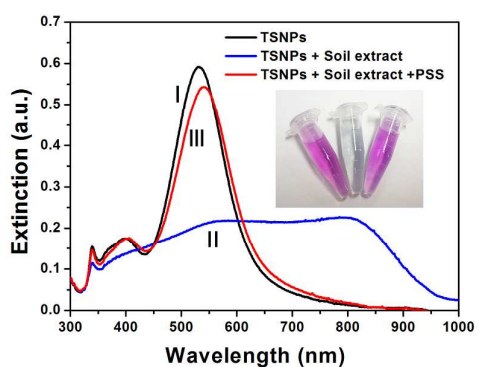


**Figure S2.** The spectrum and the TEM image of the TSNPs when the amount of the  $\text{AgNO}_3$  is less than 50  $\mu\text{L}$ .

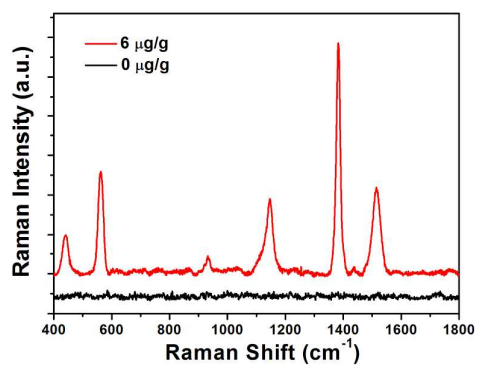
**The synthesis of silica-coated TSNPs:** 16-mercaptohexadecanoic acid (MHA,  $\geq 90\%$ ) was purchased from Sigma-Aldrich. Tetraethyl orthosilicate (TEOS,  $>99\%$ ) was purchased from Aladdin. Dimethylamine (DMA, 40 wt%) was purchased from Kemiou Chemical Reagent Co., Ltd. (Tianjin, China). In a typical synthesis, the concentrated TSNPs were redispersed in aqueous solution of sodium citrate (1.5 mM, 20 mL), followed by addition of ethanol solution of MHA (4 mM, 400  $\mu\text{L}$ ) with vigorous stirring. After 10 min, the mixture was centrifuged for removing the excessive MHA. Ethanol solution of TEOS (0.2 M, 200  $\mu\text{L}$ ) was added to 20 mL anhydrous ethanol, followed by addition of the centrifuged MHA-modified TSNPs. Then 2.2 mL DMA was added to the mixture to start the reaction. After 3 h, the silica-coated TSNPs were obtained.



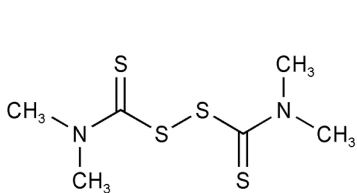
**Figure S3.** The TEM image of silica-coated TSNPs for thickness measurement.



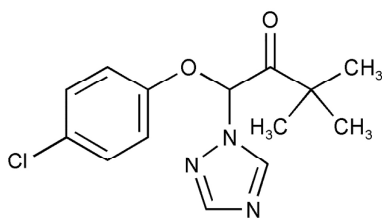
**Figure S4.** The spectra of the TSNPs and the mixture of TSNPs and soil extract with and without the PSS solution. The inset is the digital photograph of the corresponding solution colors.



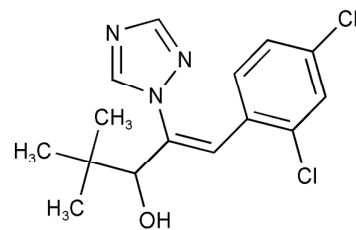
**Figure S5.** The SERS spectra of the soil extract containing thiram (6 µg/g) and that with an equal amount of ethanol (that is, the concentration of thiram is 0 µg/g).



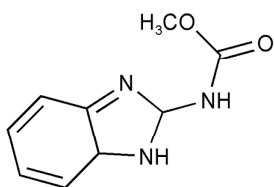
Thiram



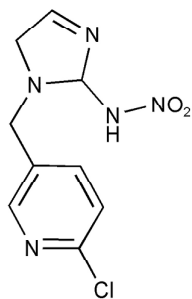
Triadimefon



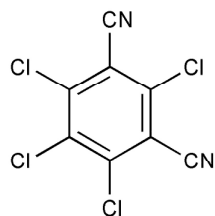
Diniconazole



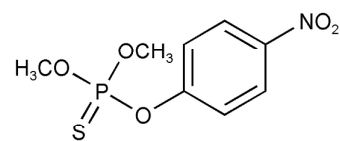
Carbendazim



Imidacloprid



Chlorothalonil



Parathion-methyl

**Figure S6.** The molecular formulas of pesticides used in this paper.