Supporting Information

Tunable Porous Silver Nanostructures for Efficient Surface-Enhanced Raman Scattering Detection of Trace Pesticide Residues

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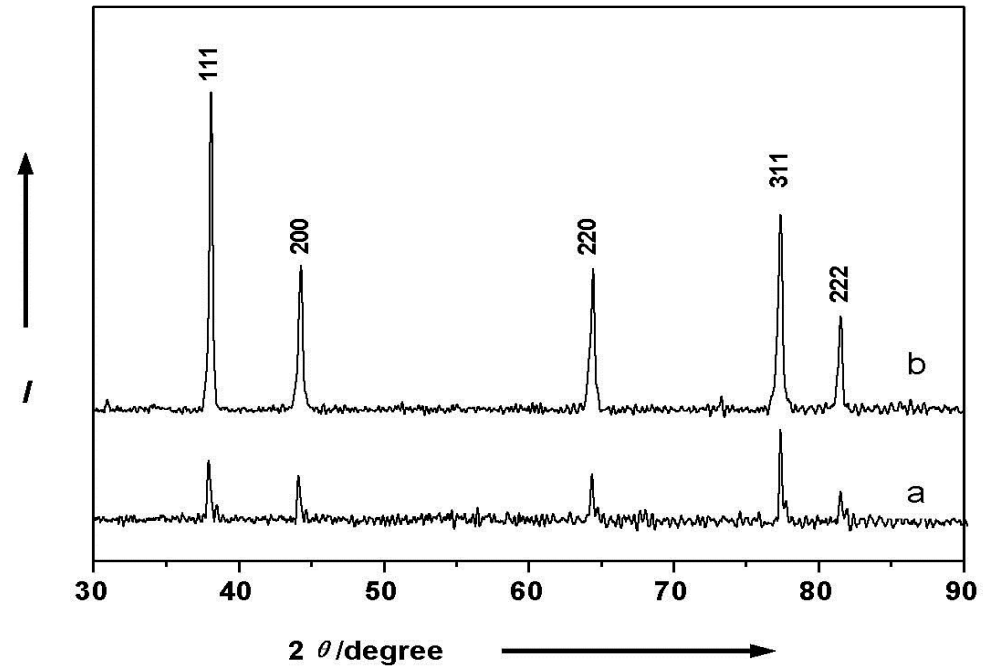

Figure S1. Typical XRD patterns of the Ag nanoparticles (a) and porous nanostructures (b).

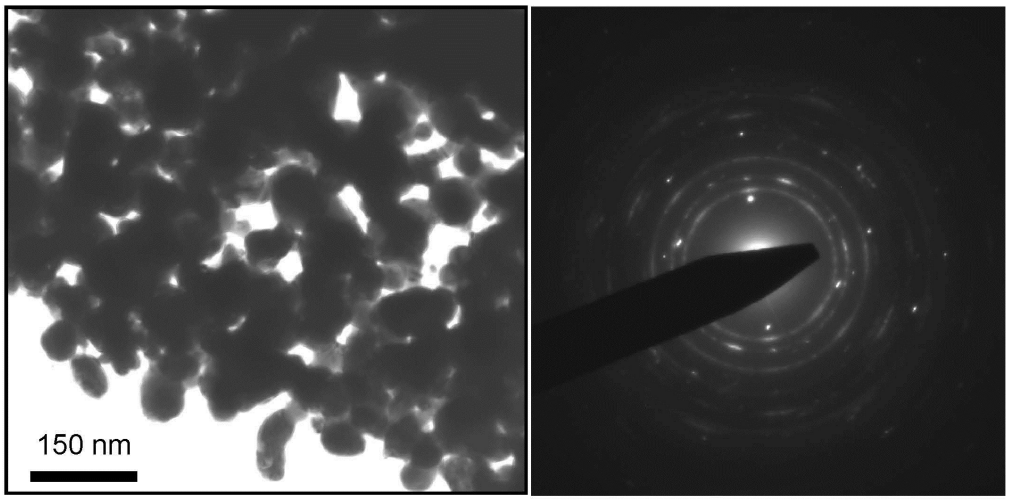

Figure S2. TEM image of the silver porous nanostructures and corresponding SAED pattern.

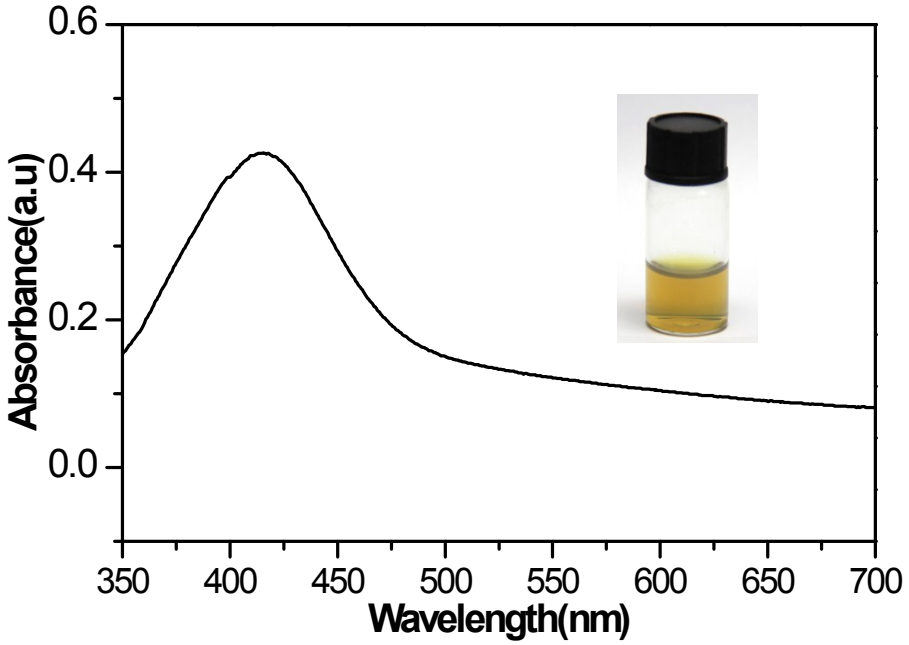

Figure S3. Uv-Vis spectra of the Ag porous nanostructures colloids. Inserted is the digital photo of the Ag porous nanostructures.

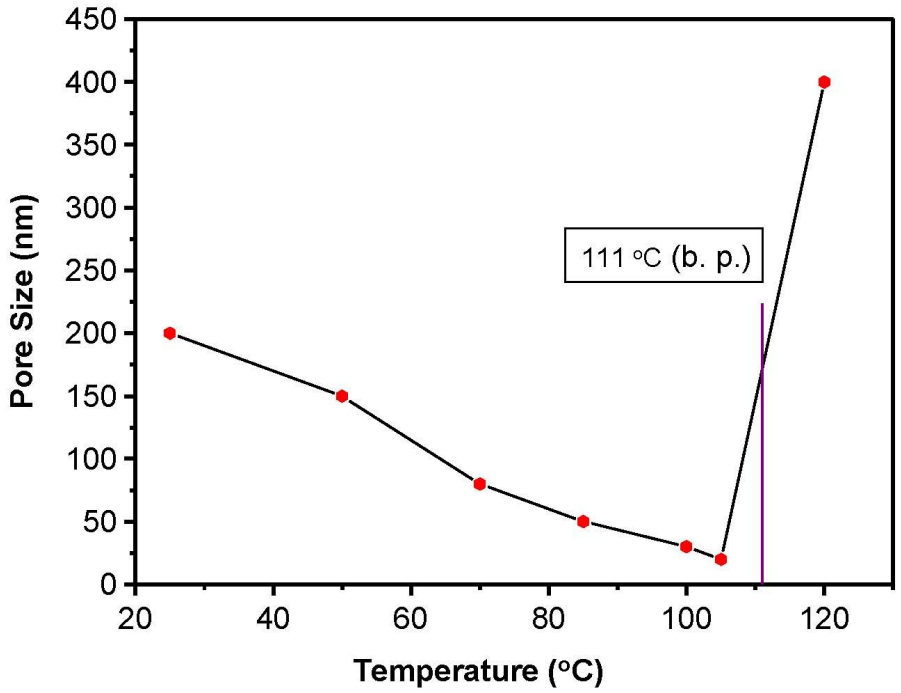

Figure S4. Temperature dependence of pore size of the silver samples, note: boiling point of toluene is 111 °C.

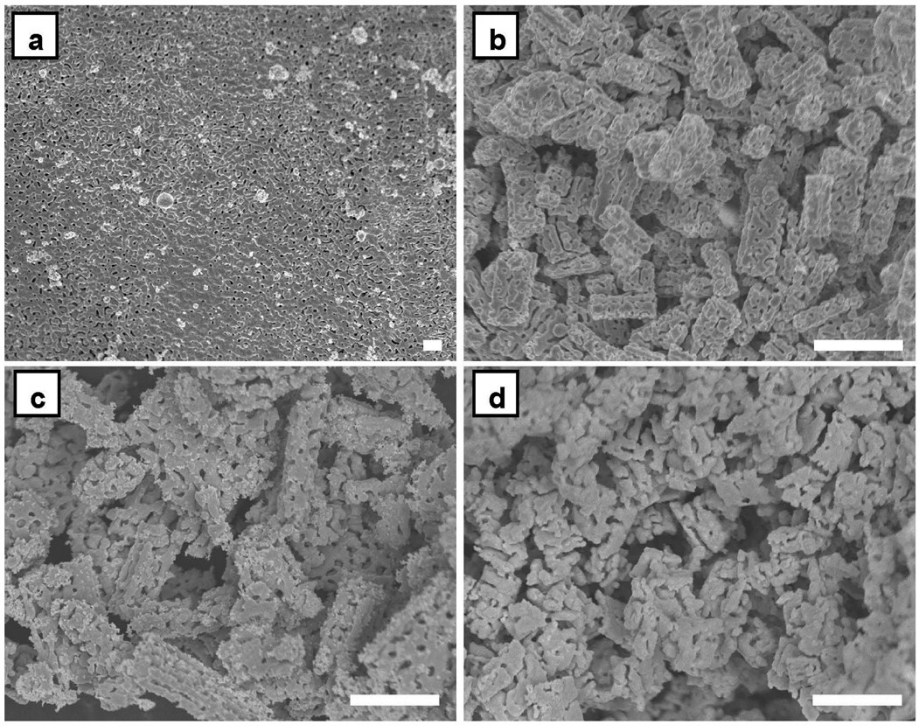

Figure S5. The Ag porous nanostructures obtained at various stirring rates. a) no stirring; b) 500 r/m; c) 750 r/m and d) 1000 r/m (scale bars are 2 μm).

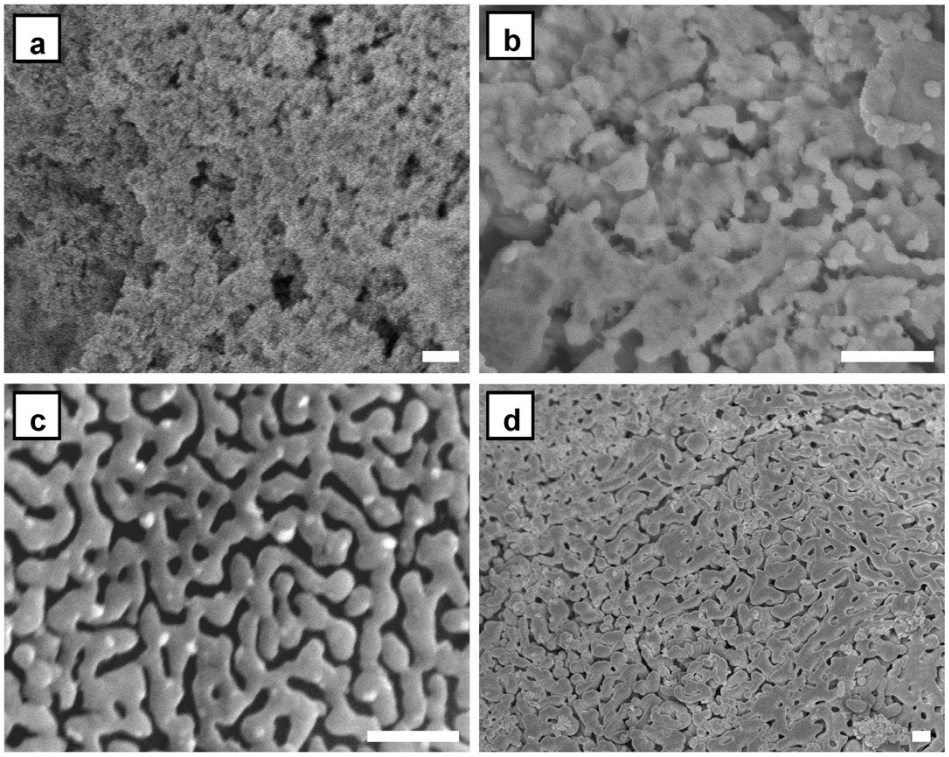

Figure S6. The Ag porous nanostructures with different pore density obtained under various surfactant (DTAB) concentration. a) no DTAB; b) 0.0325 M; c) 0.065 M; d) 0.13 M (scale bars are 1 μm).

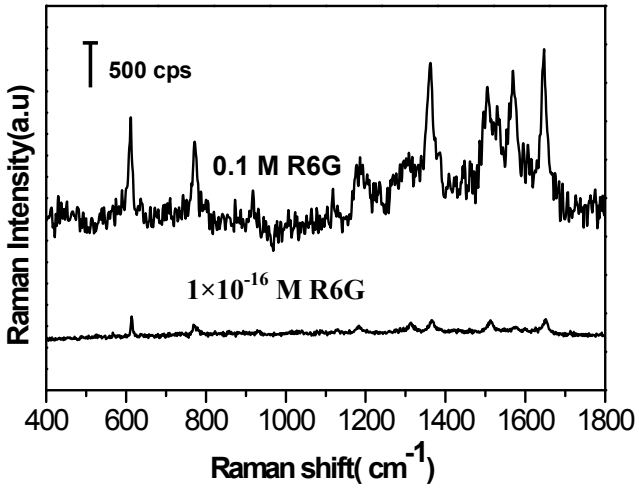

Figure S7. Raman spectra of 0.1 M and 1×10^{-16} M rhodamine-6G (R6G) on a silicon substrate (upper) and on the Ag porous structure (bottom), respectively.

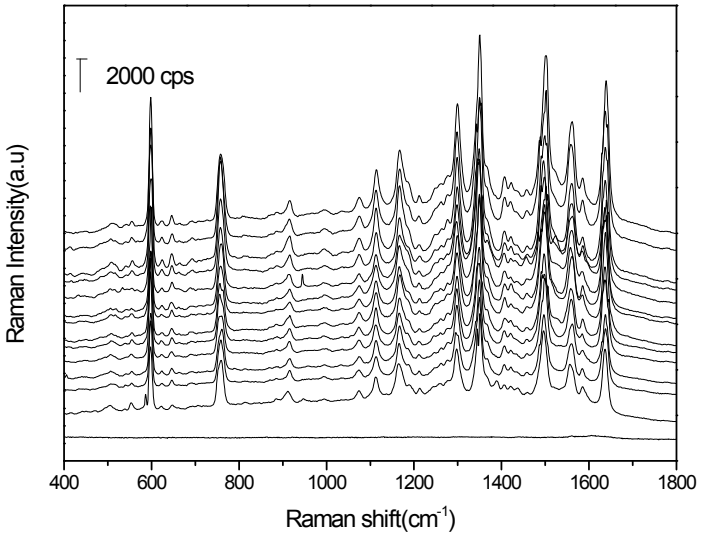

Figure S8**.** The SERS spectra of R6G from 13 random sites at the concentration of 1×10^{-8} M in ethanol by using the Ag porous nanostructures as the enhanced substrate. The results indicated that the SERS platform exhibited good reproducibility and reliability for the detection.

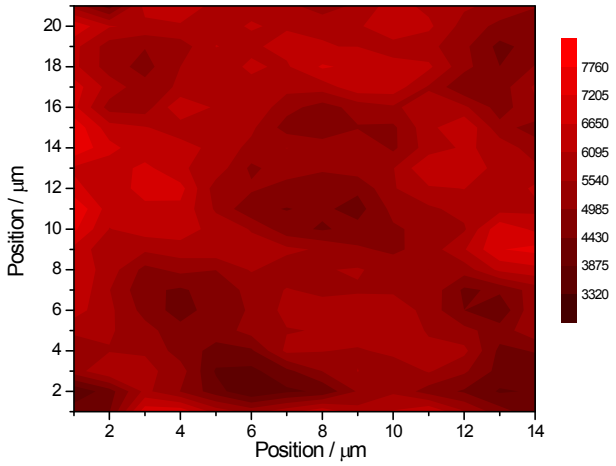

Figure S9. Raman mapping with the 1645 cm^{-1} band of R6G at the concentration of 1 × 10^{-8} M in ethanol using the Ag porous nanostructures as the enhanced substrate. The result indicates that the SERS platform exhibited good reproducibility and reliability for the detection.

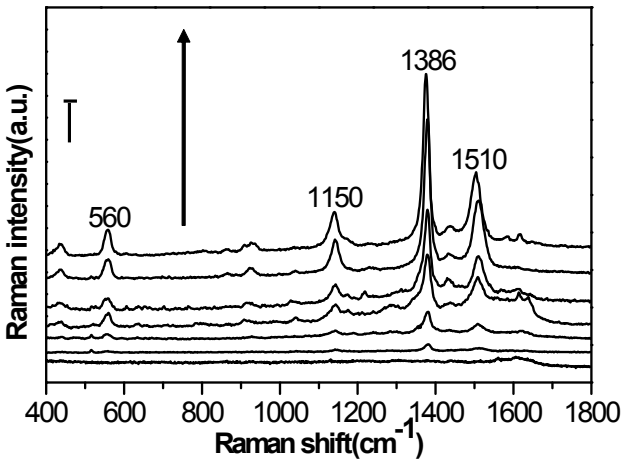

Figure S10**.** The SERS spectra of the thiram in ethanol of various concentrations by using the Ag porous nanostructures as the enhanced substrates.

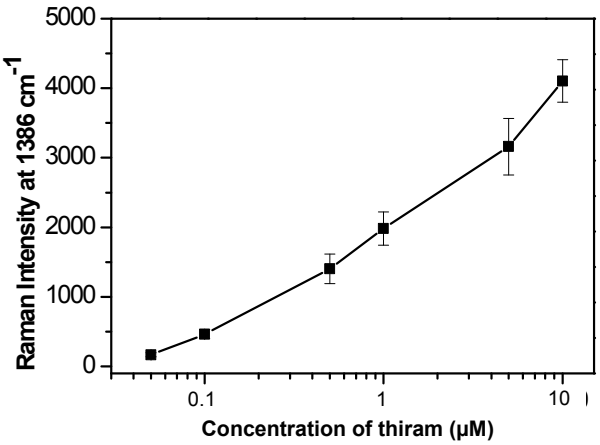

Figure S11**.** The intensities of SERS signals at 1386 cm^{-1} as the function of the concentrations of thiram in ethanol.

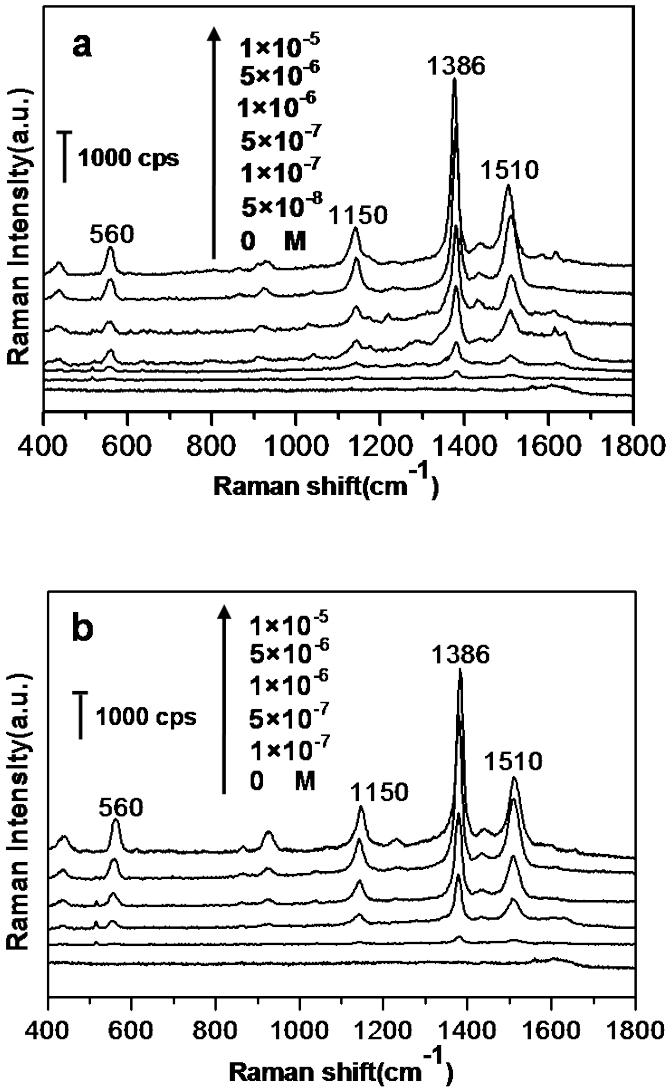

Figure S12**.** SERS spectra of thiram in ultrapure water a), real lake water b) at different spiked concentrations, respectively.