Supporting information for the used figures in our work
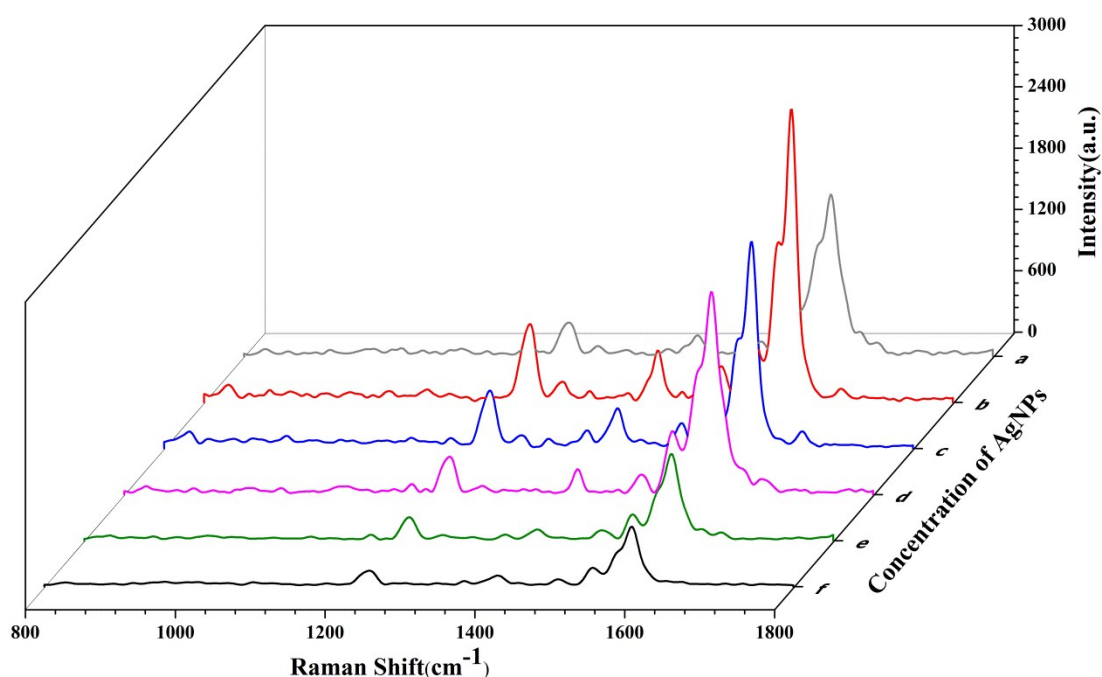

Fig. S1 SERS spectra of vardenafil (48.8μg·mL^{-1}) adsorbed on different concentration of SA-Ag NPs substrate (concentration of SA-Ag NPs substrate from a to f is fourfold- concentrated, threefold-concentrated, twofold-concentrated, normally, twofold-diluted and threefold-diluted silver colloids)

Different concentration of SA-AgNPs, including fourfold- concentrated, threefold - concentrated, twofold - concentrated, normally, twofold - diluted and threefold - diluted silver colloids, were gotten by concentration and dilution. Figure S1 shows SERS spectra of vardenafil (48.8μg·mL^{-1}) adsorbed on different concentration of SA-AgNPs substrate. It was observed that threefold-concentrated silver colloids resulted in good enhancement. The result was same as 4-MBA. So threefold - concentrated silver sol was selected for subsequent experiments.
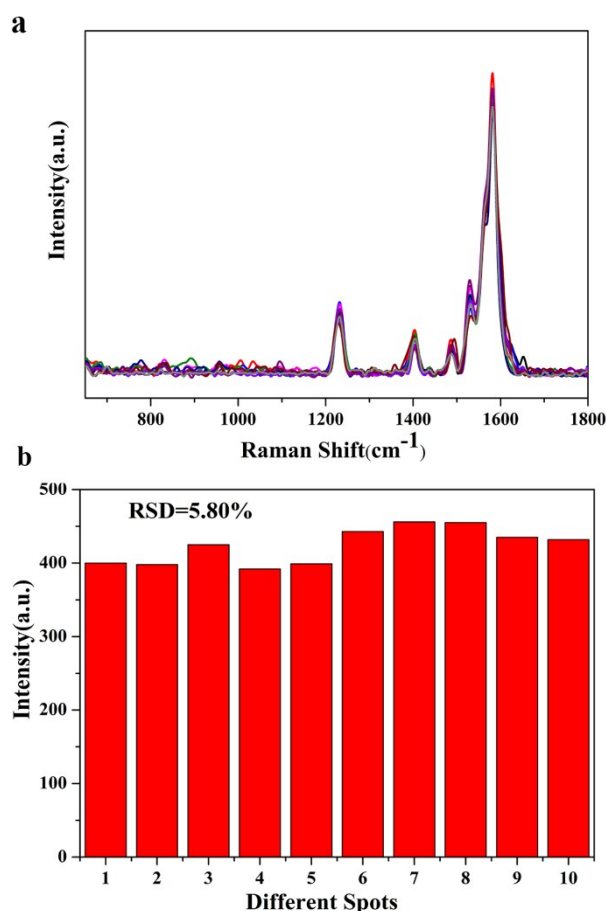
Fig. S2 A series of SERS spectra of vardenafil ($48.8\mu g \cdot mL^{-1}$) molecules from 10 different spots

Figure S2 shows the SERS spectra of vardenafil with 10 different elected spots on the substrate with the purpose of determining the degree of proximity between the results of different points on the same silicon wafer under a low concentration of 48.8 $\mu g \cdot mL^{-1}$. The obtained relative standard deviation (RSD) of the intensity at 1235 cm^{-1} was 5.80%, indicating good uniformity of the SA-Ag NPs substrate.

Fig. S3 shows the characteristic bands of SERS spectrum of rosiglitazone maleate (ROS) and normal Raman spectrum of solid ROS. The major SERS bands of ROS are located at 629 cm^{-1}, 739 cm^{-1}, 1175 cm^{-1}, 1257 cm^{-1}, 1325 cm^{-1}, 1599 cm^{-1}. The most intensive peak at 1175 cm^{-1} is selected as characteristic peak for quantity analysis. Some changes of Raman shift between normal Raman spectrum and SERS spectrum of ROS, indicates that there exists a very strong interaction between vardenafil and SA-AgNPs coffee ring substrate.
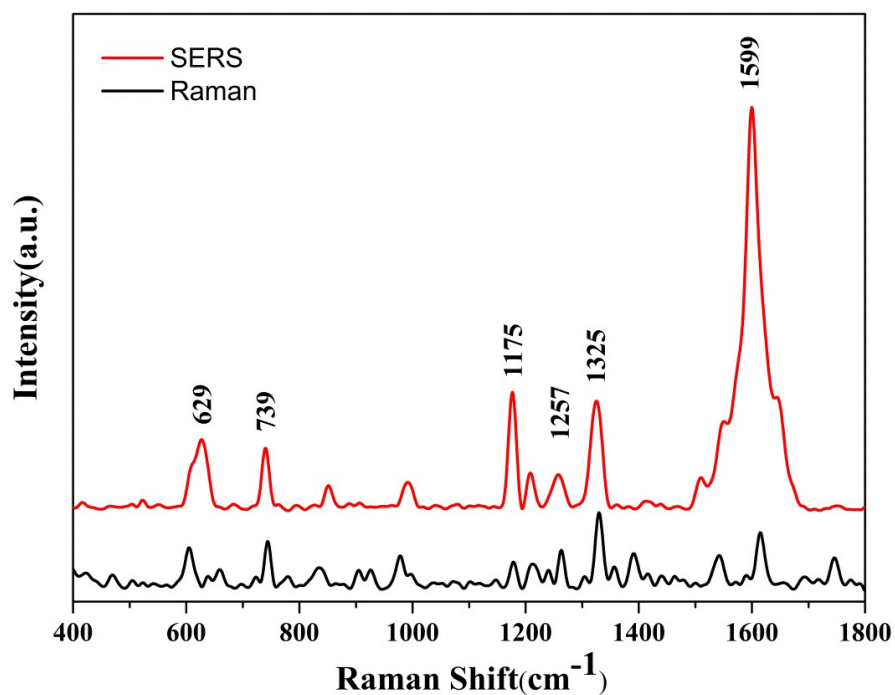
Fig. S3 SERS spectra of ROS (47.4 μg·mL^{-1}) and Raman spectra of solid ROS

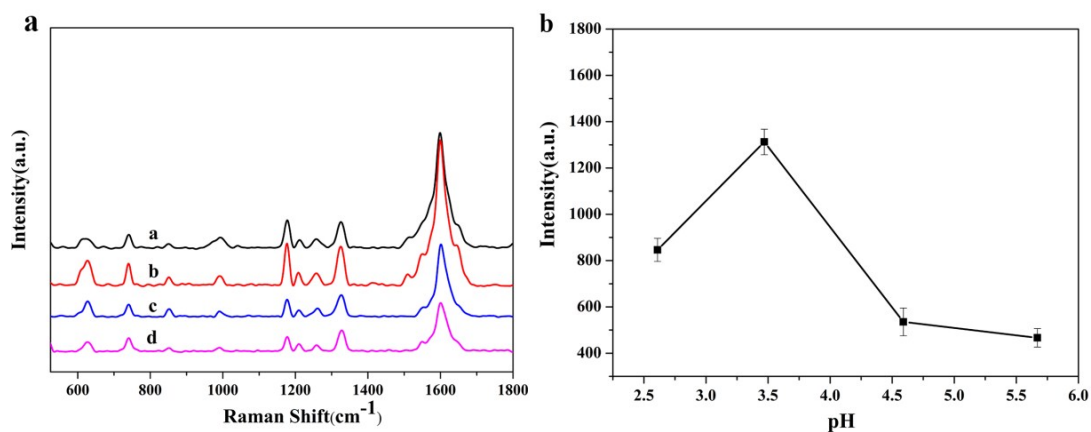
Fig. S4 (a) SERS spectra of 47.4 μg·mL^{-1} ROS in different pH value (a→d, pH=2.61, 3.47, 4.59, 5.67) (b) the SERS intensity at 1175 cm^{-1} for the ROS with different pH

Fig. S4 shows that the SERS intensity for the ROS with different pH. It is observed that the enhancement effect was most excellent when pH is 3.47.