## **Supporting information:**



Fig. S1 XRD patterns of (a) the  $Cu_2O$  microcubes and (b) the nanosheet-assembled Ag hollow microcubes.



Fig. S2 EDX spectrum of the nanosheet-assembled Ag hollow microcubes.



Fig. S3 Nitrogen adsorption-desorption isotherm of the nanosheet-assembled Ag hollow microcubes.



Fig. S4 SEM images of product synthesized with different amount of trisodium citrate: (a) 0 mmol, (b) 0.3 mmol, and (c) 1.2 mmol.



Fig. S5 FTIR spectra of (a) the TSC-Ag power, (b) the product synthesized with the molar ratio of Ag and Cu 3: 1, (c) the product synthesized with the amount of sodium citrate 1.2 mmol.