



Absorption spectra of the reaction solutions (3 mL) containing  $\text{AuCl}_4^-$  (4 mM), CTAB (80 mM), acetone (65  $\mu\text{L}$ ), cyclohexane (45 mL), AS (40 mM, 200 mL), and 200  $\mu\text{L}$  of silver nitrate solution (10 mM). UV light irradiated the solutions for 10 minutes. Hydrophobic ammonium salt (tetradodecylammonium bromide, TDAB), (a): without TDAB, (b): 20  $\mu\text{M}$  of TDAB. A thin quartz cell (optical path length: 1 mm) was used for UV-irradiation and the spectral measurements.