

Figure S1. SEM images of silver nanoparticles reduced on the sintered glass filter with a Ag^+ concentration of (a) 225 mM, (b) 187.5 mM, (c) 150 mM, (d) 75 mM, and (e) 37.5 mM. The concentration ratio of the Ag^+ :ammonia:dextrose was fixed at 1:6:10, and the deposition was held in a 55 °C water bath for 10 min. The porosity of the glass filter was 40–100 mm, and the magnification of the images were all 5000x.

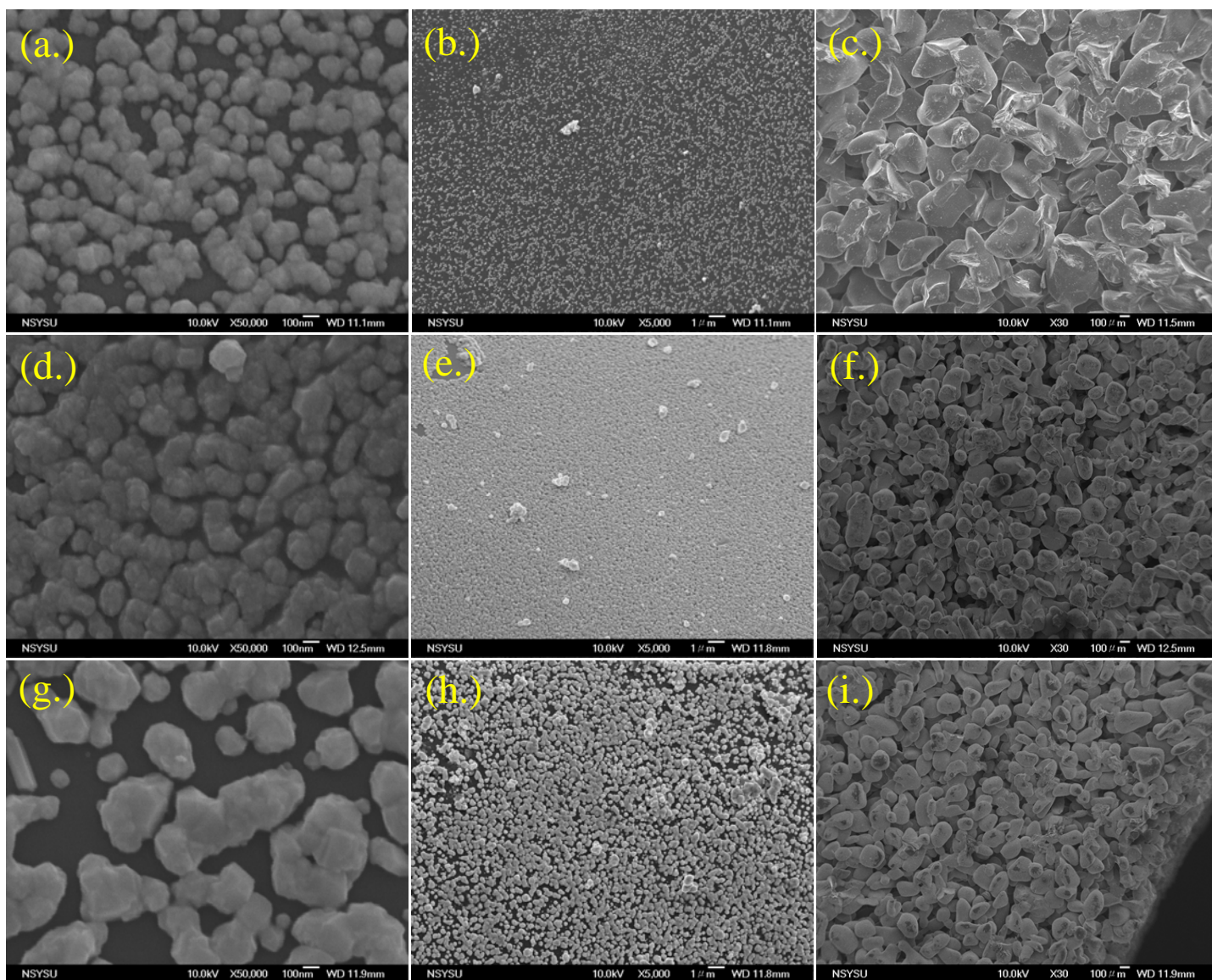


Figure S2. SEM images of silver nanoparticles reduced on the different porosities of sintered glass filter with different magnifications. The porosity of the glass filter is (a.)~(c.) 100-160 μm , (d.)~(f.) 40-100 μm , and (g.)~(i.) 16-40 μm where the magnification of (a.),(d),(g) are 50000x, (b.),(e),(h) are 5000x and (c.),(f),(i) are 30x. The concentration of Ag^+ in Tollen's reagent is 150 mM and the ratio of Ag^+ :ammonia:dextrose was fixed at 1: 6: 10. The deposition of silver nanoparticles was held in a 55°C water bath for 10 minutes.

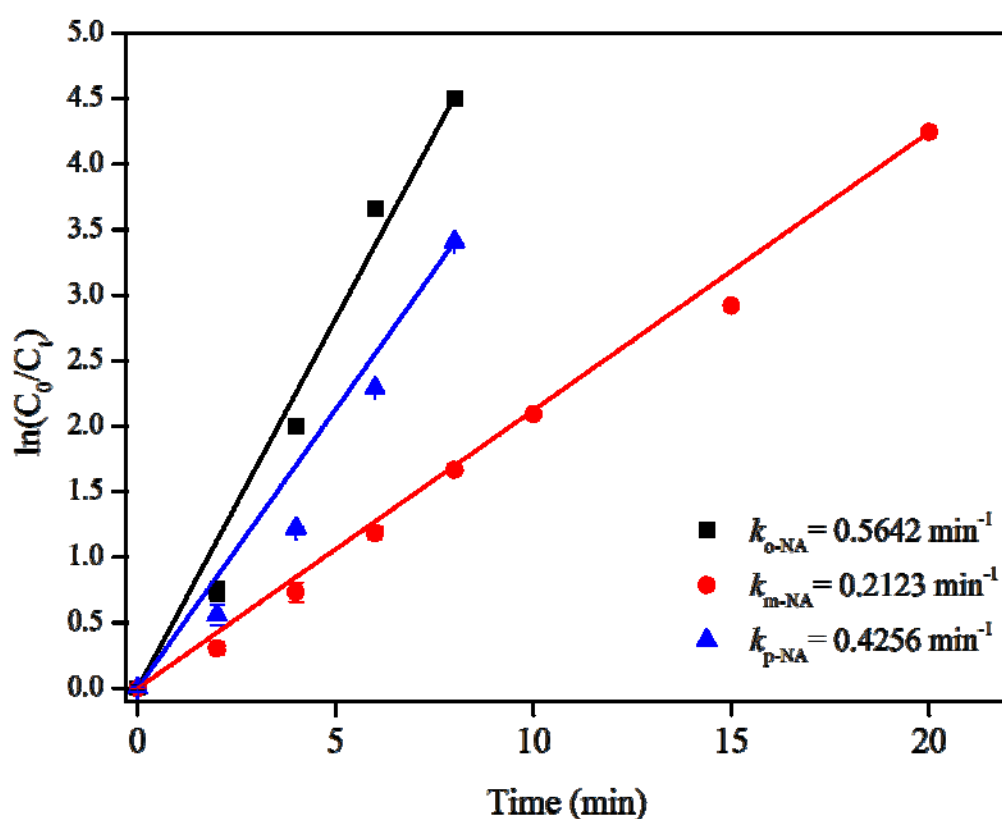


Figure S3. The relation between $\ln(C_0/C_t)$ of three nitroaniline isomers (■: o-NA, ●: m-NA, and ▲: p-NA) against the reaction time. against the reaction time reduced by 30 mM NaBH_4 in the presence of glass-filter supported nanoparticles at 50 °C. The pH of the solution was 10, and the silver nanoparticles immobilized glass-filter fabrication condition was the same as described in Figure 1(c).

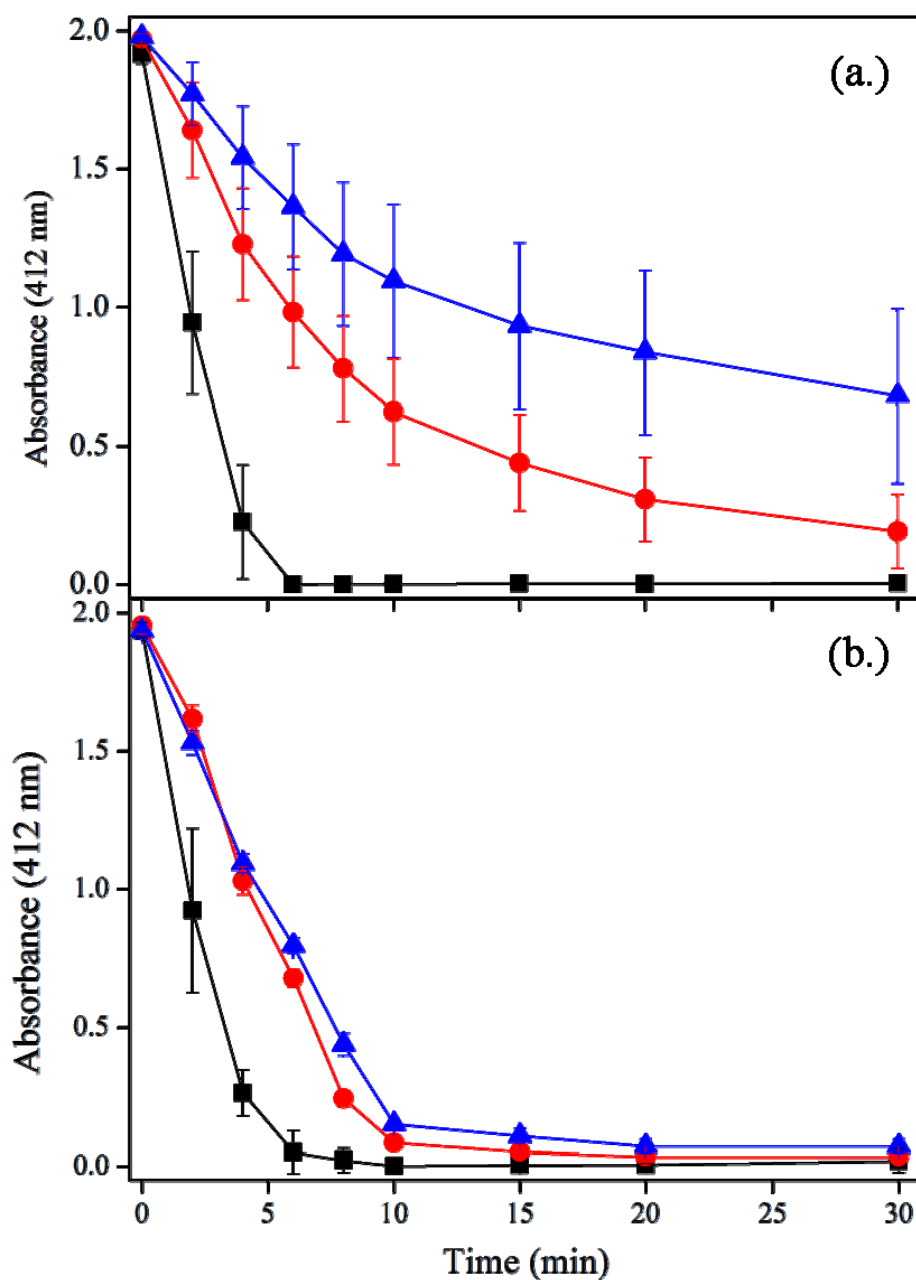


Figure S4. (a.) The absorption time profile of 1 mM o-NA(■: first run, ●: second run , and ▲: third run) reduced by 30 mM NaBH₄ in the presence of glass-filter supported nanoparticles at 50 °C, where the silver nanocatalysts were consecutively reusing for three times. The pH of the solution was 10, and the silver nanoparticles immobilized glass-filter fabrication condition was the same as described in Figure 1(c). (b.) The absorption time profile of 1 mM o-NA(■: first run, ●: second run , and ▲: third run) catalyzed by glass-filter supported silver nanoparticles, where the silver nanocatalysts were treated with acidic water solution (pH=3) for 20 min then immersed with neutral water before recycled.