Supporting Information Available

**Fig. S1** TEM images of the product synthesized without seeding modification.

**Fig S2.** SEM images of product synthesized by adding all AA in 1 minute.

**Fig. S3** SEM image of the product synthesized without sonicating technique.
**Fig. S4** XRD patterns of (a) Fe₃O₄@SiO₂ microspheres, (b) Fe₃O₄@SiO₂ microspheres with Ag seeds and the products obtained at different reaction intervals: (c) 2 min, (d) 4 min and (e) 15 min.

**Fig. S5** SERS spectra of R6G from six different spots on the film assembled by Fe₃O₄@SiO₂@Ag microspheres shown in Fig. 1g (10⁻¹² M).

**Fig. S6** An optical image of the Fe₃O₄@SiO₂@Ag microspheres
Fig. S7 Raman spectra of R6G. (a) Normal Raman spectrum of pure R6G, and (b) SERS spectrum of R6G at the concentration of $10^{-12}$ M.