Supporting Information

Dual-signal fenamithion probe by combining fluorescence with colorimetry based on Rhodamine B modified silver nanoparticles

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Experiment section

Treatment of Real Samples

**Treatment of Waters from the Yangtze and the East Lake** Real water samples collected from Yangtze River and East Lake (Wuhan, China) were first filtered through a standard 0.2 μm filter, then mixed with 30 mg sodium bicarbonate and boiling for about 30 minutes. Finally, the mixture was filtered with funnel for 2 times and all the water samples were spiked with fenamithion at different concentration levels and stored at ambient condition until used.

**Treatment of Vegetable Samples** Cabbage samples were purchased from a local market. The vegetable samples were treated following the treatment described below. A sample treatment for extraction and cleanup was based on a one previously reported slightly modified. Several portions of 2.5 g of cabbage were chopped and homogenized for 4h with 50mL of ethanol. The mixture was first filtered with funnel for 2 times, then collected liquid was spiked with fenamithion at different concentration levels and stored at ambient condition until used.
Fig. S1. IR spectra of (a) pure RB and (b) RB-Ag NPs
**Fig. S2.** The stability of RB-Ag NPs (a) effect of pH to fluorescence spectra of RB-Ag NPs and (b) fluorescence spectra of RB-Ag NPs recorded on different times.
Fig. S3. The chemical structures of phenylamine derivatives investigated
**Fig. S4.** The photographic images (A), fluorescence spectra of RB-Ag NPs upon addition fenamithion in the matrices of various interfering cations (B) and anions (C). From a to d, they represent RB-Ag NPs, RB-Ag NPs in the matrices solution, addition of fenamithion in RB-Ag NPs (matrices solution) and addition of fenamithion in RB-Ag NPs, respectively.
Fig. S5. The photographic images, UV-visible spectra (a) and Fluorescence spectra (b) of RB-Ag NPs with various concentrations of fenamithion in cabbage sample ranging from $1 \times 10^{-10}$ M to $1 \times 10^{-4}$ M.
**Fig. S6.** The photographic images, UV-visible spectra (a) and Fluorescence spectra (b) of RB-Ag NPs with various concentrations of fenamithion in the East Lake sample ranging from $1 \times 10^{-10}$ M to $1 \times 10^{-4}$ M.