

Supporting Information

Fabrication of Ag/Fe₂O₃/ZnO Ternary Composite with Enhanced Photocatalytic Performance

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As a control, the photo-degradation characteristic of Ag/Fe₂O₃/ZnO ternary composite in the dark was investigated. As shown in Fig. S1a, curve 1 and curve 2 of Fig. S1c, the degradation efficiency of Ag/Fe₂O₃/ZnO for iodoform and MO were only 9% and 8% after 120 min without illumination, respectively. Under irradiation of simulated sunlight, the degradation efficiency of iodoform and MO were 7% and 6% when without a catalyst (Fig. S1b, curve 3 and curve 4 of Fig. S1c), respectively. The results indicate that the degradation efficiency was mainly attributed to the efficient photo-catalytic of Ag/Fe₂O₃/ZnO composites.

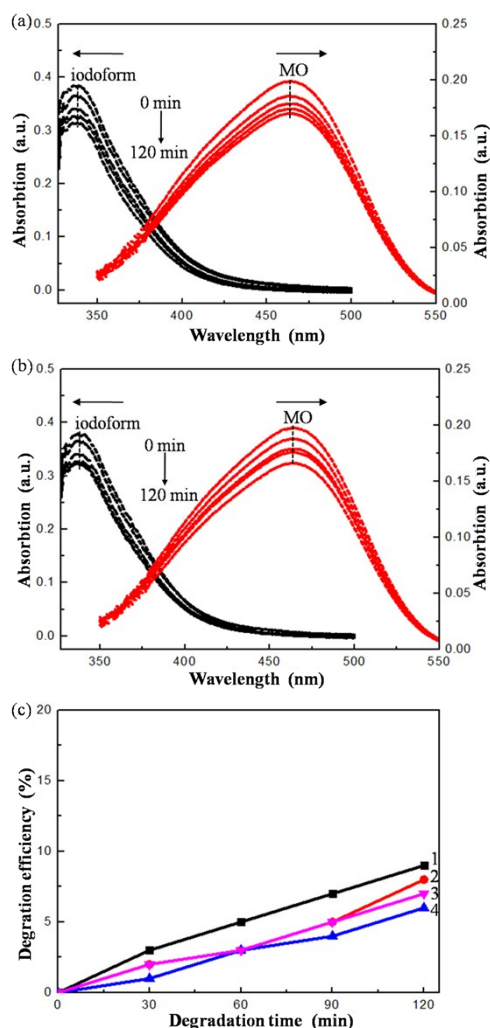


Fig. S1 Time-dependent absorption spectra of (a) iodoform and MO degraded by Ag/Fe₂O₃/ZnO in the dark, (b) iodoform and MO degraded without a catalyst under illumination, and (c) Photo-degradation efficiency of iodoform and MO. The degradation curve of Ag/Fe₂O₃/ZnO for iodoform (curve 1), and for MO (curve 2) in the dark; the degradation curve without a catalyst for iodoform (curve 3), and for MO (curve 4) under the irradiation of simulated sunlight.

The mixed pollutants (iodoform, MO and rhodamine B (RhB) solution were mixed, the concentration of iodoform, MO and RhB was 0.2×10^{-5} mol/L, 0.7×10^{-5} mol/L and 0.5×10^{-5} mol/L) was chosen to investigate the selectivity photo-degradation of Ag/Fe₂O₃/ZnO ternary composite. Samples of Ag/Fe₂O₃/ZnO were put into 30 ml of mixed pollutants solution with irradiation of simulated sunlight, Samples of mixed pollutants solution were taken every 40 min to analyze their ultraviolet absorbance, respectively. The results show that the degradation efficiency of Ag/Fe₂O₃/ZnO for iodoform, MO and RhB was 89%, 45% and 40% after 120 min (Fig. S2), indicating

Ag/Fe₂O₃/ZnO ternary composite had highly efficient and selective degradation towards iodoform.

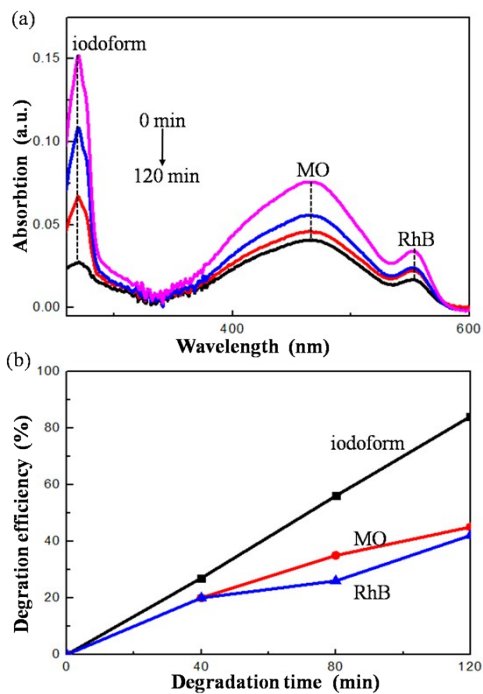


Fig. S2 (a) Time-dependent absorption spectra of the mixed pollutants degraded by Ag/Fe₂O₃/ZnO, (b) Photo-degradation efficiency of the mixed pollutants.