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## **Supporting Information**

## Fabrication of magnetic BaFe<sub>12</sub>O<sub>19</sub>/Ag<sub>3</sub>PO<sub>4</sub> composites with in situ photo-Fenton-like reaction for enhancing reactive oxygen species under visible light irradiation

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Fig. S1. Size distribution histogram with Gaussian-fitting curve of the as-prepared samples: (A) 1%  $BaFe_{12}O_{19}/Ag_3PO_4$ ; (B) 5%  $BaFe_{12}O_{19}/Ag_3PO_4$ ; (C) 10%  $BaFe_{12}O_{19}/Ag_3PO_4$ ; (D) 15%  $BaFe_{12}O_{19}/Ag_3PO_4$ .



Fig. S2. TEM images of 10% BaFe<sub>12</sub>O<sub>19</sub>/Ag<sub>3</sub>PO<sub>4</sub>.



Fig. S3. (a) The first-order-kinetic plots and (b) the corresponding rate constants of BPA degradation over different photocatalysts.



Fig. S4. XPS spectra of the composites: (A) Ag 3d, (B) P 2p, (C) Fe 2p, (D) Ba 3d, (E) O 1s.



Fig. S5. MS spectrum of the reaction solution.