Supplementary information

A separation-free 3D network ZnO/rGO-rGH hydrogel: adsorption enriched photocatalysis for environmental applications

Fig.S1 UV-vis diffuse reflectance absorption spectra of rGH, ZnO, ZnO/rGO and ZnO/rGO-rGH.

Fig.S2 The absorption isotherm and kinetic equation of the ZnO/rGO-rGH ([catalyst] = 25 mg).
Fig. S3 (a) Adsorption-photocatalytic degradation of BPA by different ZnO/rGO-rGH composites ($C_0 = 10$ mg/L, [catalyst] = 25 mg) and (b) Second-order rate constant during dark reaction and (c) first-order rate constant during photocatalytic reaction process.
Fig.S4 (a) Adsorption-photocatalytic degradation of different BPA concentration with the composites ([catalyst] = 25 mg) and (b) Second-order rate constant during dark reaction and (c) first-order rate constant during the photocatalytic reaction process.

Fig.S5 (a) Adsorption-photocatalytic synergistic purification of ZnO/rGO-rGH with different ratios for removing BPA (C₀ = 10 mg/L, [catalyst] = 25mg) and (b) Adsorption-photocatalysis synergistic purification of removal BPA with different
initial concentrations by ZnO/rGO-rGH ([catalyst] = 25 mg).

Fig.S6 (a) ZnO/rGO-rGH adsorption and photocatalytic synergistic removal of BPA diagram at different concentrations. ([catalyst] = 250 mg, u = 0.48 ml/min). (b) ZnO/rGO-rGH adsorption and photocatalytic synergistic removal of BPA diagram at different velocities. (C₀ = 10 mg/L, [catalyst] = 250 mg).