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Supplementary information

Ring hydrogenation of aromatic compounds in aqueous suspensions of an Rh-loaded TiO₂ photocatalyst without use of H₂ gas

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Figure S1 Effects of different amounts of Rh loading on photoinduced ring hydrogenation of BA to CCA in aqueous suspensions for 15 min under irradiation of UV light from a high-pressure mercury lamp.



Figure S2 (a) TEM images and (b) HAADF-STEM image. (c) Compositional line profiles of Rh (green), Ti (yellow) and O (pink) for the Rh-TiO₂. (d) Rh–L and (e) Ti–K STEM-EDX maps obtained from Rh-TiO₂. (f) Reconstructed overlay images of the maps shown in (d) and (e): green, Rh; red, Ti.



Figure S3 Absorption spectra (left axis) and action spectra of TiO_2 and 1.0 wt% Rh-TiO₂ in H₂ evolution in ring hydrogenation of BA (square) and dehydrogenation of OA (circle) (right axis).

 $AQE = \frac{2 \times amount of H_2 evolved}{amount of incident photons} \times 100.$

Equation S1 Calculation of AQE in H₂ evolution.