Supporting information

Formation of CuO on TiO_2 surface using its photocatalytic activity

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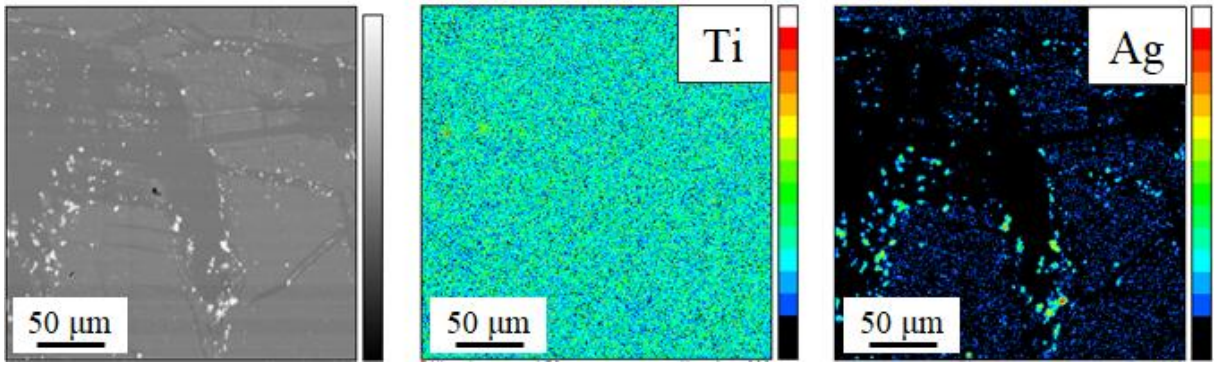

Figure S1 EPMA element mapping images of the Ag-deposited TiO_2 film.

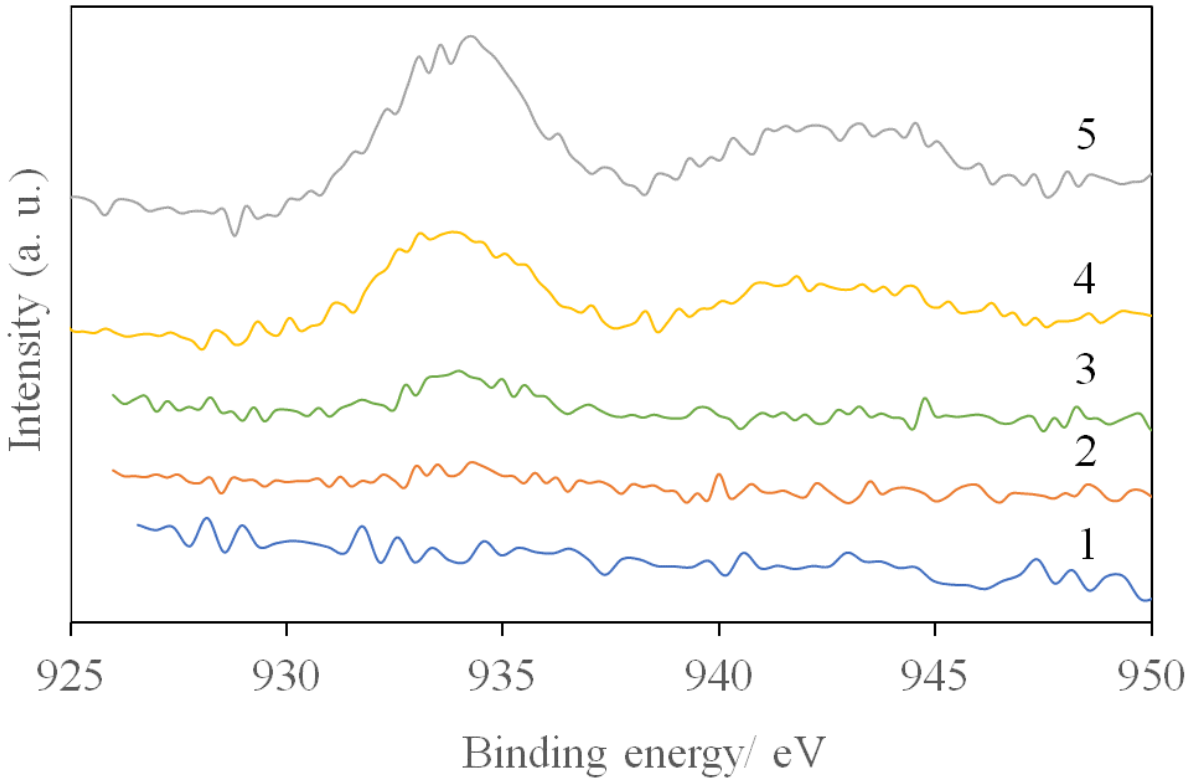

Figure S2 XPS spectra related to the binding energy of the Cu 2p electrons for (1) the TiO_2 sample and the CuO-modified TiO_2 samples prepared using the (2) 0.500, (3) 1.00, (4) 10.0, and (5) 100 mmol dm^{-3} $Cu(NO_3)_2$ solutions.

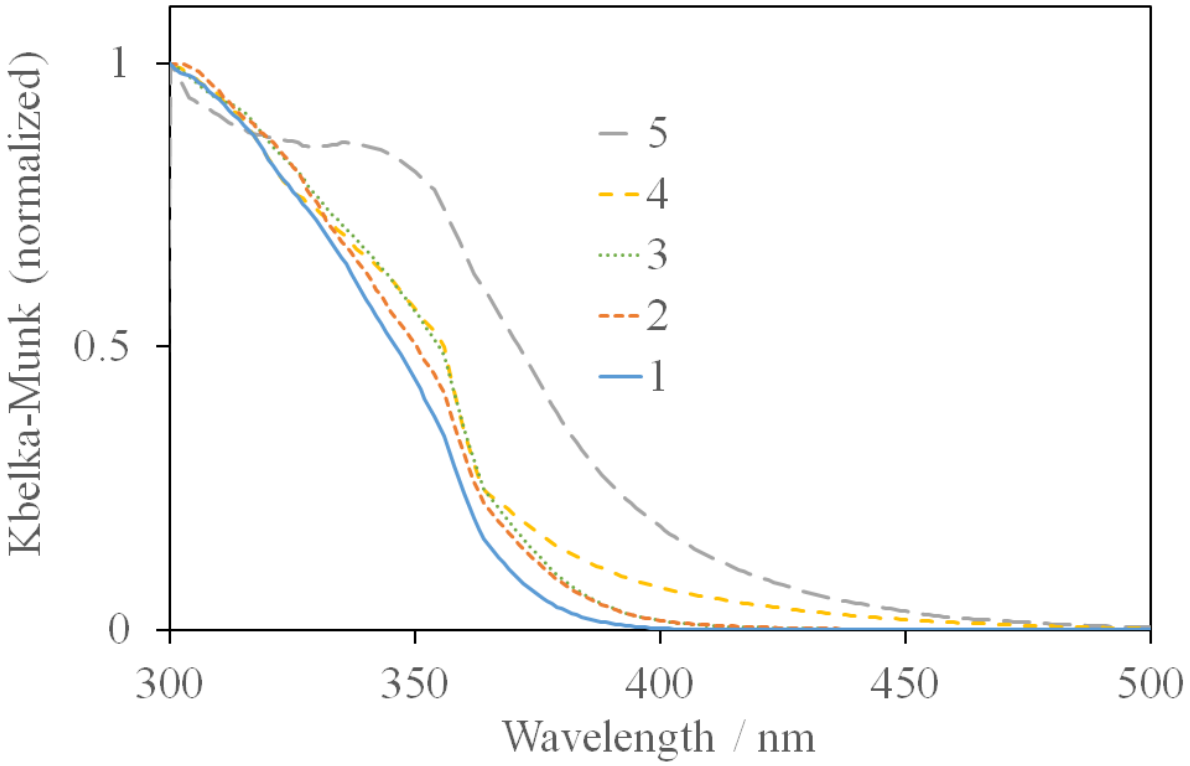

Figure S3 UV–Vis diffuse reflectance spectra of (1) the TiO_2 sample and the CuO-modified TiO_2 samples prepared using the (2) 0.500, (3) 1.00, (4) 10.0, and (5) 100 mmol dm^{-3} $Cu(NO_3)_2$ solutions.

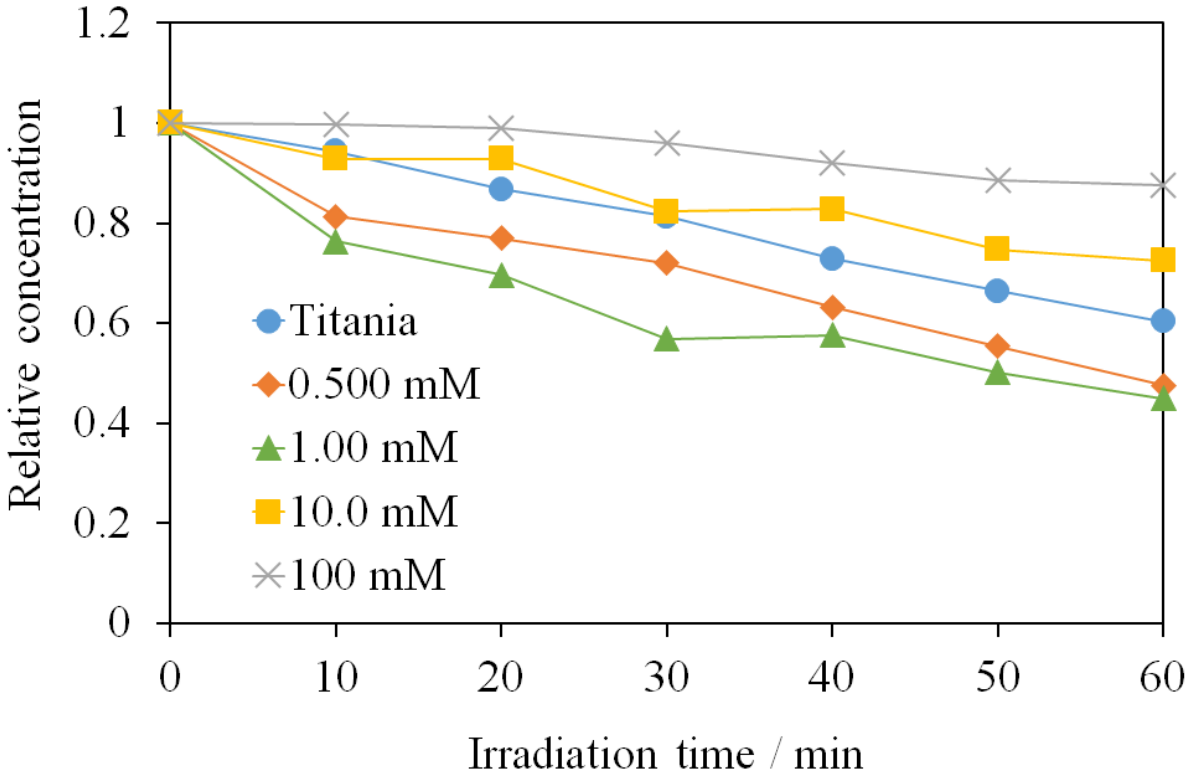

Figure S4 Changes in the methylene blue concentration during the UV irradiation using the TiO_2 sample and the CuO-modified TiO_2 samples prepared using the 0.500–100 mmol dm^{-3} $Cu(NO_3)_2$ solutions.

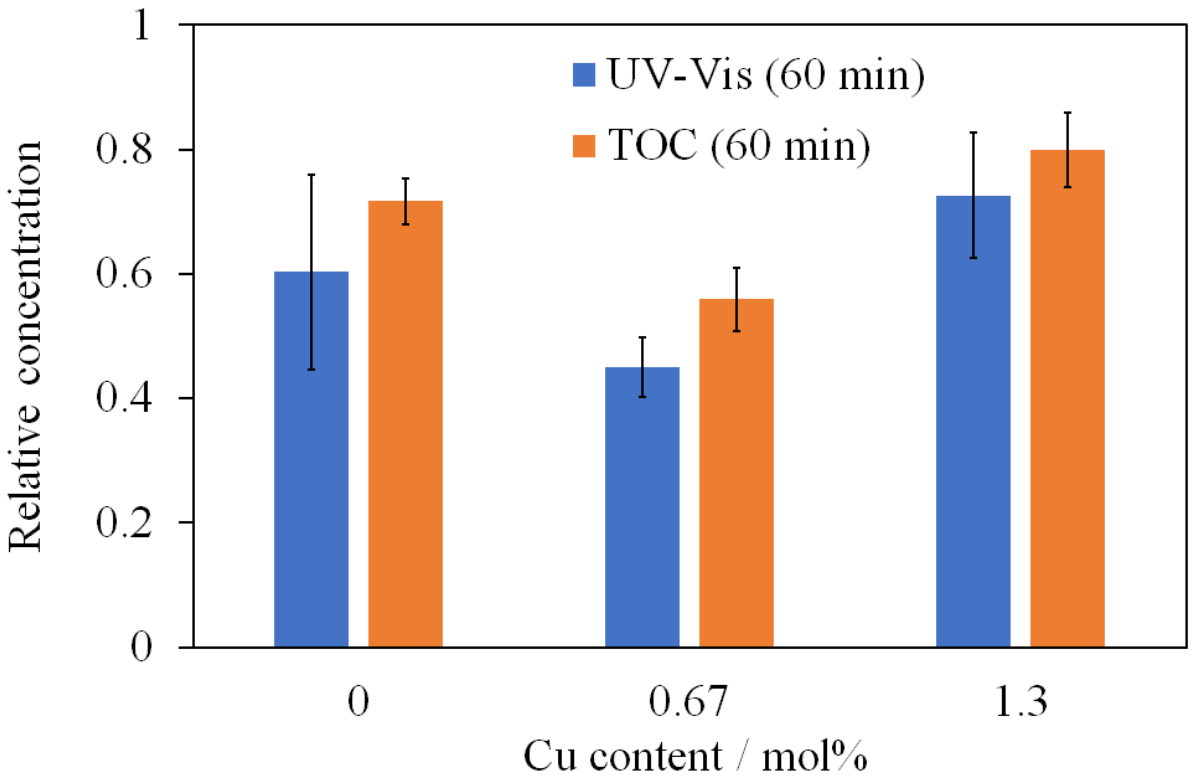

Figure S5 Relative concentrations of methylene blue and TOC estimated by the UV–Vis absorption and TOC measurements, respectively, after the photocatalytic degradation for 60 min using the TiO_2 sample and the CuO-modified TiO_2 samples prepared using the 1.00 and 10.0 mmol dm^{-3} $Cu(NO_3)_2$ solutions.

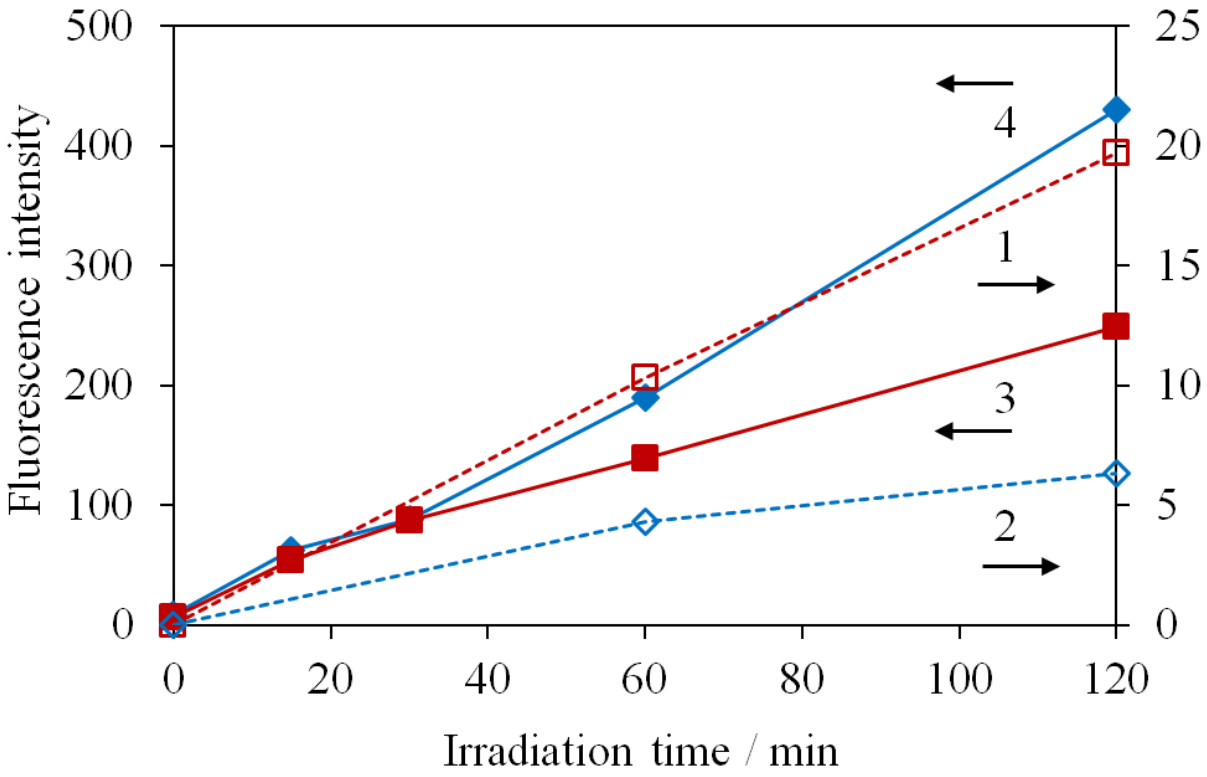

Figure S6 Time course of the fluorescence intensity of 2-hydroxy terephthalic acid in order to detect hydroxyl radicals produced during the UV irradiation using (1) the TiO_2 film and (2) the CuO-modified TiO_2 film prepared using the 100 mmol dm^{-3} $Cu(NO_3)_2$ solution and (3) the TiO_2 powder and (4) the CuO-modified TiO_2 powder prepared using the 1.00 mmol dm^{-3} $Cu(NO_3)_2$ solution.