Electronic Supplementary Information

Role of Surface Defects on Visible Light enabled Plasmonic Photocatalysis in Au-ZnO Nanocatalyst

T. Bora, M. T. Z. Myint, S. H. Al-Harthi and J. Dutta

Photocatalytic Degradation of MB using Au-ZnO NRs in the Presence of Electron Acceptor

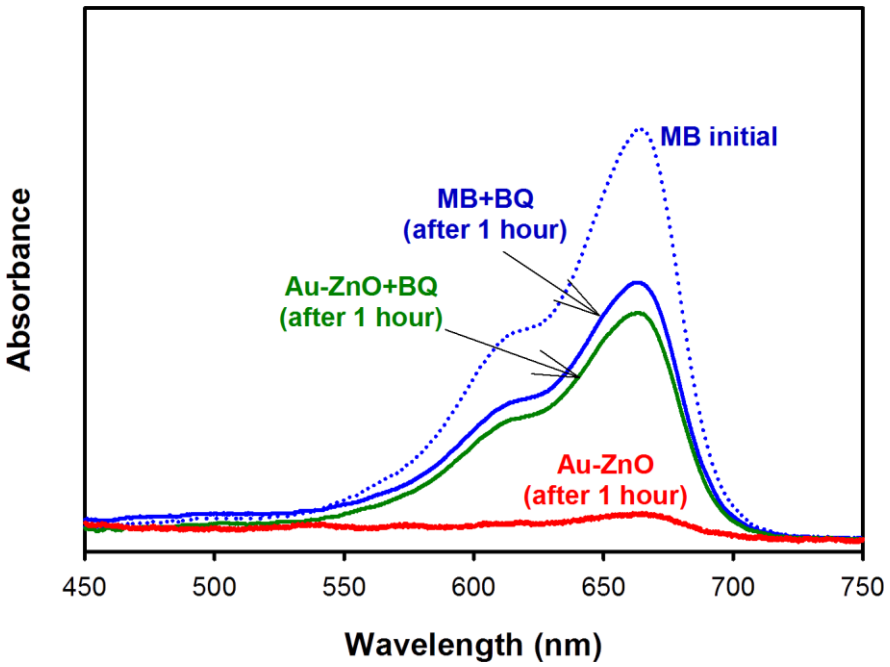

Fig. S1 Optical absorption spectra of aqueous MB solution photocatalytically degraded using Au-ZnO NRs under visible light irradiation in the absence and presence of BQ as electron acceptor. The photocatalytic reactions were carried out for 1 hour time. The dotted line represents the initial optical absorption of MB solution before photocatalysis.

In order to investigate the reduction process of MB during the photocatalytic degradation using Au-ZnO NRs, we carried out the photocatalytic reactions in the presence of benzoquinone (BQ) as an electron acceptor. Fig. S1 shows the optical absorption spectra of photocatalytically degraded MB solutions in the presence and absence of BQ. Upon addition of BQ (1 μM), significant reduction in the photocatalytic activity of Au-ZnO NRs was observed due to the suppression of available photo-generated electrons by BQ. This, therefore, suggests that photo-generated electrons are the active species for photocatalytic reduction of MB that can occur either through O_2^- radical formation or direct electron transfer from the Au-ZnO photocatalyst to MB, forming colorless LMB.