

Supporting Information

**Synthesis of ZnO/Au and ZnO/Ag Nanoparticles and Their Photocatalytic Application
Using UV and Visible Light**

Pragati Fageria, Subhashis Gangopadhyay[§], and Surojit Pande^{*}

Department of Chemistry, Birla Institute of Technology and Science, Pilani, Rajasthan, 333031, India.

E-mail: spande@pilani.bits-pilani.ac.in

surojitpande@gmail.com

Tel.: +91-1596 515709. Fax: +91-1596 244183

[§]Department of Physics, Birla Institute of Technology and Science, Pilani, Rajasthan, 333031, India.

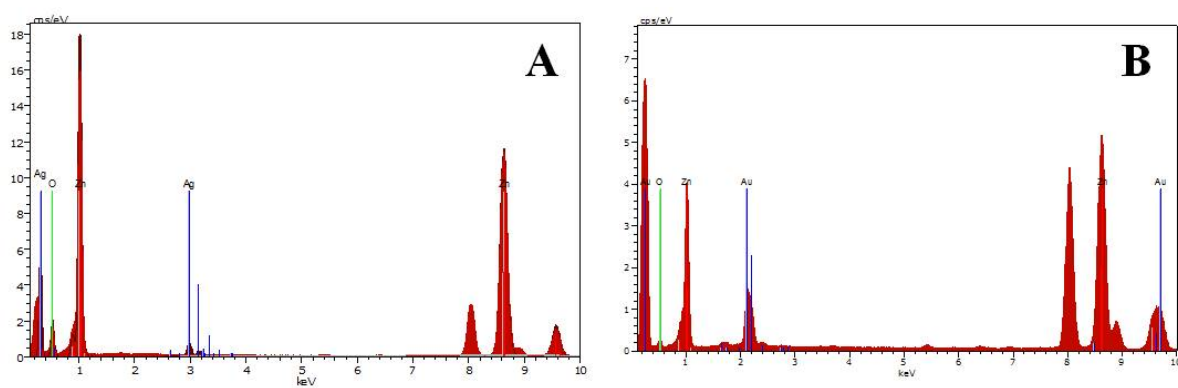


Figure S1. EDS Spectrum of ZnO/Au (a) and ZnO/Ag nanoparticles (b)

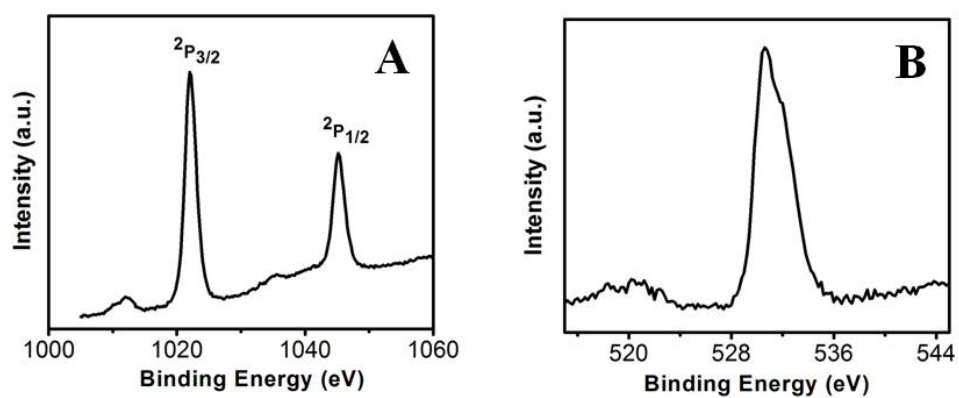


Figure S2. (a) High-resolution X-ray Photoelectron spectrum of Zn and (b) High-resolution X-ray Photoelectron spectrum of O

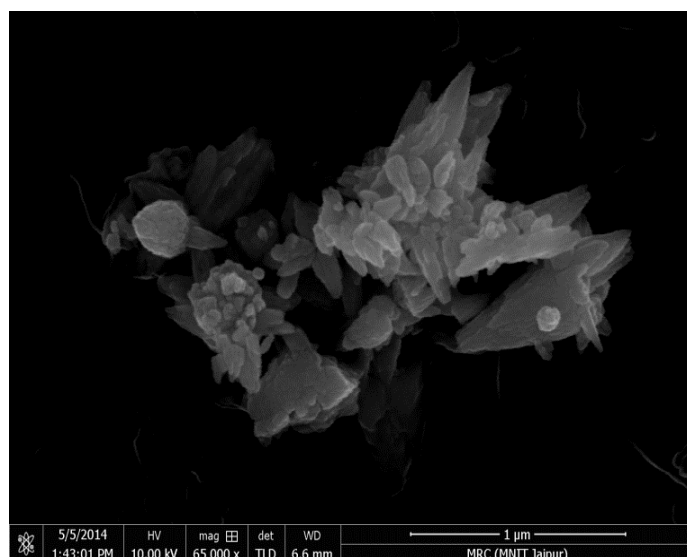


Figure S3. FESEM image of ZnO nanoparticles synthesized without CTAB, agglomerated particles of ZnO

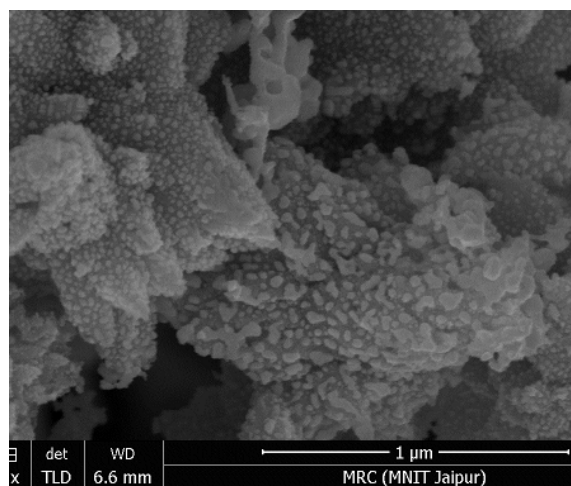


Figure S4. FESEM image of ZnO/Au using Sodium borohydride (non-uniform deposition of Au nanoparticles)

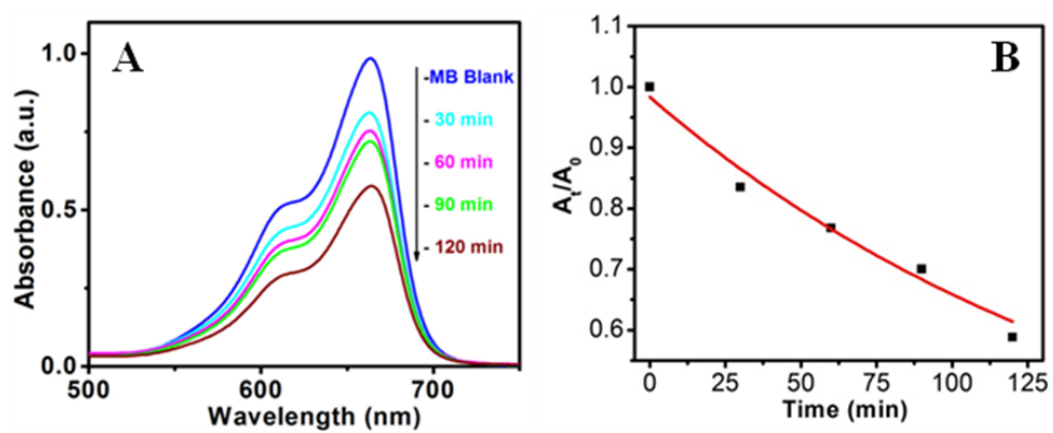


Figure S5. (a) Degradation of MB dye in presence of ZnO/Ag nanoparticles under visible light and (b) A_t/A_0 vs. time (min) plot

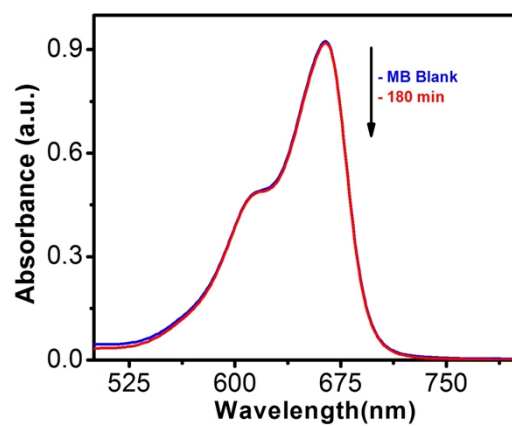


Figure S6. Degradation of MB dye in presence of ZnO, ZnO/Au, and ZnO/Ag nanoparticles under dark condition

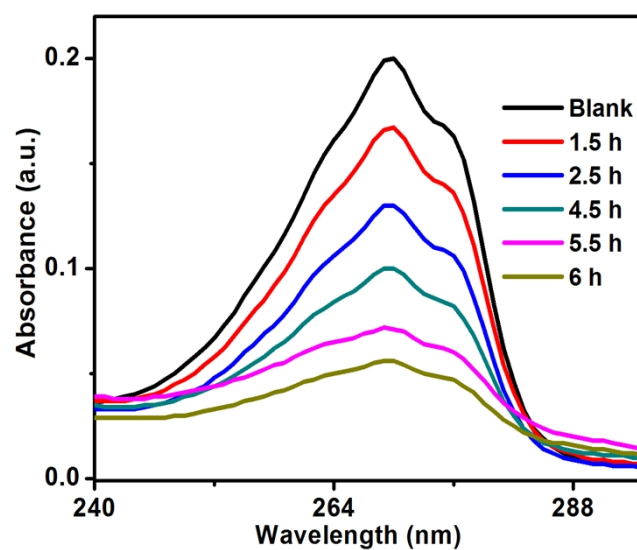


Figure S7 Decomposition of phenol using ZnO/Ag under irradiation with visible light

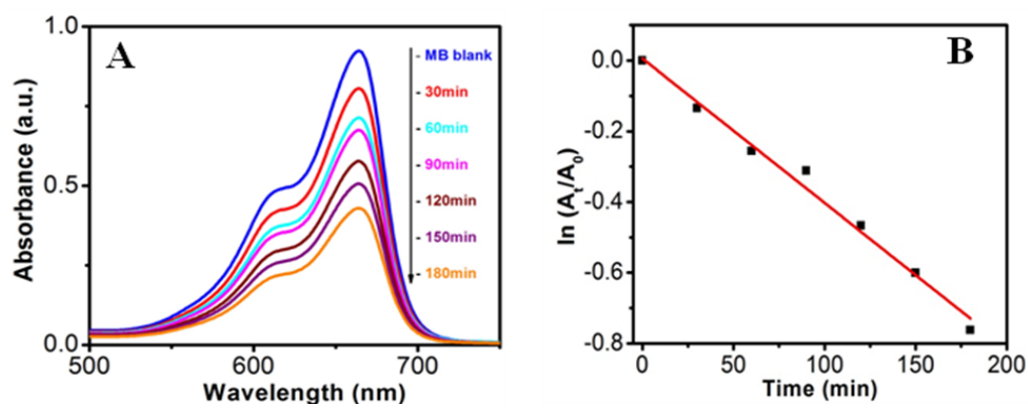


Figure S8. (a) Degradation of MB dye in presence of ZnO nanoparticles under UV light and (b) $\ln A_t/A_0$ vs. time (min) plot

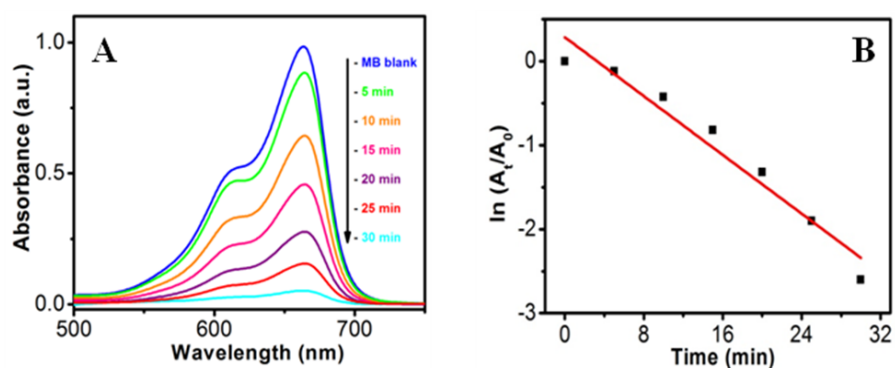


Figure S9. (a) Degradation of MB dye in presence of ZnO/Au nanoparticles under UV light and (b) $\ln A_t/A_0$ vs. time (min) plot

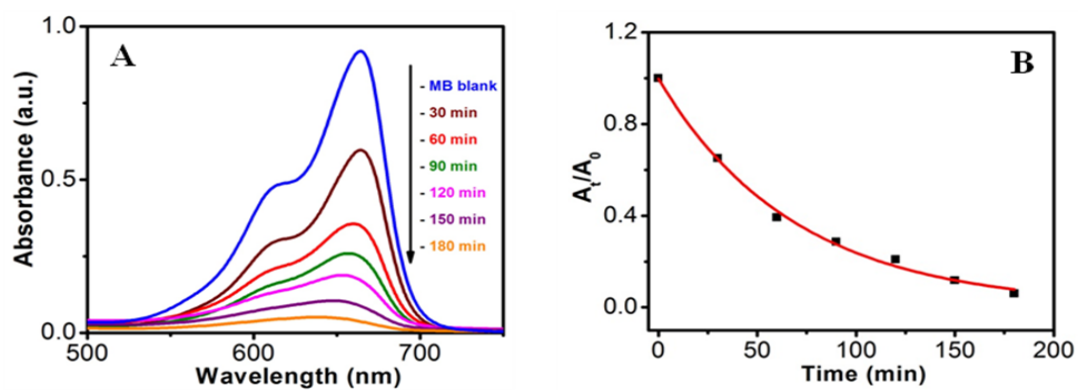


Figure S10. (a) Degradation of MB dye in presence of ZnO/Ag nanoparticles under UV light and (b) A_t/A_0 vs. time (min) plot

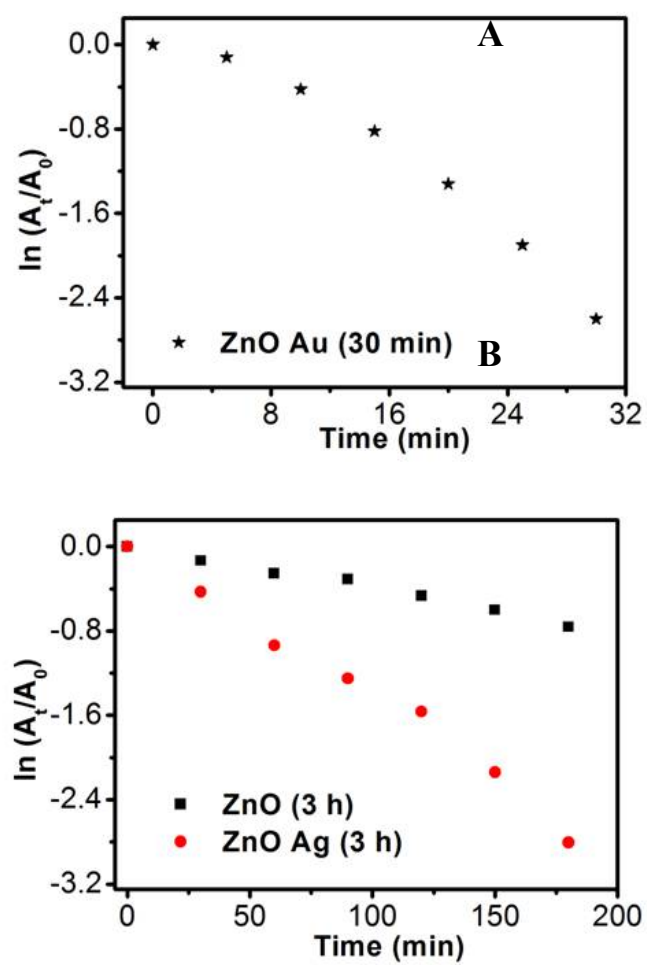


Figure S11. Comparative study using ZnO/Au (a), ZnO, and ZnO/Ag (b)

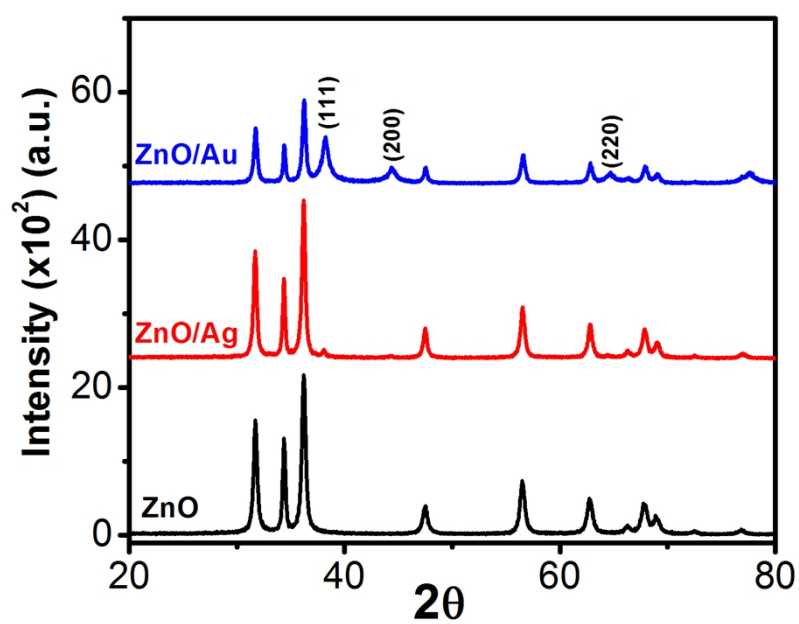


Figure S12. Powder X-ray diffraction (PXRD) patterns of ZnO, ZnO/Au, and ZnO/Ag nanoparticles after reusability of catalyst.

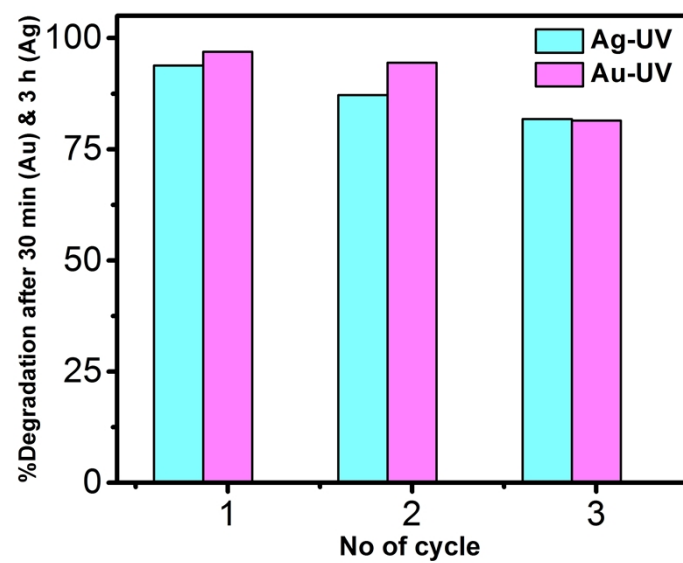


Figure S13. Reusability test with ZnO/Au and ZnO/Ag nanoparticles using UV light