Supporting Information

Biogenic synthesis of ZnO-Ag nano custard apples for efficient photocatalytic degradation of methylene blue by sunlight irradiation

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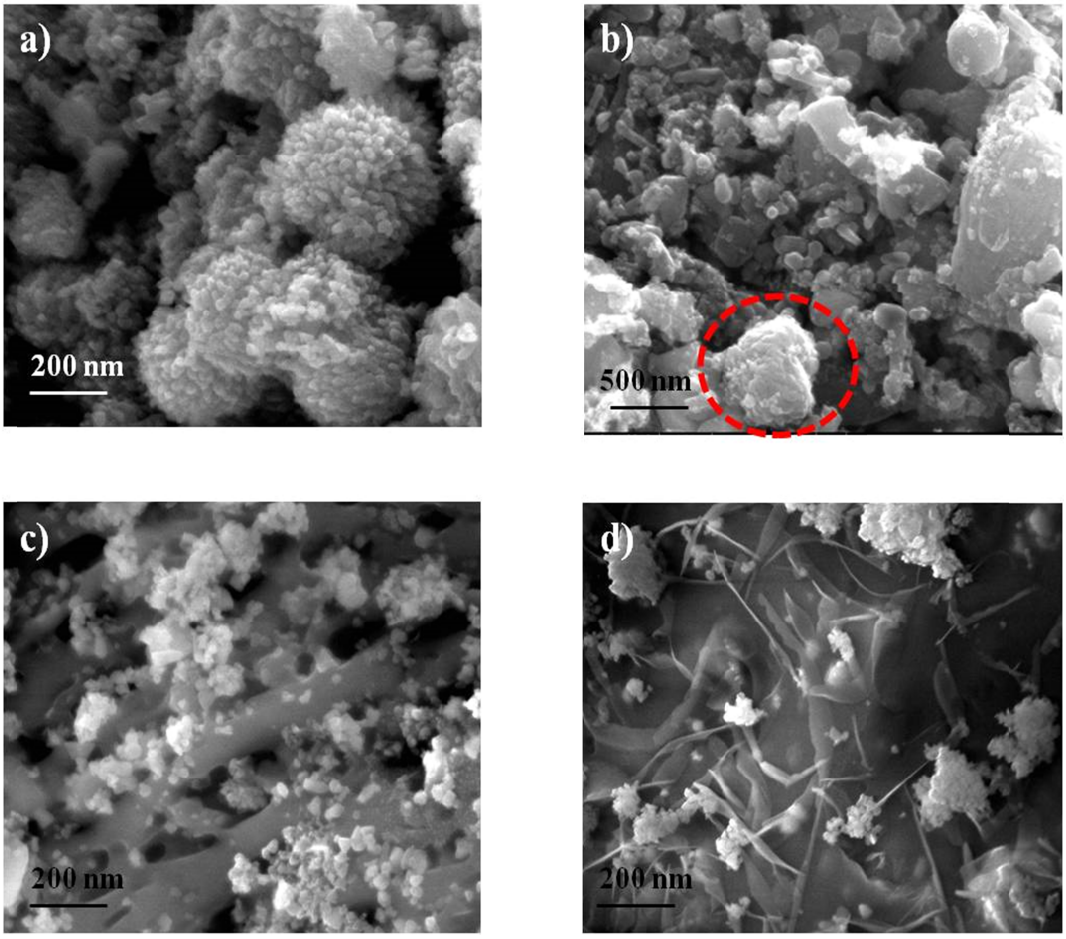

Fig. S1 SEM images of ZnO-Ag nanoparticles synthesized with the different amount of Ag; (a) 0.2 wt %, (b) 1.0 wt %, (c) 1.4 wt % and (d) 2.0 wt % loading.

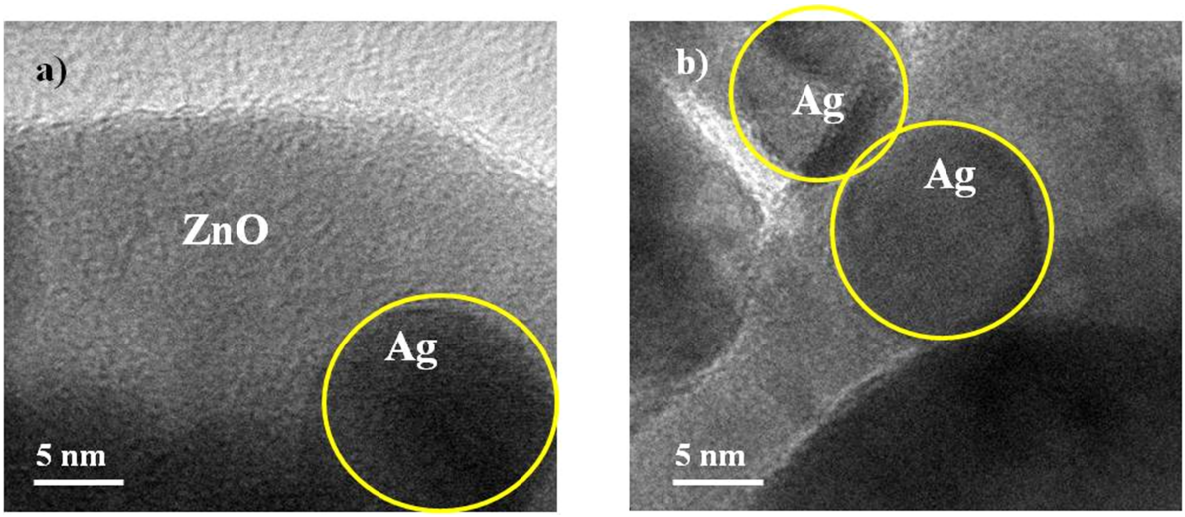

Fig. S2 HR-TEM images of ZnO-Ag nano custard apple.

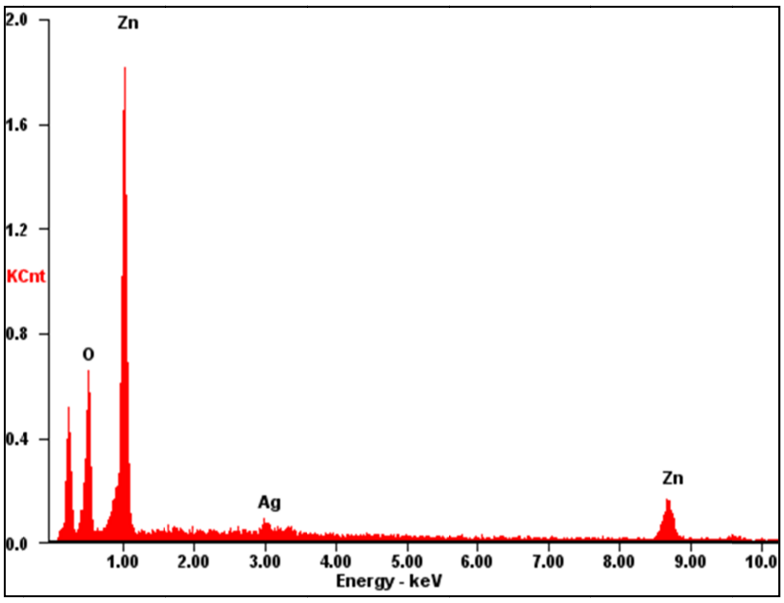

Fig. S3 EDAX pattern of ZnO-Ag nano custard apple.

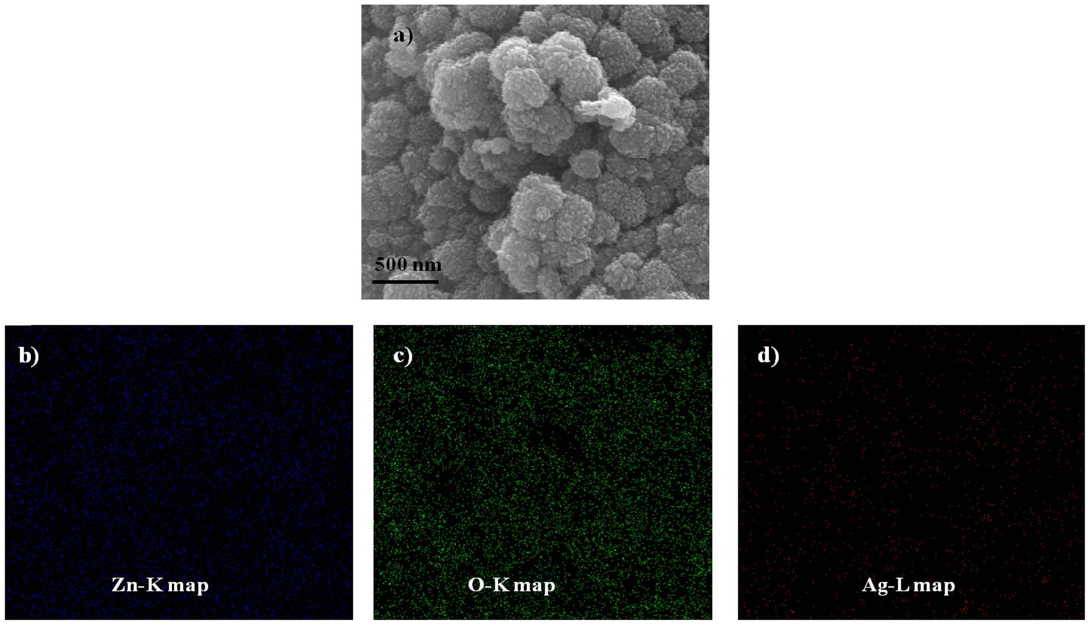

Fig. S4 a) SEM image of ZnO-Ag nano custard apple, elemental mapping shows the presence of b) Zn c) O and d) Ag in the sample.

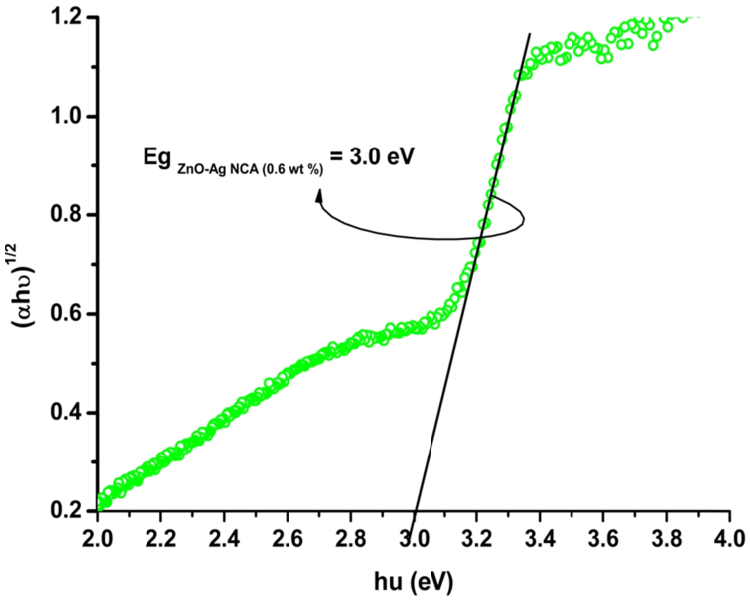

Fig. S5 Tauc's plot of ZnO-Ag NCA.

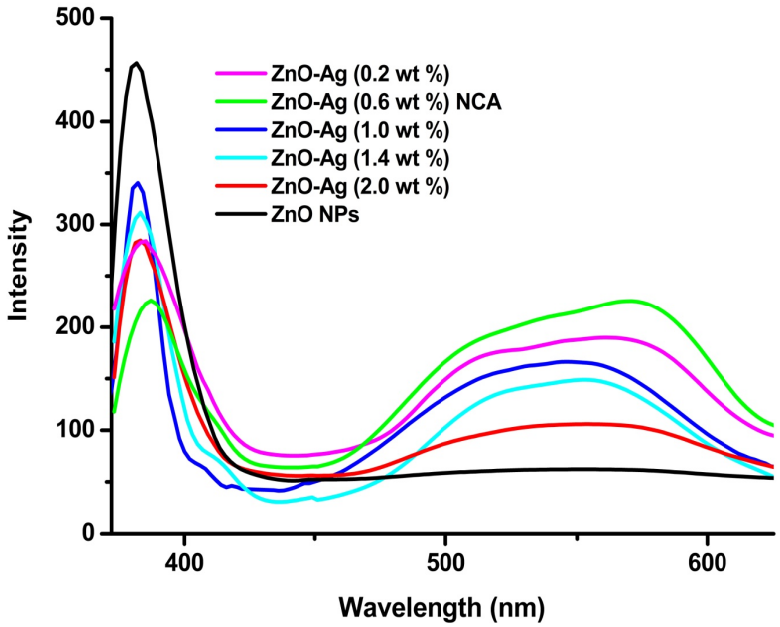

Fig. S6 Photoluminescence spectra of ZnO NPs and ZnO-Ag NPs (0.2- 0.6 wt %).

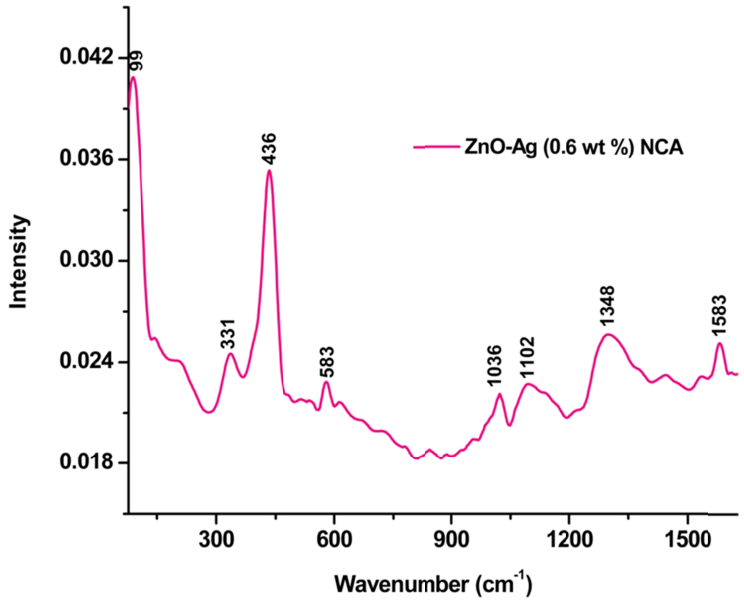

Fig. S7 FT-Raman spectrum of ZnO-Ag nano custard apple.

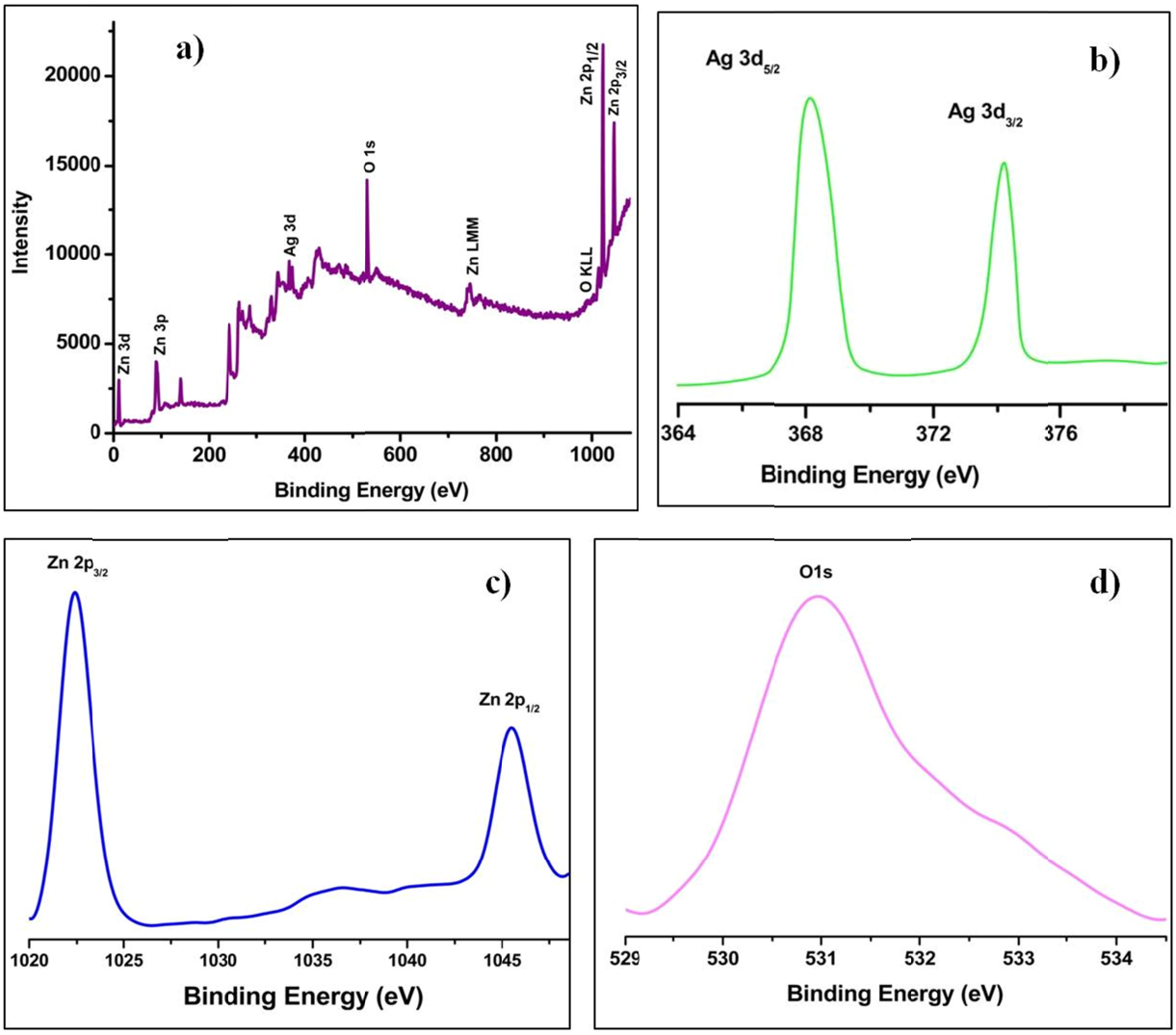

Fig. S8 XPS spectra of ZnO-Ag nano custard apple a) survey XPS spectrum, (b-d) high resolution XPS spectrum for Ag 3d, Zn 2p and O 1s.

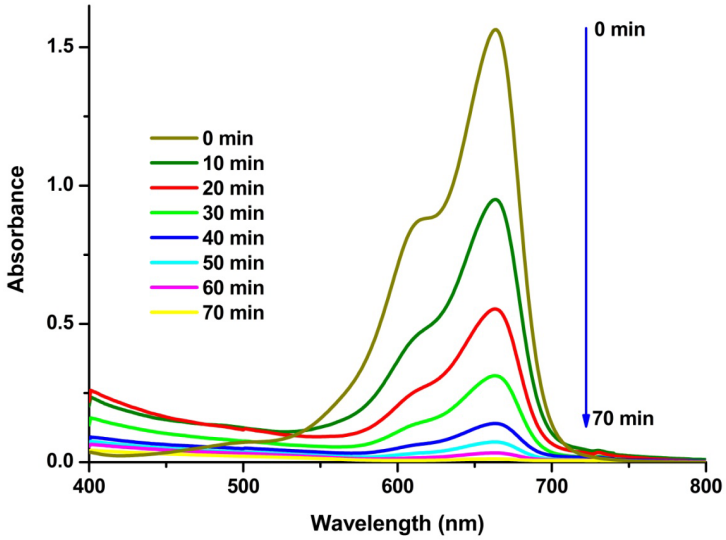

Fig. S9 UV-vis spectra of MB after sunlight irradiation for different time intervals in the presence of ZnO-Ag NCA.

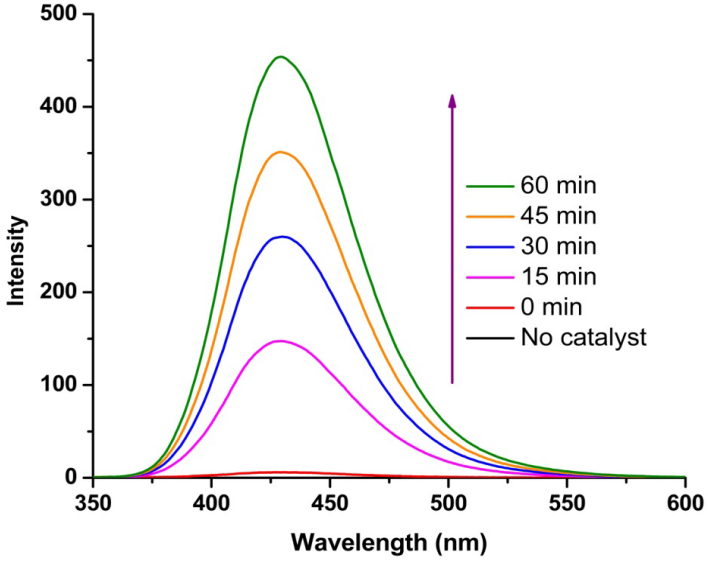

Fig. S10 Fluorescence spectra of terephthalic acid (excited at 315 nm), in the presence of ZnO-Ag NCA at various irradiation time under sunlight ([TA] = 0.5 mM).

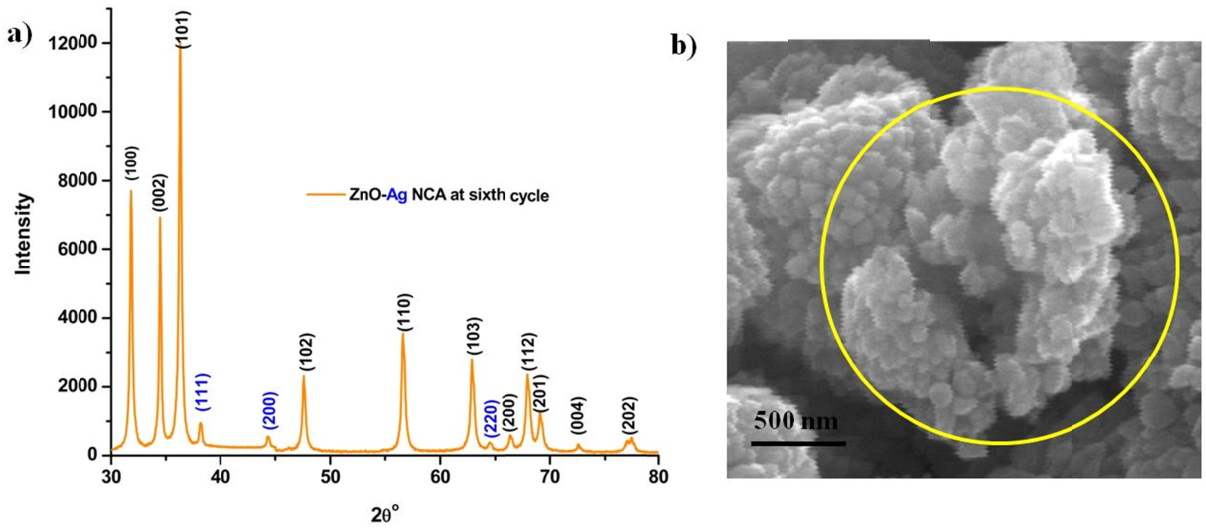

Fig. S11 (a) XRD and (b) SEM image of ZnO-Ag NCA taken after fifth cycle of reuse for the photocatalytic degradation of methylene blue under sunlight irradiation.