

Supplementary Information

Recycling Waste Aluminium Foil to Bio-Acceptable Nano Photocatalyst [Aluminium oxide (Al_2O_3) & Aluminium oxyhydroxide (AlOOH)]; Dye Degradation as Proof-of-Concept

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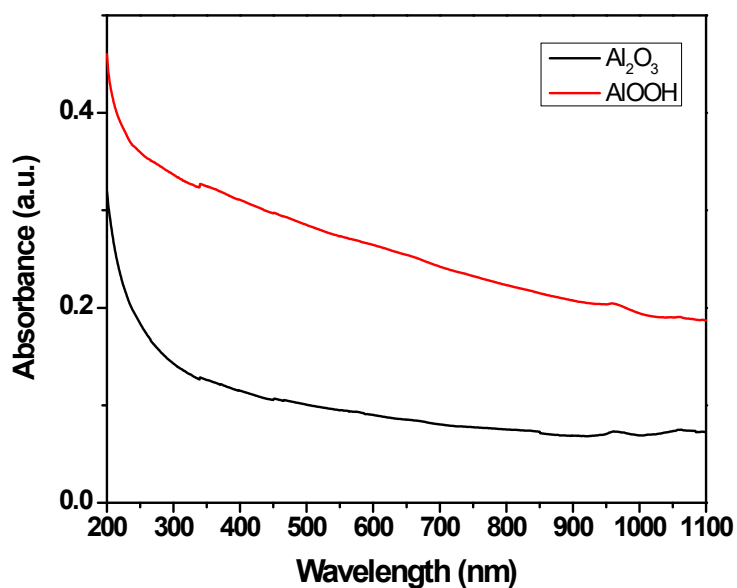


Figure S1: UV-Visible Absorption spectra of both, Al_2O_3 (Black) and AlOOH (Red)

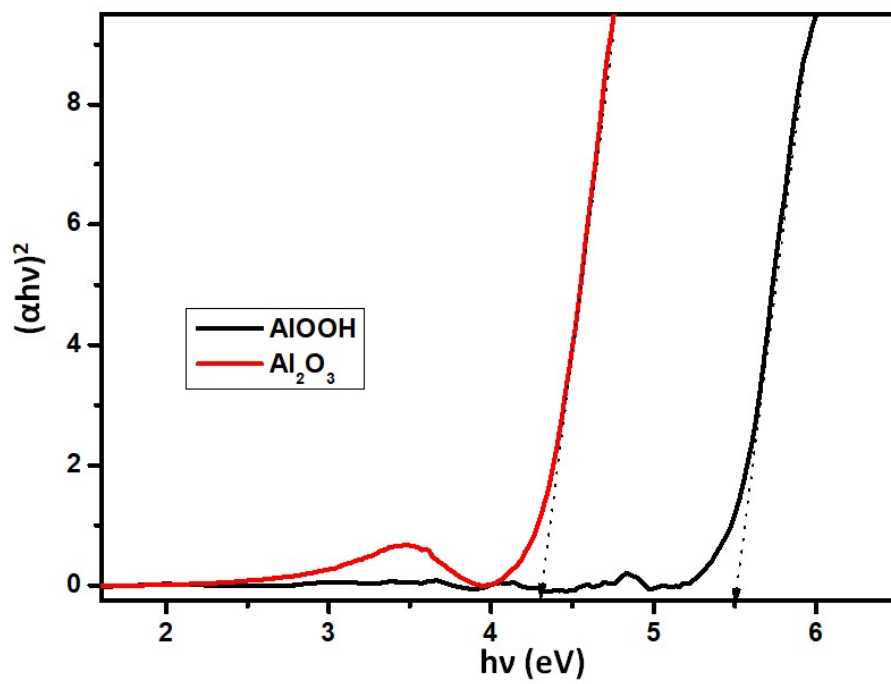


Figure S2: Tauc plot of Al_2O_3 (Red) and AlOOH (Black)

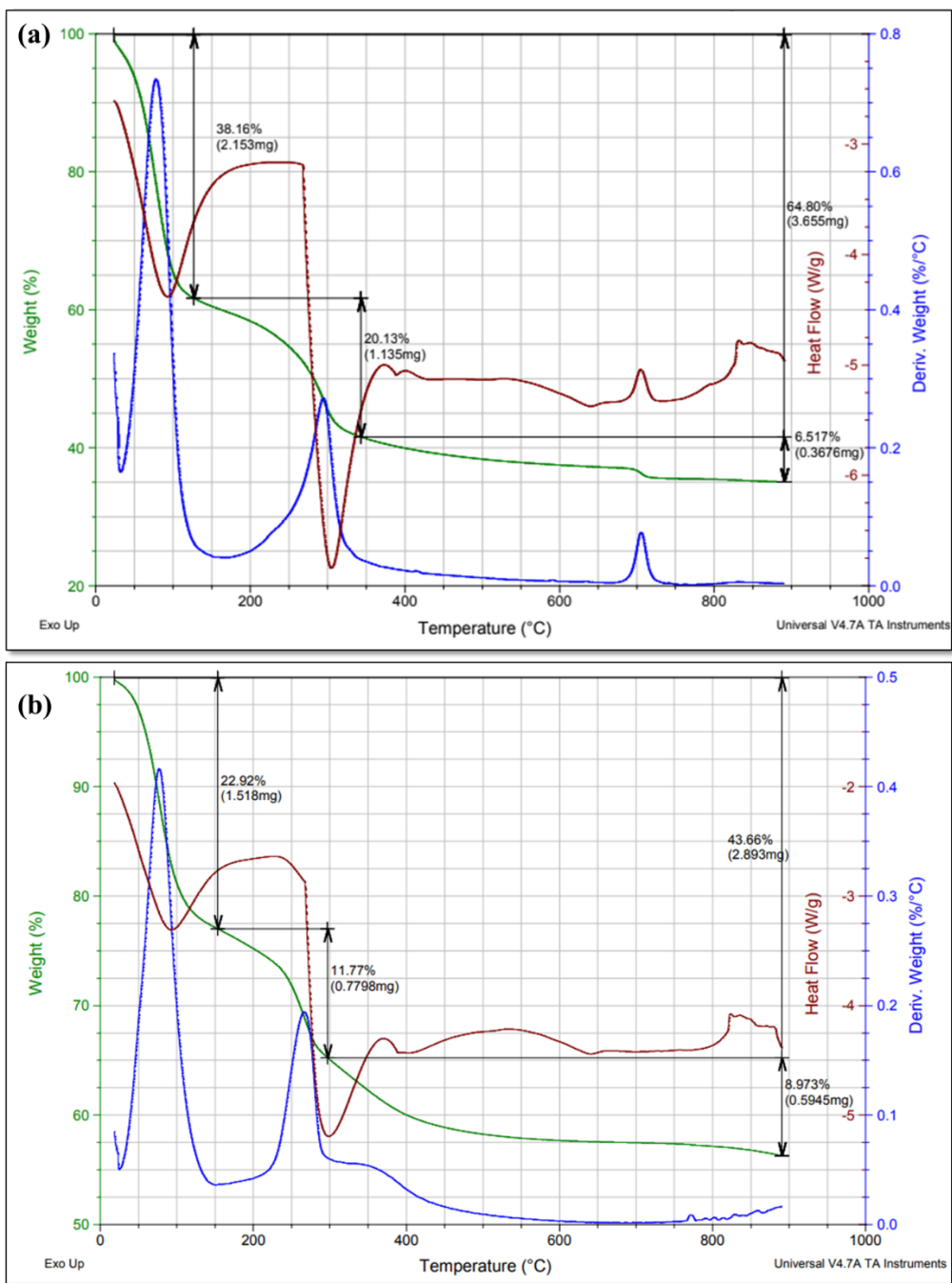


Figure S3: TGA-DSC graph (a) Al₂O₃ and (b) AlOOH.

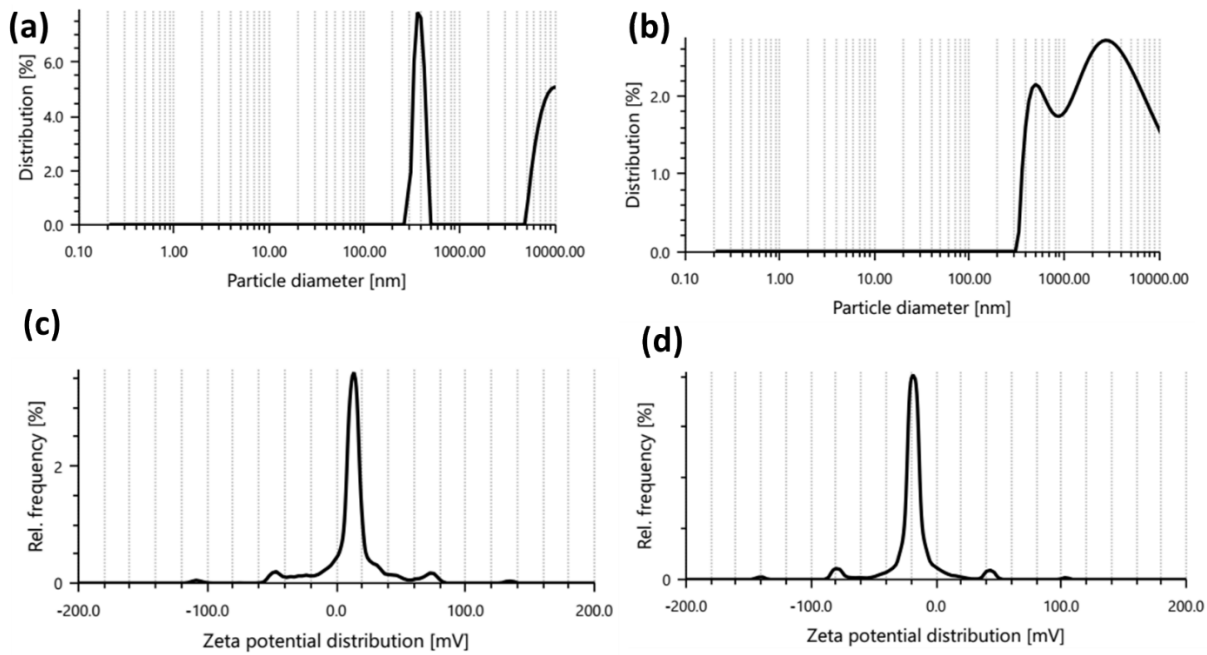


Figure S4. At pH 5, DLS graph (a) Al₂O₃, (b) AlOOH, Zeta-potential graphs (c) Al₂O₃, (d) AlOOH

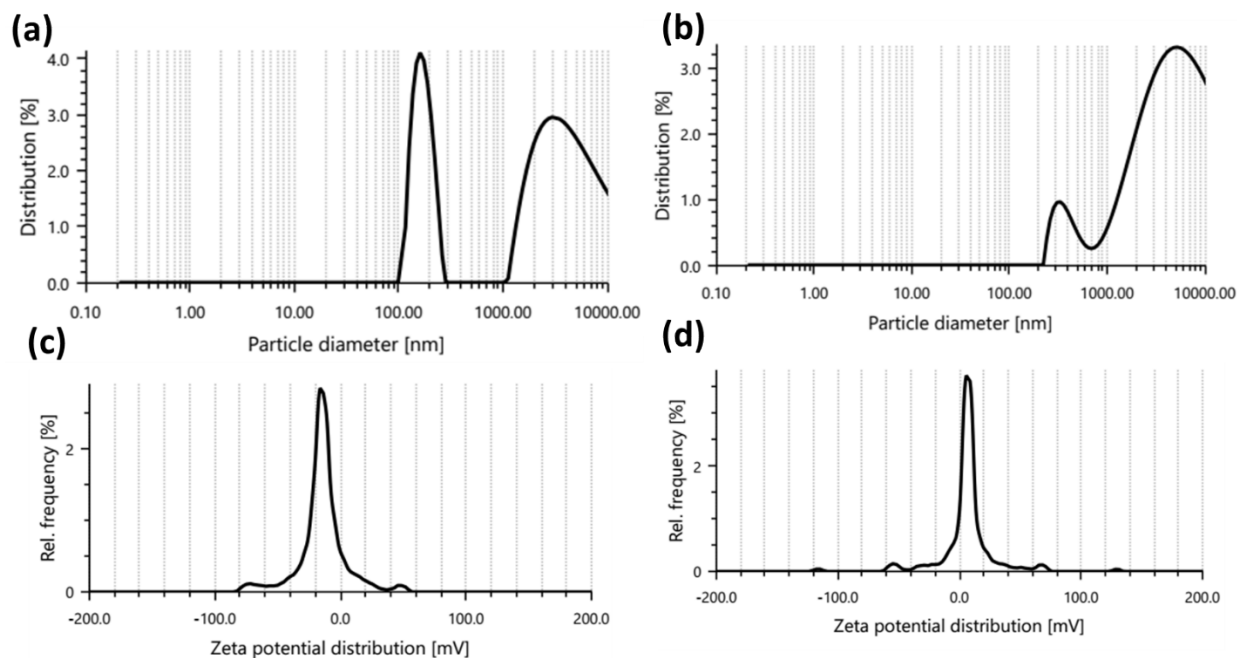


Figure S5. At pH 7, DLS graph (a) Al₂O₃, (b) AlOOH, Zeta-potential graphs (c) Al₂O₃, (d) AlOOH

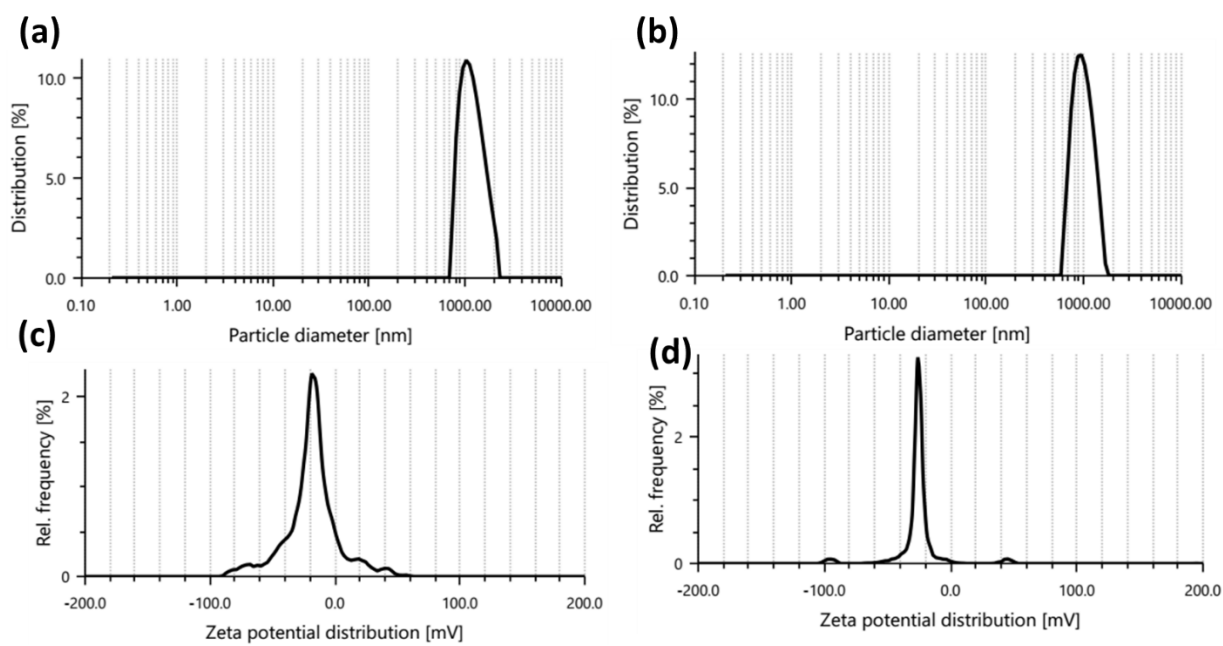


Figure S6. At pH 9, DLS graph **(a)** Al_2O_3 , **(b)** AlOOH , Zeta-potential graphs **(c)** Al_2O_3 , **(d)** AlOOH

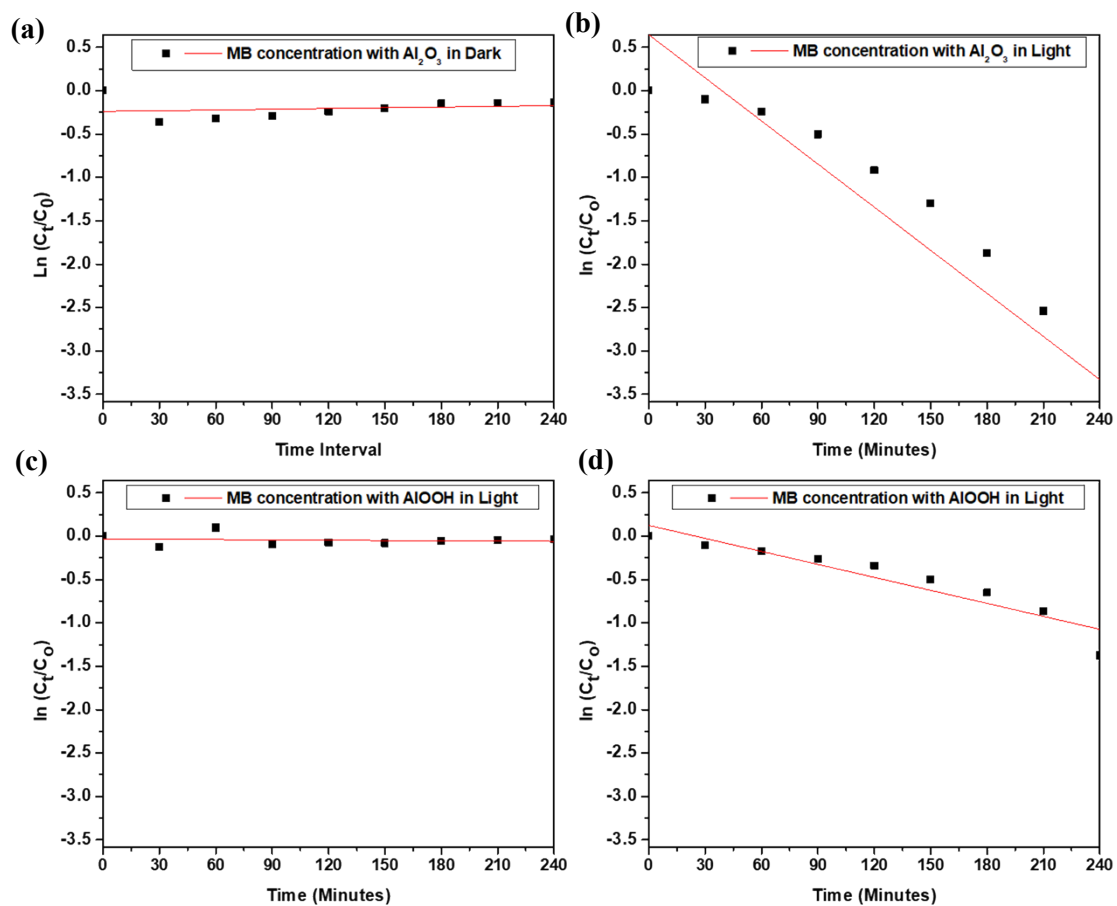


Figure S7: The graphs $\ln(C_t/C_0)$ vs time of Al_2O_3 in the Dark and Light (a and b), and AlOOH in the Dark and Light (c and d). These graphs are for pH 7.

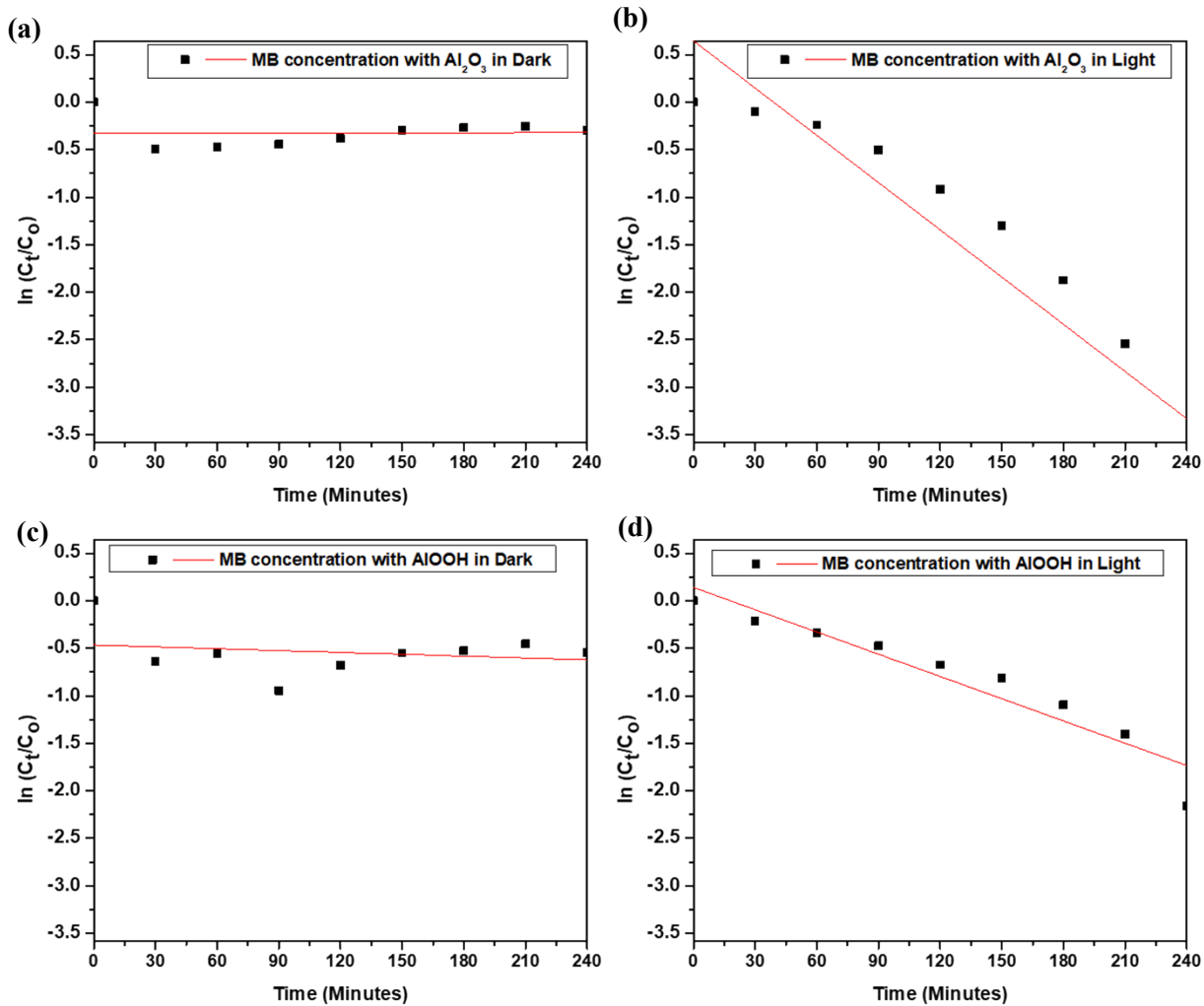


Figure S8: The graphs $\ln(C_t/C_0)$ vs time of Al_2O_3 in the Dark and Light (a and b), and $AlOOH$ in the Dark and Light (c and d). These graphs are for pH 9.

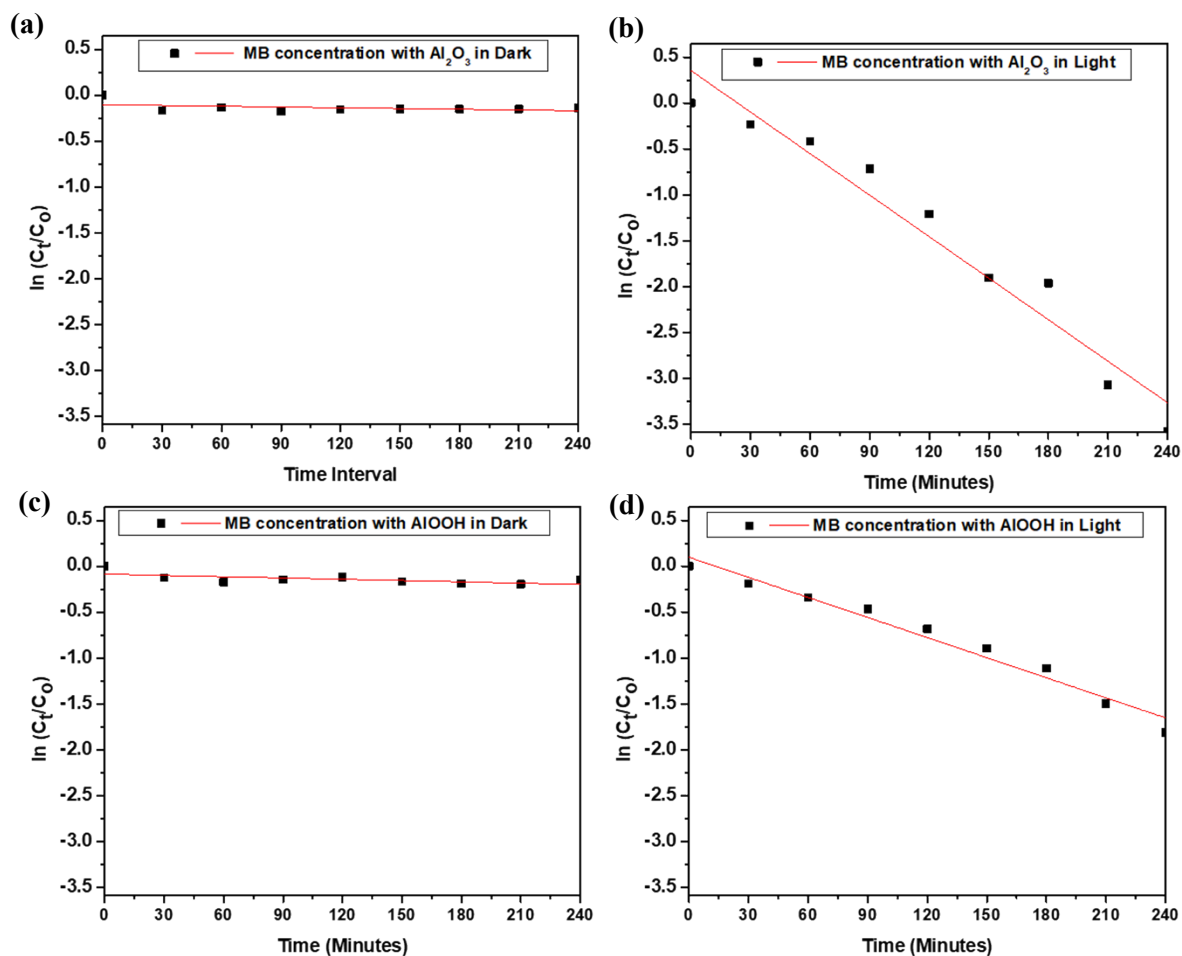


Figure S9: The graphs $\ln(C_t/C_0)$ vs time of Al_2O_3 in the Dark and Light (a and b), and $AlOOH$ in the Dark and Light (c and d). These graphs are for pH 5.

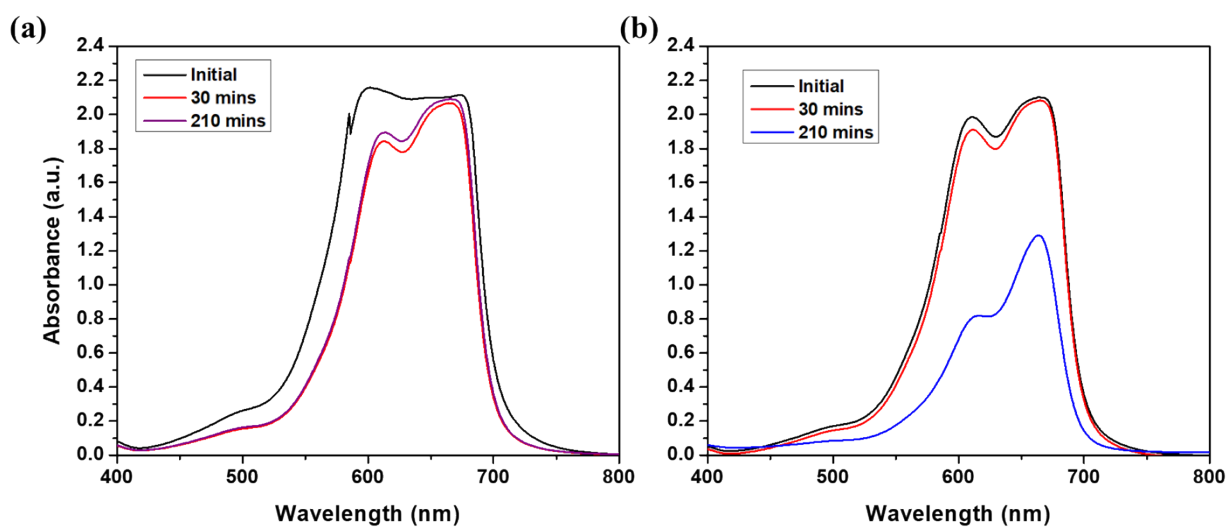


Figure S10: The graphs methylene blue with Al_2O_3 in (a) dark and (b) presence of visible light after 210 min