Highly efficient, solar active and reusable photocatalyst, Zr loaded Ag-ZnO for Reactive Red 120 dye degradation with synergistic effect and dye sensitized mechanism

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Supplementary Materials

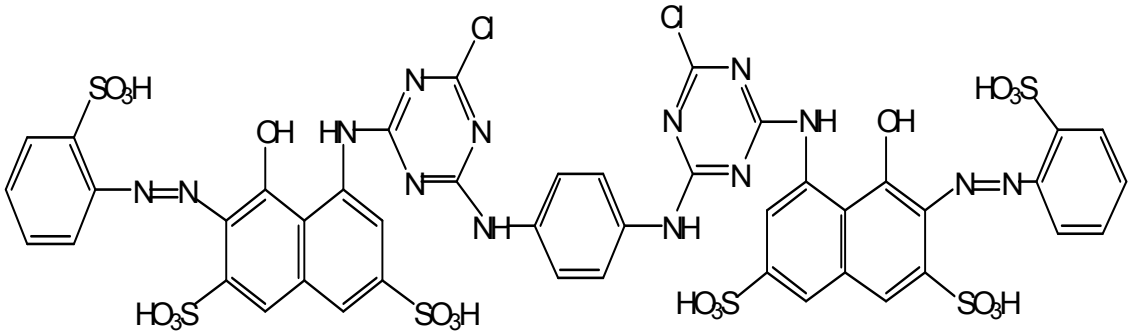

Figure S1. Chemical structure of RR 120

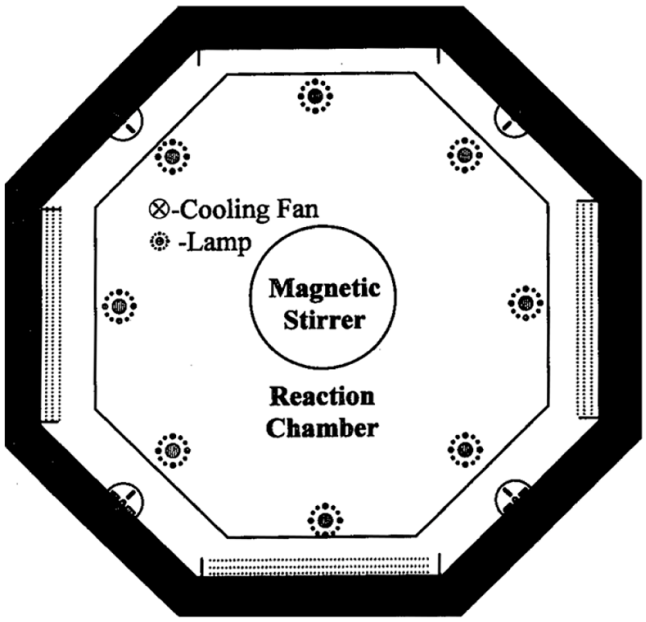

Figure S2 Schematic diagram of photoreactor.

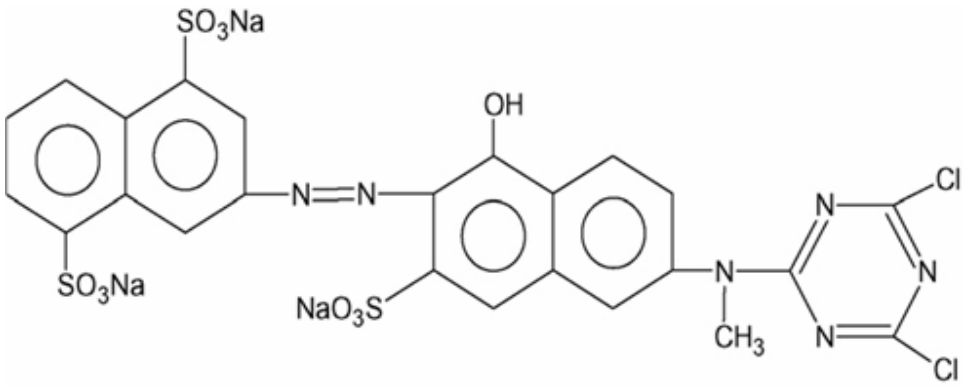

Figure S3. Chemical structure of RO 4

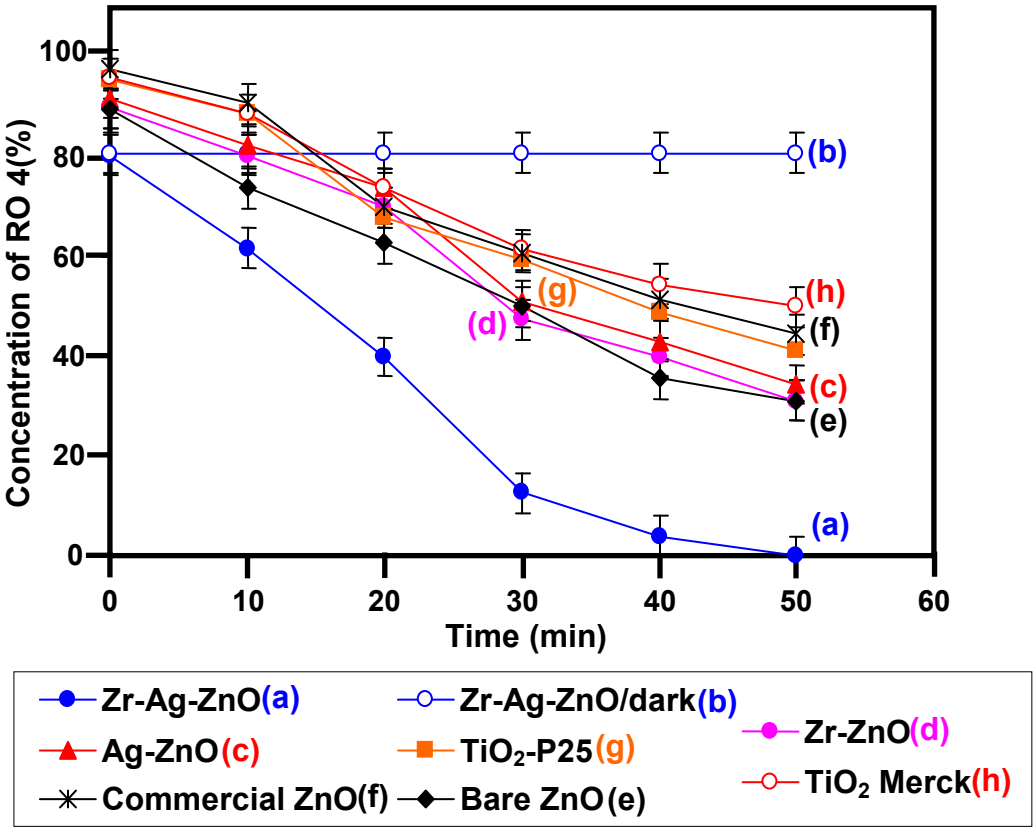

Figure S4. Photodegradability of RO 4: [RO 4] = 5×10^{-4}M, catalyst suspended = 3 g L^{-1}, pH = 7, airflow rate = 8.1 mL s^{-1}; I_{solar}= 1250×100±100 lux

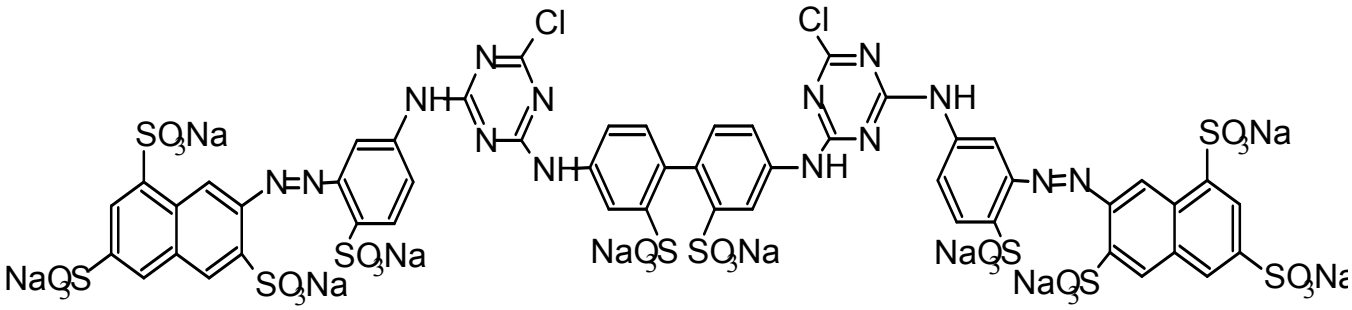

Figure S5. Chemical structure of RY 84

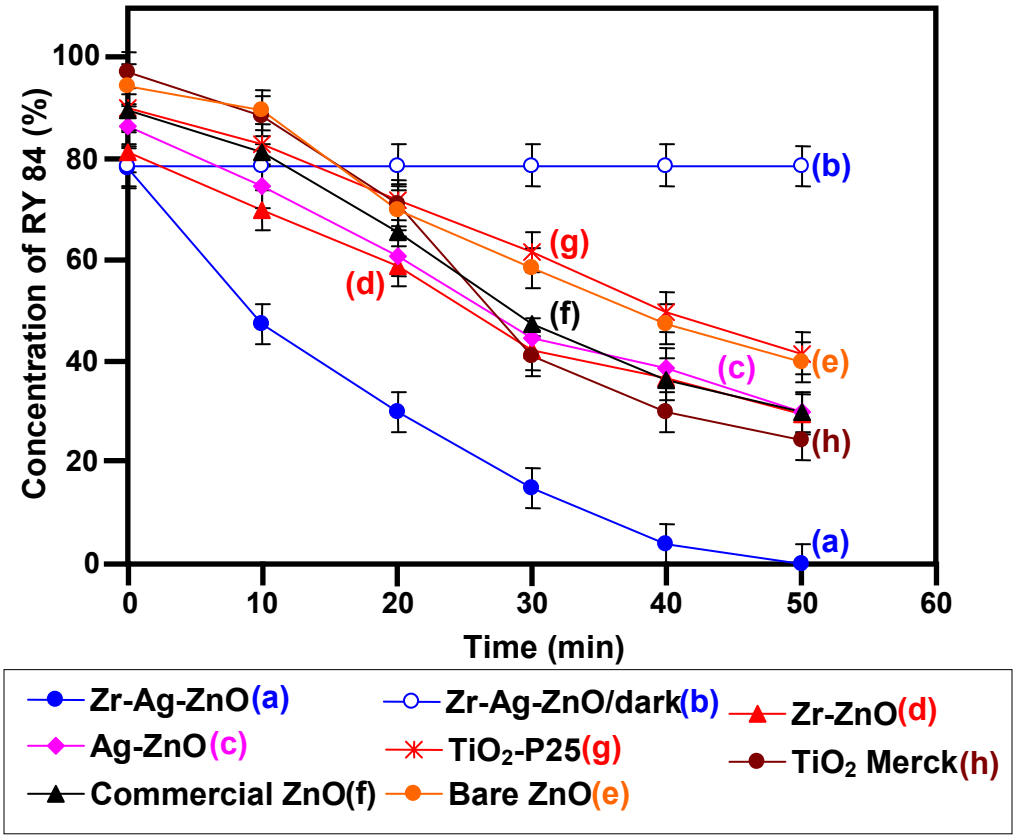

Figure S6. Photodegradability of RY 84: [RY 84] = 5×10^{-4}M, catalyst suspended = 3 g pH = 7, airflow rate = 8.1 mL s^{-1}; I_{solar}= 1250×100±100 lux

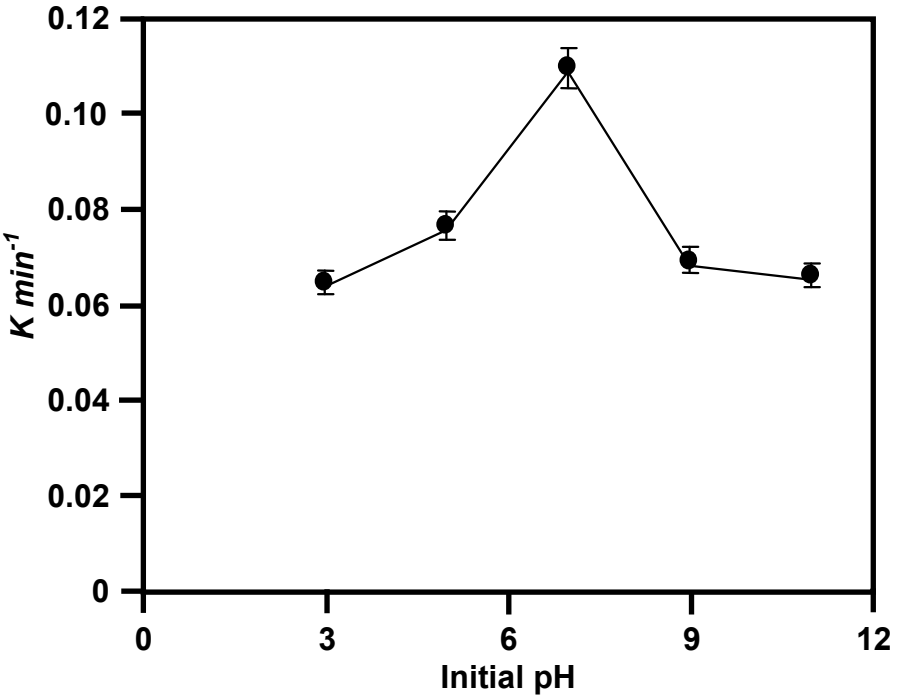

Figure S7. Effect of solution pH, [RR 120] = 2×10^{-4}M, 4 wt% Zr-Ag -ZnO suspended = 3 g L^{-1}, airflow rate = 8.1 mL s^{-1}, irradiation time = 20 min; I_{solar}= 1250×100±100 lux

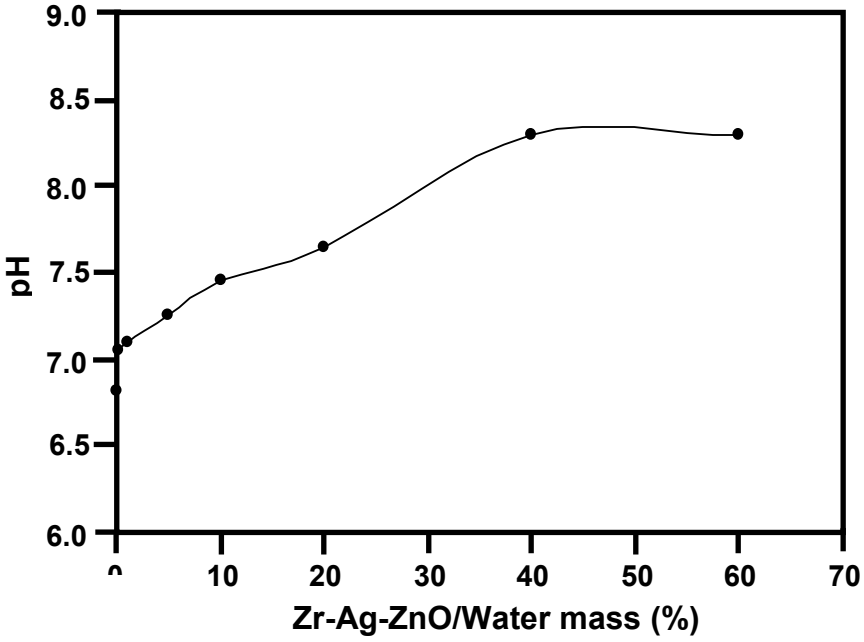

Figure S8. Plot of pH versus oxide/water mass percentage

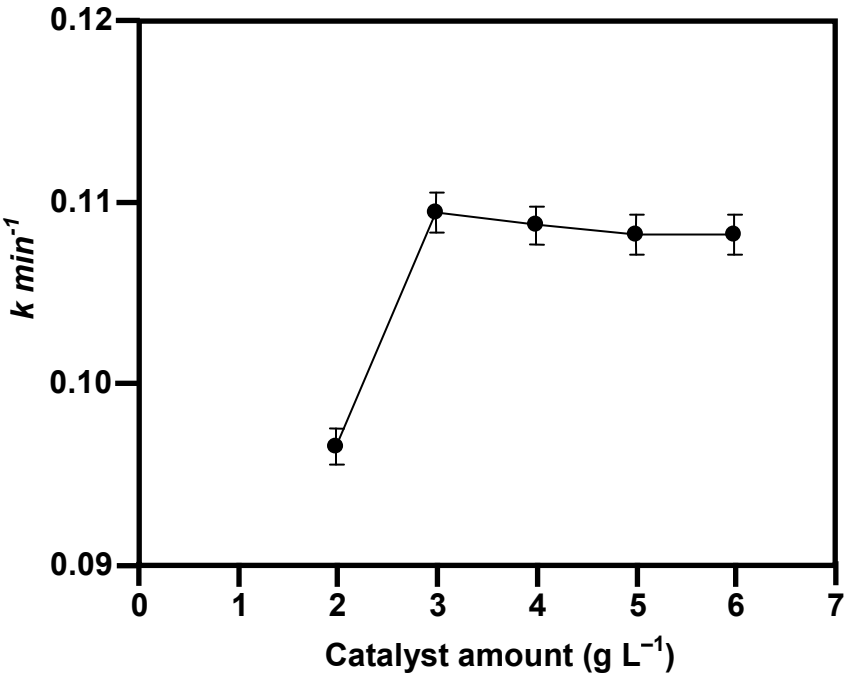

Figure S9. Effect of catalyst loading, [RR 120] = 2×10^{-4} M, Catalyst suspended = 4 wt% Zr-Ag-ZnO, airflow rate = 8.1 mLs^{-1}, pH = 7, irradiation time = 20 min; I_{solar}= 1250×100±100 lux

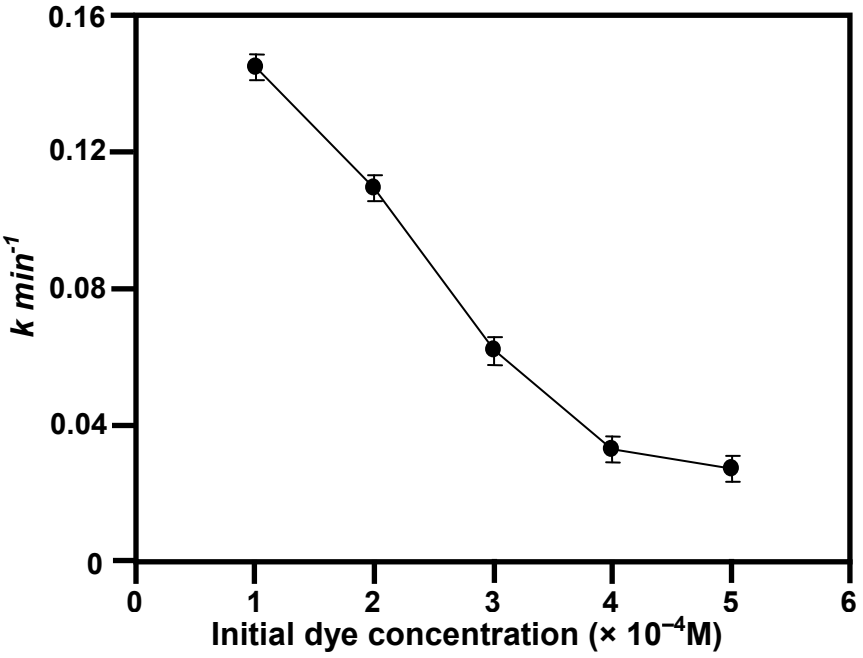

Figure S10. Effect of initial dye concentration, pH = 7, 4 wt% Zr-Ag -ZnO suspended = 3 g L^{-1}, airflow rate = 8.1 mL s^{-1}, irradiation time = 20 min; I_{solar}= 1250×100±100 lux