Supplementary Materials:

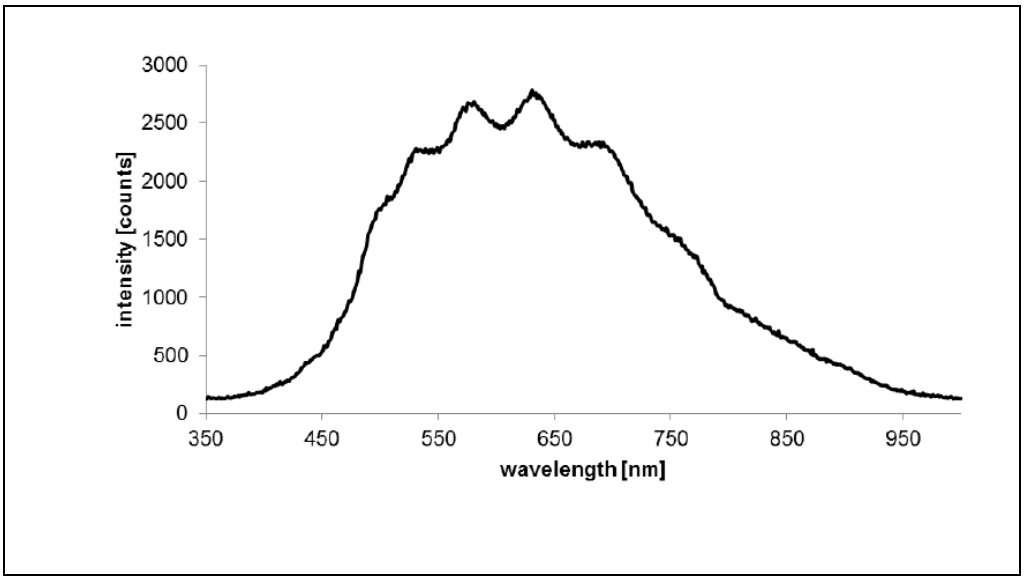


Figure S1: A widely known spectrum for tungsten-halogen lamp. A small UV fraction at 400 nm and shorter is observed.

SSA measurement for perovskite powders using acetic acid adsorption. Plots of $\frac{C}{N} = \frac{1}{N_m b} + \frac{1}{N_m} C$ have been constructed as shown in Figure S2. The number of monolayer (N_m) moles of acetic acid per 1 g perovskite, is calculated from the slope ($1/N_m$). The acetic acid monolayer molecules per 1 g perovskite is determined. The adsorbent SSA is determined using the known acetic acid molecular cross-sectional area ($2.1*10^{-19}$ m^2 $molecule^{-1}$).

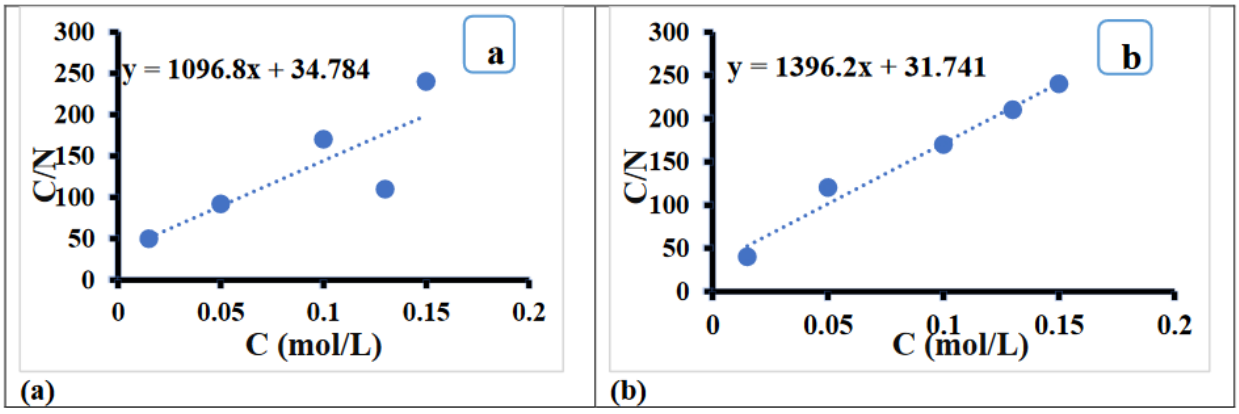
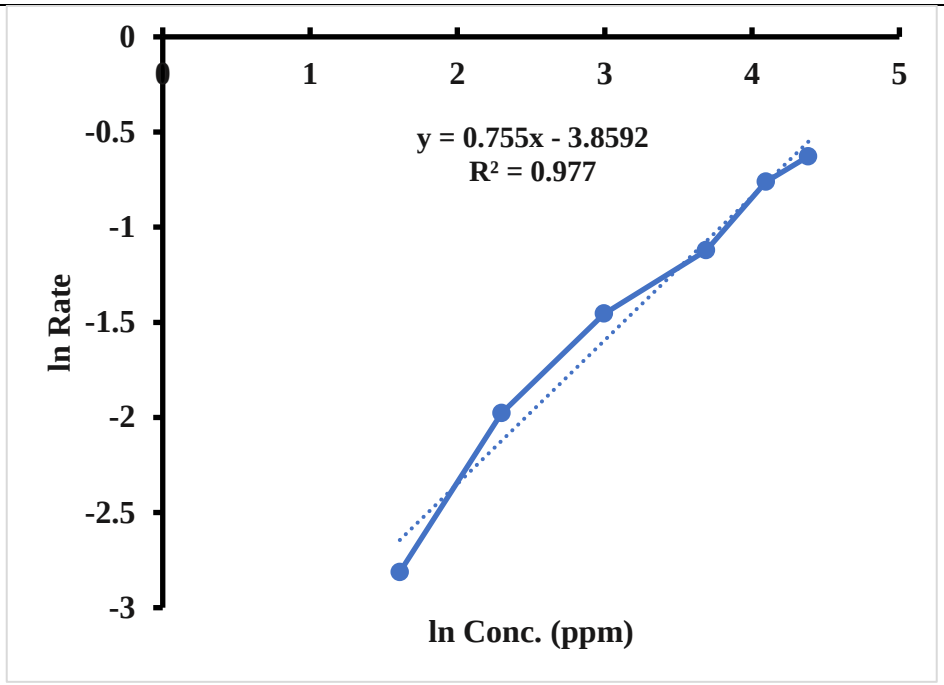
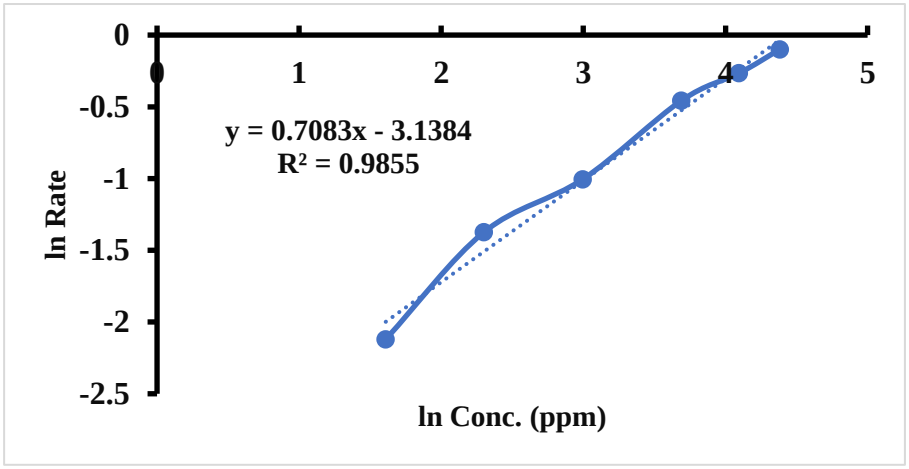
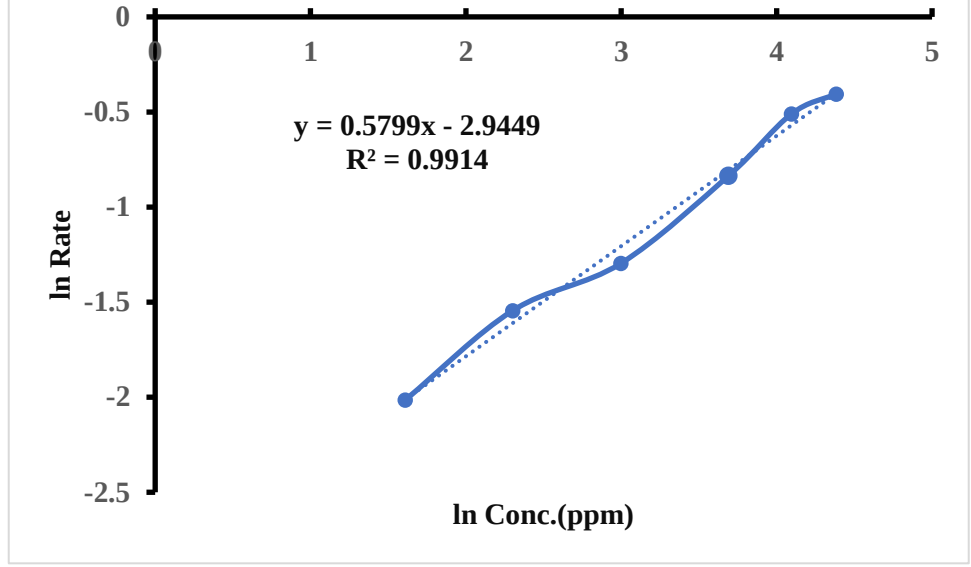


Figure S2: Langmuir plots constructed for acetic acid adsorption onto perovskite powders a) $ZnTiO_3$ and b) $MnTiO_3$ at room temperature.

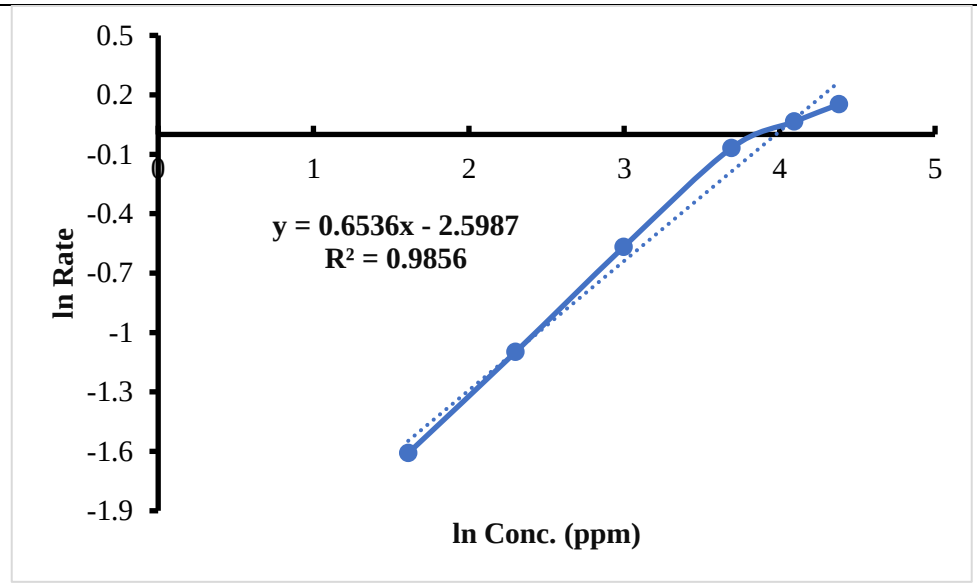

y = 0.755x - 3.8592
R² = 0.977
ln Rate
ln Conc. (ppm)
0
-0.5
-1
-1.5
-2
-2.5
-3
0
1
2
3
4
5


y = 0.7083x - 3.1384
R² = 0.9855
ln Rate
ln Conc. (ppm)
0
-0.5
-1
-1.5
-2
-2.5
0
1
2
3
4
5

(a)



(b)



(c)

Figure S3: Plots of ln(initial rate) vs. ln(methylene blue initial concentration) using various catalyst systems. (a) $ZnTiO_3$ powder (0.1 g), (b) $MnTiO_3$ powder (0.1 g), (c) $ZnTiO_3$ film ($2.3x10^{-3}$ g) and (d) $MnTiO_3$ film ($1.8x10^{-3}$ g).

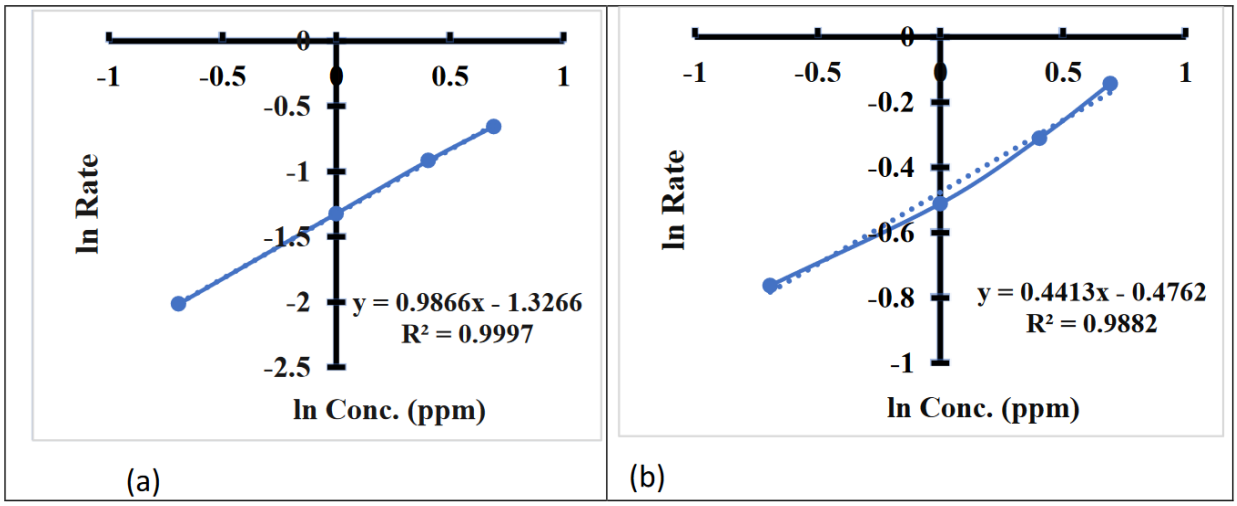


Figure S4: Effect of catalyst powder loading. Plots of ln(initial rate) vs. ln(Catalyst loading) for powder perovskites are shown for: (a) $ZnTiO_3$ and (b) $MnTiO_3$. Values of rate or.

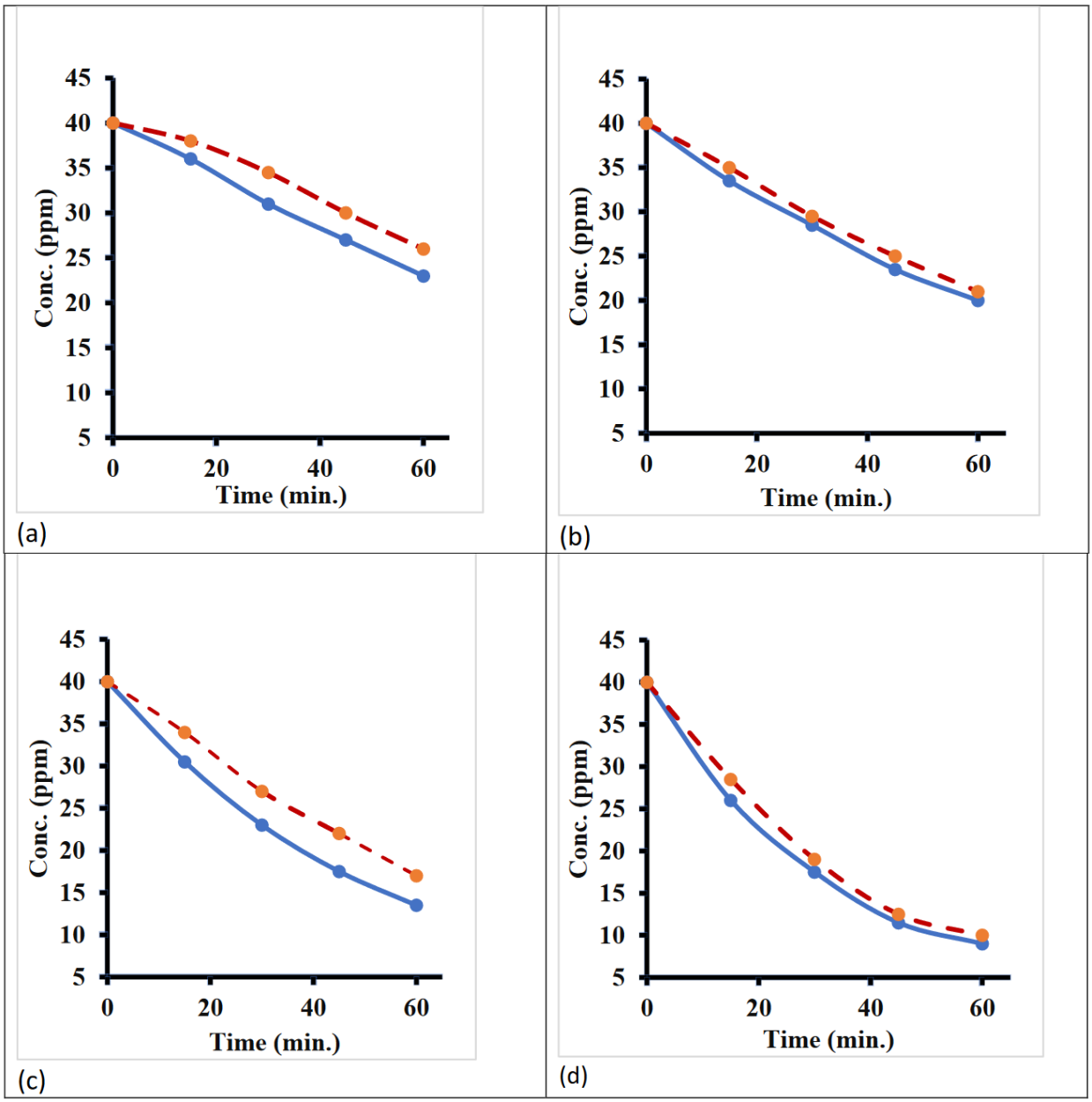


Figure S5: Perovskite catalyst efficiency after recovery and reuse in methylene blue photodegradation reaction. (a) $ZnTiO_3$ powder (initially 0.1 g), (b) $ZnTiO_3$ film, (c) $MnTiO_3$ powder (initially 0.1 g) and (d) $MnTiO_3$ film. Solid lines for fresh catalyst, and dashed lines for recovered catalyst