

Transition metal ion-doped In₂O₃ nanocubes: Investigations of their photocatalytic degradation activity under sunlight

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Table T1: Strain obtained from the Williamson-Hall fitting of the XRD data.

S.No.	Sample	Strain, ϵ
1.	In ₂ O ₃	4.75×10^{-3}
2.	Cu-In ₂ O ₃	5.21×10^{-3}
3.	Ni-In ₂ O ₃	10.71×10^{-3}
4.	Co-In ₂ O ₃	4.85×10^{-3}
5.	Fe-In ₂ O ₃	9.98×10^{-3}
6.	Mn-In ₂ O ₃	4.42×10^{-3}

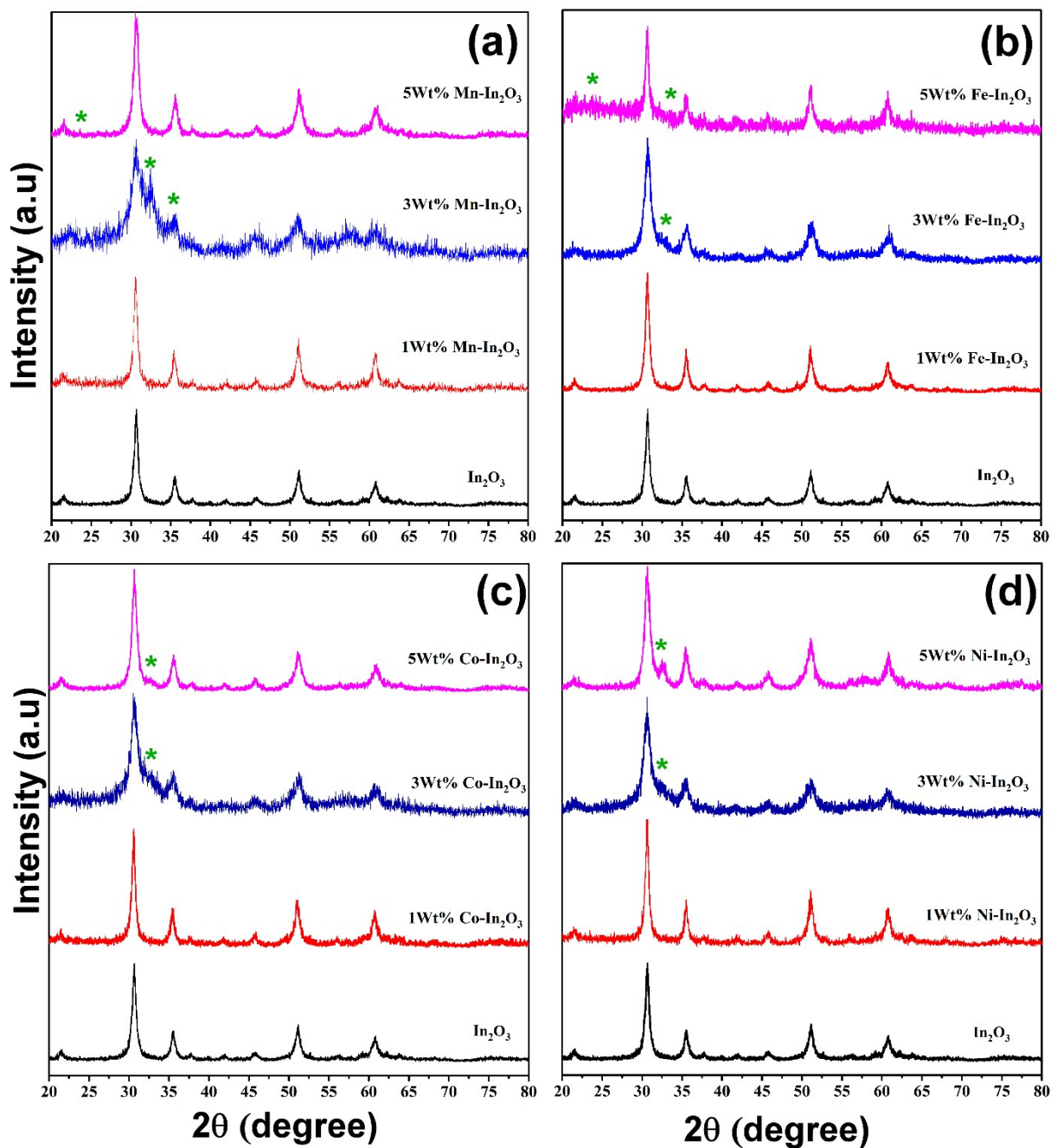


Figure S1. The XRD patterns of the In_2O_3 for different concentration of the dopant ions. Asterisk marks the impurity phases in each sample when the concentration is increased. The XRD patterns for Mn, Fe, Co and Ni ion doped In_2O_3 are given respectively in (a), (b), (c) and (d).

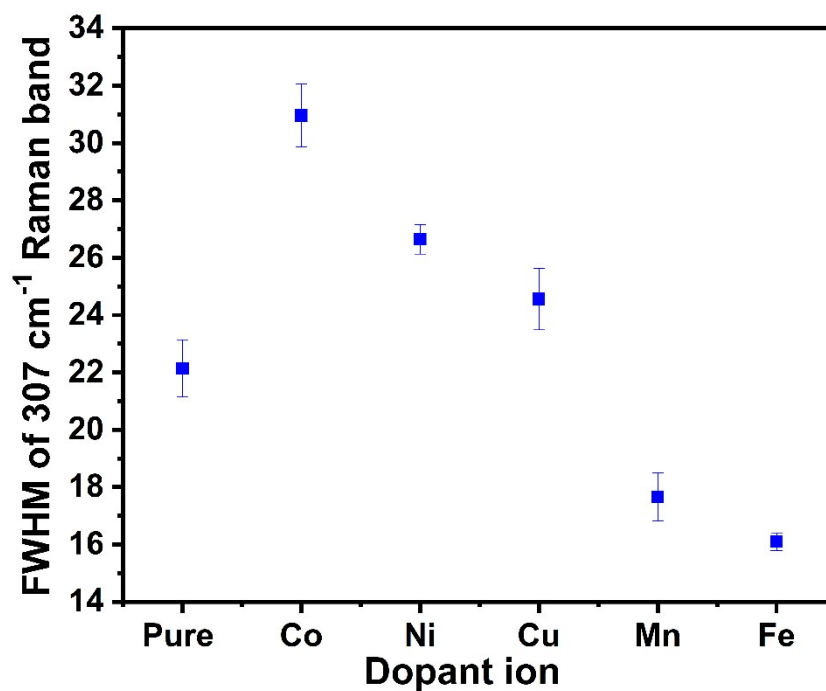


Figure S2. Change in FWHM of the Raman band at 307 cm⁻¹ in In₂O₃ for various doping ions.

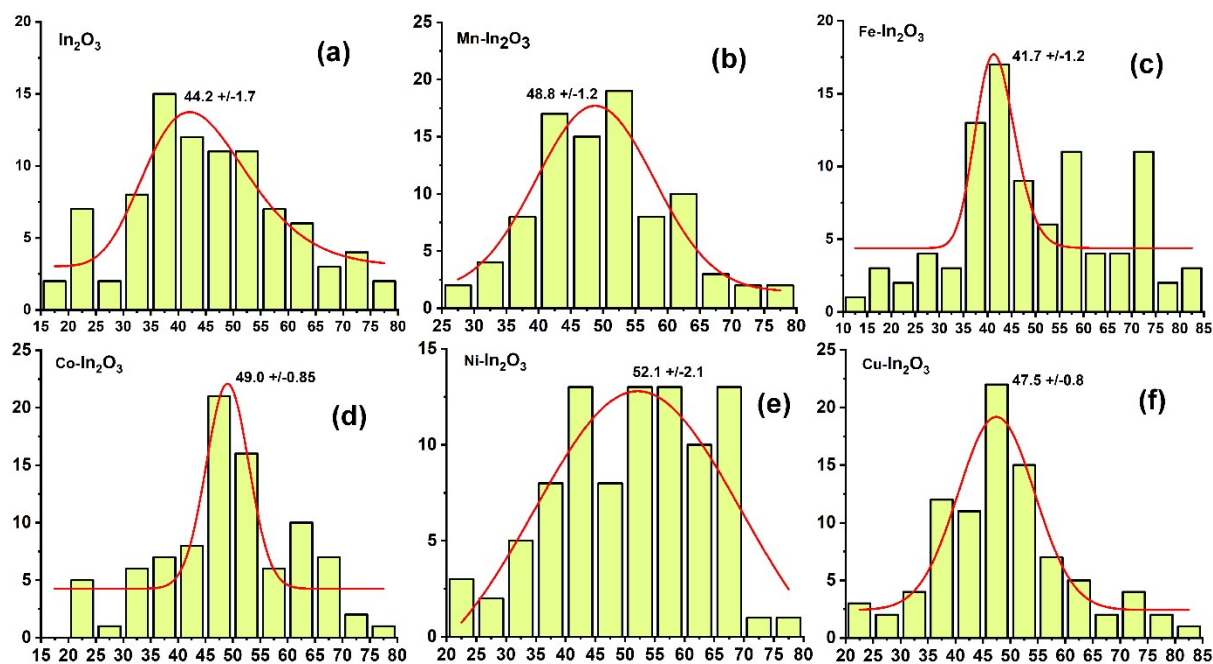


Figure S3. Particle size distribution in (a) In₂O₃, (b) 1wt% Mn-In₂O₃, (c) 1wt% Fe-In₂O₃, (d) 1wt% Co-In₂O₃, (e) 1wt% Ni-In₂O₃ and (f) 1wt% Cu-In₂O₃.

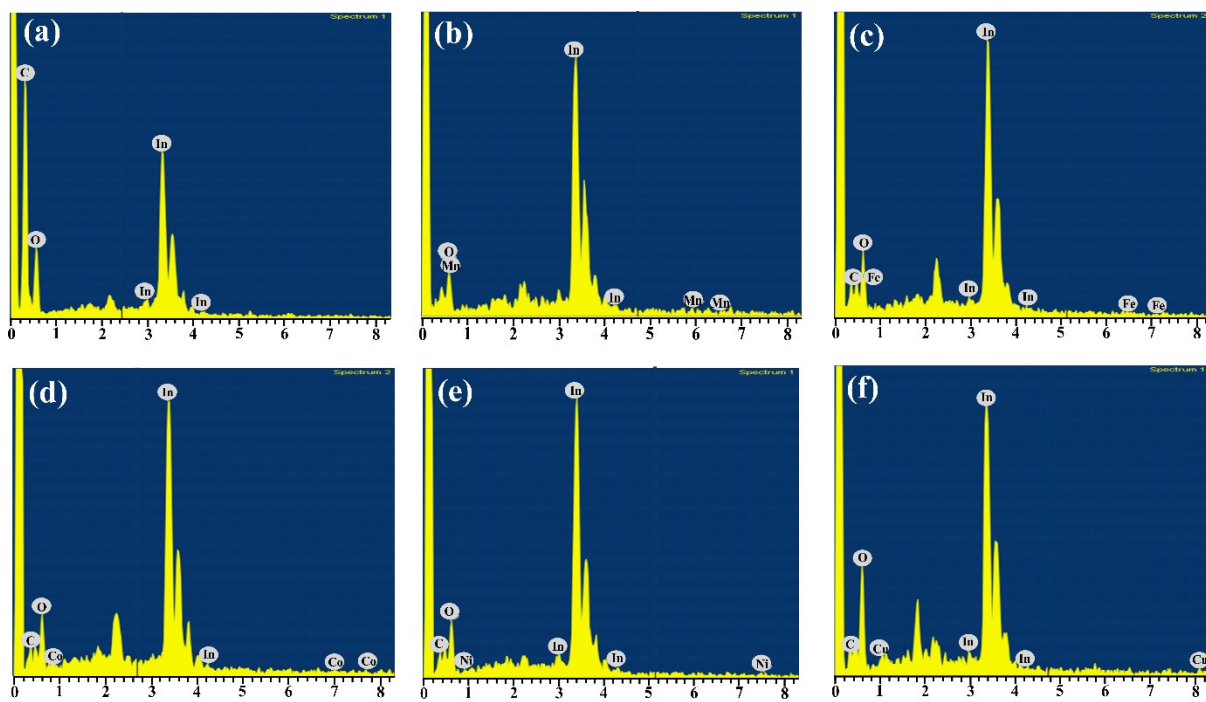


Figure S4. XEDS spectra analysis data from FESEM showing elemental composition of the pure and transition metal ion doped In_2O_3 .

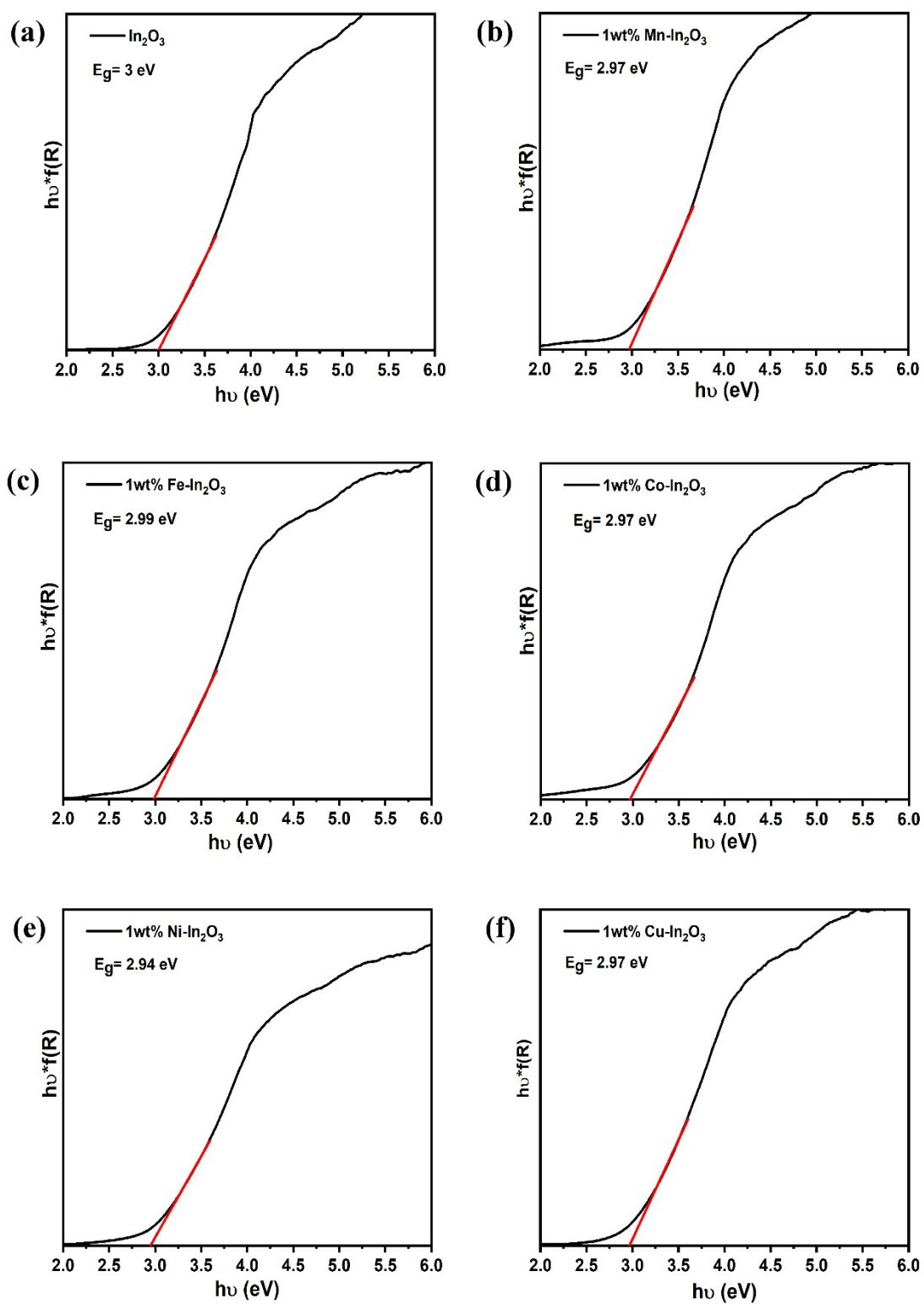


Figure S5. Kubelka-Munk plots for pure and different metal ions doped In_2O_3 nanocubes.

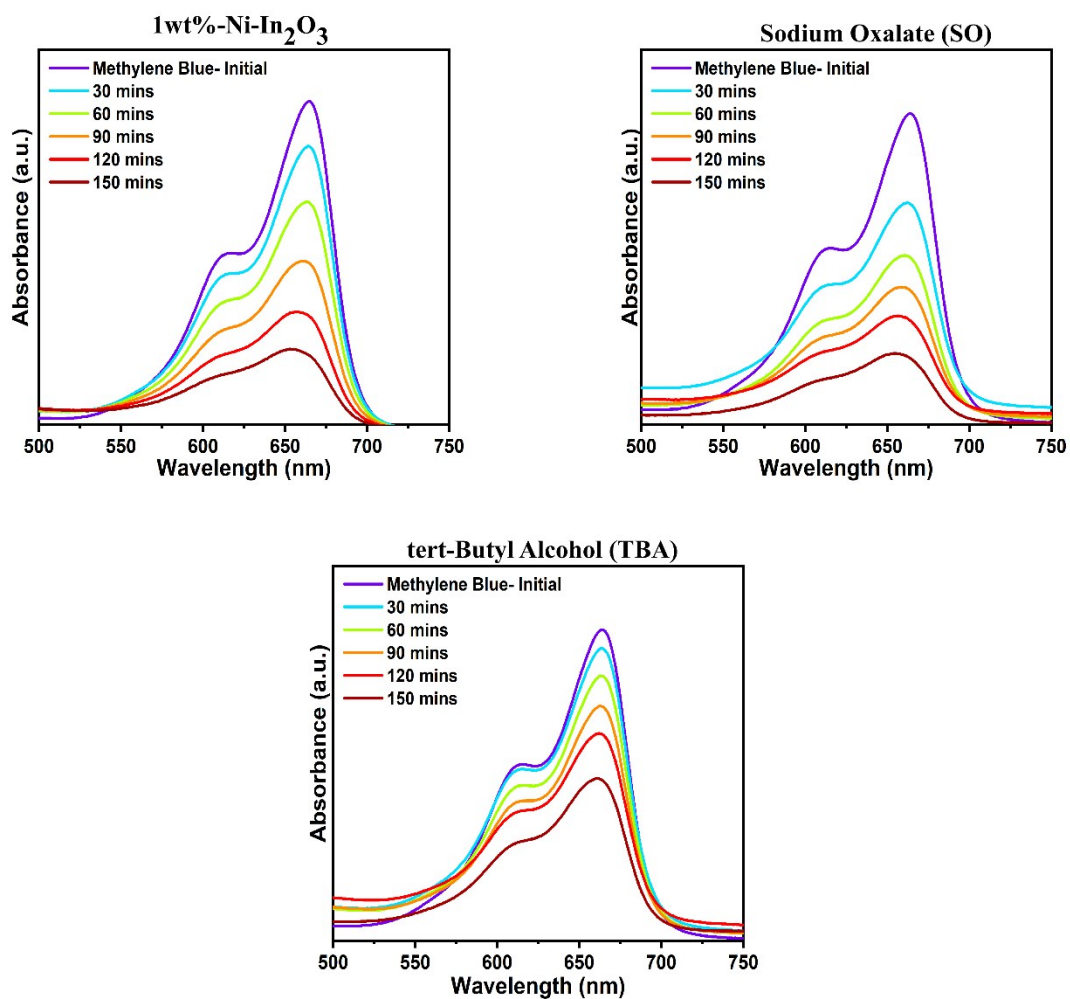


Figure S6. UV-vis absorption spectra of photocatalytic degradation MB under Sunlight irradiation for different time interval by 1wt%Ni-In₂O₃ photocatalyst and also in the presence of different scavengers SO (sodium oxalate) and TBA (tert butyl alcohol) with 1wt%Ni-In₂O₃ photocatalyst.

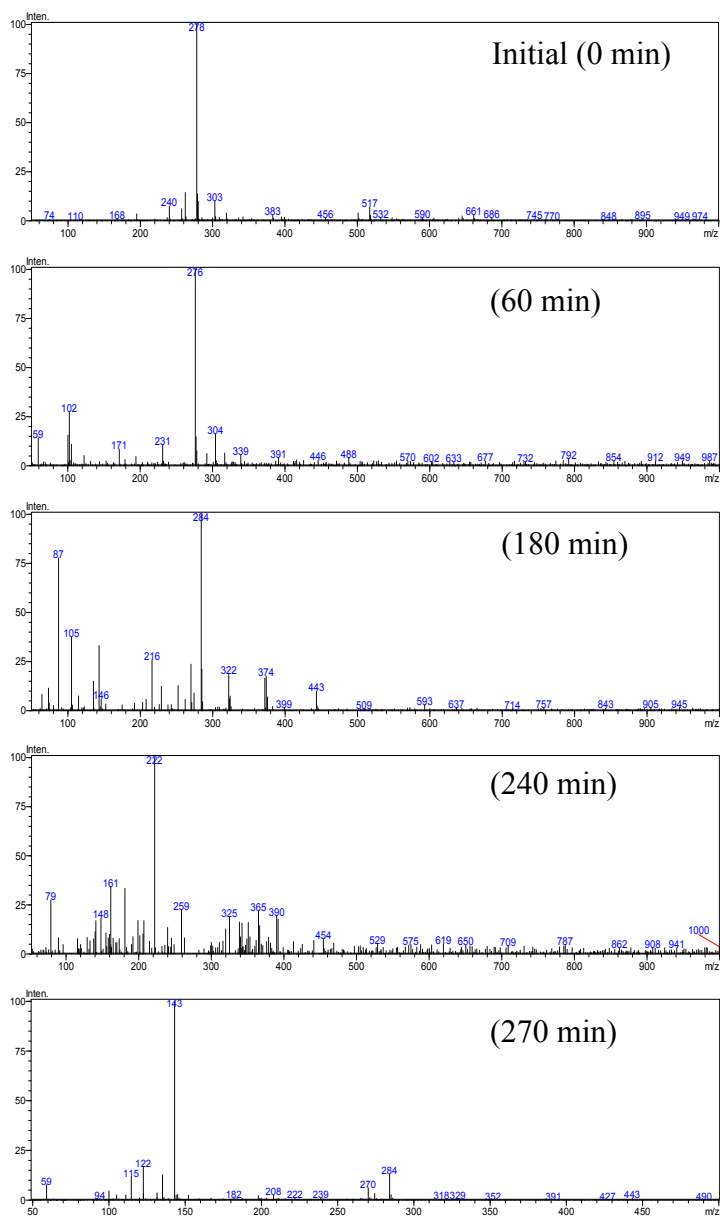


Figure S7. ESI-MS spectra of photodegradation of MB for the time period varied from 0 min to 270 minutes in the presence of 1 wt% Ni-In₂O₃ photocatalyst.

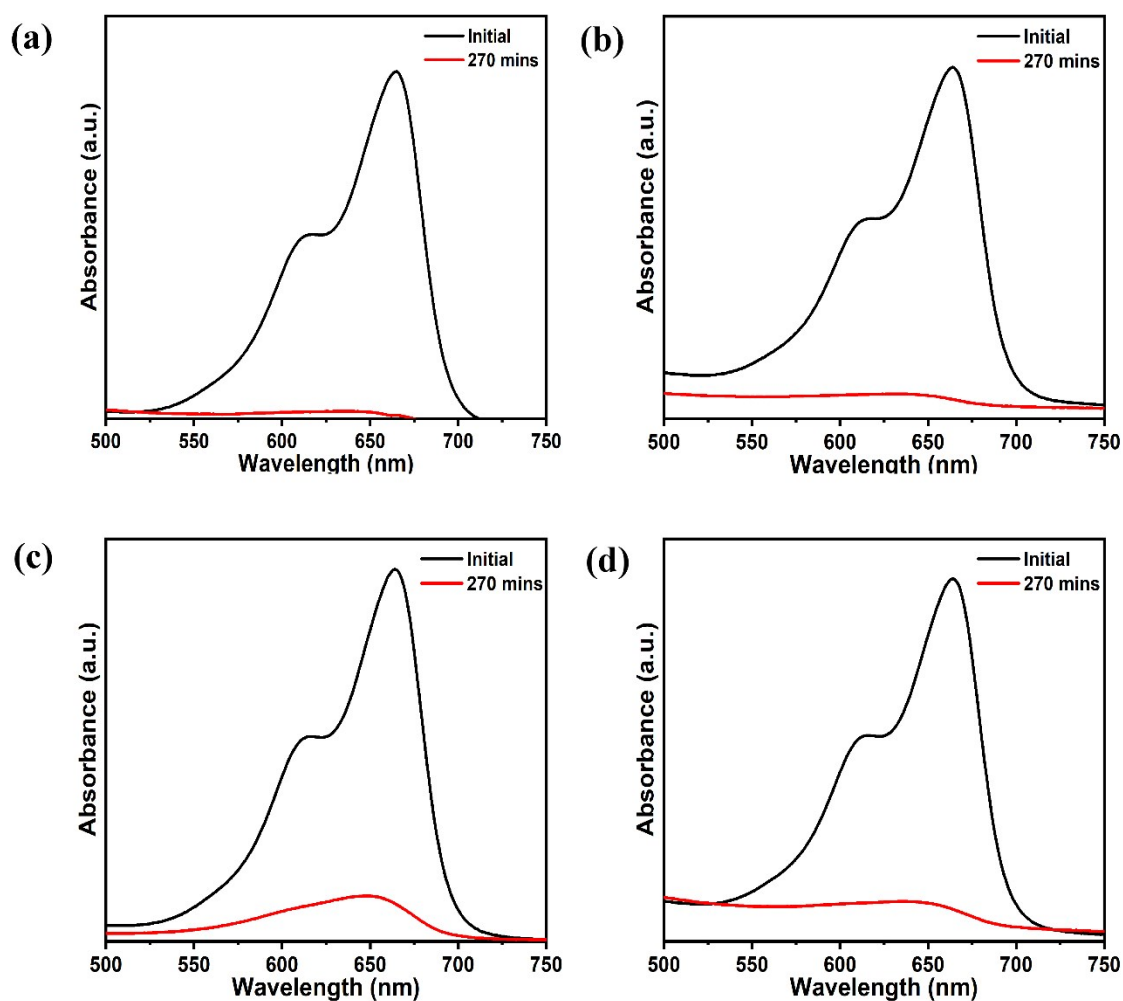


Figure S8. UV-vis absorption spectra of photodegradation of MB before and 270 minutes of visible light irradiation in the presence of 1wt% Ni-In₂O₃ photocatalyst for three different consecutive cycles. (a) 1st cycle, (b) 2nd cycle (c) 3rd cycle and (d) 4th cycle of photocatalysis reaction.

Acknowledgements

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