

**Supplementary Information**

**A Nickel (II) Complex of Naphthaldehyde Derived Bis-Imine Ligand  
for Sunlight Driven Dye Remediation: Mechanistic study, Intermediate  
identification and Recyclability**

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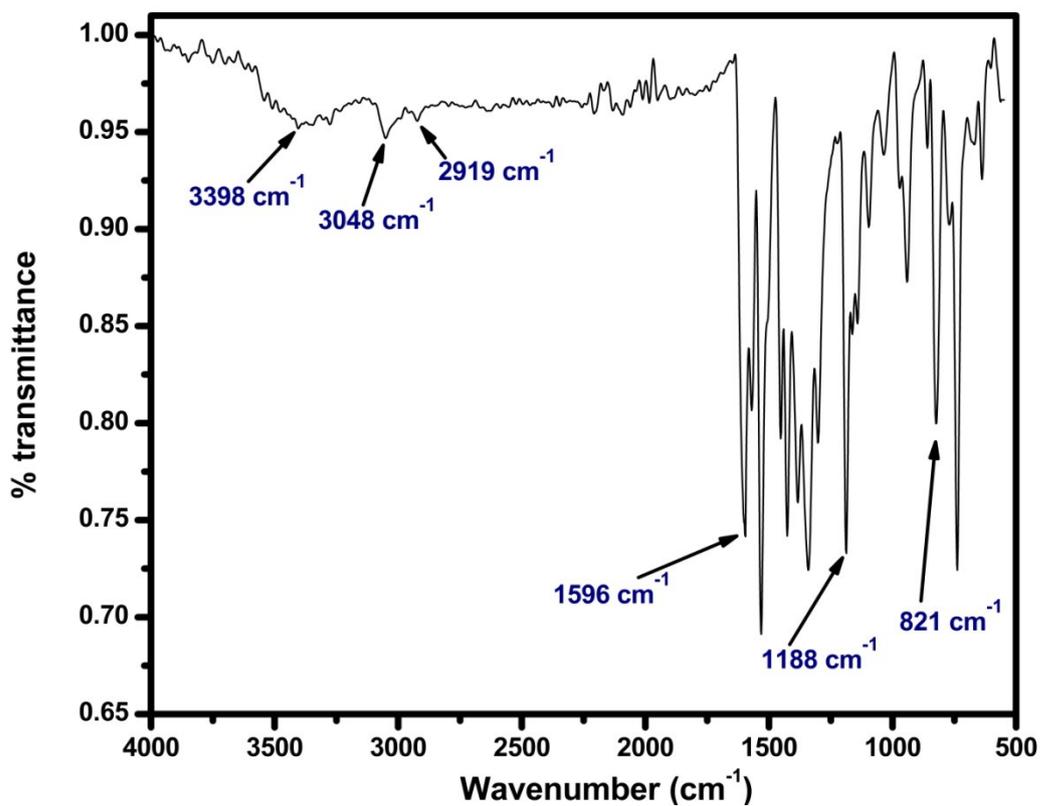


Fig. S1: FT-IR spectrum of NiL<sub>1</sub>Et.

Ni-L1  
single\_pulse

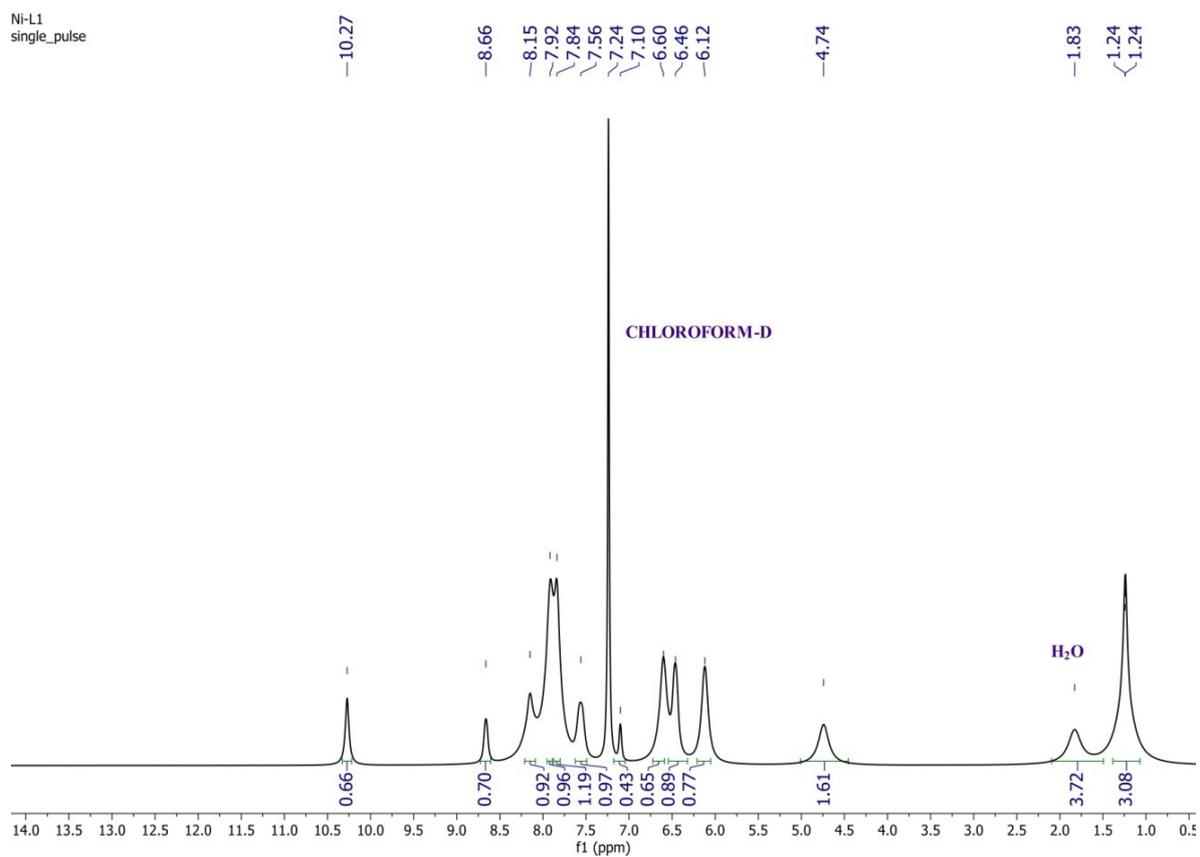


Fig. S2:  $^1\text{H}$  NMR spectrum of  $\text{NiL}_1\text{Et}$ .

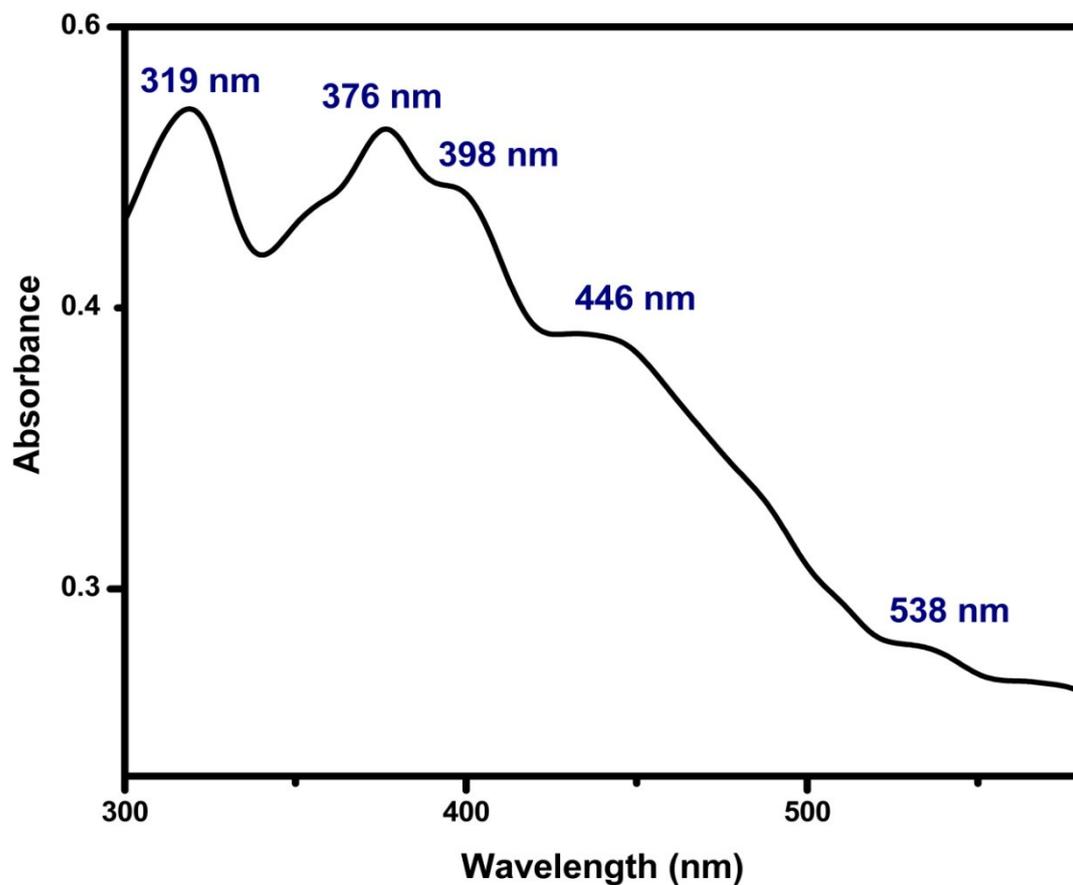


Fig. S3. Absorption spectrum of  $\text{NiL}_1\text{Et}$ .

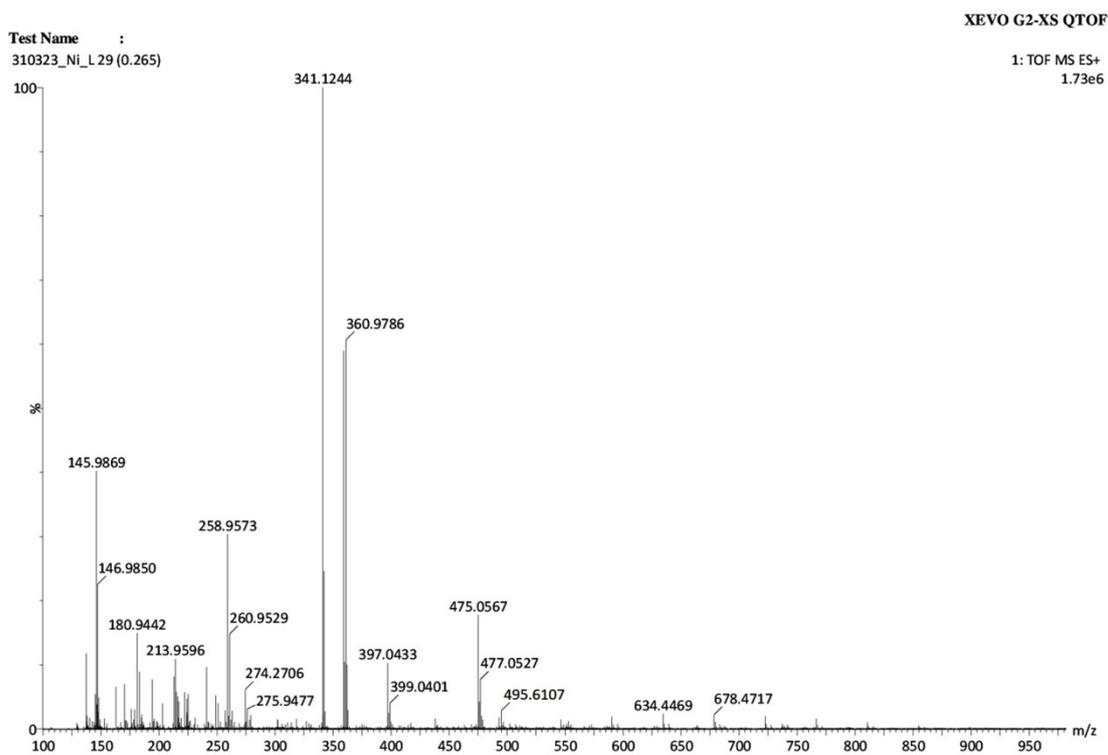


Fig. S4. ESI-mass spectrum of  $\text{NiL}_1\text{Et}$

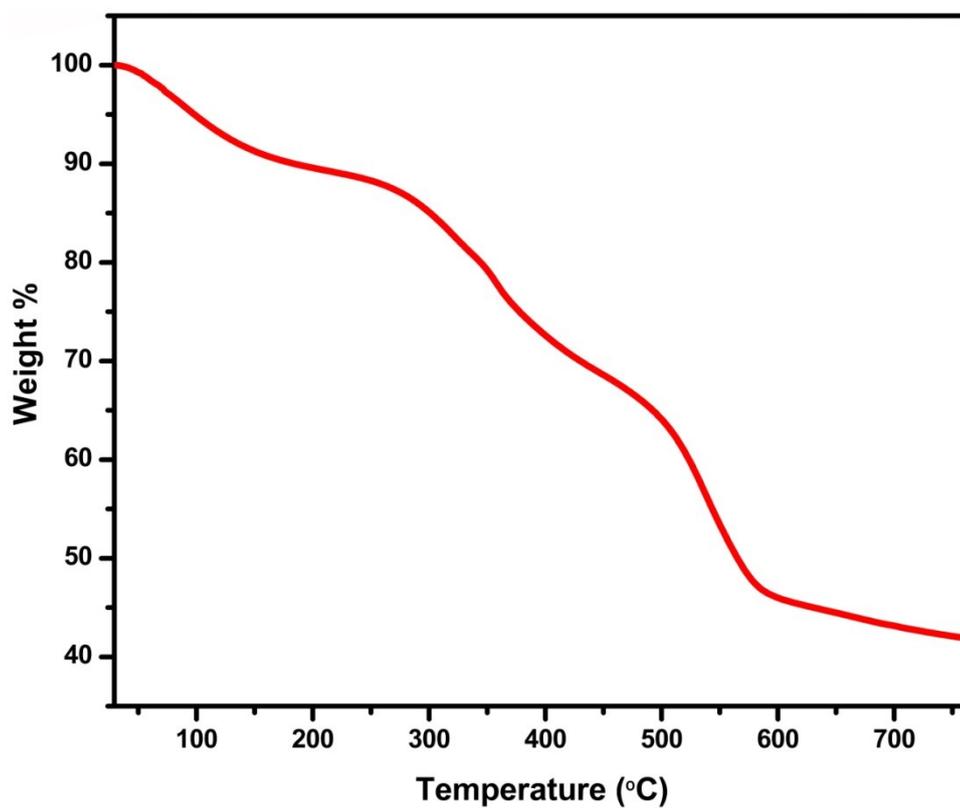


Fig. S5. TGA curve of NiL<sub>1</sub>Et

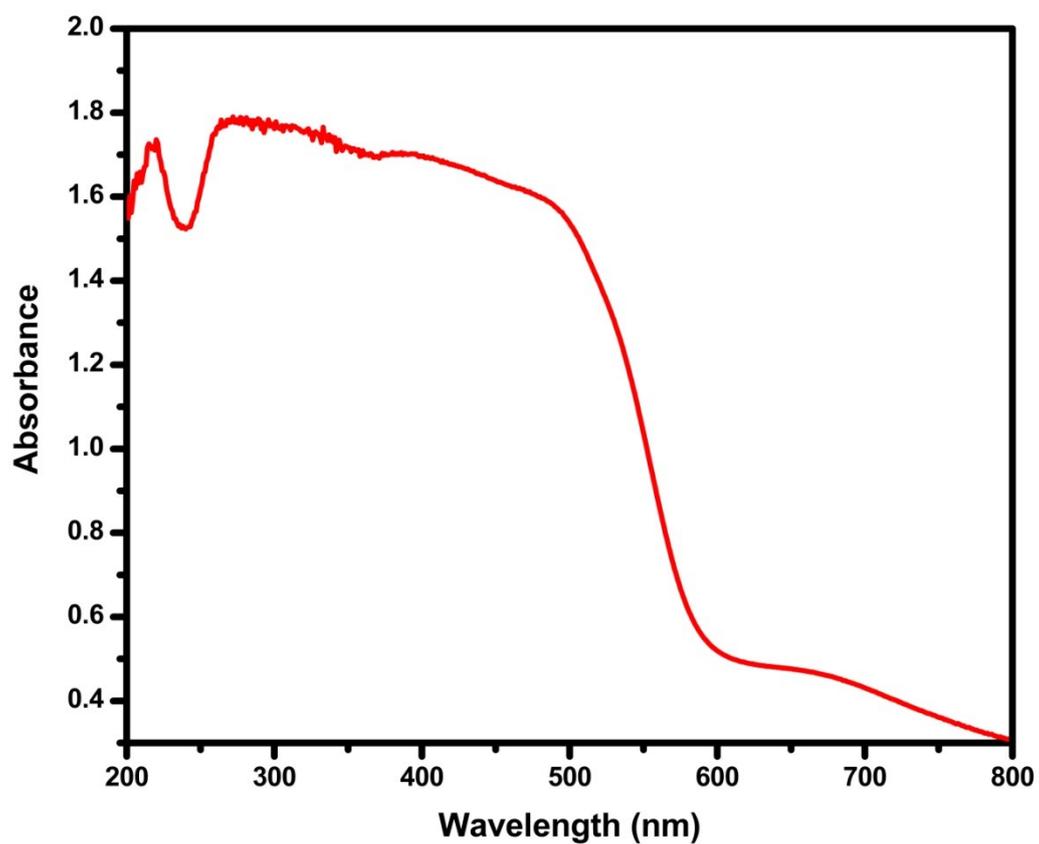




Fig. S8. Absorption spectrum of photocatalytic degradation of methylene blue (MB) under optimized conditions using  $\text{NiL}_1\text{Et}$  as catalyst.

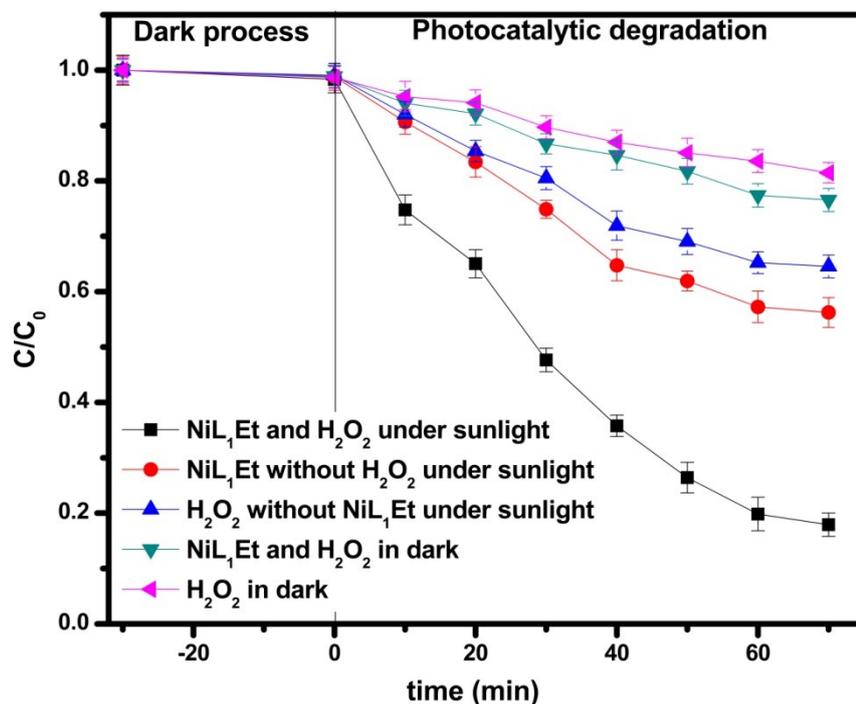


Fig. S9. Plot of  $C/C_0$  vs. time of photodegradation of MB dye under different controlled conditions.

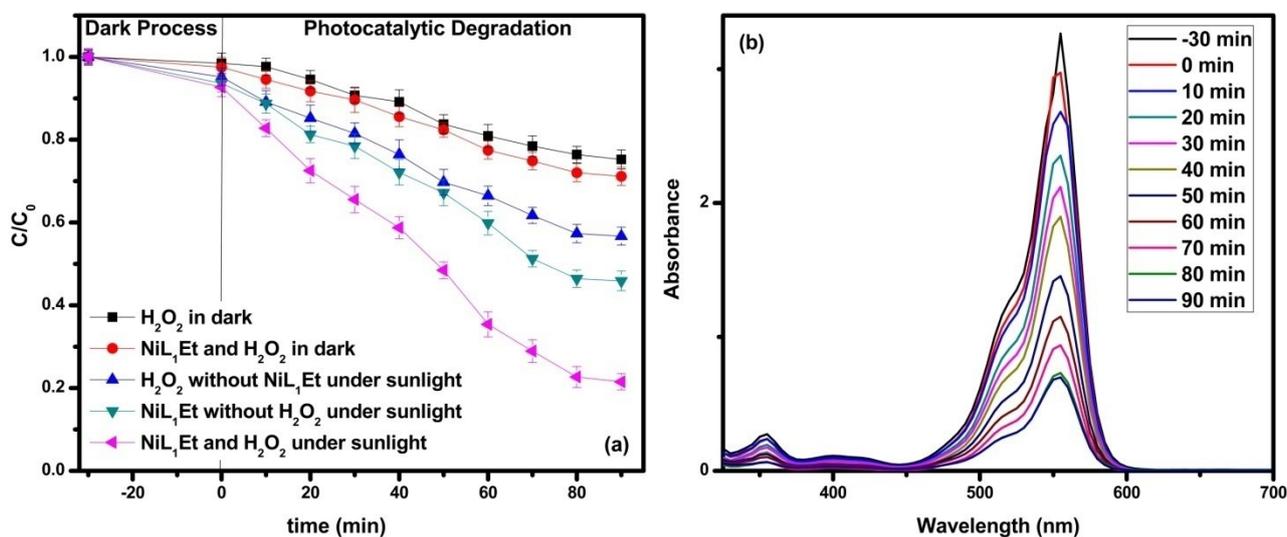


Fig. S10 (a) Plot of  $C/C_0$  vs. time of photodegradation of Rh B dye under different conditions (b) absorption spectra of photodegradation of Rh B in the presence of  $\text{NiL}_1\text{Et}$  under sunlight.

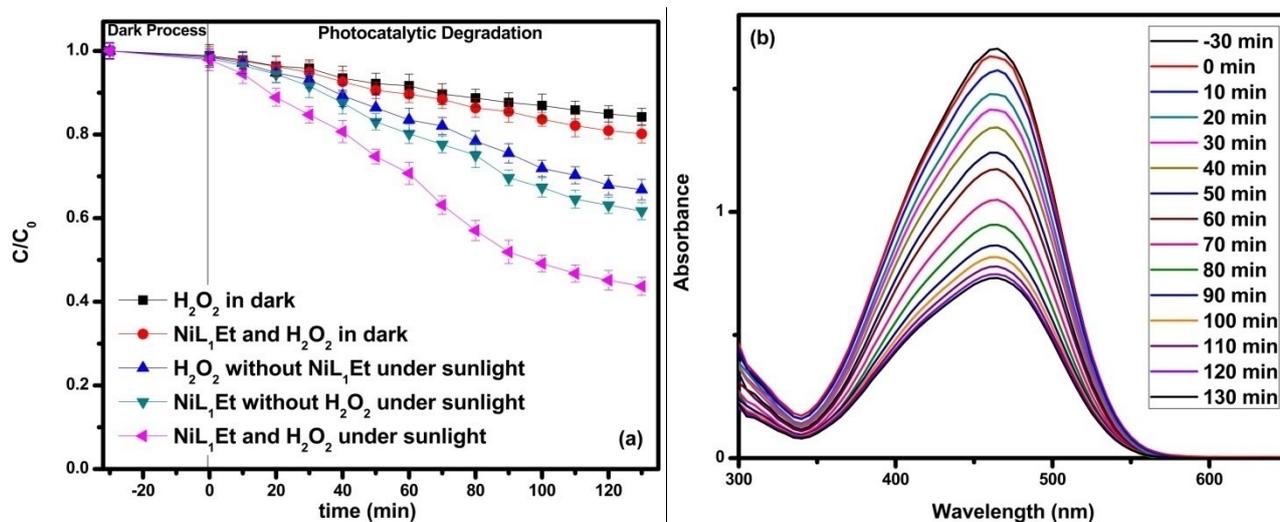


Fig. S11 (a) Plot of  $C/C_0$  vs. time of photodegradation of MO dye under different conditions (b) absorption spectra of photodegradation of MO in the presence of  $NiL_1Et$  under sunlight.

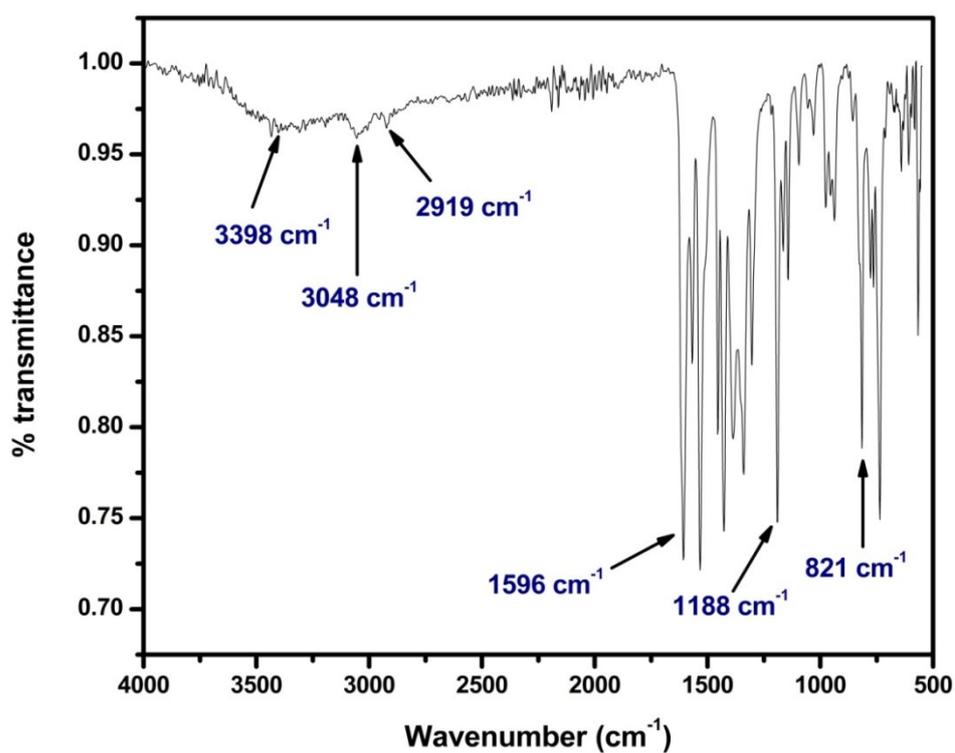


Fig. S12. FT-IR spectrum of the reused  $NiL_1Et$  catalyst recovered after fifth catalytic cycle.

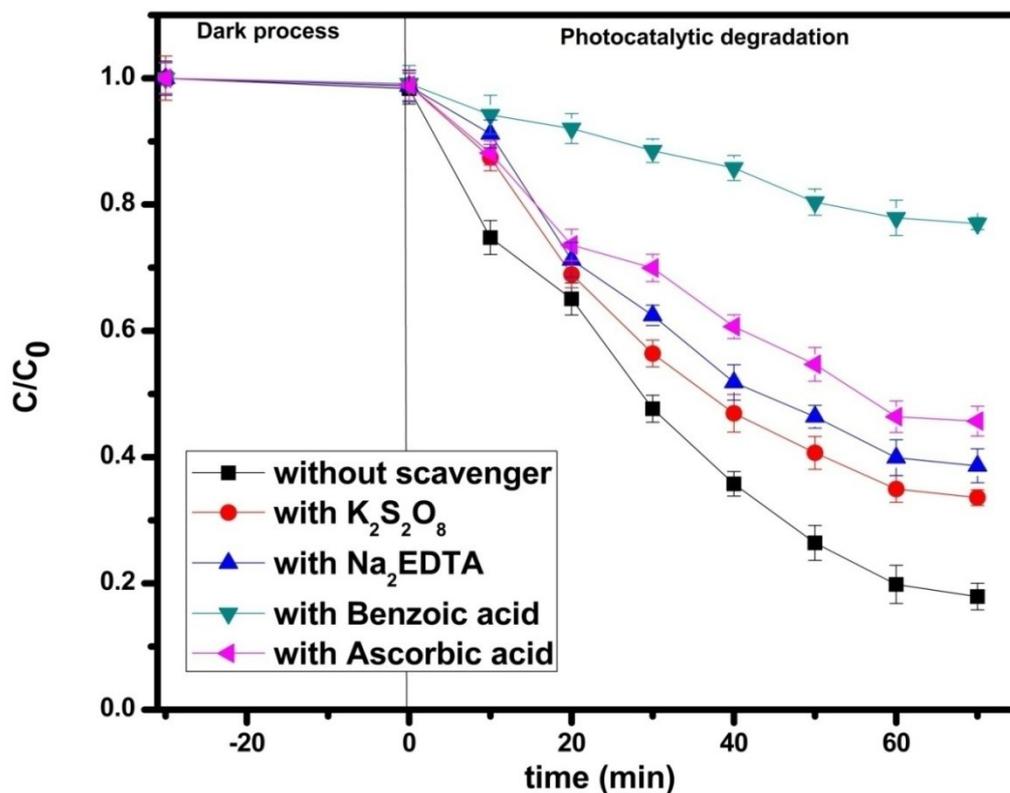


Fig. S13. Absorption spectra of photocatalytic degradation of MB using  $NiL_1Et$  as catalyst in presence of different scavengers.

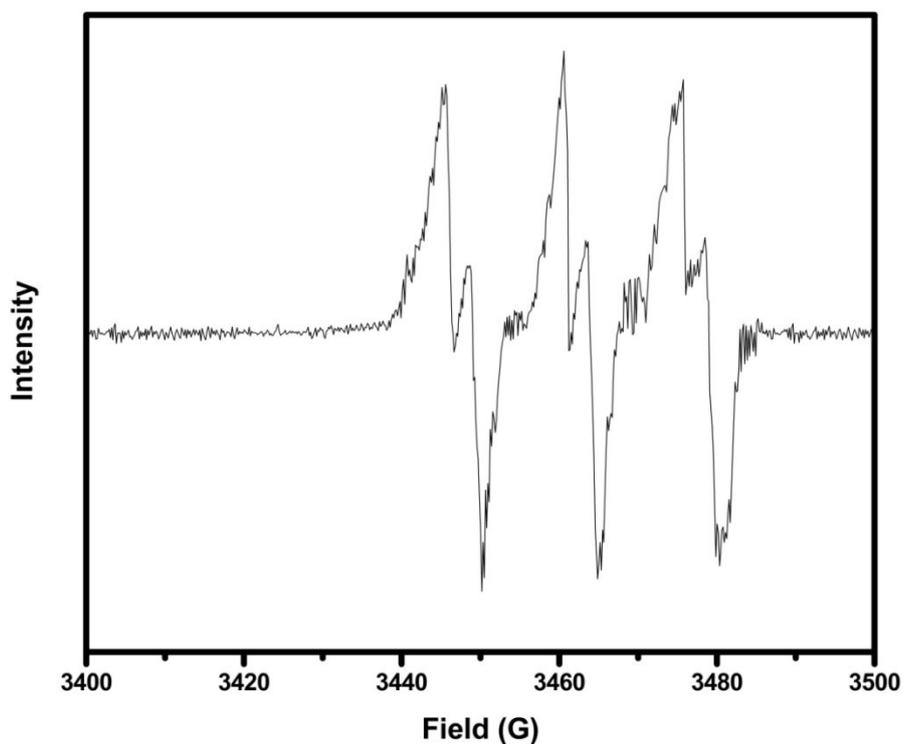


Fig. S14. The obtained ESR spectrum of PBN- $\bullet OH$  adduct formed between the hydroxyl radicals ( $\bullet OH$ ) produced using  $NiL_1Et$  and PBN.

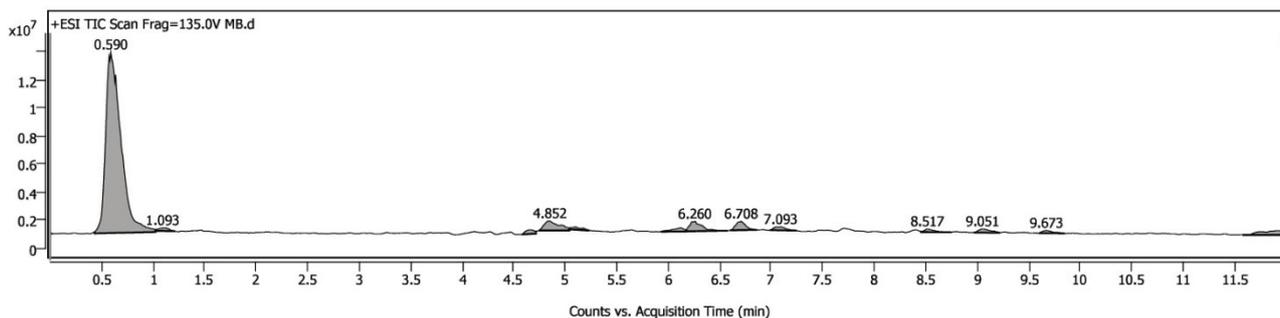


Fig. S15. Liquid chromatogram of MB degradation.

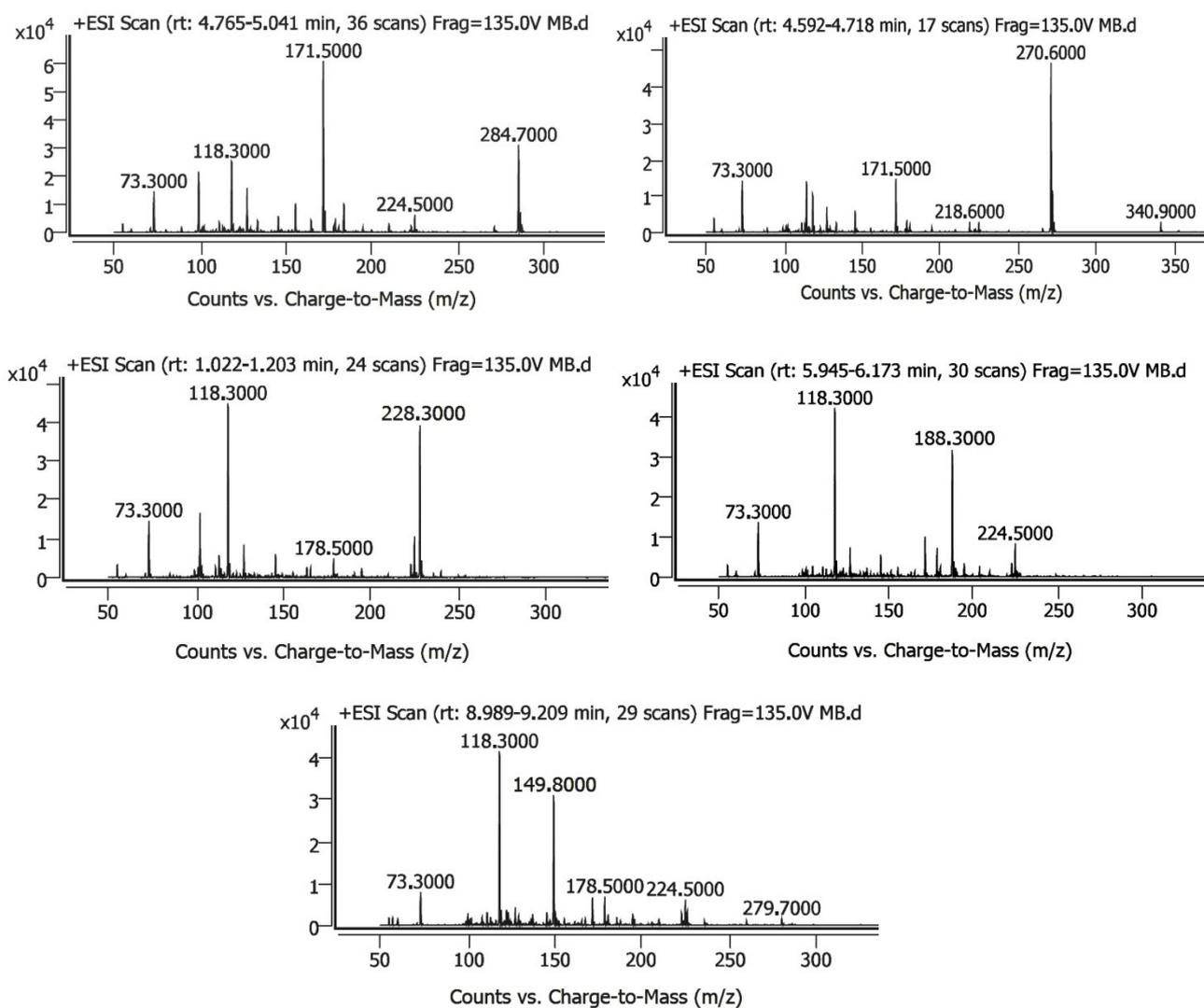


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