

# Synthesis, Structural, Optical, and Photocatalytic Studies of PbS Nanocrystals

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## Supplementary Materials

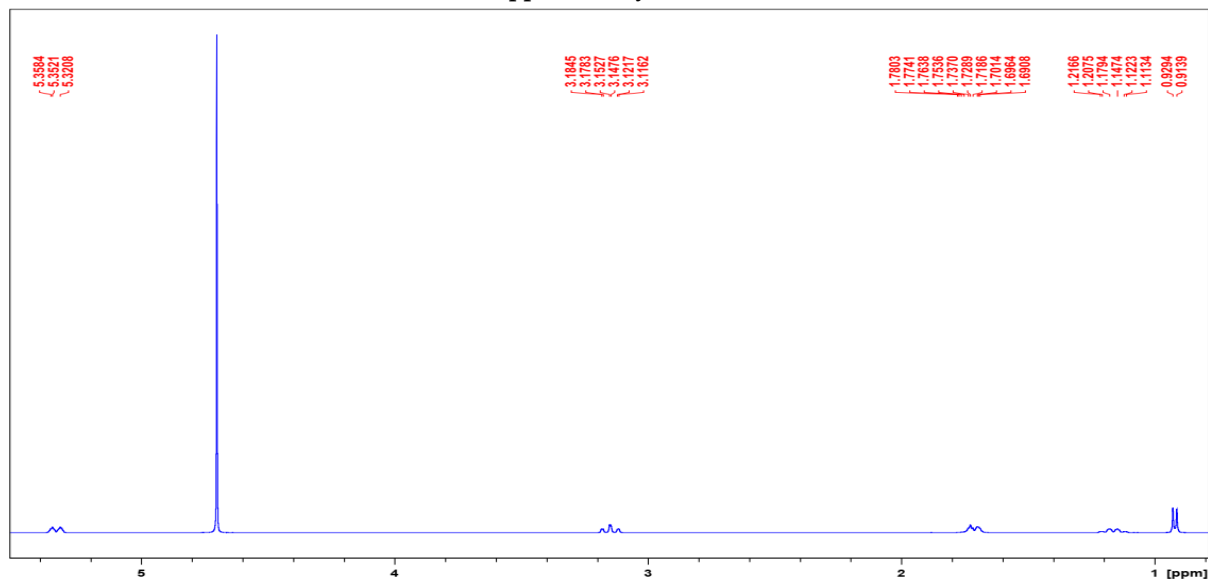


Figure S1. Proton NMR spectrum of 4-methylpiperidine dithiocarbamate

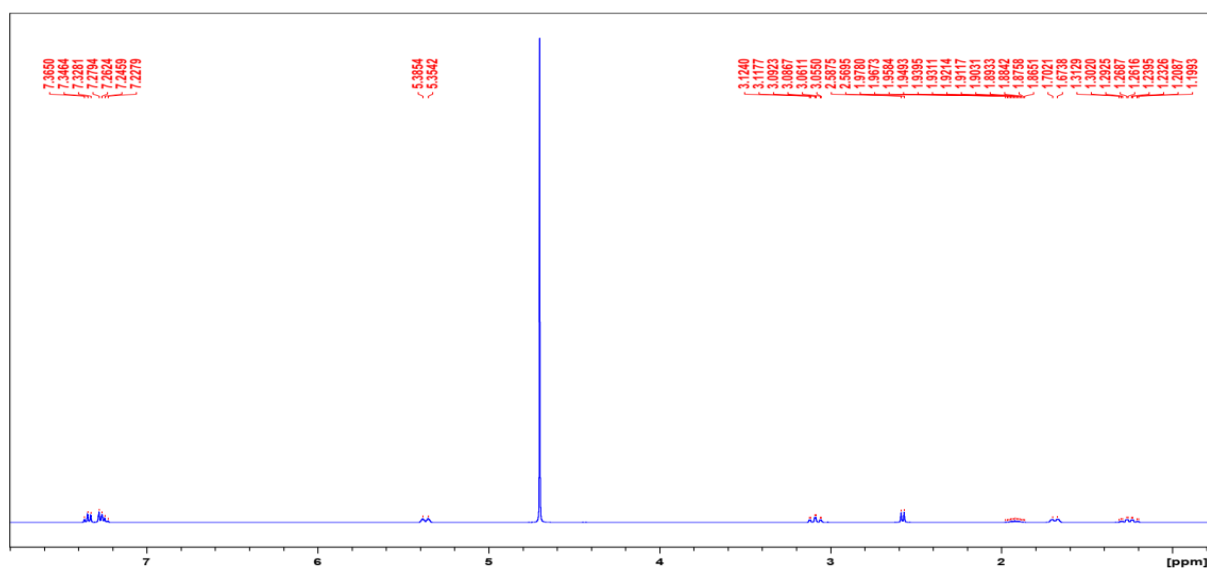
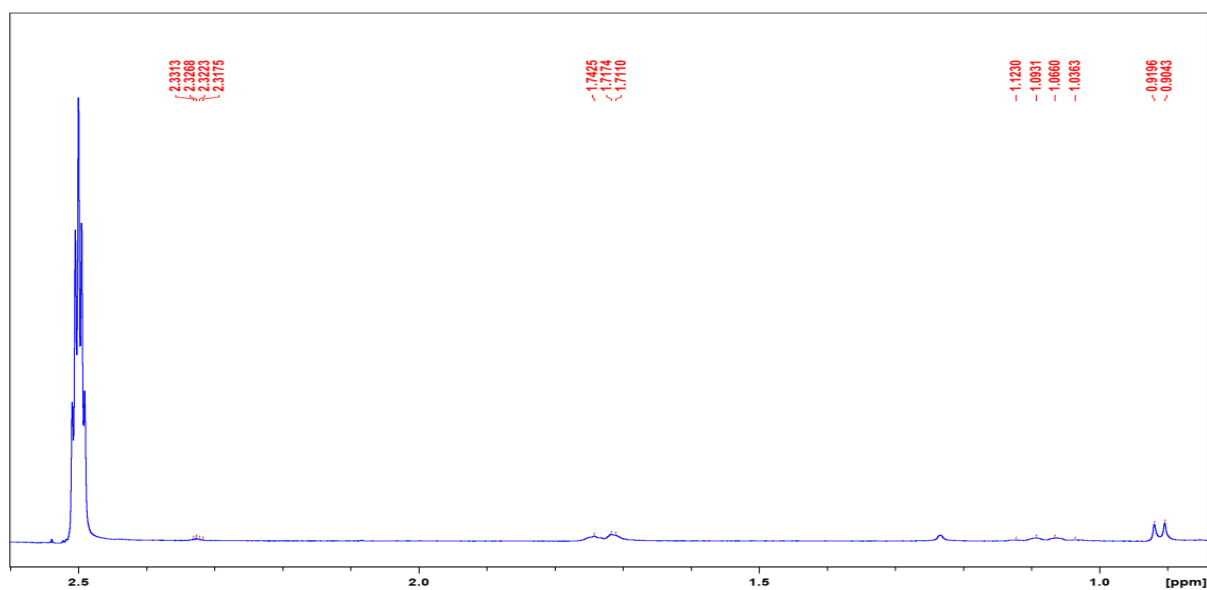
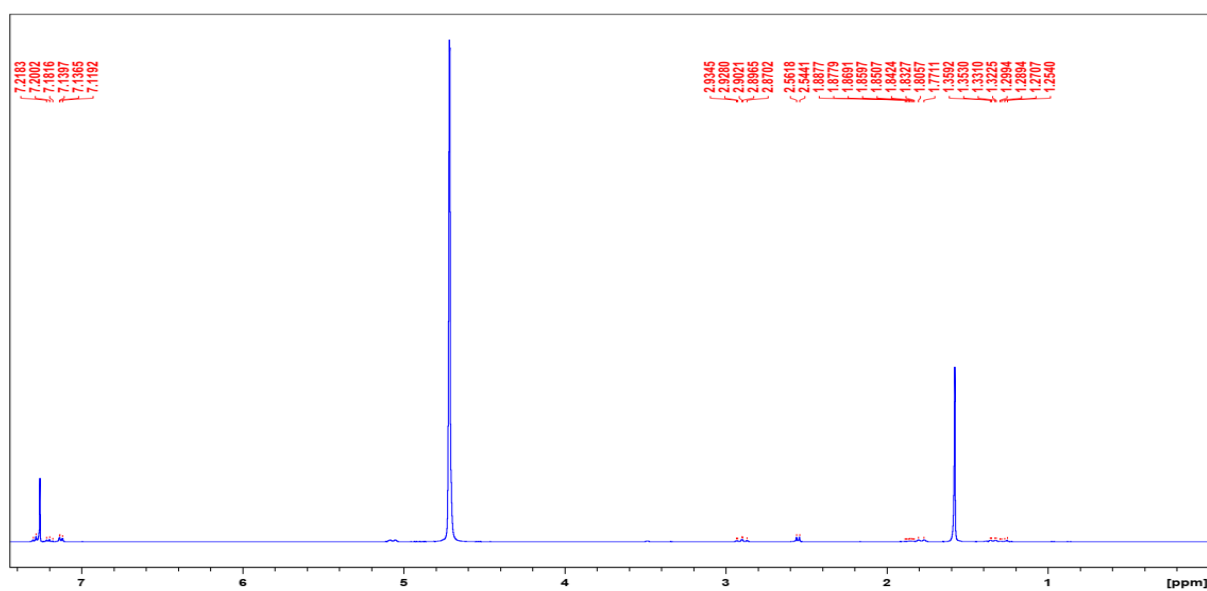


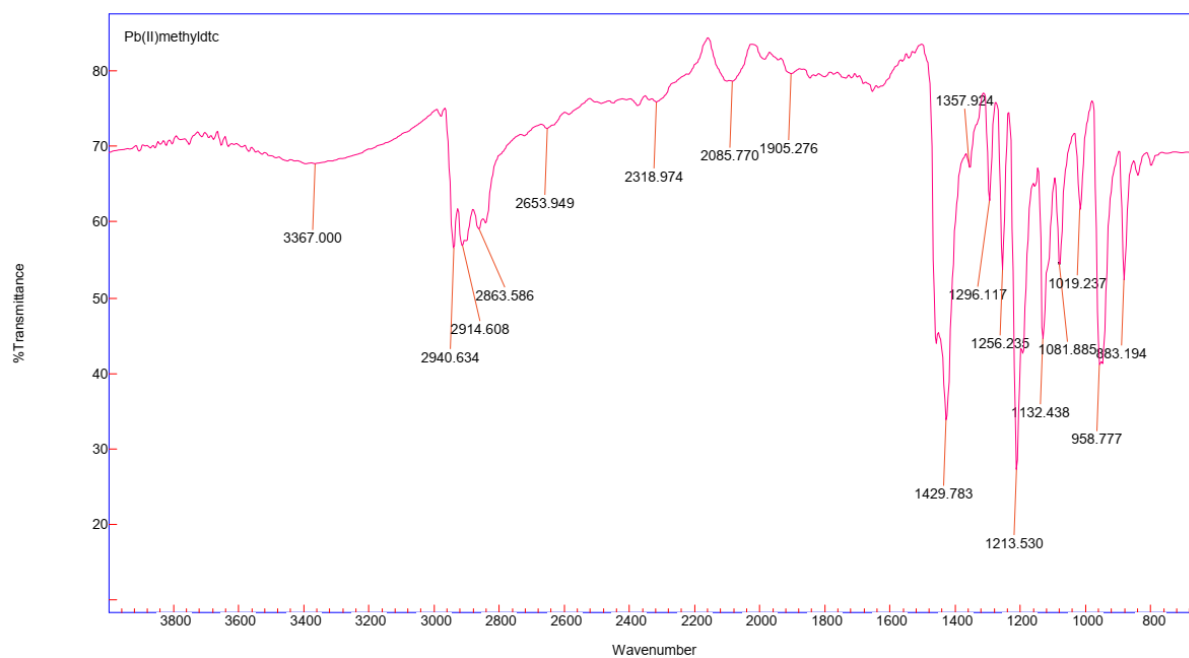
Figure S2. Proton NMR spectrum of 4-benzylpiperidine dithiocarbamate



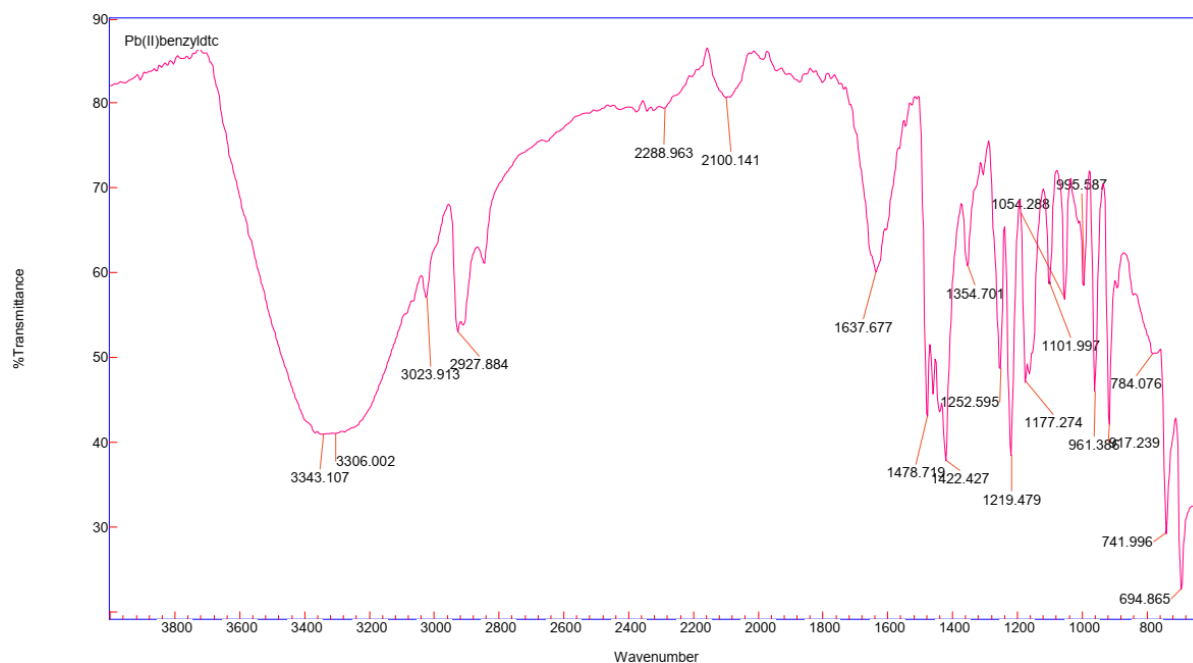
**Figure S3.** Proton NMR spectrum of bis(4-methylpiperidine-1-carbodithioato)-lead(II)



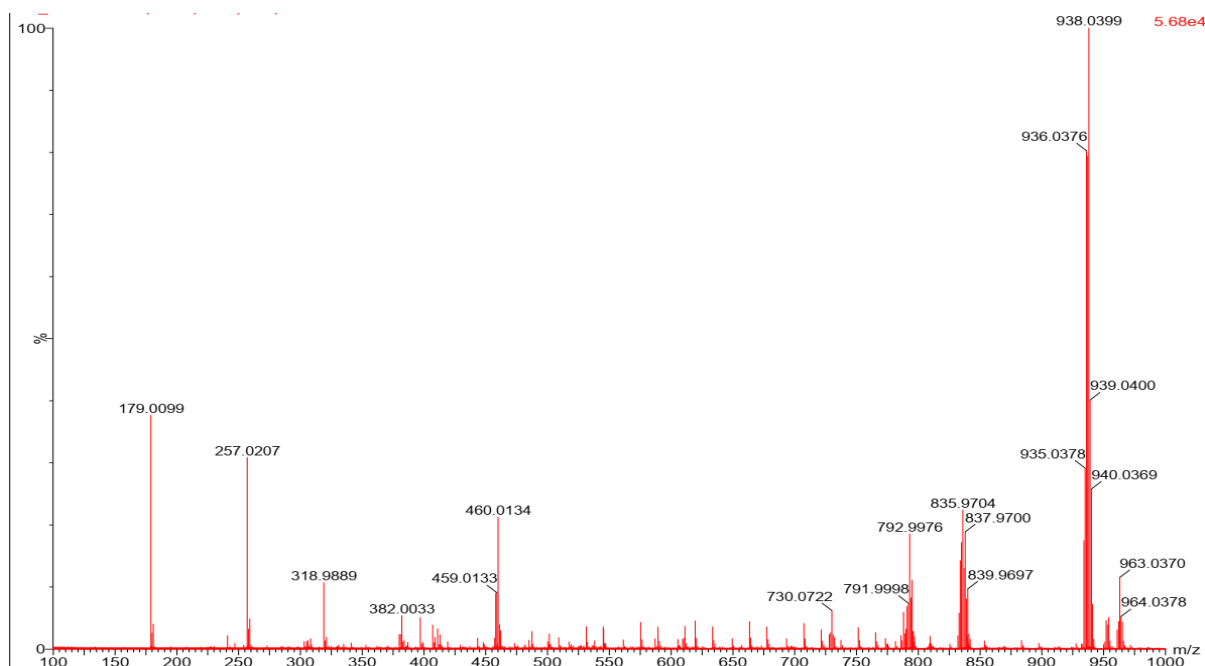
**Figure S4.** Proton NMR spectrum of bis(4-benzylpiperidine-1-carbodithioato)-lead(II)



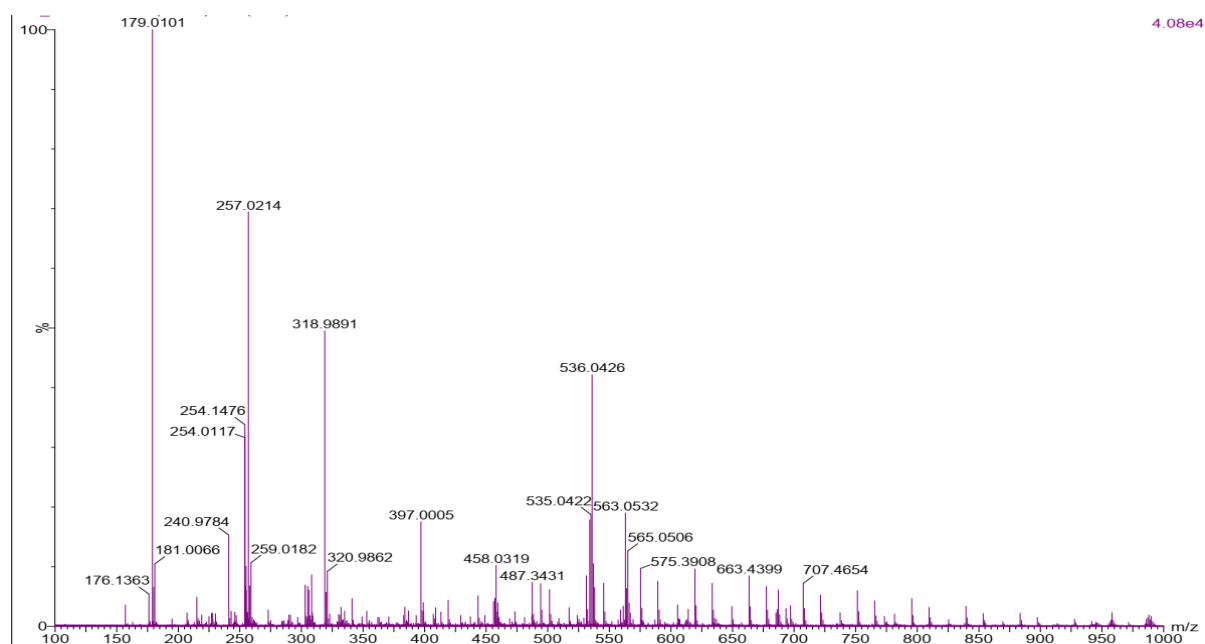
**Figure S5.** FTIR spectrum of bis(4-methylpiperidine-1-carbodithioato)-lead(II)



**Figure S6.** FTIR spectrum of bis(4-benzylpiperidine-1-carbodithioato)-lead(II)



**Figure S7.** ToF mass spectrum of bis(4-methylpiperidine-1-carbodithioato)-lead(II)



**Figure S8.** ToF mass spectrum of bis(4-benzylpiperidine-1-carbodithioato)-lead(II)

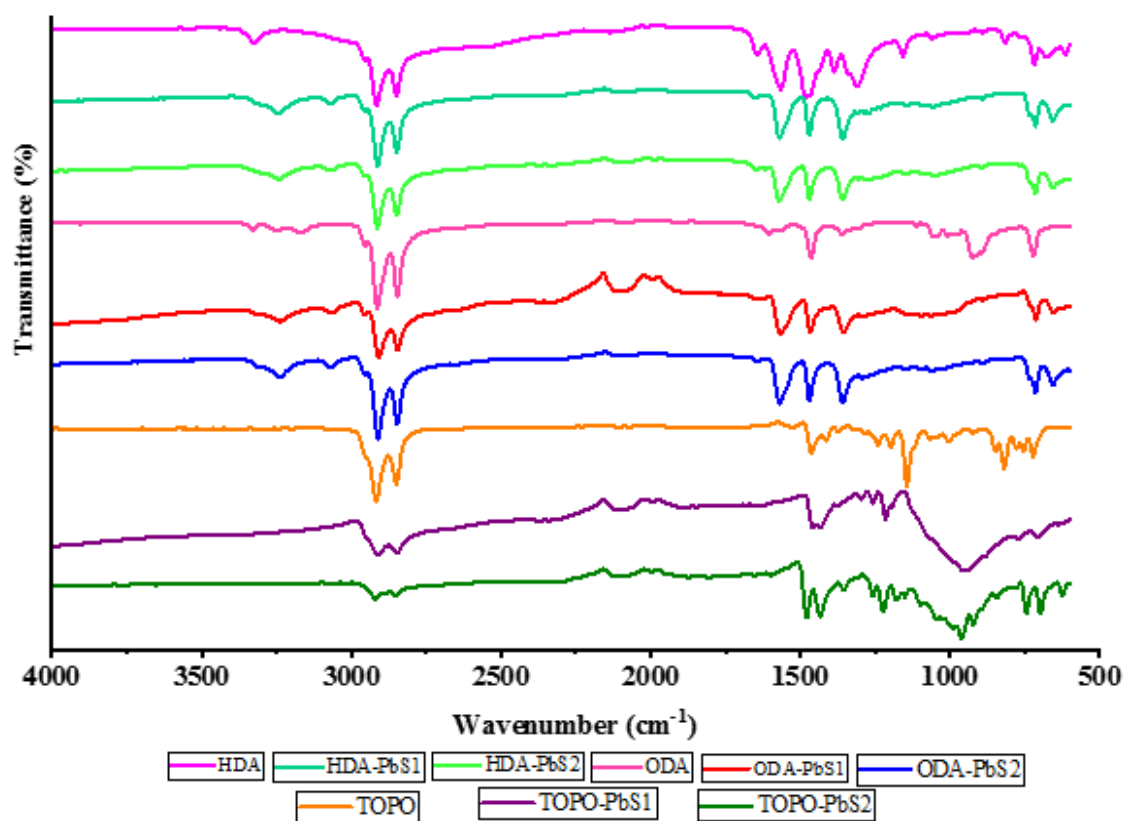


Figure S9. FTIR spectra of (HDA, ODA, and TOPO) capped as-prepared PbS nanoparticles

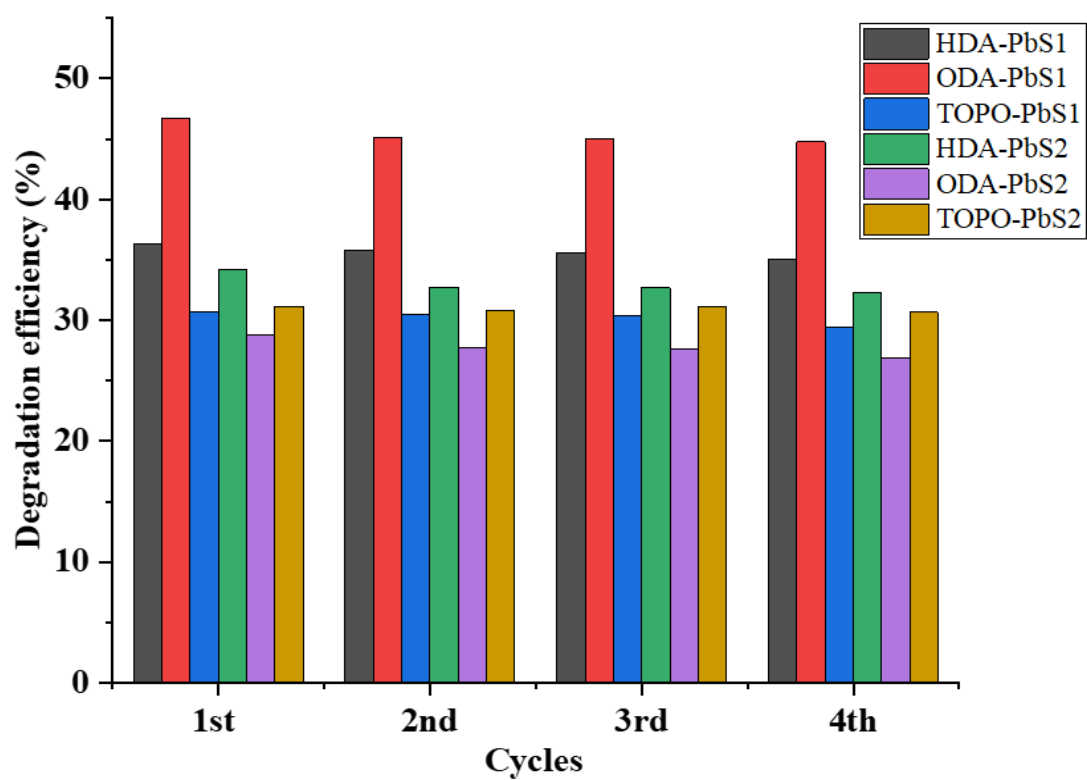


Figure S10. The reusability of PbS photocatalysts.

**Table S1.** Percentage (%) degradation for recyclability studies

	<b>HDA- PbS1</b>	<b>ODA- PbS1</b>	<b>TOPO- PbS1</b>	<b>HDA- PbS2</b>	<b>ODA- PbS2</b>	<b>TOPO- PbS2</b>
<b>1st</b>	36.28	46.71	30.71	34.22	28.70	31.17
<b>2nd</b>	35.84	45.08	30.49	32.76	27.75	30.83
<b>3rd</b>	35.57	45.06	30.34	32.71	27.64	31.09
<b>4th</b>	35.08	44.78	29.44	32.31	26.86	30.66
<b>% Change 1<sup>st</sup> &amp; 4th</b>	1.20	1.93	1.27	1.91	1.84	0.51