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ZnAl-LDH/MOF-5 heterostructure nanocomposite for photocatalytic degradation of organic dye under sunlight irradiation

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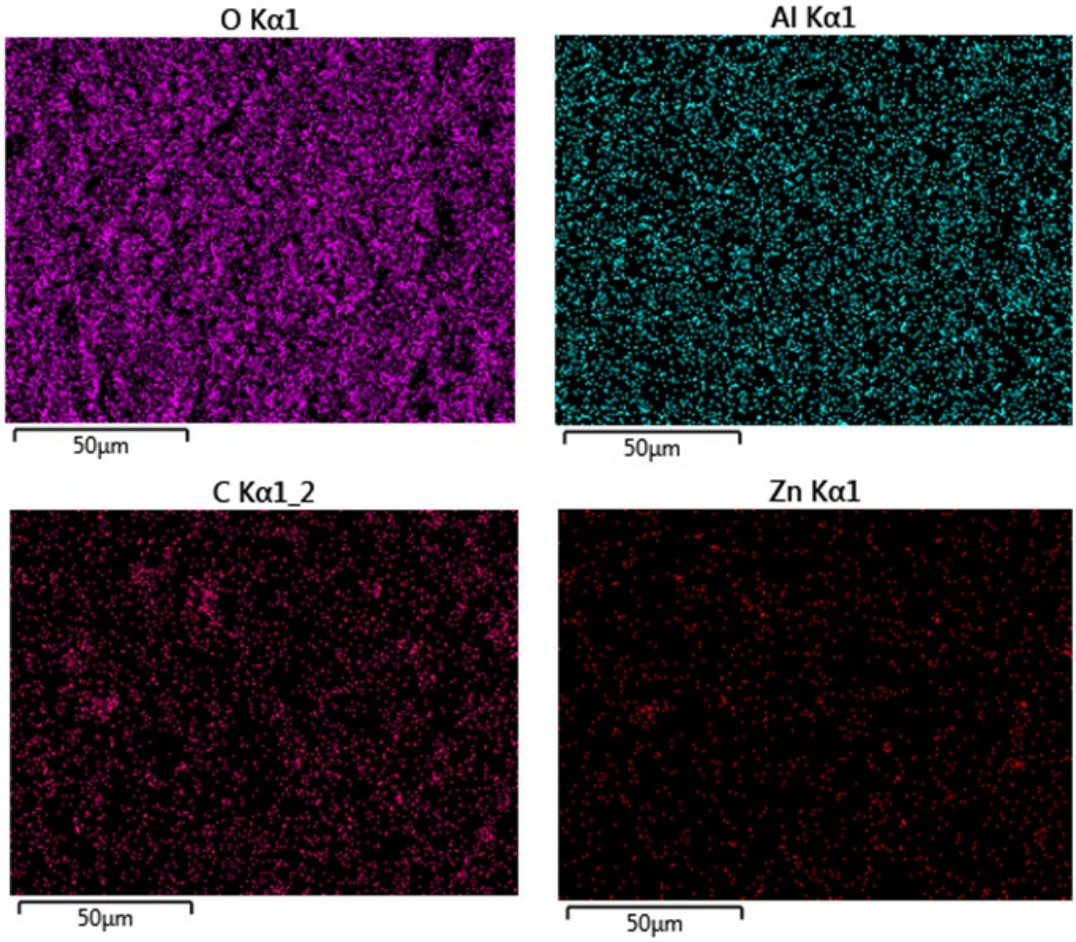

Fig. S1. Energy Dispersive X-Ray Spectroscopy (EDS) elemental mapping analysis of ZnAl-LDH/MOF-5 nanocomposite.

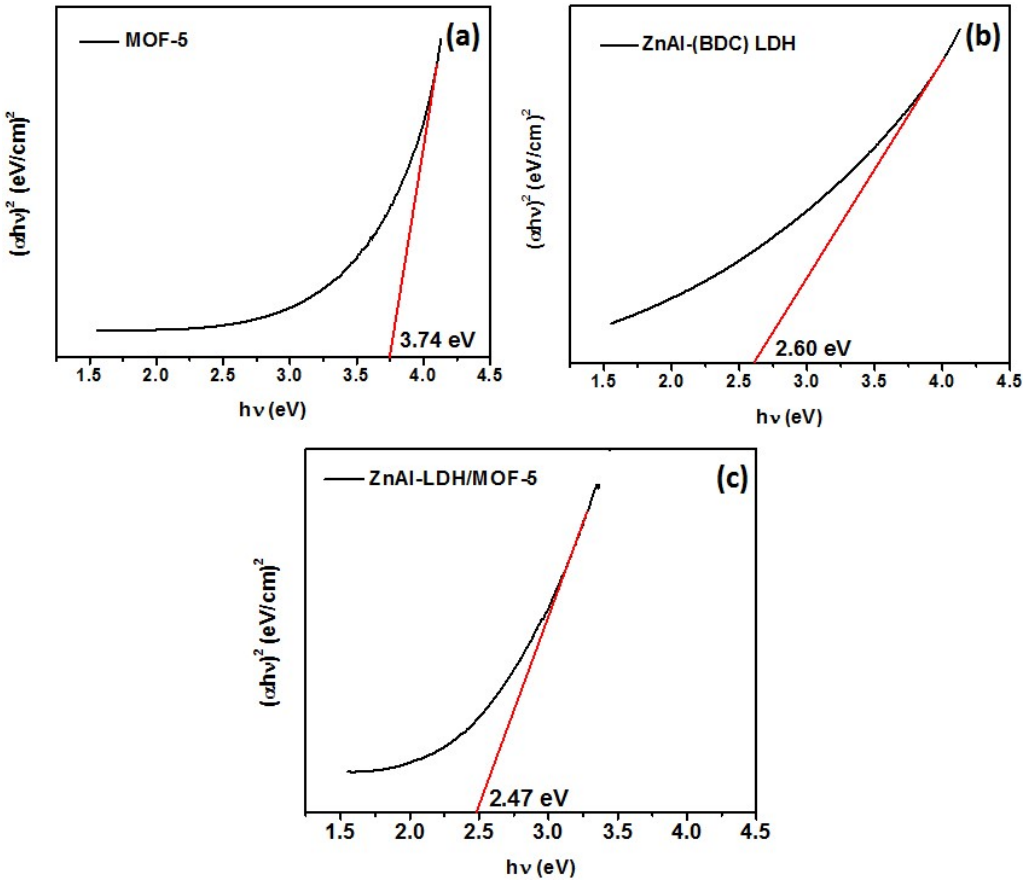

Fig. S2. Band gap values calculated for (a) MOF-5, (b) ZnAl-(BDC) LDH, (c) ZnAl-LDH/MOF-5 nanocomposite.

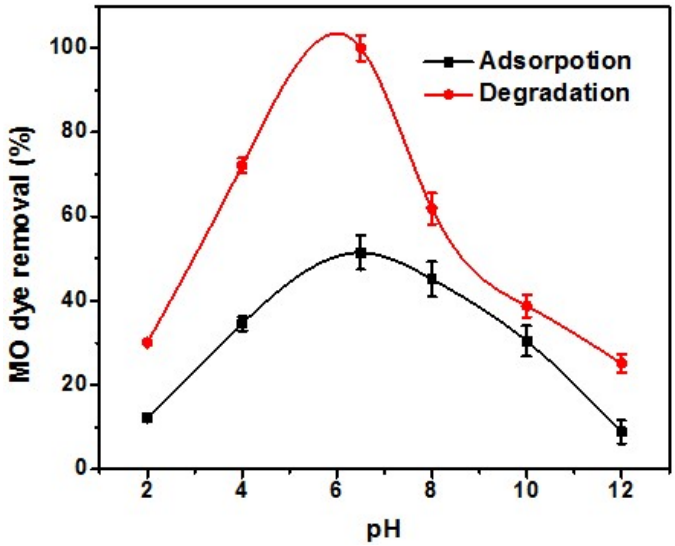

Fig. S3. Effect of pH on adsorption and degradation processes of methyl orange (MO) dye in presence of ZnAl-LDH/MOF-5 nanocomposite.

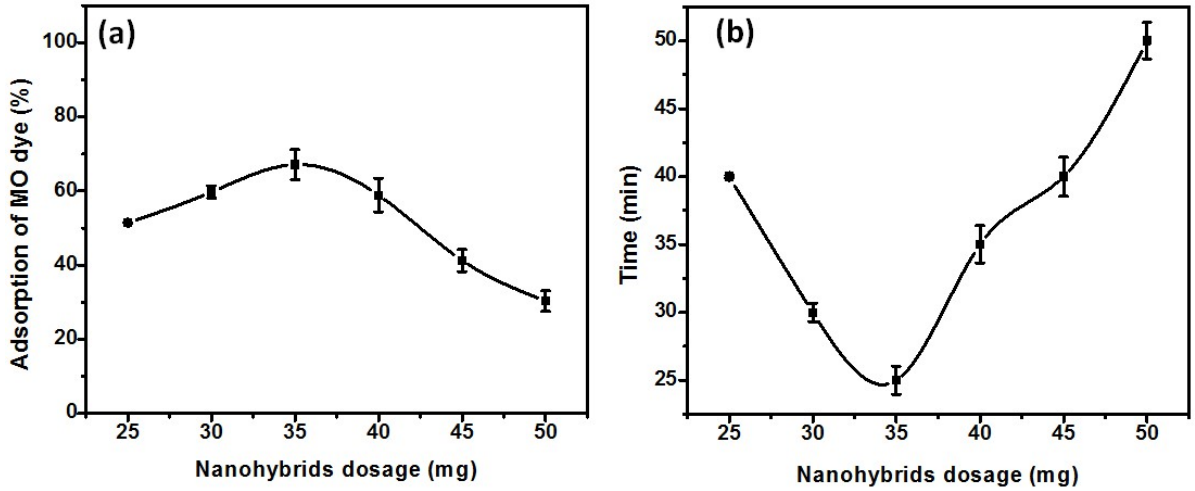

Fig. S4. Effect of nanocomposite dosage on (a) adsorption and (b) degradation processes of methyl orange (MO) dye in presence of ZnAl-LDH/MOF-5 nanocomposite.

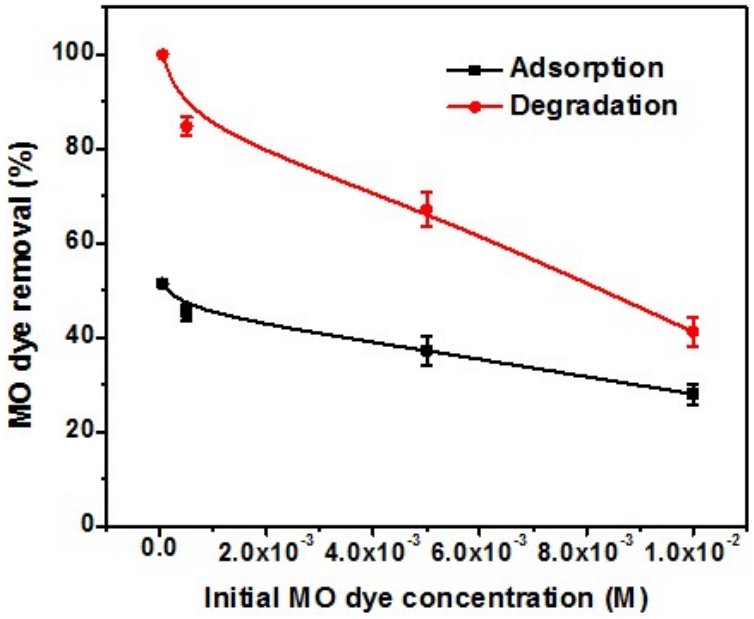

Fig. S5. Effect of initial concentration of methyl orange (MO) dye on adsorption and degradation processes in presence of ZnAl-LDH/MOF-5 nanocomposite.

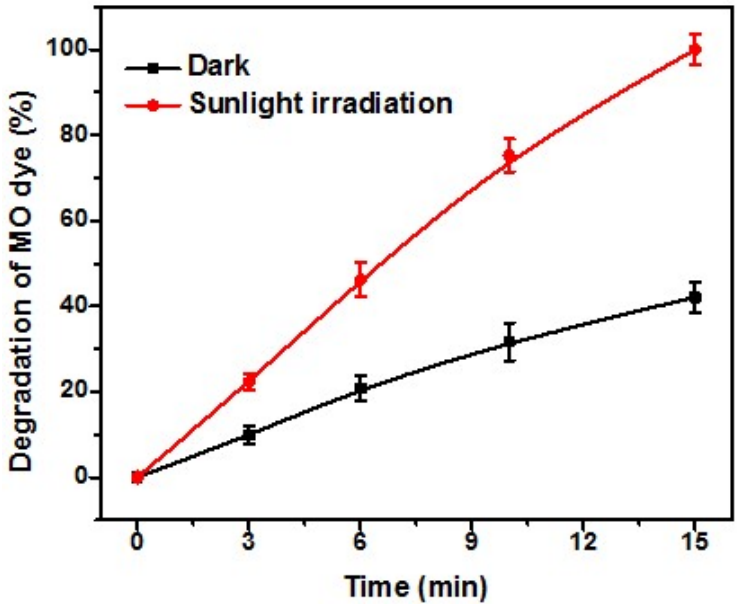

Fig. S6. Catalytic methyl orange **(**MO) dye degradation efficiencies of ZnAl-LDH/MOF-5 nanocomposite in dark and under solar irradiation in presence of H_2O_2.

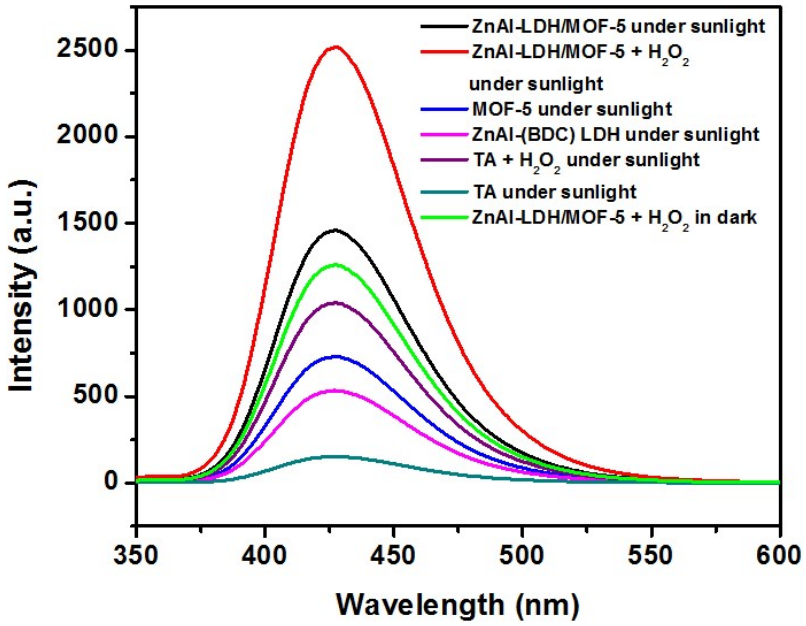

Fig. S7. Fluorescence emission spectra of 2-hydroxy-terephthalate, produced during catalysis. (Reaction condition- DST: 0.5 (mM), Catalyst: 100 mgL^{-1}, H_2O_2: 0.1 (M), Excitation wavelength: 315 nm).

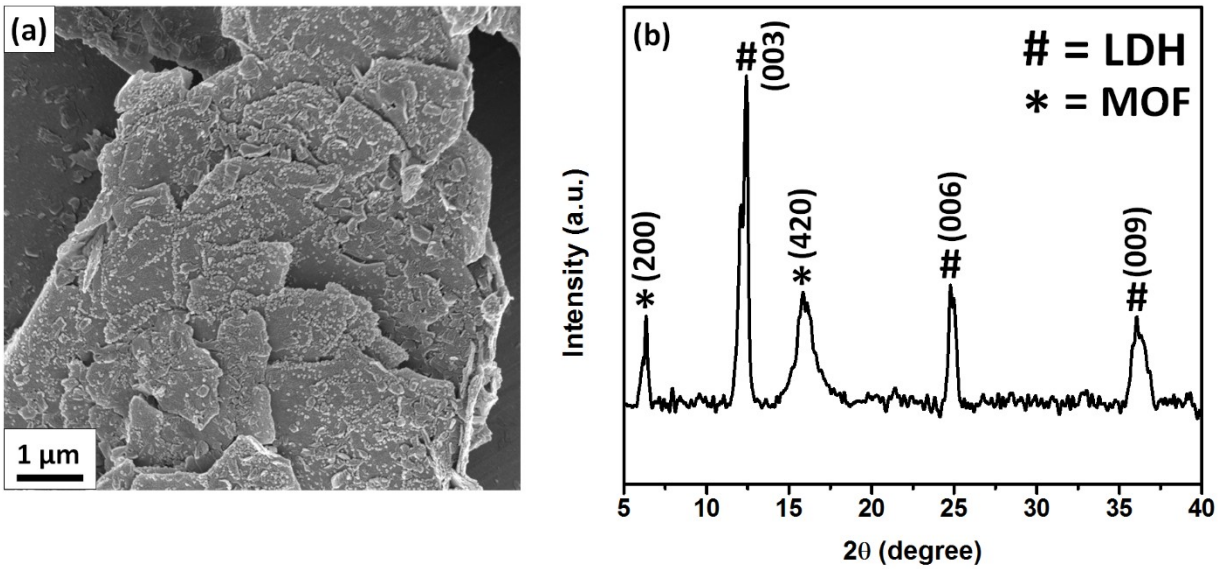

Fig. S8. Post-catalytic FESEM image (a) and PXRD pattern (b) of ZnAl-LDH/MOF-5 nanocomposite.