Supporting Information

A benevolent direction to environmental suitability: Ionic liquid immobilized MoO_3 nanoparticles as efficient visible-light-driven photocatalytic degradation of antibiotics

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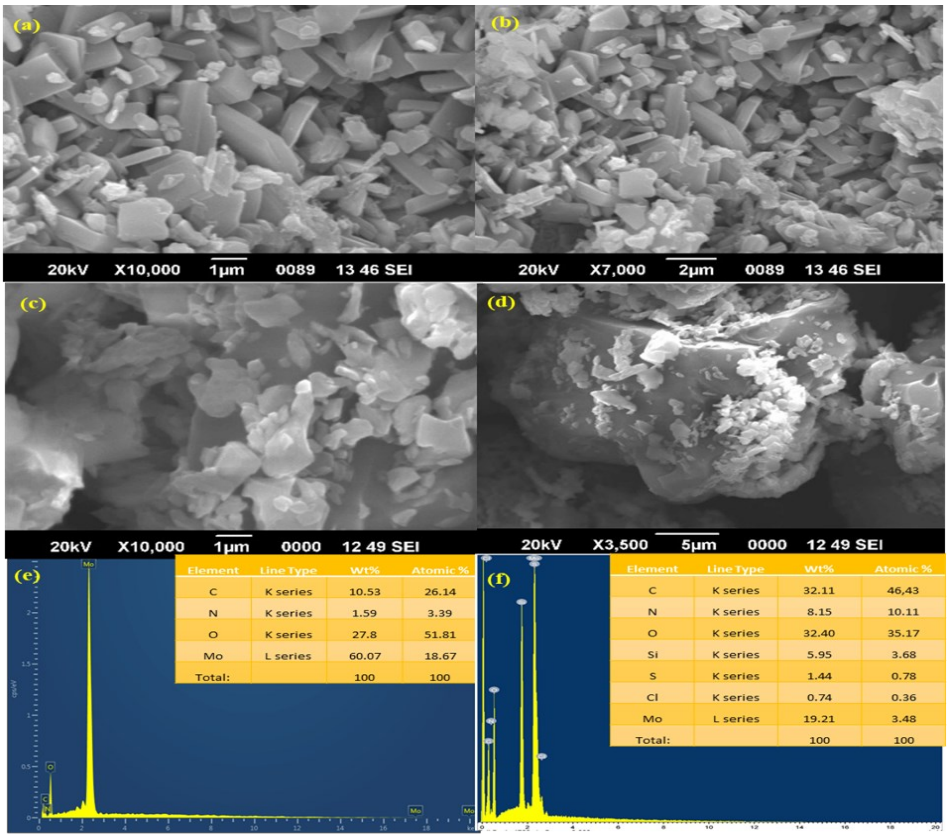
Materials and Physical measurements

All the chemical reagents were of analytical grade and used as received without further purification. Ammonium heptamolybdate, imidazole and other chemicals were purchased from Sigma Aldrich Co. Double distilled water was used for preparation of all solutions. FT-IR spectrum was recorded on KBr pellets with Bruker 3000 Hyperion Microscope with Vertex 80 FT-IR system. XRD measurements were carried out on a Phillips X'pert Pro Multi purpose diffractometer (MPD) with Cu-Ka radiation (λ= 1.5418 Å) with a scan speed of 2° min^{-1}. Transmission electron microscopy images were obtained on a JEOL, JEM2100 equipment. The sample powders were dispersed in ethanol under sonication and TEM grids were prepared using a few drops of the dispersion followed by drying in air. Field emission scanning electron microscope (FESEM) images and EDX were acquired with a JEOL JSM-7600F FEG-SEM field emission scanning electron microscope. UV DRS measurements were carried out using the equipment JASCO UV, Model V-750. XPS patterns were recorded with PHI 5000 Versa Probe II, FEI Inc. Photoluminescence spectra was recorded using Hitachi Model no F-4600 Fluorescence spectrometer. The UV-Visible absorption spectra were measured with UV-Vis double beam spectrophotometer, Model TS2080Plus.



Catalyst characterization

Fig. S1 (a, b) SEM images of MoO_3 NP (c, d) SEM images of MoO_3 –IL (e) EDX spectrum of synthesized MoO_3 NP (f) MoO_3-IL.

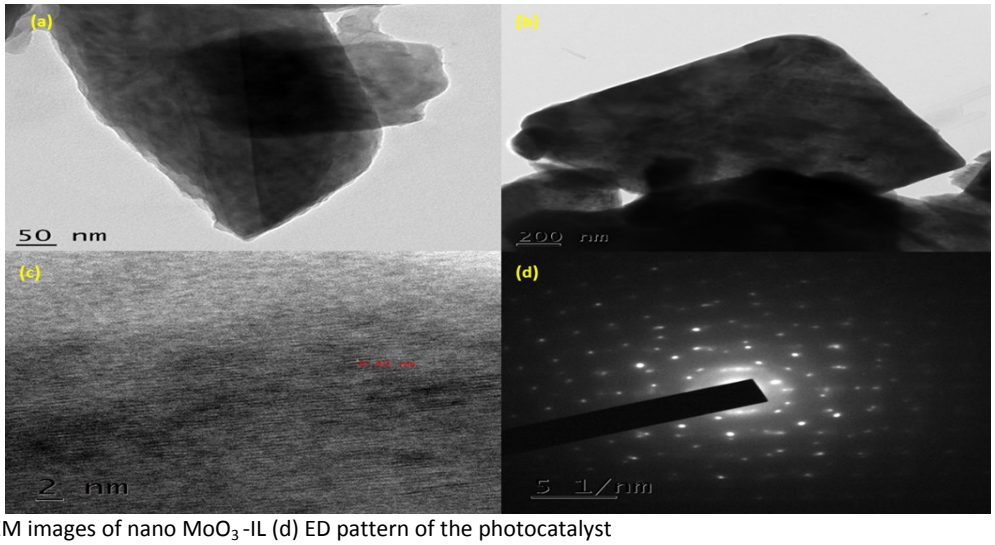


Fig. S2 (a, b, c) TEM images of nano MoO_3 -IL (d) ED pattern of the photocatalyst

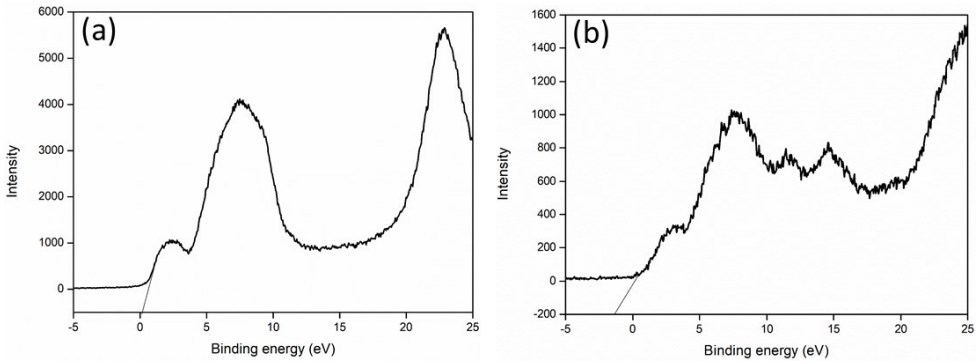


Fig. S3 Valence band XPS spectra of (a) MoO_3 NP and (b) MoO_3 IL

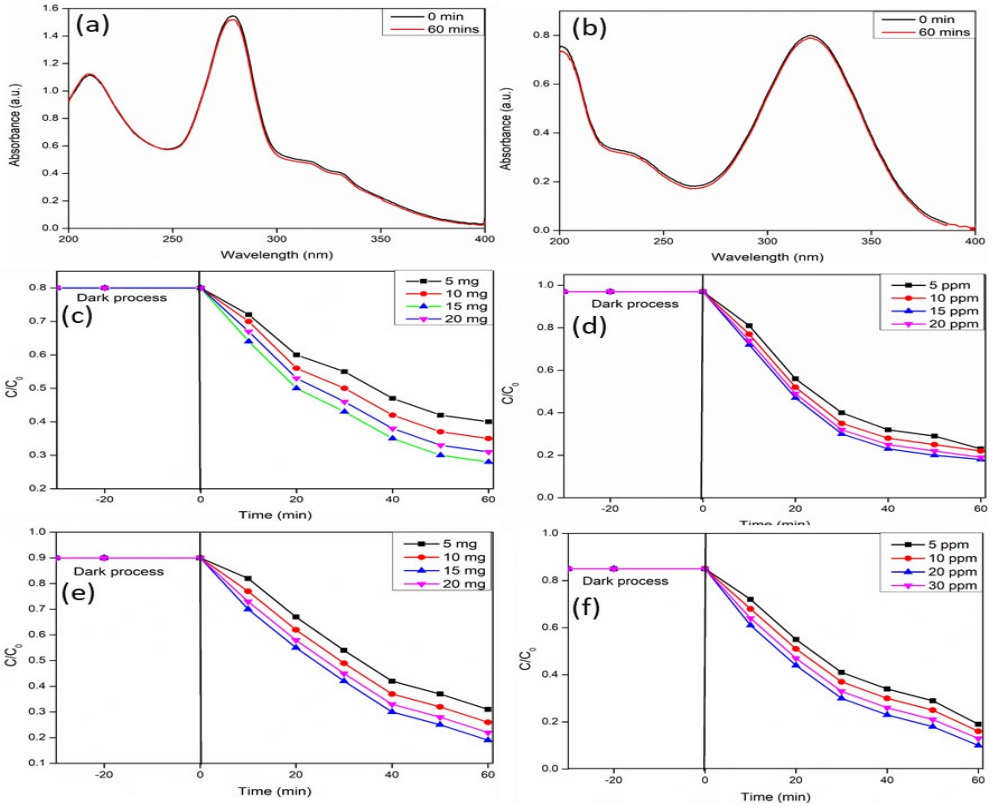
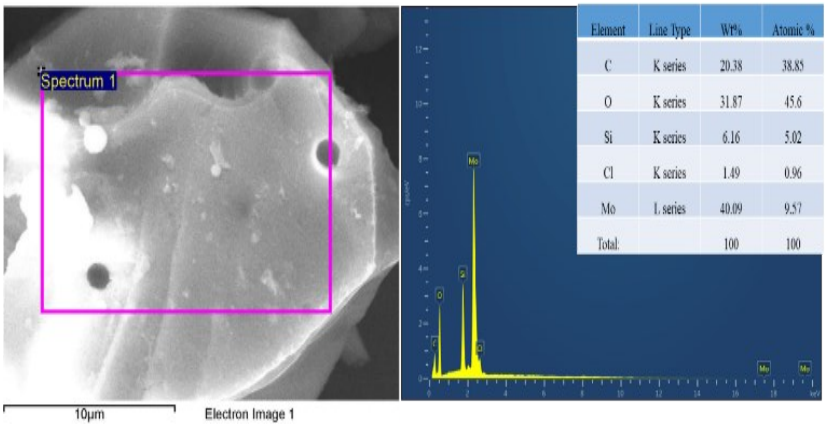


Fig. S4 (a) Photocatalytic degradation of ciprofloxacin by MoO_3 NP (b) Photocatalytic degradation of metroindazole by MoO_3 NP (c, d) Profiles of ciprofloxacin degradation (e, f) Profiles of metroindazole degradation



Element	Line Type	Wt%	Atomic %
C	K series	20.38	38.85
O	K series	31.87	45.6
Si	K series	6.16	5.02
Cl	K series	1.49	0.96
Mo	L series	40.09	9.57
Total:		100	100

Fig. S5 SEM-EDAX images of the used catalyst