Frontiers of Materials Science

Electronic Supplementary Material

Fabrication of alginate-derived MoS_2@C photocatalyst with enhanced visible light activity for tetracycline degradation

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Characterization

Scanning electron microscopy (SEM; JSM-7800F) and transmission electron microscopy (TEM; JEOL JEM-F200, Japan) were applied to investigate microscopic morphologies of prepared materials. Elemental contents of samples were measured using energy dispersive X-ray spectroscopy (EDS; X-Max 50, UK). Crystalline phases were revealed through X-ray diffraction (XRD; Rigaku Ultima IV, Japan). Chemical elemental compositions and valence states of samples were analyzed via X-ray photoelectron spectroscopy (XPS; Thermo Scientific K-Alpha, American). N_2 adsorption–desorption isotherms were used to analyze specific surface areas (SSAs) of samples via the Brunauer–Emmett–Teller (BET) method. Photoluminescence (PL) spectroscopy was performed on the Edinburgh FLS980 (UK). Ultraviolet–visible (UV–Vis) diffuse reflectance spectroscopy (DRS; Hitachi U4150, Japan) was performed to analyze the light absorption of samples. Concentrations of metal ions leached from synthesized samples were determined using inductively coupled plasma-mass spectrometry (ICP-MS; Optima 8000, USA).

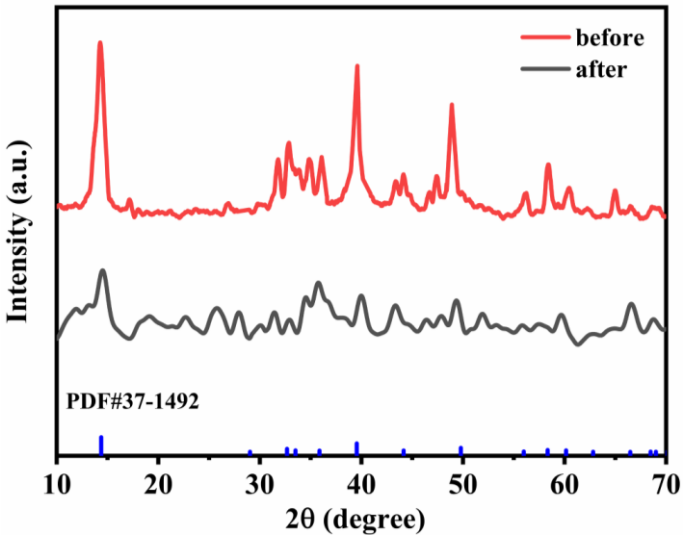

Fig. S1 XRD patterns of MoS_2@C-800 before and after the photocatalytic reaction.

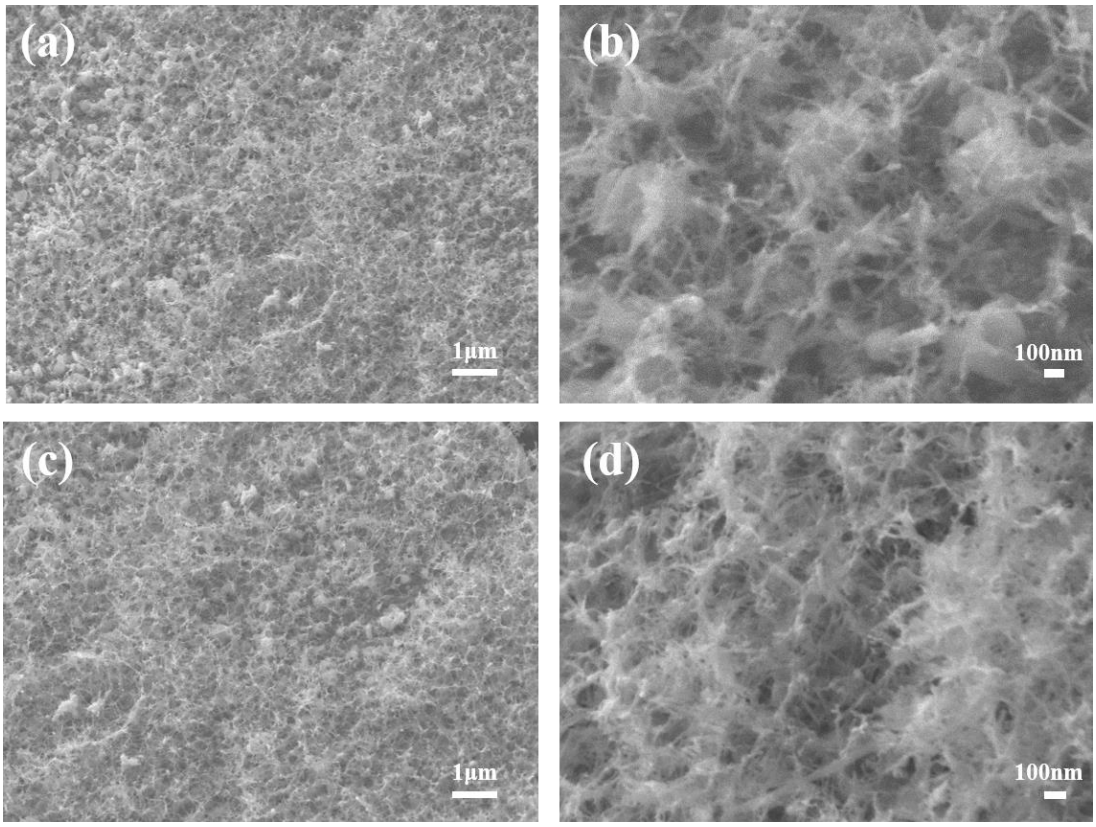

Fig. S2 SEM images of MoS_2@C-800 **(a)(b)** before and **(c)(d)** after the photocatalytic reaction.

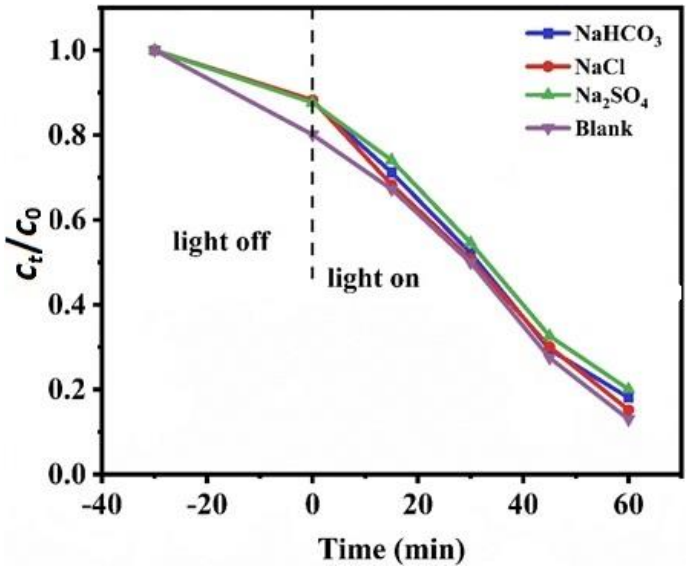

Fig. S3 Influence of inorganic salts on the TC degradation process in the presence of MoS_2@C-800.