

Supporting Information for

Self-assembled three-dimensional flowerlike $\text{Mn}_{0.8}\text{Cd}_{0.2}\text{S}$ microspheres as efficient visible-light-driven photocatalysts for H_2 evolution and CO_2 reduction

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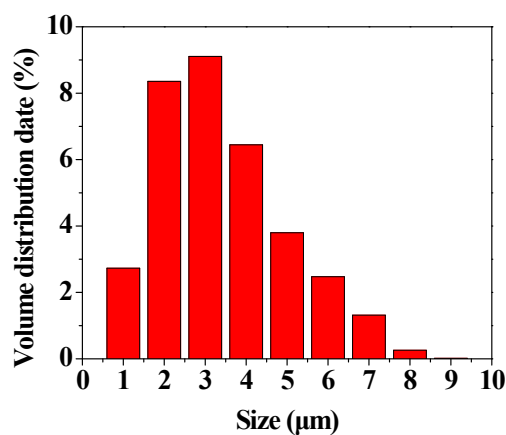


Fig. S1 Particle size distribution histogram of MCS-F

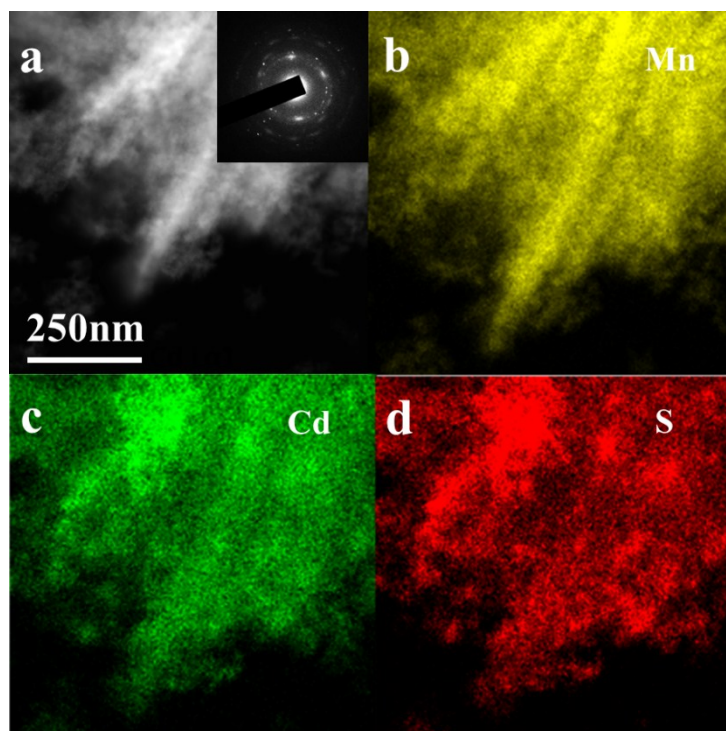


Fig. S2 (a) HAADF-STEM, (b-d) elemental mapping images and SAED pattern (inset) of the single petal of MCS-F

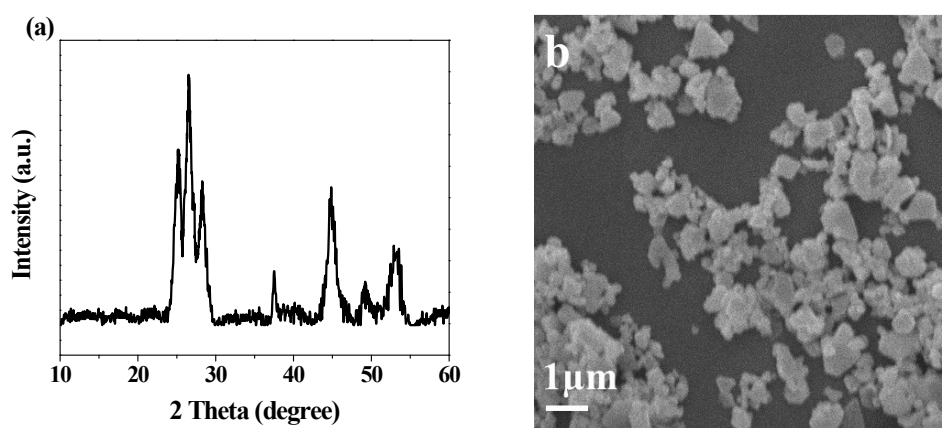


Fig. S3 (a) XRD pattern and (b) SEM image of MCS-P

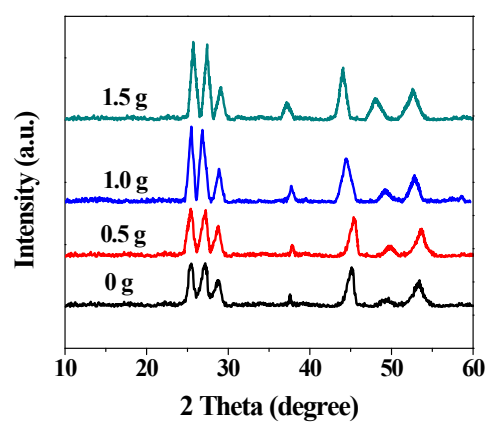


Fig. S4 XRD patterns of the $\text{Mn}_{0.8}\text{Cd}_{0.2}\text{S}$ products synthesized with different amount of PVP

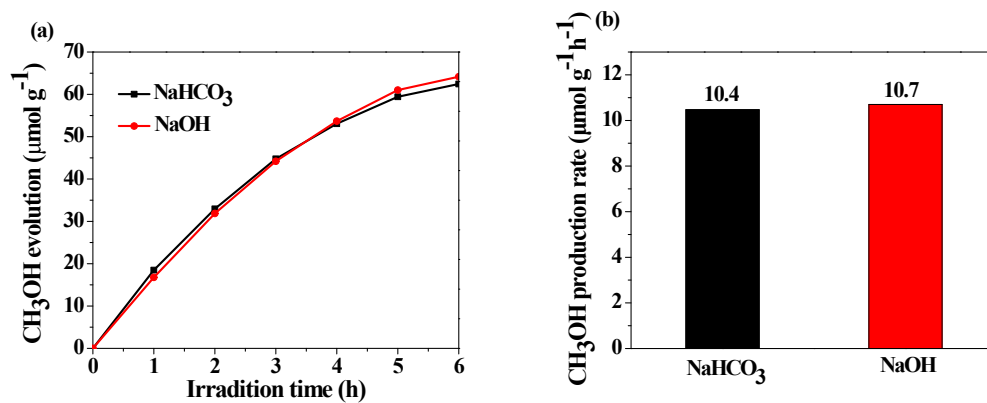


Fig. S5 Comparison of CH_3OH production rate in different solution media

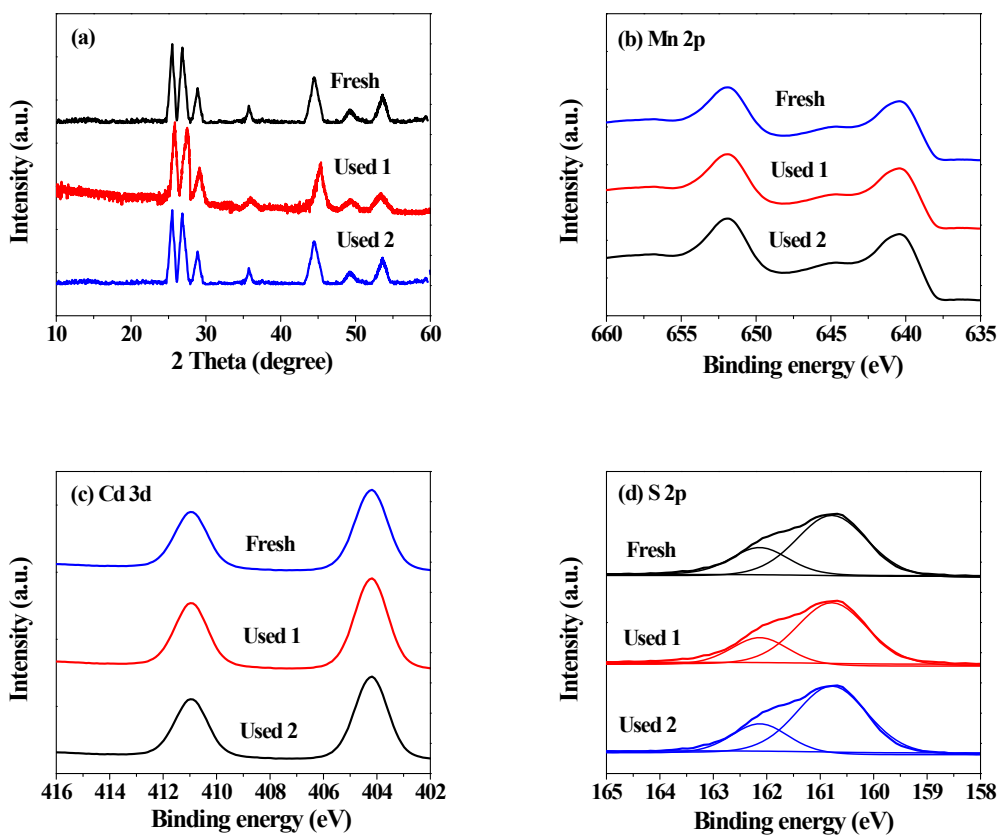


Fig. S6 (a) XRD patterns and (b-d) XPS spectra of the flowerlike Mn_{0.8}Cd_{0.2}S

before and after the photocatalytic reactions

(Used 1-after photocatalytic H₂-production; Used 2-after photocatalytic reduction of

CO₂)

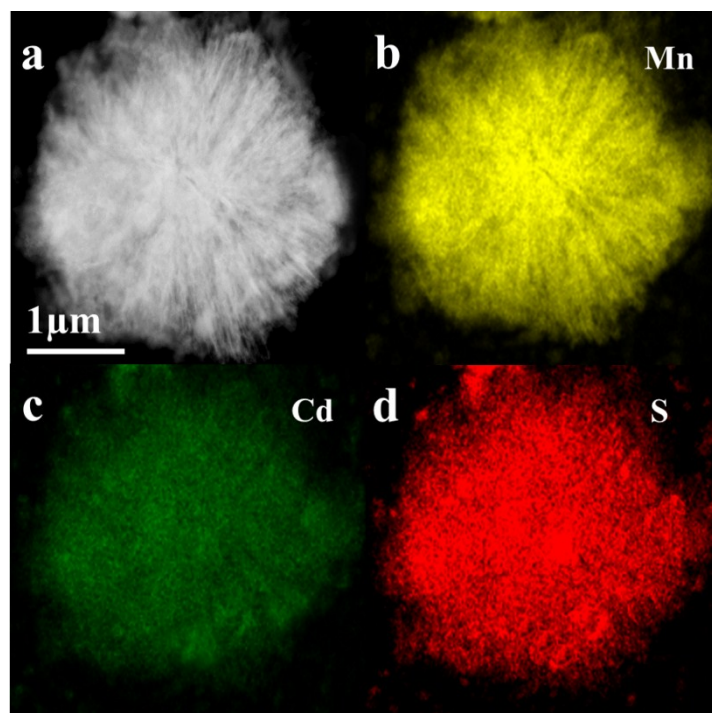


Fig. S7 (a) HAADF-STEM and (b-d) elemental mapping images of the flowerlike $\text{Mn}_{0.8}\text{Cd}_{0.2}\text{S}$ after the photocatalytic reactions