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## Supplementary Material

## Synthesis of Hydroxide Enriched Cerium Doped Oxy-Sulfide Catalyst for

Visible Light-Assisted Reduction of Cr(VI)

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Fig.S1 (a) XRD patterns and (b) Raman spectra of host nanoflower S-0 and hydroxide enriched nanoflower-like S-0.5 and S-0.7 catalysts.



Fig. S2 (a) FE-SEM image and (b) elemental mapping of the hydroxide enriched nanoflower-like S-0.6 catalyst.



Fig. S3 (a) FE-SEM image and (b) elemental mapping of the reused hydroxide enriched nanoflower-like S-0.6 catalyst.



Fig. S4 High-resolution XPS spectra of (a) In-3d, (b) Ce-3d, and (c) S-2p, and (d) O-1s of recycled hydroxide enriched nanoflower-like S-0.6 catalyst.