Supporting Information

Hydrothermal synthesis of hexagonal CuSe nanoflakes with sunlight-driven photocatalytic activity

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1 EDS spectrum of the as-synthesized CuSe nanoflakes

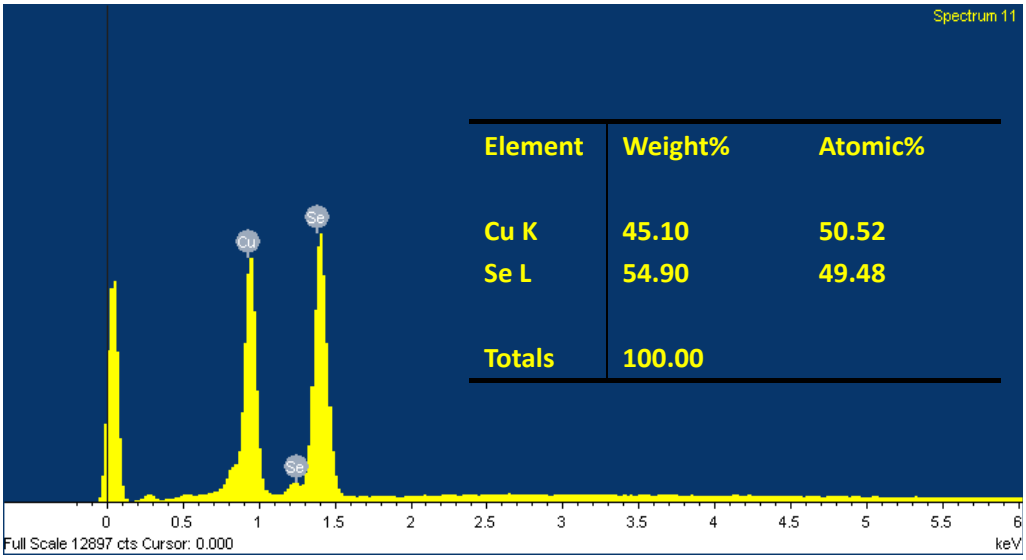

Fig. S1 EDS spectrum of the as-synthesized CuSe nanoflakes

2 SEM images of CuSe nanostructures synthesized using different Cu^{2+} sources

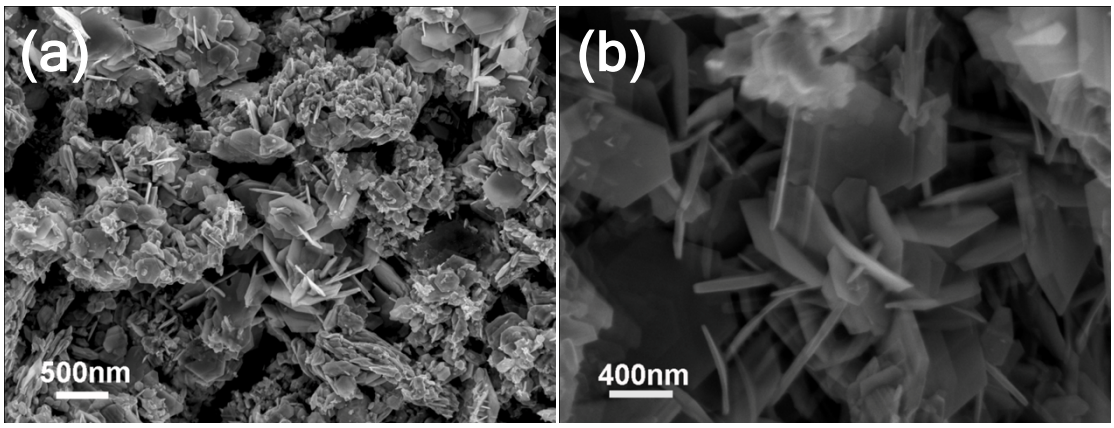

Fig.S2 SEM images of CuSe nanostructures synthesized using (a) $CuCl_2$ and $Cu(ac)_2$ as Cu source.

3 Characterizations of the intermediate product

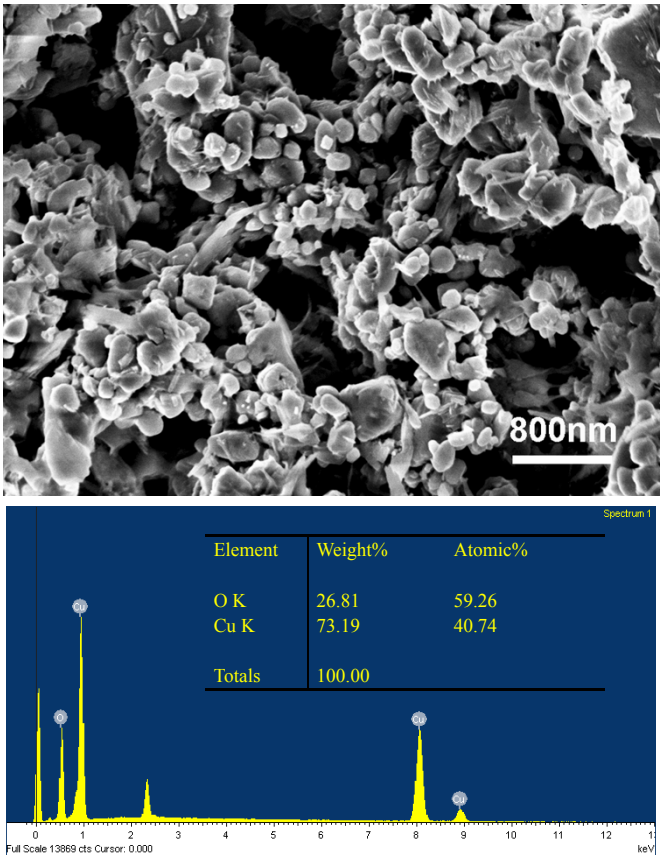

Fig.S3 SEM image and EDS spectrum of intermediate product obtained by dissolving CuCl into concentrated NaOH solution without adding Se.

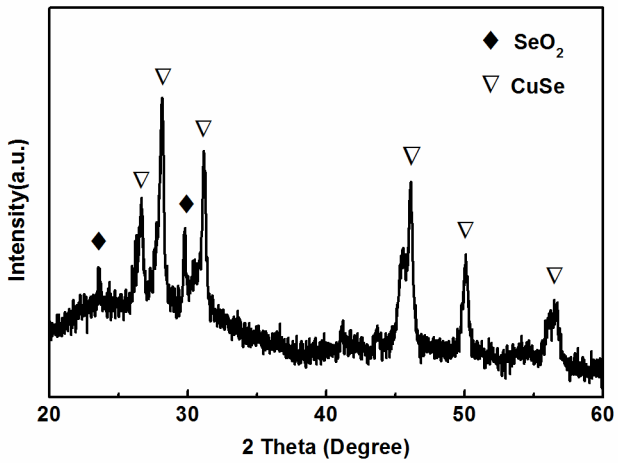

Fig.S4 XRD spectrum of the intermediate product obtained by dissolving CuCl and Se.into concentrated NaOH solution before hydrothermal treatments.

4 Optical properties of CuSe nanostructures synthesized by different NaOH concentrations and PVP.

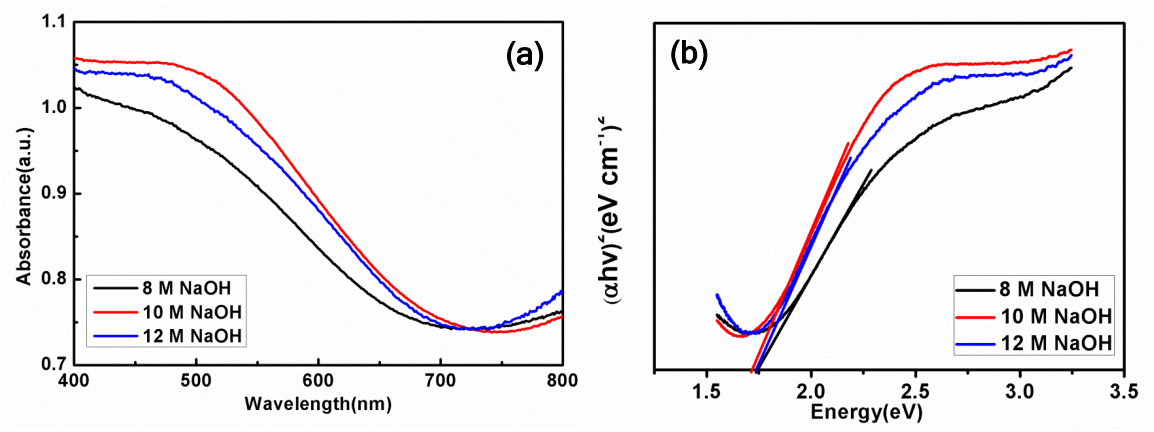

Fig. S5 (a) UV-vis absorption spectrum and (b) plotted curve of $(\alpha hv)^2$ against (hv) of the hexagonal CuSe nanoflakes with different NaOH concentrations.

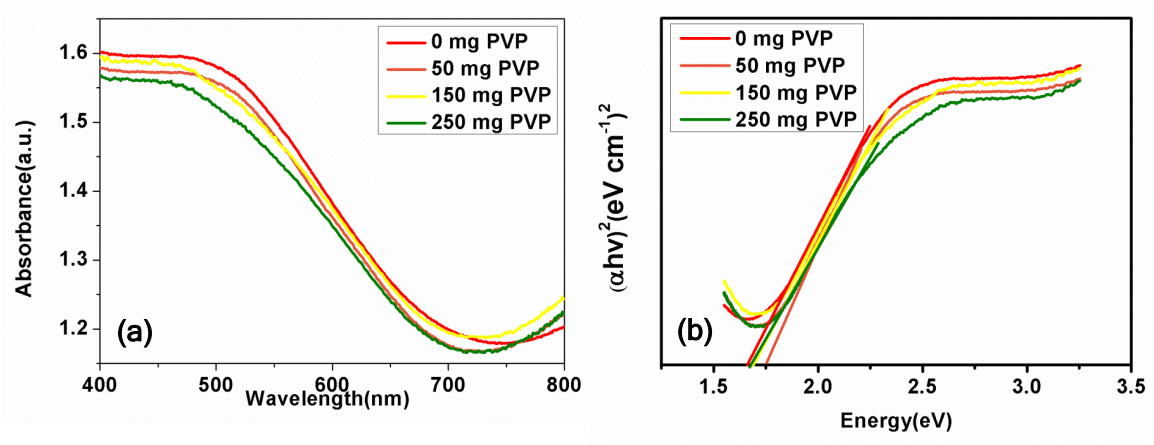

Fig. S6 (a) UV-vis absorption spectra and (b) plotted curve of $(\alpha hv)^2$ against (hv) of the hexagonal CuSe nanoflakes using different PVP.

6 The photocatalytic degradations of MB solution in the dark.

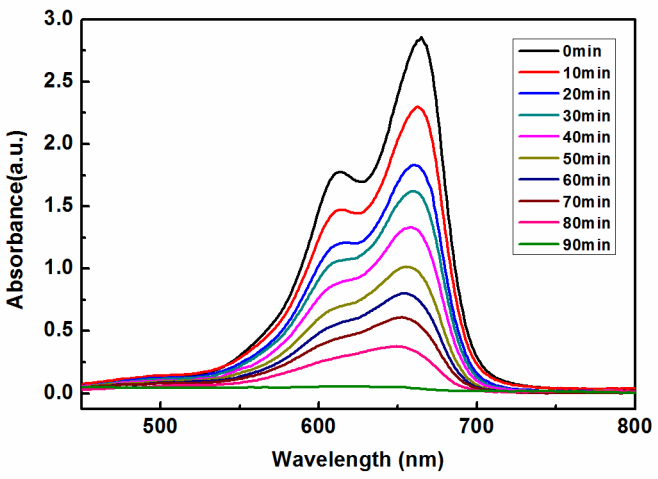

Fig. S7 UV–visible absorption spectra of MB aqueous solution in the presence of hexagonal CuSe nanoflakes and H_2O_2 in the dark.