Supplementary Information

Microwave-Assisted Mass Synthesis of Mo$_{1-x}$W$_x$S$_2$ Alloy Composites

with Tunable Lithium Storage Property

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Figure S1. SEM (a, c, e, g) and TEM (b, d, f, h) images of Mo$_{1-x}$W$_x$S$_2$ (x=0, 0.1, 0.2, and 0.3) alloy nanoflowers, respectively.
Figure S2. SEM (a, c, e, g) and TEM (b, d, f, h) images of Mo_{1-x}W_{x}S_{2} (x=0.4, 0.5, 0.8, and 1) alloy nanoflowers, respectively.
Figure S3. (a) TEM image of Mo$_{0.4}$W$_{0.6}$S$_2$ alloy nanoflowers and the corresponding EDS elemental mapping images of (b) molybdenum, (c) tungsten, (d) sulfur, and carbon.
**Figure S4.** (a) TEM image of MoS$_2$ nanoflowers and the corresponding EDS elemental mapping images of (b) molybdenum and (c) sulfur. (d) TEM image of WS$_2$ nanoflowers and the corresponding EDS elemental mapping images of (e) tungsten and (f) sulfur.
Figure S5. (a) XPS spectra of MoS$_2$ nanoflowers and broad-scan spectra of (b) Mo 3d and (c) S 2p. (d) XPS spectra of WS$_2$ nanoflowers and broad-scan spectra of (e) W 4f and (f) S 2p.
**Figure S6.** (a) Conductivity of Mo$_{1-x}$W$_x$S$_2$ (x=0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.8, and 1) alloy nanoflowers. (b) Rate performance of Mo$_{1-x}$W$_x$S$_2$ alloy nanoflowers anodes at different current densities.

**Figure S7.** (a) CV curves of MoS$_2$ nanoflowers and (b) CV curves of WS$_2$ nanoflowers.