Supporting information

Understanding the formation mechanism and the 3D structure of Mo(SₓSe₁₋ₓ)₂ nanoflowers

Meiron O. E. a, Houben, L b, Bar-Sadan M. a,*

a Ben-Gurion University of the Negev, Department of Chemistry, Beer Sheva .
b Chemical Research Support, Weizmann Institute of Science, Rehovot, Israel

*barsadan@bgu.ac.il

Loss of flower-like morphology

When the precursors were changed, the flower-like morphology of the particles was lost. Figure S1 presents TEM images showing the morphology of particles produced with different precursors. When the DBS and DBSe were replaced by elemental sulfur and selenium, the synthesis yielded spread-out tangled sheets, as shown in figure S1a. When the MoO₃(acac)₂ was replaced by MoCl₅, the synthesis yielded large stacked flat sheets, as shown in figure S1b. When the MoO₂(acac)₂ was replaced by sodium molybdate dihydrate, the synthesis yielded round tangled particles, as shown in figure S1c. When the MoO₂(acac)₂, DBS and DBSe were replaced by MoCl₅, elemental sulfur and elemental selenium, respectively, the synthesis again yielded large stacked, flat sheets, as shown in figure S1d. When MoO₃ was used as the molybdenum precursor, no Mo(SₓSe₁₋ₓ)₂ product was observed. Using ammonium molybdate as the Mo source yielded spread tangled sheets, much like the ones presented in figure S1a.

Figure S1  TEM images of Mo(SₓSe₁₋ₓ)₂ synthesized using different precursors. (a) Mo(S0.8Se0.2)₂ using elemental sulfur and selenium. (b) Mo(S0.5Se0.5)₂ using MoCl₅. (c) Mo(S0.5Se0.5)₂ using sodium molybdate. (d) Mo(S0.4Se0.6)₂ using MoCl₅ and elemental sulfur and selenium.