

Supporting Information

Controlled growth of multi-morphology hexagonal t-Se microcrystals: tubes, wires, and flowers by a convenient Lewis acid-assisted solvothermal route

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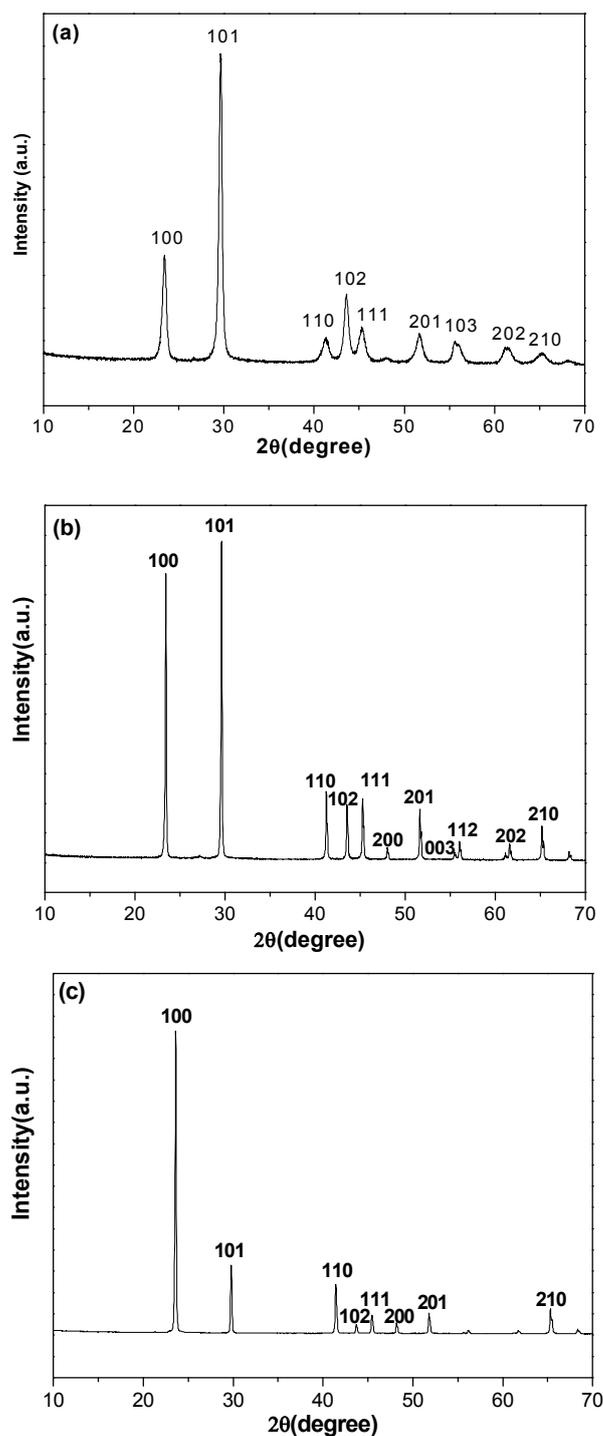


Fig. S1 Typical XRD patterns of other t-Se products: (a) spheres; (b) flowers; (c) wires. All of the peaks in the patterns can be assigned to t-Se, indicating that all the products are a pure phase of t-Se. However, the intensity of the peaks in different patterns is quite different. It can be seen that, from (a) to (b) and (c), the (100) peak gradually become weak, while the (101) peak gradually become strong, indicating an obvious evolution of the preferential growth of the products from spheres to flowers and wires/tubes. In addition, the peaks in (a) are much wider than those as shown in (b), (c) and Figure 1, meaning that the spheres resulted from the assembly of small nanoparticles, which is consistent with the results of SEM images.

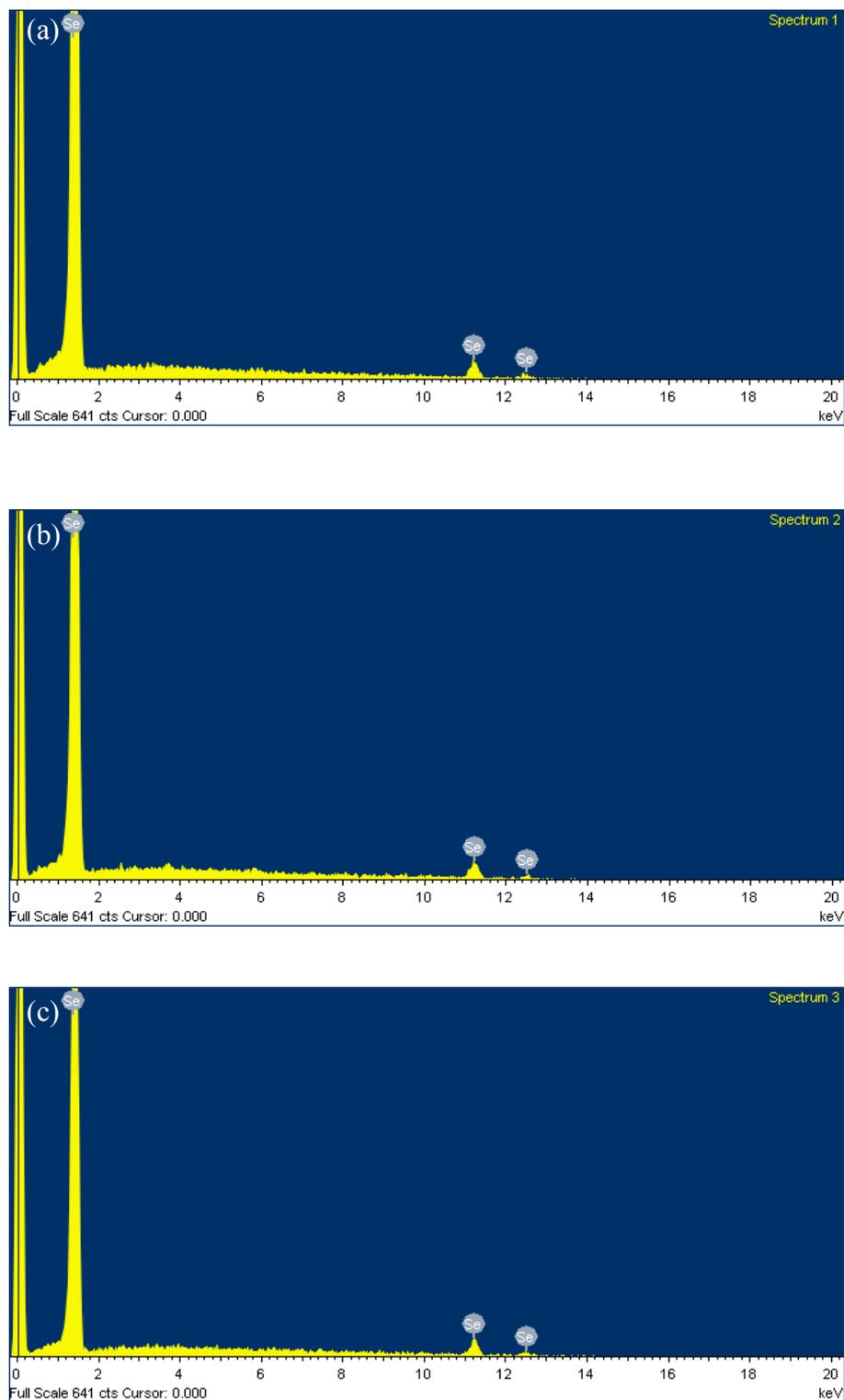


Fig. S2 EDS spectra of various t-Se products: (a) spheres; (b) flowers; (c) wires/tubes. It can be seen that all the products only consist of elemental Se, which can further confirm XRD analysis.

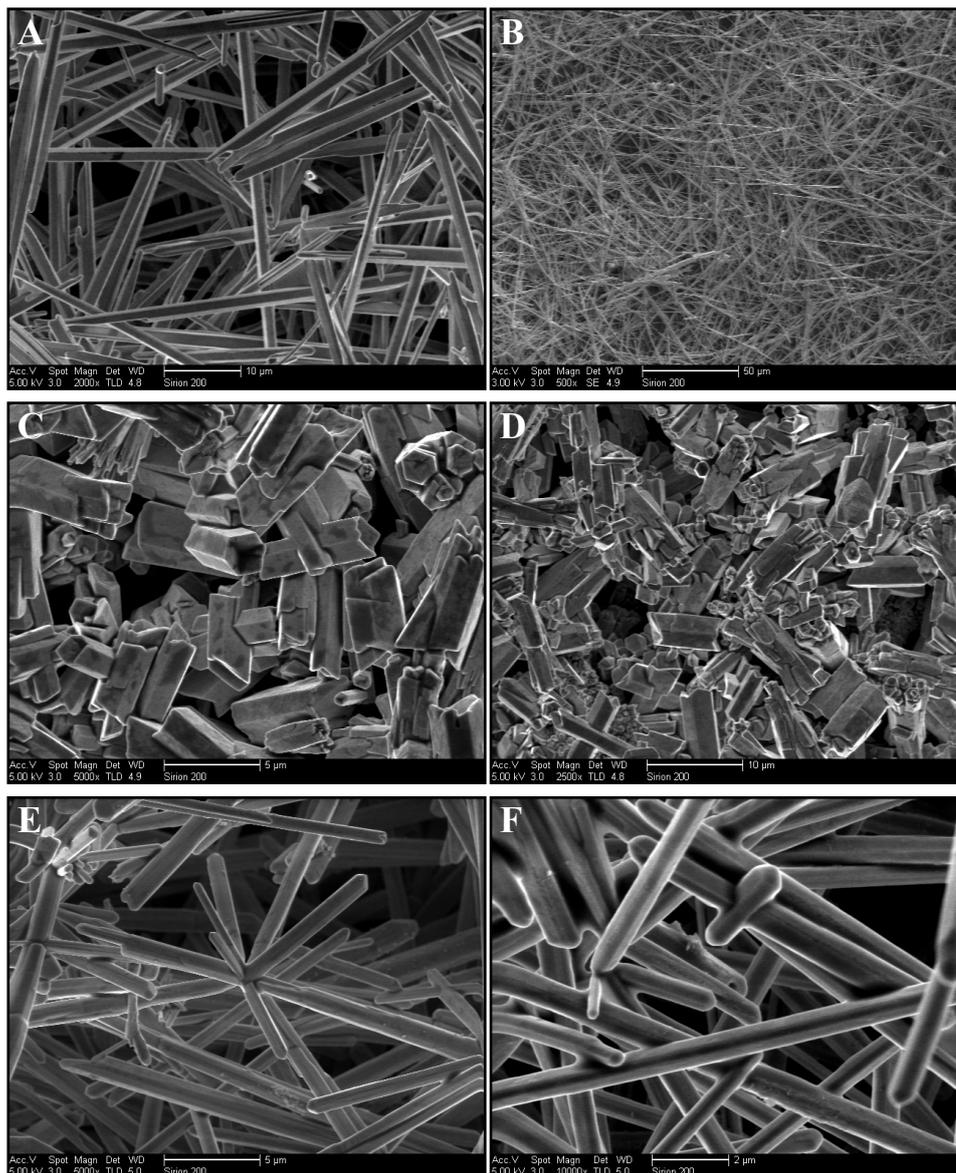


Fig. S3 More SEM images of (A) tubes, (B) wires, (C) and (D) rods. The rods were prepared at in the presence of ZnCl_2 at 150°C with volume ratio of ethanol to H_2O of 2:3 (v/v), and they also show a structure of hexagonal prisms similar to the tubes and wires. (E) and (F) show some wires with chemical connections.

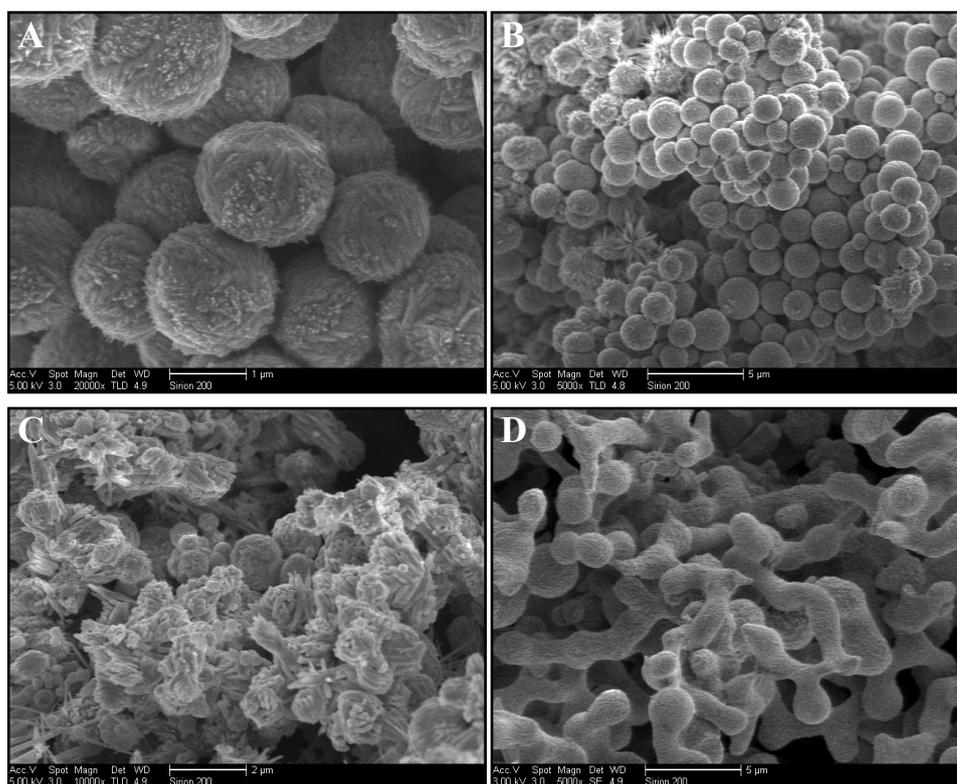


Fig. S4 More SEM images of the products with a critical shape between spheres and flowers: (A) and (B) Samples prepared at in the presence of NH_4Cl at $150\text{ }^\circ\text{C}$ with volume ratio of ethanol to H_2O of 3:2 (v/v). (C) Sample prepared at in the presence of NH_4Cl with volume ratio of ethanol to H_2O of 3:2 (v/v) at $130\text{ }^\circ\text{C}$. All of the samples clearly show that the spheres assembled from small particles, and also show a critical shape between spheres and flowers. (D) Some peanut- or sausage-like particles.

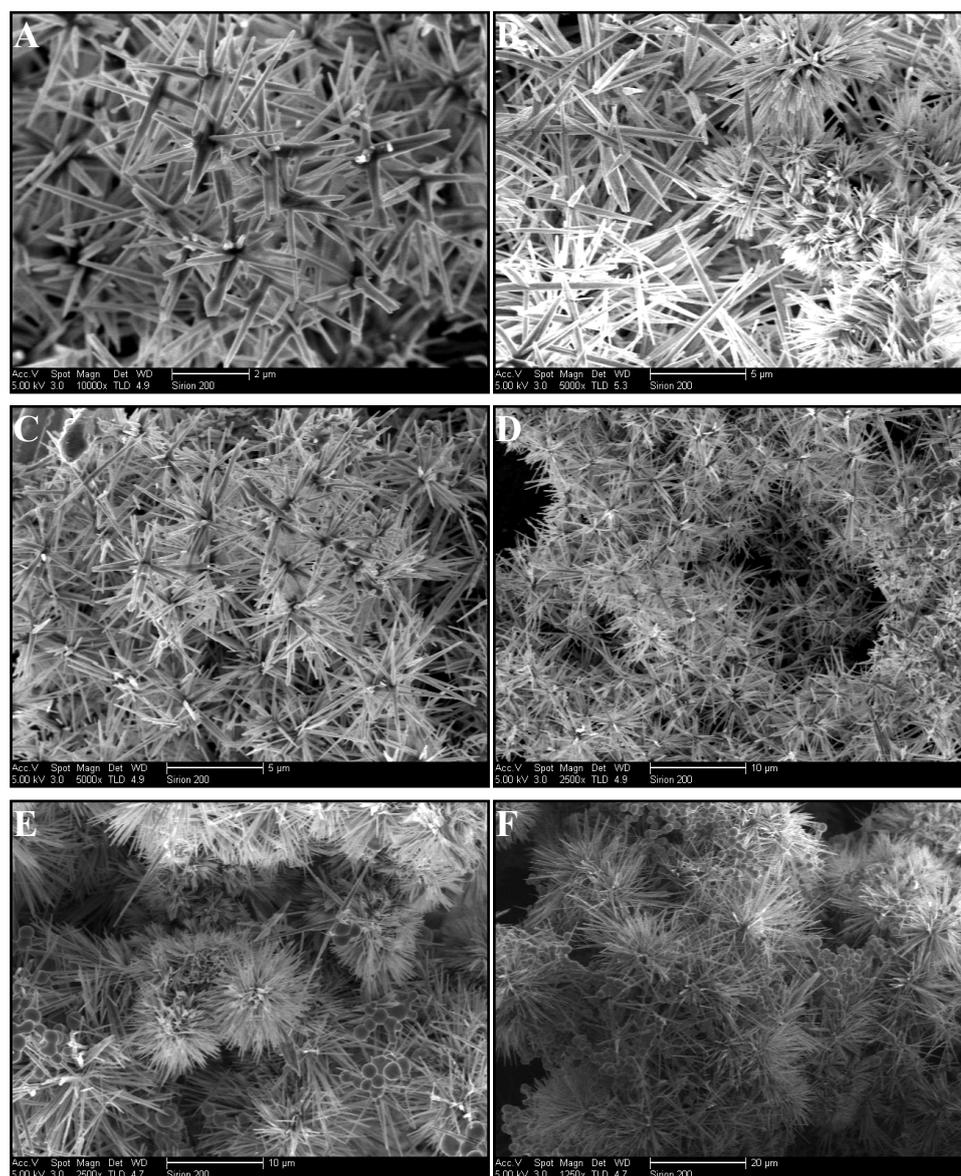


Fig. S5 More SEM images of various t-Se flowers.