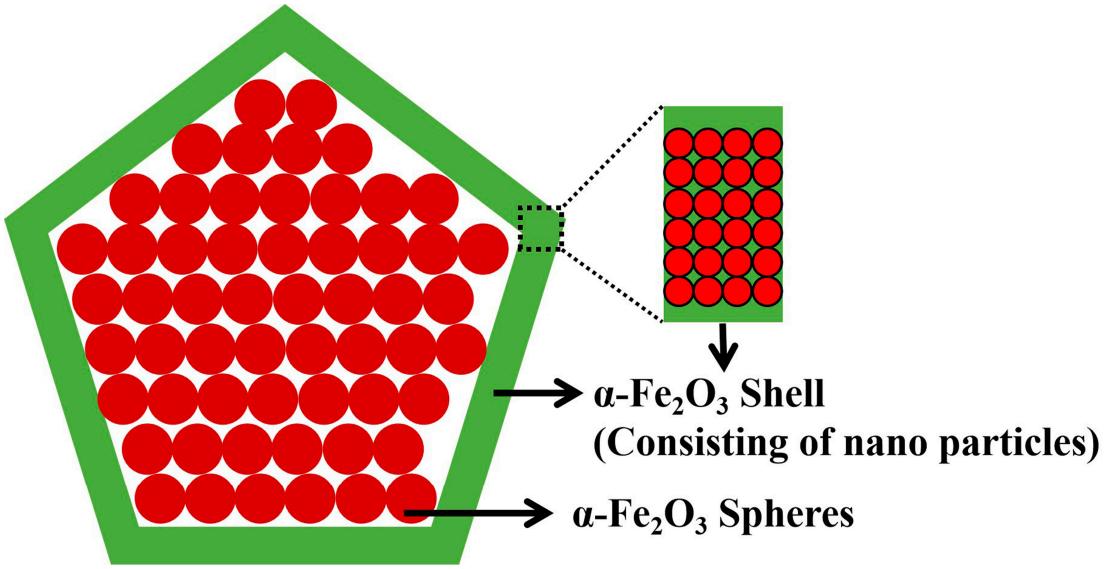

Figure S1. the schematic diagram of pomegranate shape.

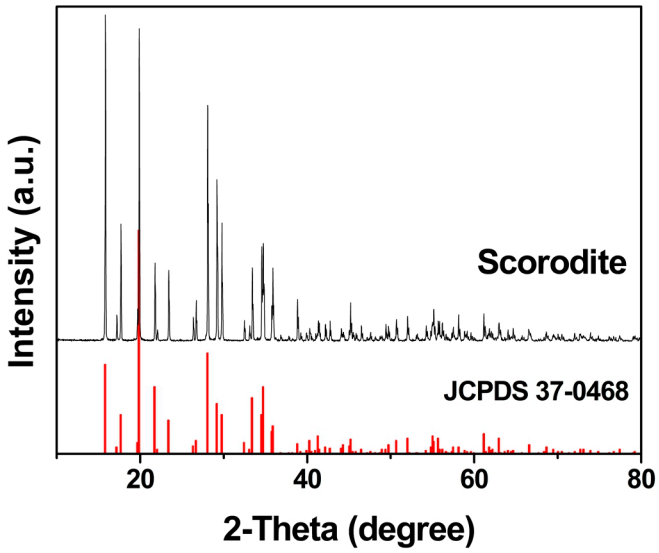

Figure S2. the XRD pattern of as-synthesized scorodite

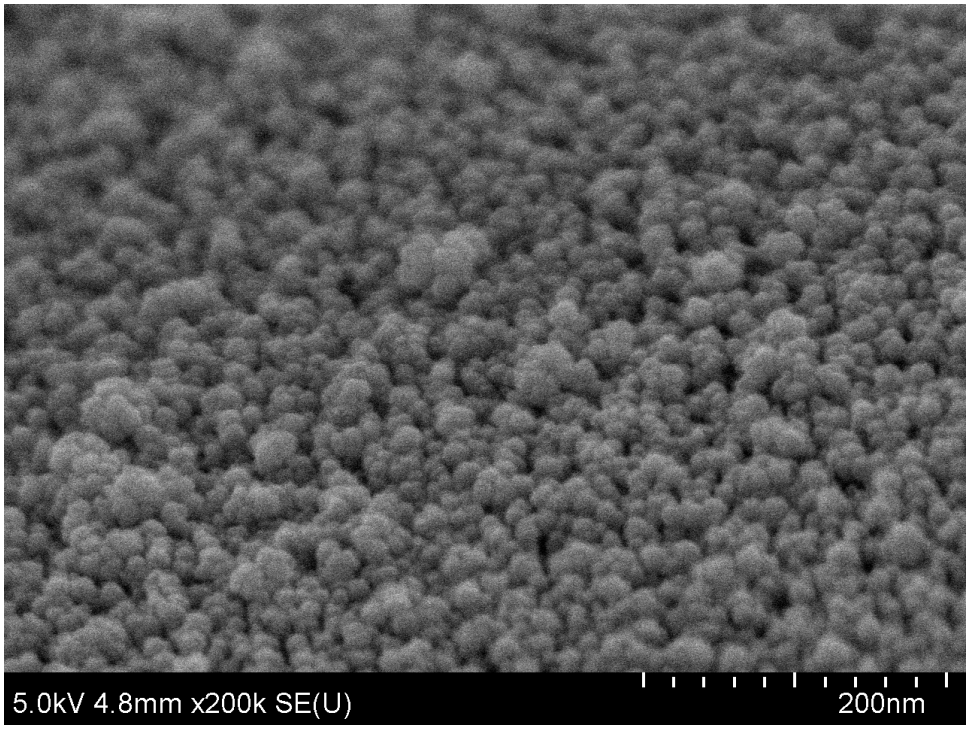

Figure S3. the high magnification SEM image of the surface for S1

1. Synthesis of scorodite

The scorodite was prepared by atmospheric method. Highly purity O_2 was injected into the aqueous solution which included As(V) and Fe(II) ions at 90 ℃. 20 g/L aqueous As(V) solution was prepared from the dissolution of $Na_3AsO_4 \cdot 12H_2O$, and pH of the solution was adjusted 1.0 by 98 % H_2SO_4. The As(V) solution with 20 g/L As(V) concentration was reacted with $FeSO_4 \cdot 7H_2O$ in a three-necked flask, and the molar ratio of Fe(II) and As(V) ions was 3:2. The solution was heated by oil bath and stirred at 1000 rpm until the system achieved the reaction temperature (90 ℃). Afterwards, highly purity O_2 was injected into the solution, reacting for 7 hours at 90 ℃. Then the suspension was filtered and washed with deionized water, and dried in an oven at 70 ℃ to obtain the scorodite.