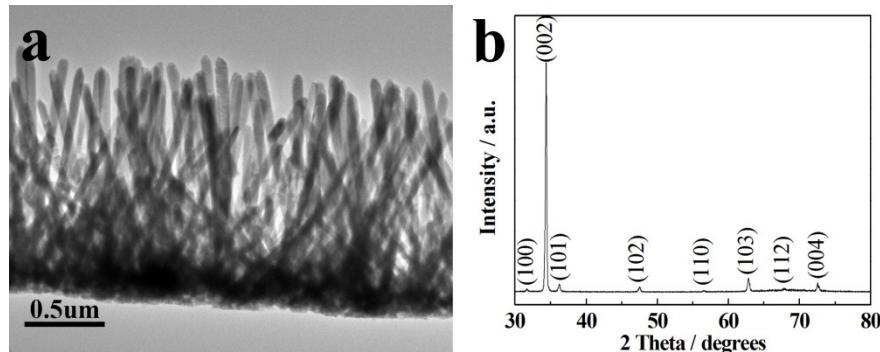
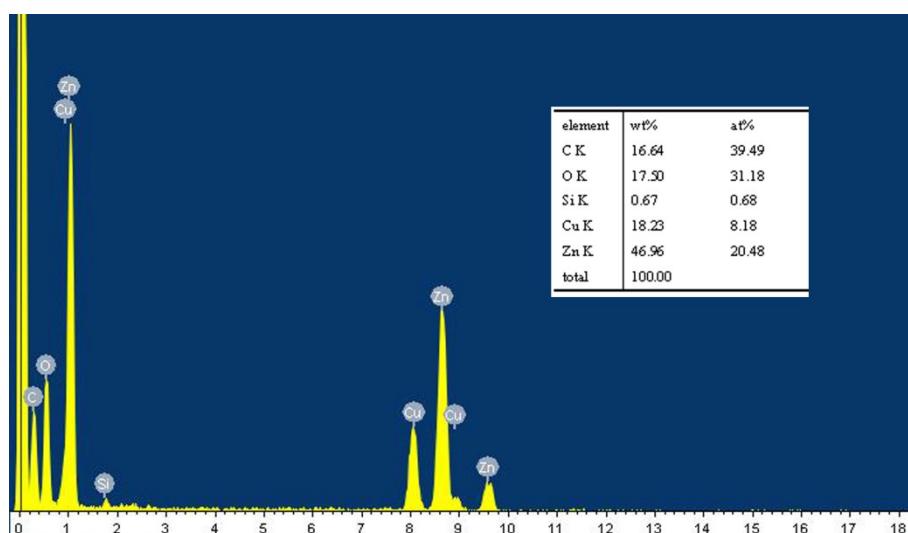


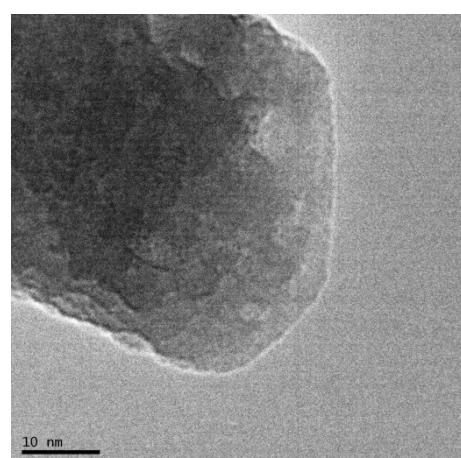
**Electronic Supplementary Information (ESI)**



**Figure S1.** (a) Cross-section TEM image of oriented ZnO nanorods; (b) XRD pattern of the oriented ZnO nanorods.



**Figure S2.** The EDS data of ZnO nanorods immersed in APS- $\text{Na}_2\text{SiO}_3$  solution at 90°C for 40 min.



**Figure S3.** Low magnification TEM image of ZnO nanorod immersed in APS- $\text{Na}_2\text{SiO}_3$  solution at 90°C for 80 min