Various types of zinc oxide nanostructures via solution method

Rizwan Wahab, S.G.Ansari, 김영순, 송민우, 서형기, 신형식*, M.A.Dar, M.S.Dhage
전북대학교
(hsshin@chonbuk.ac.kr*)

Various types of zinc oxide nanostructures were grown via solution method using zinc acetate dihydrate (Zn(CH3COO)2.2H2O) and sodium hydroxide (NaOH) at 90ºC in one hours refluxing time. By changing the precursor concentration changes the morphology of the zinc oxide nanostructures. The morphological observations were carried out by the field emission electron microscopy it shows that the hexagonal zinc oxide nanorods changes in to novel belt, micro-flower composed with small tiny nanorods and sheet like structures by only changing the concentration of precursor. Furthermore, the morphological observations was also carried out by the transmission electron microscopy (TEM), high resolution transmission electron microscopy (HRTEM) and SEAD patterns it reveals that the grown zinc oxide nanostructures are clearly consistent with the FESEM observations and grew along [0001] direction with ideal lattice fringes distances 0.52nm.The crystallinity and crystal phases was observed by the X-ray diffraction pattern and it presents that the obtained powder is zinc oxide with out any other impurities.