

Acetobacter xylenium as a shape-directing agent for the formation of nano-, micro-sized zinc oxide

ABSTRACT

The preparation of ZnO of specific shape by hydrolysis of zinc acetate in the presence of a type of cellulose producing bacterium, *Acetobacter xylenium*, as a shape-directing agent, was illustrated. All solutions were prepared using decarbonated distilled water and a sample of ZnO was directly synthesized by hydrolysis of zinc acetate and ammonia solution. The X-ray diffraction (XRD) pattern of the as-synthesized ZnO indicated that all the precursors were completely decomposed for the formation of ZnO phase. The results show that the amount of templating agent added plays a role in determining the physiochemical properties of the resulting synthesized material.

Keyword: Ammonia; Bacteria; Distillation; Nanostructured materials; Solutions; Water; X ray diffraction analysis