

Bacillus cereus as a biotemplating agent for the synthesis of zinc oxide with raspberry- and plate-like structures

ABSTRACT

Currently the development of green chemistry approach with the use of biomaterial-based activities of microbial cells in the synthesis of various nanostructures has attracted a great attention. In this study, we report on the use of bacterium, *Bacillus cereus* as a biotemplating agent for the formation of zinc oxide nanoparticles with raspberry- and plate-like structures through a simple thermal decomposition of zinc acetate by maintaining the original pH of the reaction mixtures. Possible mechanism on the formation of the nanostructures is proposed based on the surface chemistry and biochemistry processes involved organic–inorganic interactions between zinc oxide and the microbial cells.

Keyword: Hydrothermal; Complexation; Biotemplating agent; Zinc oxide; Nanobiotechnology