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Comparison of photocatalytic efficiency of ZnO nanoparticles prepared by green route and commercial ZnO nanoparticles

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Zinc oxide nanoparticles were synthesized in water at 180^{0}C for two hours in microwave. ZnO nanoparticles was characterizes by scanning electron microscopy (SEM) and energy dispersive X-ray analysis (EDX). The photocatalytic activity of ZnO nanoparticles prepared by green route has been investigated and compared with that of commercial ZnO. The photodegradation rate of methyl orange (MO) was determined for each experiment and the highest values were observed for ZnO nanoparticles obtained by green route suggestion that it absorbed large fraction of the solar energy as a result of its high surface area which is confirmed by SEM and surface area calculations.

Biography

Laila M. Al-Harbi has completed her Ph.D. from King Abdulaziz University School of Chemistry. She is the coordinator of first year general chemistry students in KAU, a member of American Chemical Society. She has published more than 10 papers in reputed journals and has been serving as an editorial board member in journal of nanoscience and nanotechnology research. She is a reviewer in many reputed journals.

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Polyelectrolyte coated clay nanotubes with pH controlled release

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Halloysite nanotubes (HNTs) exist abundantly throughout the natural world and have versatile hollow tubular structures composed of two-layered aluminosilicates. The geometrical structure and surface charges of HNTs allow it to be loaded and nanocoated with a variety of materials, such as drugs and bioactive macromolecules and polymers, for sustained and extended releases. HNTs exhibit high levels of biocompatibility and very low cytotoxicity, making it an ideal candidate for new drug delivery systems. The incorporation of nanocoatings on HNTs offers more possibilities for target and trigger-responsive drug delivery platforms. Our previous studies have shown that the release time of drugs from HNTs can be extended and adjusted by the addition of polyelectrolyte nanocoatings. This study showed controlled pH-dependent releases of two model drugs, alizarin red (AZ), methylene blue (MB), and methotrexate (MX) from HNTs and polyelectrolyte multilayers including polyvinylpyrrolidone (PVPON), poly-acrylic acid (PAA), and polyacrylamide (PAM). Results showed that the stability of the nanocoatings and the release of drugs were greatly influenced by the pH of immersing solution and stock solutions. It is suggested that these molecular architectures have potential applications in nanoscale trigger-responsive drug delivery systems.

Biography

Lin Sun has completed his medical degree at the age 23 years from Zhengzhou University in China, and is currently a Ph.D. candidate at Louisiana Tech University for Molecular Science and Nanotechnology. He has presented at international conferences such as the 2013 Biomaterials Revolution in Boston.

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