

International Summit on Industrial Engineering

December 08-10, 2014 DoubleTree by Hilton Hotel San Francisco Airport, USA

Synthesis of highly water soluble nanostructured boron nitride for anticancer drug delivery

Akshay Kumar¹, Bikramjeet Singh¹, Paviter Singh¹, Gurpreet Kaur¹ and Manjeet Singh²

¹Sri Guru Granth Sahib World University, India

²Defense Institute of Advanced Technology, India

Highly water soluble nanostructured Boron Nitride (BN) has been successfully synthesized by reduction of Boric Acid (H_3BO_3) in presence of ammonia. It is a relatively low temperature synthesis route. Nanoparticles were synthesized at 700°C. This method can be used for large scale production of nanostructured BN. The synthesized nanoparticles have been characterized by X-ray diffraction (XRD), scanning electron microscopy (SEM) and differential thermal analyzer (DTA), Fourier Transformed Infrared Spectroscopy (FTIR). Particle size analyzer was used to find the approximate size of the particles. XRD analysis confirmed the formation of single phase nanostructured Boron Nitride. SEM analysis showed that the particles are spherical in shape. DTA analysis showed that the phase is stable upto 900°C. These particles are highly soluble in water although traditional BN is insoluble in water. Solubility of these particles makes it useful as anticancer drug carrier.

Biography

Akshay Kumar is working as Assistant Professor in Department of Nanotechnology, Sri Guru Granth Sahib University Fatehgarh Sahib, India. He received his Bachelor degree from Himachal Pradesh University, India and Master's degree in Applied Physics from Punjabi University, Patiala, India. He received a PhD in Materials Science from School of Physics and Materials Science, Thapar University, India. He is the author of several articles published in many reputed Journals. He has also published book on "Nanostructured Tungsten Carbide and Its Composites with Cobalt". Presently he is working on nano materials for gas sensors, Boron Neutron Cancer Therapy (BNCT), stealth technology and solar Cell applications.

akshaykumar.tiet@gmail.com