J Nanomed Nanotechnol 2014, 5:5
http://dx.doi.org/10.4172/2157-7439.S1.019

OMICS Group Conferences
Accelerating Scientific Discovery

4th International Conference on
Nanotek & Expo

December 01-03, 2014 DoubleTree by Hilton Hotel San Francisco Airport, USA

Synthesis, characterisation and application of silver-doped carbon nanotubes and nanoporous polymers for purification of water samples

Lutendo Evelyn Rananga and Takalani Magadzu
University of Limpopo, South Africa

Potable water is water that is safe enough to be consumed by humans or used with low risk of immediate or long term harm. World-wide, insufficient access to portable water and use of sources contaminated with disease vectors, pathogens, and unacceptable levels of toxins is a huge problem. Reduction of waterborne diseases is a major public health goal in developing countries. Nanotechnology offers the possibility of an efficient removal of pollutants and microorganisms from water. Different nanocomposites constituting of silver on β-cyclodextrin and multi-walled carbon nanotubes were prepared by reductive pre-treatment method. Comparison of absorption efficiencies of the nanocomposites and their antibacterial activities were investigated during water disinfection. The morphology, elemental analysis and crystalline structure of all nanocomposites were carried out using Field Emission Scanning Electron Microscopy (FE-SEM), Transmission Electron Microscopy (TEM), X-ray diffraction (XRD) and Energy dispersive X-ray microanalysis (EDX). All the nanocomposites prepared have shown abilities in absorption of organic contaminants and have good antibacterial activities. Water disinfection results revealed that 1wt.% Ag-doped MWCNTs/β-CD produced 100% antibacterial activity after 10 minutes of interaction, compared with 32wt.% Ag-MWCNTs and 10wt.% Ag/β-CD which presented 95% and 97%, respectively. The 1wt.% MWCNTs/β-CD also had better absorption efficiency towards organic contaminated water.

Biography

Lutendo Evelyn Rananga has completed her MSc at the age of 27 years from University of Limpopo and is currently doing her PhD at the same University. She is a deputy student leader of the South African nanotechnology initiative and has facilitated a number of nanotechnology awareness workshops. She has published 1 journal with an international journal and still have more papers submitted for publication.

ranangalutendo@yahoo.com

Effect of nano-ZnO on the mechanical behaviour of polystyrene matrix composites

Md. Azad Alam, Sajjad Arif and Akhter Husain Ansari
Aligarh Muslim University, India

The present study was conducted to evaluate the effect of nano-ZnO particles on the mechanical properties specifically tensile strength, flexural strength and Rockwell hardness of polystyrene-ZnO nanocomposite. To conduct the study, first bulk polymerization technique was employed to prepare nanocomposite samples from polystyrene with 0.1%, 0.2% and 0.3% nano-ZnO. The chunks of prepared nanocomposite were injected into a compression mold using a compression molding machine. Of the parts thus prepared, test specimen were made and subjected to tensile, flexural and hardness tests. Further, to ensure proper morphology of nanocomposite, scanning electron microscopy (SEM), X-ray diffraction (XRD) and Fourier transform infrared (FT-IR) tests were conducted. Results showed that by increasing nano-ZnO up to 0.3%, the tensile strength were increased by 73.99% and increment in Flexural strength were 37.82% as compared to neat Polystyrene.

azadalam.mech3@gmail.com