In this issue

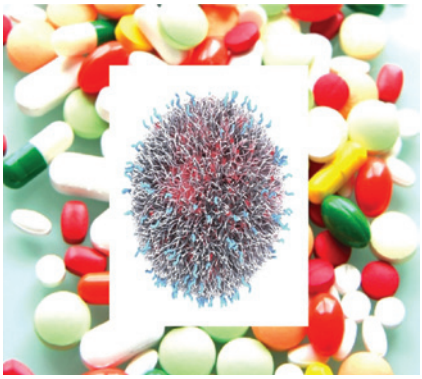
Arome Odiba, Chimere Ukegbu, Oluchukwu Anunobi, Ike Chukwunonyelum and Juliet Esemonu

Making drugs safer: improving drug delivery and reducing the side effect of drugs on the human biochemical system

DOI 10.1515/ntrev-2015-0055
Nanotechnol Rev 2016; 5(2): 183–194

Review: The application of nanomedicine to drug delivery toward managing the adverse effect of drugs is discussed.

Keywords: administration; drugs; nanomedicine; nanoparticles; side effects.



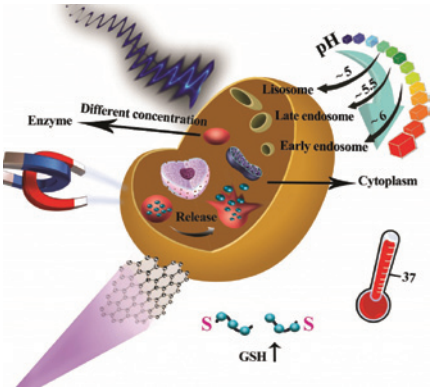
Mahdi Karimi, Hamed Mirshekari, Masoumeh Aliakbari, Parham Sahandi-Zangabad and Michael R. Hamblin

Smart mesoporous silica nanoparticles for controlled-release drug delivery

DOI 10.1515/ntrev-2015-0057
Nanotechnol Rev 2016; 5(2): 195–207

Review: Smart mesoporous silica nanoparticles can respond to internal stimuli such as redox, specific enzymes, or pH changes or to external stimuli such as heat, light, or magnetic fields, resulting in controlled drug release.

Keywords: drug delivery systems; enzyme; light-responsive nanocarriers; magnetic; mesoporous silica nanoparticles; pH; redox; stimuli responsive; temperature.



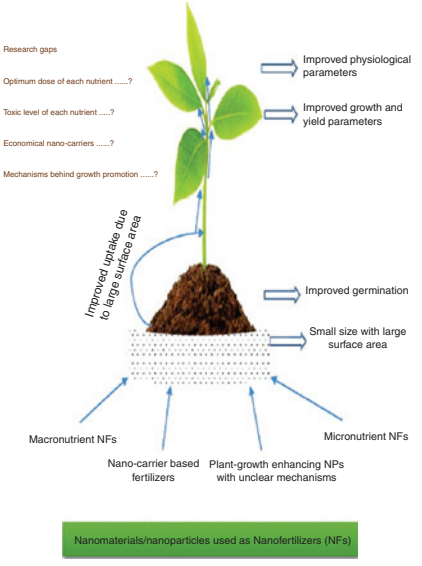
Allah Ditta and Muhammad Arshad

Applications and perspectives of using nanomaterials for sustainable plant nutrition

DOI 10.1515/ntrev-2015-0060
Nanotechnol Rev 2016; 5(2): 209–229

Review: Certain robust nanomaterials/nanoparticles are being used as a source or carrier of macro- and micronutrients, having a potential role in the promotion of the germination and various growth, yield, and physiological parameters of different crops depending on their application rate, size, and experimental conditions.

Keywords: nanofertilizers; nanonutrition; nanotechnology; plant nutrition; sustainable agriculture.



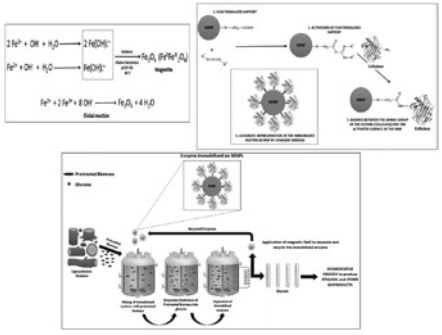
Mahendra Rai, Júlio César dos Santos, Matheus Francisco Soler, Paulo Ricardo Franco Marcelino, Larissa Pereira Brumano, Avinash P. Ingle, Swapnil Gaikwad, Aniket Gade and Silvio Silvério da Silva

Strategic role of nanotechnology for production of bioethanol and biodiesel

DOI 10.1515/ntrev-2015-0069
Nanotechnol Rev 2016; 5(2): 231–250

Review: The present review discusses the role of nanotechnology in production of bioethanol and biodiesel, which is advantageous for recovery and reuse of catalysts immobilized on nanoparticles.

Keywords: biodiesel; biofuel; ethanol; immobilization; nanotechnology; renewable resources.



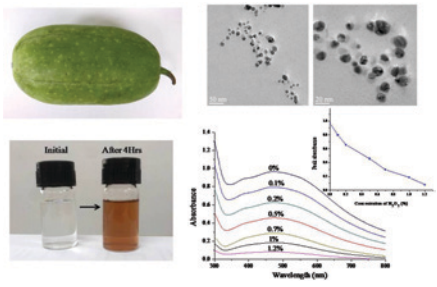
Kaushik Roy, Chandan K. Sarkar and Chandan K. Ghosh

Fast colourimetric detection of H_2O_2 by biogenic silver nanoparticles synthesised using *Benincasa hispida* fruit extract

DOI 10.1515/ntrev-2015-0054
Nanotechnol Rev 2016; 5(2): 251–258

Research highlight: Rapid colourimetric sensing of Hydrogen peroxide by biogenic silver nanoparticles synthesised using the fruit extract of *Benincasa hispida*.

Keywords: *Benincasa hispida* fruit extract; detection of H_2O_2; green synthesised silver nanoparticles; HRTEM; UV-Vis spectroscopy.



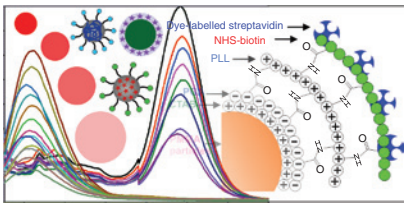
Nikunjkumar Visaveliya, Christian Hoffmann, Alexander Groß, Eric Täuscher, Uwe Ritter and J. Michael Koehler

Micro-flow assisted synthesis of fluorescent polymer nanoparticles with tuned size and surface properties

DOI 10.1515/ntrev-2015-0061
Nanotechnol Rev 2016; 5(2): 259–272

Research highlight: A microfluidic-assisted approach has been developed for the preparation of various types of monodispersed fluorescent polymer nanoparticles with size and surface tuning properties.

Keywords: fluorescent polymer nanoparticles; microfluidics; single-step process; size tuning; surface functionalization.



Arturo J. Vegas

Collaborating against cancer: MIT's Koch Institute for Integrative Cancer Research

DOI 10.1515/ntrev-2015-0038
Nanotechnol Rev 2016; 5(2): 273–276

Nanotechnology institutions: An inspirational model for disease-focused research, MIT's Koch Institute for Integrative Cancer Research has created a multidisciplinary and collaborative research culture that is having an impact in the fight against cancer.

Keywords: cancer; collaboration; Koch Institute; nanotechnology.