Cansel Tuncer et al., J Nanomed Nanotechnol 2016, 7:5 (Suppl)
http://dx.doi.org/10.4172/2157-7439.C1.044

Production of CdS nanoparticles with different methods and their usage in waste-water treatment

Cansel Tuncer and **Vural Bütün**
Eskisehir Osmangazi University, Turkey

Semiconductor and metal nanoparticles are in the focus of scientific research. It has been shown that their sizes determine their properties. Their unique electronic nature privilege them for a large variety of potential applications; e.g., biological labels and quantum-dot lasers and solar cells. The cadmium chalcogenides are the prototypical systems of the II–VI semiconductor compounds. Solid CdS is a yellow material due to its band gap of 2.32-2.58 eV. In this study, CdS nanoparticles with different sizes were synthesized using different methods. Sol-gel method was used for the preparation of spherical CdS and Ag/CdS nanoparticles with a diameter around 200 nm. In this method, PEG, which is capable of controlling the growth of nanocrystals owing to high viscosity and solubility in water, has been used as a stabilizer. Another method was hydrothermal synthesis which provided both cauliflower-type CdS nanoparticles and CdS nanoflower. Consequently, CdS nanostructures in different particle sizes and shapes were prepared successfully by using both methods. These particles were used for the photodegradation of a variety of dyes. The results are indicating possible potential usage of them in waste water treatment. The band gaps of CdS nanocrystals were obtained from the absorbance measurements via UV-Vis spectrophotometer. XRD, TEM and SEM instruments were used for the characterization of nanostructures. UV-Vis spectrophotometer was used to determine decolorization percent (W%) and the adsorption capacity (q) of CdS particles.

Acknowledgement: ESOGU and the Scientific and Technological Research Council of Turkey (TUBITAK) are thanked for financial supports (GN: 201619C104 and 115Z726, respectively)

Biography

Cansel Tuncer completed her PhD at 2015 from Eskisehir Osmangazi University. She has been working as a Research Assistant at the same university since 2009. She has published 7 papers in reputed journals. She has worked as Researcher on seven projects based on biomolecules and polymers. She is currently working in the two projects as project manager. She has great experience on polymer synthesis via GTP, ATRP, free radical polymerization, heterogen polymerization methods, derivation of polymers, hydrogels, microgels, nanoparticles and metal production.

ctasagir@ogu.edu.tr

Notes: