

HETEROGENEOUS FENTON OXIDATION OF THIAZINE DYE USING CERIUM OXIDE QUANTUM DOTS

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Water pollution kills nearly 1.8 million people and cost trillions of dollars every year which continuously threatens the survival of human and animal in world. Textile industry is considered as pollutants releasing industries in water. In present research work, we firstly report synthesis of CeO₂ nanoparticles in quantum dots range. Synthesized cerium oxide was assisted by three different surfactants, i.e., sodium dodecyl sulfate (SDS, anionic), cetyltrimethylammonium bromide (CTAB, cationic) and cetylpyridinium chloride (CPC, cationic), which were further characterized by UV-Visible, X-ray diffractometer (XRD), scanning electron microscope (SEM), high resolution transmission electron microscope (HRTEM), thermo gravimetric/differential thermal analysis (TG/DTA), Fourier transform infrared spectroscopy (FTIR), photoluminescence (PL) etc. Particle size of CeO₂ was lying between 1.66-4.36 nm (calculated by HRTEM and imageJ software). Later, the catalytic role of CeO₂ was victoriously investigated in Fenton reaction for the removal of methylene blue (MB) dye which behave as heterogeneous catalyst for the degradation of MB (thiazine dye) by Fenton like degradation.

Biography

Bhawana Jain has completed her PhD from Pt Ravishankar Shukla University, Raipur (CG) India and presently pursuing Woman Postdoctoral Fellowship from UGC (University Grant Commission, New Delhi). She has published more than 12 papers in reputed journal. She is an Author of Class 1-5 Science Books, and four research papers and two book chapters have been communicated in referred journals. She has received Woman Post-doctoral Fellowship award by UGC (2014-2019). She has got Certificate of Merit Award for oral scientific presentation in American Chemical Society National Meeting-2016, San Diego, CA, USA. Her paper was considered as Best Paper Presentation in a National level technical conference Techno Vision 26th-27th Oct' 2007, organized by Shri Shankaracharya Engineering College, Bhilai. Her seminar was considered as Best Seminar Presentation in MSc in 2006.

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