

Abstract Submitted
for the OSF17 Meeting of
The American Physical Society

Synthesis and Characterization of Titania-Based Nanopowders for Photocatalytic Degradation of Pindolol NENAD STOJILOVIC, University of Wisconsin Oshkosh, MAJA SCEPANOVIC, MIRJANA GRUJIC-BROJCIN, ALEKSANDAR GOLUBOVIC, Institute of Physics, University of Belgrade, SANJA ARMAKOVIC, BILJANA ABRAMOVIC, Faculty of Sciences, University of Novi Sad, TATJANA SRECKOVIC, Institute for Multidisciplinary Research, University of Belgrade, RASTKO VASILIC, Faculty of Physics, University of Belgrade, SASA V. DORDEVIC, The University of Akron, ZORAN V. POPOVIC, Institute of Physics, University of Belgrade — Beta-blockers pose a hazard to the environment and there is an ongoing search for the efficient method for their degradation. Under suitable preparation conditions, titania - based nanopowders show promise as photocatalysts for degradation of pindolol (selected β -blocker). To find the material properties suitable for rapid degradation of this β -blocker, we investigate how variation in the pH value of suspension during sol-gel synthesis affects structural, vibrational, and optical properties of titania-based nanopowders. Characterization has been carried out using powder X-ray diffraction (XRD), Raman spectroscopy, Fourier Transform Infrared (FTIR), and Ultraviolet-visible (UV-Vis) spectroscopy. The structural measurements reveal anatase as a dominant titania (TiO_2) phase in these samples. Our results show that synthesized titania-based nanopowders exhibit similar or higher efficiency in the photodegradation of pindolol under simulated solar irradiation when compared to commercial TiO_2 Wackherr catalyst.

Nenad Stojilovic
University of Wisconsin Oshkosh

Date submitted: 15 Sep 2017

Electronic form version 1.4