

Biosynthesis of TiO_2 Nanoparticles Using Natural Extract of Citrus Sinensis and Investigation of their Optical Properties for the Photocatalytic Application

A. Fall [a, b*, c], B. D. Ngom [a, b, c], M. Maaza[a, b]

[a]Nanosciences African Network (NANOAFNET), iThemba LABS-National Research Foundation, Old Faure road,7129, Somerset West, South Africa

[b]UNESCO-UNISA Africa Chair in Nanosciences/Nanotechnology, College of Graduate Studies, University of South Africa (UNISA), Muckleneuk ridge, P.O. Box 392, Pretoria-South Africa

[c]Photonics and Nano-Fabrication Laboratory, Faculty of Science and Technology, University Cheikh Anta Diop of Dakar (UCAD) B.P. 5005 Dakar-Fann Dakar, Senegal

The aim of this present study report on the biosynthesis and the main optical properties of titanium dioxide (TiO_2) nanoparticles (NPs) by a completely green chemistry process using orange skin natural extract as an effective chelating agent. TiO_2 metal oxide NPs shows special properties like hydrophobic nature, non-wet ability and high energy band gap. TiO_2 have been the focus of many promising applications due to their low-cost availability and biocompatible such as solar cell, photo catalysis, charge spreading devices, chemical sensors, microelectronics, and electrochemistry. In addition to the X-ray diffraction investigations, the raman, attenuated total reflectance (ATR;) and fourier transform IR (FTIR) and infrared as well as the scanning electron microscopy (HR-SEM) while (TEM), and the photoluminescence (PL) emission spectra confirmed the phase tetragonal of the TiO_2 nanoparticles. This green synthesis method involving TiO_2 NPs explores the advantages of inexpensive and non-toxic precursors.

Key words: Biosynthesis, Titanium Oxide Nanoparticles, Citrus Sinensis.

Biography

I'm a PhD student at UNISA from Senegal. I have 32 years. I got my master II in science of material geniuses at University of Cheikh Anta Diop of Dakar of Senegal.

Presenting author details
Full name: Adama FALL
Contact number: +27645519320
Twitter account: @FALLAdama 15
Linked In account: Adama fall
Session name/ number: Infos
Category: Poster presentation