

Biosynthesis of TiO₂ nanoparticles using natural extract of citrussinensis and investigation of their optical properties for the photocatalytic application

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Abstract

The aim of this present study report on the biosynthesis and the main optical properties of titanium dioxide (TiO₂) nanoparticles (NPs) by a completely green chemistry process using orange skin natural extract as an effective chelating agent. TiO₂ metal oxide NPs shows special properties like hydrophobic nature, non-wet ability and high energy band gap. TiO₂ 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 TiO₂ nanoparticles. This green synthesis method involving TiO₂ NPs explores the advantages of inexpensive and non-toxic precursors.

Keywords: Biosynthesis, Titanium Oxide Nanoparticles, Citrus Sinensis.



Biography:

A Fall isa PhD student at UNISA from Senegal and masters II in science of material geniuses at University of Cheikh Anta Diop of Dakar of Senegal

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5th Annual [Conference and Expo on Biomaterials](#); Webinar - August 31- September 01, 2020

Abstract Citation:

A Fall, Improvement of antibacterial ability of NiTi alloys by depositing Ag/collagen coatings, Biomaterials 2020, 5th Annual Conference and Expo on Biomaterials; August 31- September 01, 2020

(<https://biomaterials.insightconferences.com/abstract/2020/biosynthesis-of-tio2-nanoparticles-using-natural-extract-of-citrussinensis-and-investigation-of-their-optical-properties-for-the-photocatalytic-application>)