

APPLICATION OF FLUORESCENT CARBON NANOPARTICLES (CDOT) IN DEVELOPMENT LATENT FINGERPRINTS

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ABSTRACT

In this work, luminescent organic nanoparticles (Cdots) soluble in aqueous media with different compositions and green and blue emission under UV light show high selectivity to differentiate latent fingerprints are presented.

Key words: Nanoparticles, luminescent, latent fingerprints.

Introduction

Fluorescent carbon nanoparticles – carbon quantum dots (Cdots) - are an emerging class of organic materials with fluorescent properties in the visible spectrum, these structures have low production cost, stable luminescence and biocompatibility (SHABASHINI e colab., 2021). In addition to optical properties, these nanostructures may have different surface characteristics and luminescent emission at long wavelengths depending on the synthesis precursors and the method used. These characteristics have attracted the attention of forensic research for the use of these nanomaterials in the identification of fingerprints, mostly on dark surface.

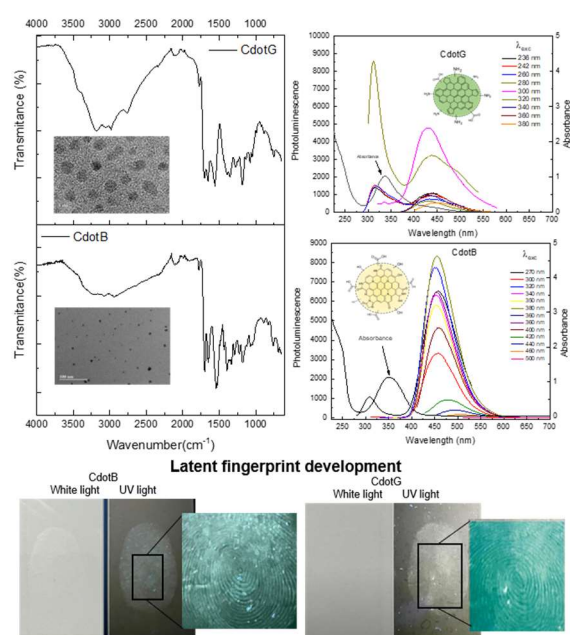
Objective

Evaluate the influence of the surface characteristics and fluorescent spectrum of Cdots in the development of latent fingerprints.

Methods

Two types of nanoparticles were prepared by microwave heating, one with citric acid and urea (CdotG) another with citric acid and ethylenediamine (CdotB). Both were sprayed onto surfaces to reveal fingerprints.

Results and Discussion



Conclusion

The fluorescent carbon nanoparticles obtained in this work show high solubility in aqueous media and when applied by spraying on the surfaces, they showed high selectivity and differentiation of the fringes of the fingerprints.

References

SHABASHINI, Arivalagan e PANJA, Sumit Kumar e NANDI, Ganesh Chandra. **Applications of Carbon Dots (CDs) in Latent Fingerprints Imaging.** Chemistry – An Asian Journal, v. 16, n. 9, p. 1057–1072, 3 Maio 2021.

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Realização