

Author's Accepted Manuscript

Luminescent mesoporous silica nanoparticles for biomedical applications: Synthesis and Characterization

Beena Jain, Reeja K.V, Puspen Mondal, Anil Kumar Sinha



PII: S0022-2313(17)32203-2
DOI: <https://doi.org/10.1016/j.jlumin.2018.04.020>
Reference: LUMIN15535

To appear in: *Journal of Luminescence*

Received date: 27 December 2017
Revised date: 4 April 2018
Accepted date: 9 April 2018

Cite this article as: Beena Jain, Reeja K.V, Puspen Mondal and Anil Kumar Sinha, Luminescent mesoporous silica nanoparticles for biomedical applications: Synthesis and Characterization, *Journal of Luminescence*, <https://doi.org/10.1016/j.jlumin.2018.04.020>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Luminescent mesoporous silica nanoparticles for biomedical applications: Synthesis and Characterization

Beena Jain*, Reeja K.V¹, Puspen Mondal and Anil Kumar Sinha

Raja Ramanna Center for Advanced Technology, Indore, M.P., India 452013

¹Manipal University, Manipal, India

*Author for correspondence: E-mail: beenaj@rrcat.gov.in , Phone: (0731) 248 8376, Fax: (0731) 248 8300

Abstract

We report the synthesis and detailed characterization of intrinsically/lable-free luminescent mesoporous silica nanoparticles (L-MSN), which may have useful biomedical applications. These particles were prepared by modified Stober's method followed by calcination. By optimizing the ratio of (3-aminopropyl triethoxysilane) APTS to tetraethoxysilane (TEOS), particles with size ~43 nm and size dispersion ~12% were obtained. The luminescence of L-MSN is suggested to be due to the formation of carbonaceous compounds, giving particles yellowish brown colour, during the process of calcination at optimum temperatures ~ 400 °C. Interestingly, our studies suggest that these carbonaceous impurities are carbon dots (C-Dots) and fluorescence anisotropy decay measurements indicate C-Dots as integral part of L-MSN.

Download English Version:

<https://daneshyari.com/en/article/7839998>

Download Persian Version:

<https://daneshyari.com/article/7839998>

[Daneshyari.com](https://daneshyari.com)