MET Bhujbal Knowledge City

Vinod Khairnar <vinodk_ioe@bkc.met.edu>

Invitation to Peer Review #JMSE-D-25-03477

Journal of Materials Science: Materials in Electronics (JMSE) <em@editorialmanager.com> Sun, Jul 27, 2025 at 3:14 PM
Reply-To: "Journal of Materials Science: Materials in Electronics (JMSE)" <pravin.selvakumar@springer.com>
To: Vinod Shravan Khairnar <vinodk_ioe@bkc.met.edu>

Dear Dr Khairnar:

REF: PAPER #JMSE-D-25-03477
"Synthesis, Optoelectronic, and Electrochemical Characteristics of Biomass-Derived Carbon Quantum Dots"

The above-referenced manuscript (the abstract is appended below) has been submitted for publication. I would be most grateful if you could referee it for me.

In case you accept to review this submission please click on this link:

https://www.editorialmanager.com/jmse/l.asp?i=1676696&l=TWD3KQ8J

If you do not have time to do this, or do not feel qualified, please click on this link:

https://www.editorialmanager.com/jmse/l.asp?i=1676697&l=06E7AN3C

Please access the online peer review system.

Your username is: VinodKhairnar
If you forgot your password, you can click the 'Send Login Details' link on the EM Login page at https://www.editorialmanager.com/jmse/

Please either accept or decline this invitation online. Please DO NOT send your reply by return email.

If you feel you are unable to referee it within two weeks, please decline at the above URL.

You are encouraged to check the manuscript's Data availability statement, where applicable. You should consider if the authors have complied with the journal's policy on the availability of research data, and whether reasonable effort has been made to make the data that support the findings of the study available for replication or reuse by other researchers (Peer reviewers are entitled to request access to underlying data (and code) when needed for them to perform their evaluation of a manuscript.)

To assist in assessing the paper, for which a high standard is required, you can view the Instructions for Authors at the journal overview.

With thanks.

Yours sincerely,
Nandu B. Chaure
Editor
Journal of Materials Science: Materials in Electronics

AUTHORS

J. Sherin Percy Prema Leela; P. Jesu Jayarin; M. Ramesh Babu; Santosh Kumar Nathsharma; HELEN MERINA ALBERT

ABSTRACT

In this paper, carbon quantum dots (CQDs) were successfully prepared from sugarcane bagasse pulp (SBP) using a convenient hydrothermal method. The biomass-derived CQDs showed better structural, optical, and electrochemical properties. Fourier-transform infrared spectroscopy revealed the existence of several functional groups, while X-ray diffraction analysis demonstrated their mostly graphitic characteristics. Dynamic light scattering confirmed a narrow size distribution between 8 and 12 nm with a small polydispersity index of 0.169. UV-Vis spectroscopy revealed characteristic π–π* and n–π* transitions, and the substantial optical band gap of 5.0 eV was ascertained using Tauc plot analysis. The Urbach energy of 0.629 eV indicates the existence of surface defects and inhomogeneity. The photoluminescence spectrum exhibited a significant dual-emission feature at 433 nm (blue) and 667 nm (red), associated with core and surface origins, respectively. The dual-emission phenomenon
was validated using CIE-chromaticity mapping. Electrochemical impedance spectroscopy demonstrated significant charge transfer resistance and diffusion-controlled processes, confirming the electroactive potential of CQDs. These findings underscore biowaste as a promising source of economical, green-synthesized CQDs, serving as a viable nanomaterial for optoelectronics and energy devices.

%CUSTOM_DASDD_REVIEWER_INV_%

This letter contains confidential information, is for your own use, and should not be forwarded to third parties.

Recipients of this email are registered users within the Editorial Manager database for this journal. We will keep your information on file to use in the process of submitting, evaluating and publishing a manuscript. For more information on how we use your personal details please see our privacy policy at https://www.springernature.com/production-privacy-policy. If you no longer wish to receive messages from this journal or you have questions regarding database management, please contact the Publication Office at the link below.

In compliance with data protection regulations, you may request that we remove your personal registration details at any time. (Use the following URL: https://www.editorialmanager.com/jmse/login.asp?a=r). Please contact the publication office if you have any questions.