

## **A green synthesis, characterization of highly luminescent carbon dots from *Moringa oleifera* gum application as an efficient potentiometric sensor for Hg<sup>2+</sup> toxic metal ions**

**M. Muthukumar<sup>a</sup>, G. Dhinakaran<sup>a</sup>, V. Narayanan<sup>b</sup>, T. Raju<sup>a</sup> and K. Venkatachalam<sup>a\*</sup>**

<sup>a</sup>Department of Analytical Chemistry, <sup>b</sup>Department of Inorganic Chemistry,  
University of Madras, Guindy Campus, Chennai-600 025, India

*E-mail:* kvenkatchemisty@gmail.com

*Manuscript received online 01 September 2018, accepted 09 October 2018*

---

In this study, synthesis of highly luminescent carbon dots (CDs) is one of the hot research areas in the present-day context C-dots synthesis from *Moringa oleifera* gum is a green materials. The C-dots synthesis using hydrothermal method using 180 °C for 24 h reaction. We have synthesized highly luminescent CDs in a green way which can be adopted for large-scale production of luminescent CDs. In the newly synthesized C-dots characterizations including UV-Vis, FT-IR, Raman, PL and FE-SEM etc. The newly prepared CCPE was using C-dots and potentiometric heavy toxic metal ions sensing. We have demonstrated the CDs as a sensitive and selective potentiometric sensor for the determination of Hg<sup>2+</sup> ions which is a well-known environmental toxic pollutant.

**Keywords:** Carbon dots (CDs), composite carbon paste electrode (CCPE), potentiometer, toxic metal ions.