

**Synthesis of carbon quantum dots from neem fruit flesh for dual metal
sensing, bioimaging, and antibacterial applications**

**Kannan Vellaisamy^a, Ayerathal Velmurugan^a, Esakkimuthu Shanmugasundaram^a,
Nithesh Kumar Krishnan ^a, Vaseeharan Baskaralingam^b, Ashokkumar Sibiya^b,
Stalin Thambusamy^{a*}**

^aDepartment of Industrial Chemistry, School of Chemical Science, Alagappa University,
Karaikudi-630 003, Tamil Nadu, India.

^bNano Biosciences and Nanopharmacology Division, Biomaterials and Biotechnology in Animal
Health Lab, Department of Animal Health and Management, Science Campus 6th Floor,
Alagappa University, Karaikudi-630 003, Tamil Nadu, India.

Corresponding author: * stalin.t@alagappauniversity.ac.in

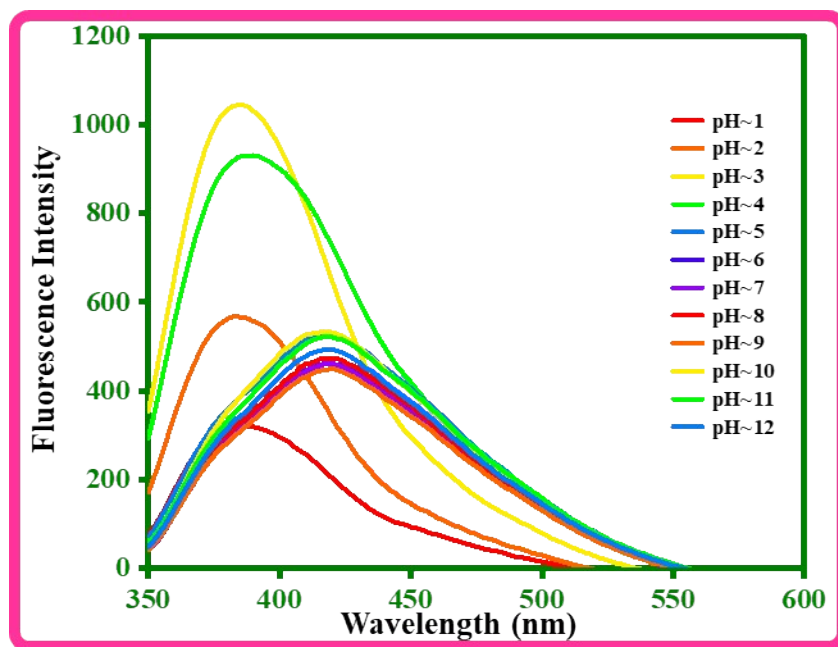


Fig. S1. (A) The emission spectra of NFF-CQDs in different pH (1 to12)

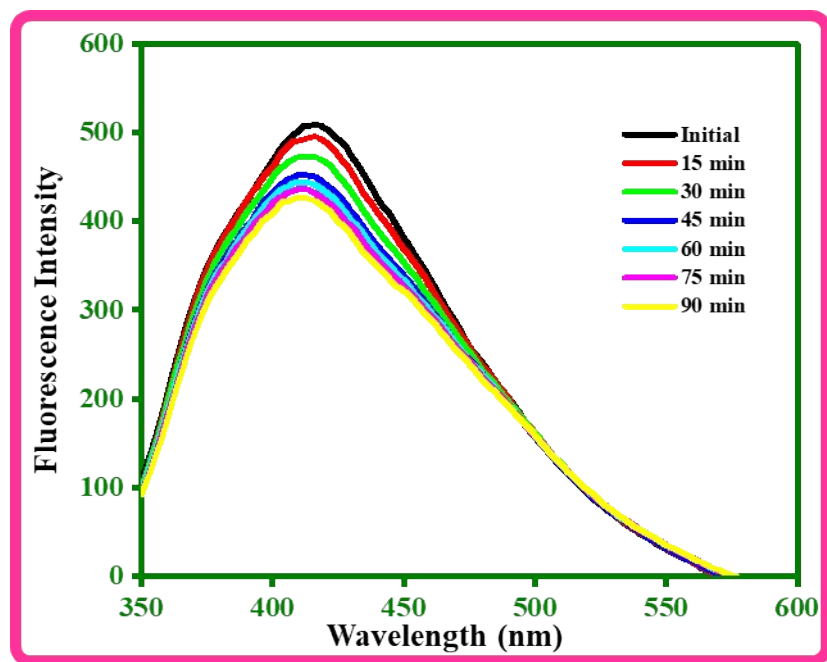


Fig. S2. The emission spectra of NFF-CQDs in UV-light irradiation.

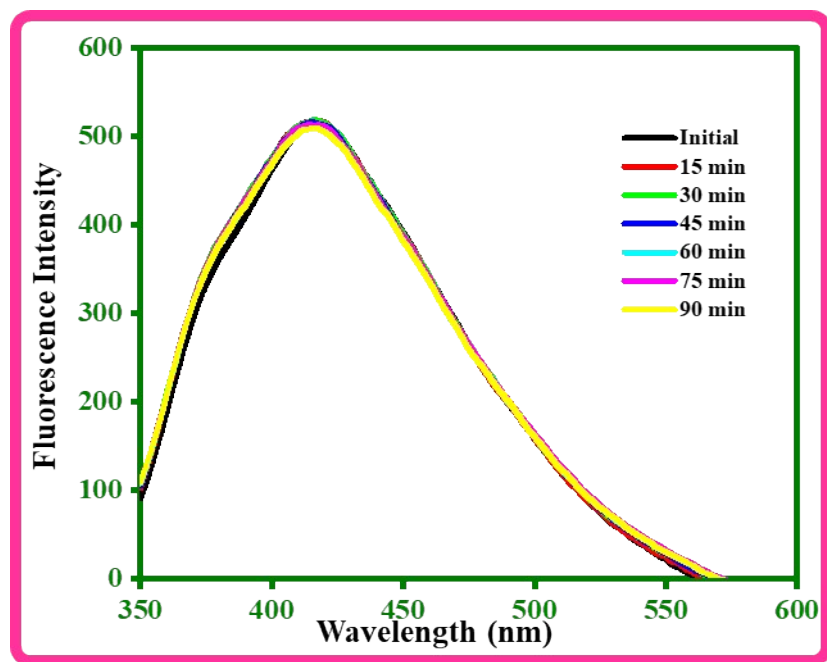


Fig. S3. The emission spectra of NFF-CQDs in visible light irradiation.

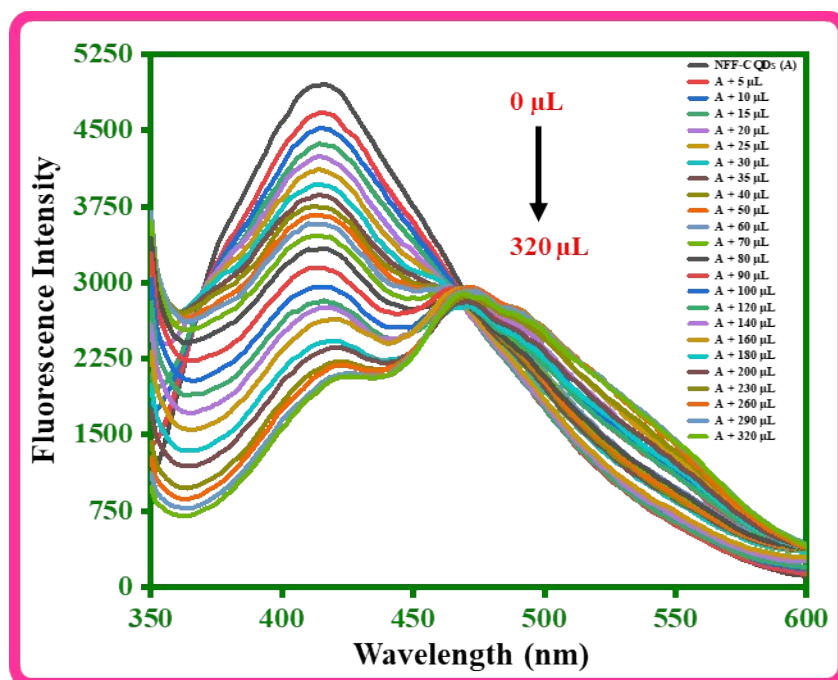


Fig. S4. Emission spectra of NFF-CQDs with different concentration of Fe^{3+} ions

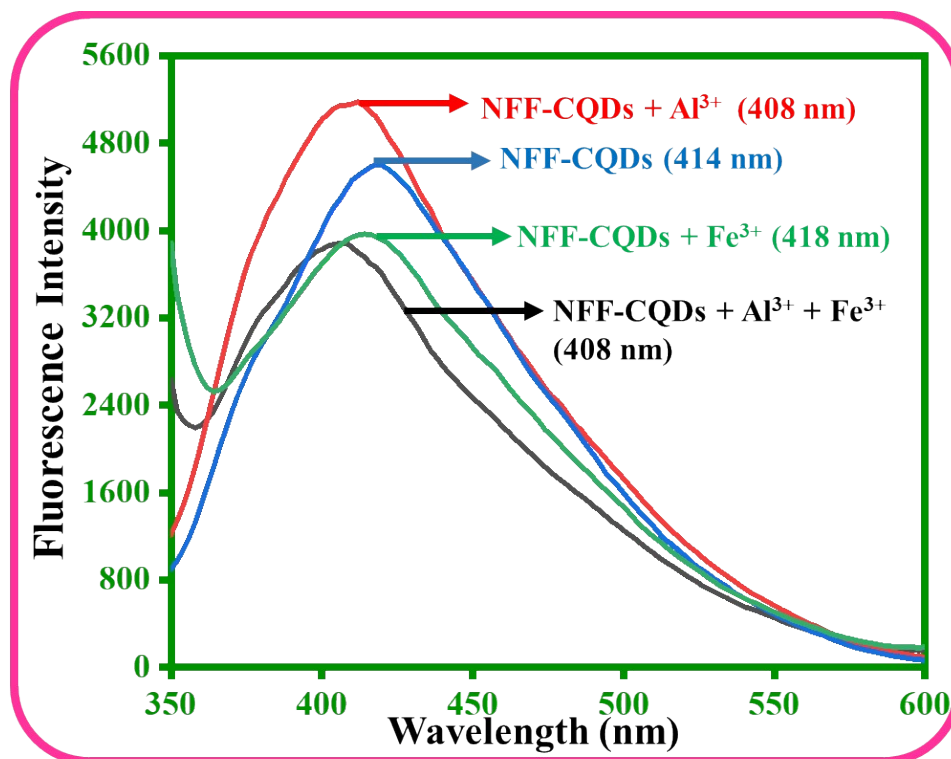


Fig. S5. Comparative emission spectra bare NFF-CQDs, NFF-CQDs with Al³⁺ ion, and NFF-CQDs with Fe³⁺ ion.

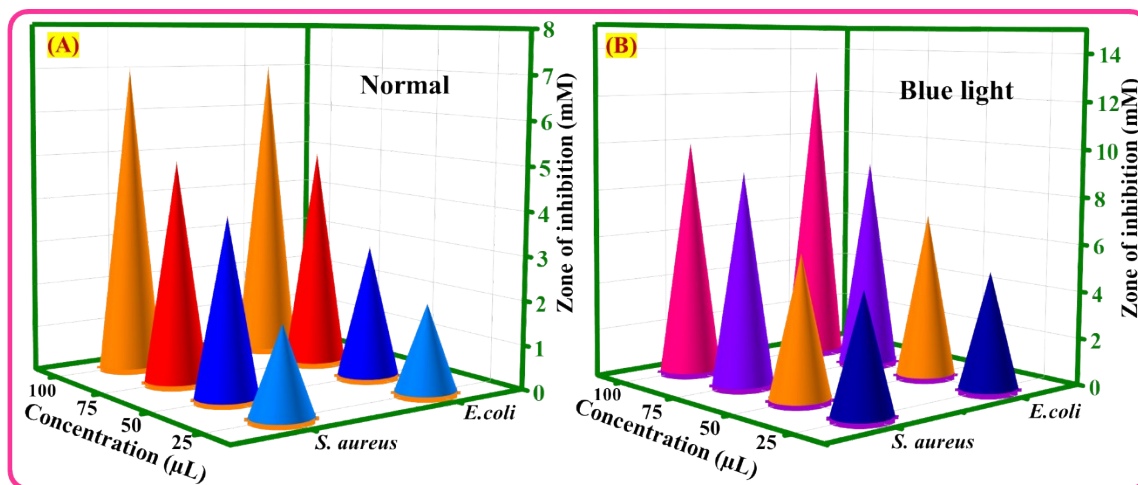


Fig. S6. Antibacterial activity graph of NFF-CQDs against *S.auresh* and *E.coli* (A) Normal (B) Blue light.