

Fluorescence Tunable Carbon Dots for *In-vitro* Nuclear Dynamics and Gastrointestinal Imaging in Live Zebrafish and their *in-vivo* toxicity evaluation by cardio-craniofacial disfunction assessment

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Supplementary information

Measurements of fluorescence quantum yield

The QY of the synthesized FNCDs was measured based on an established procedure (Raji Atchudan et al., 2018; Wang et al., 2014) In brief, quinine sulfate in 0.1 M H₂SO₄ was used as the reference standard. The QY was calculated according to the following equation (1):

$$QY (\%) = QY_R \frac{I_S A_R (n_S)^2}{I_R A_S (n_R)^2} \quad (1)$$

where, “I” is the measured integrated fluorescent emission intensity, “n” is the refractive index of the solvent, and “A” is the absorbance. The subscript “R” and “S” refers to the corresponding parameter of known fluorescent standard and for the synthesized sample, respectively.

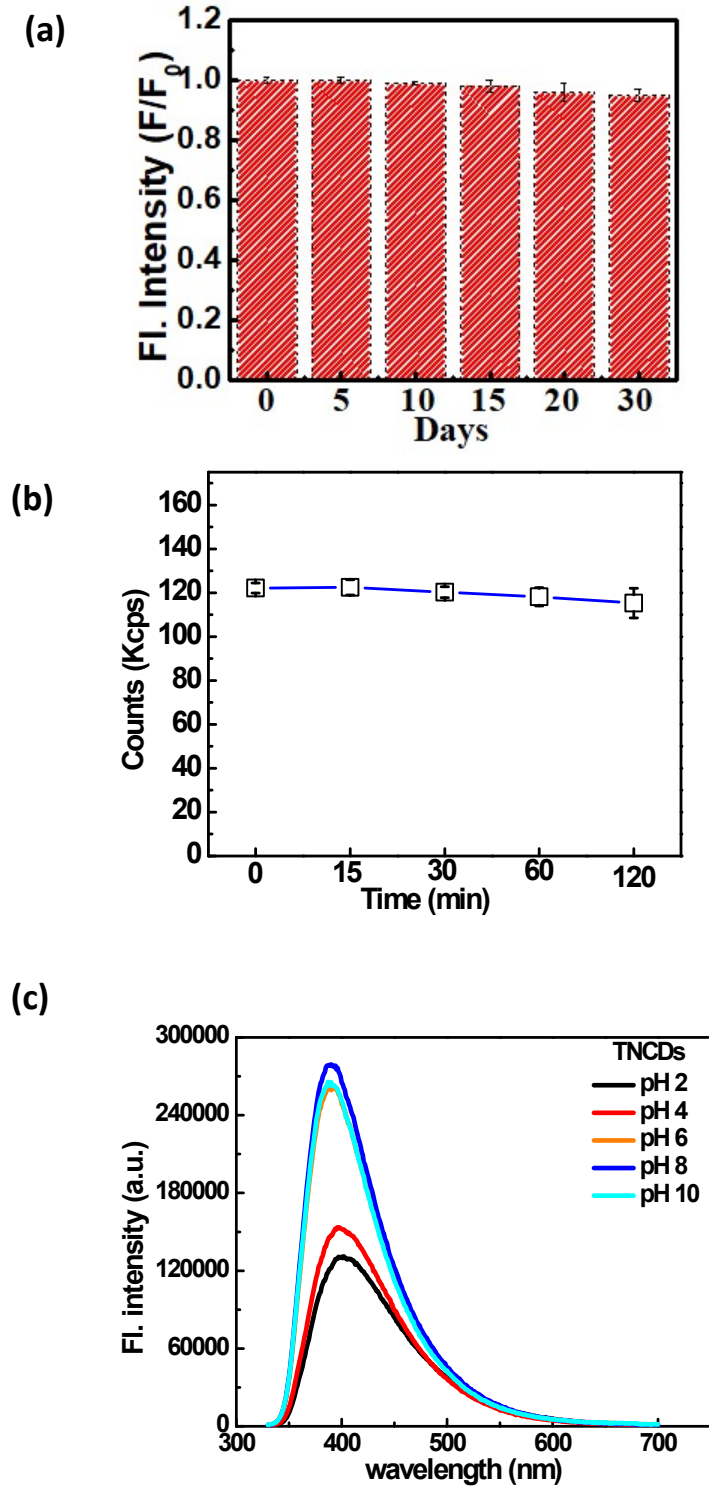


Fig. S1: (a) Storage stability of Carbon dots (TNCDs) for 30 days (b) colloidal stability measurement of TNCDs investigated by Dynamic Light Scattering instrument (DLS) and (c) pH dependent emission intensity variation of TNCDs

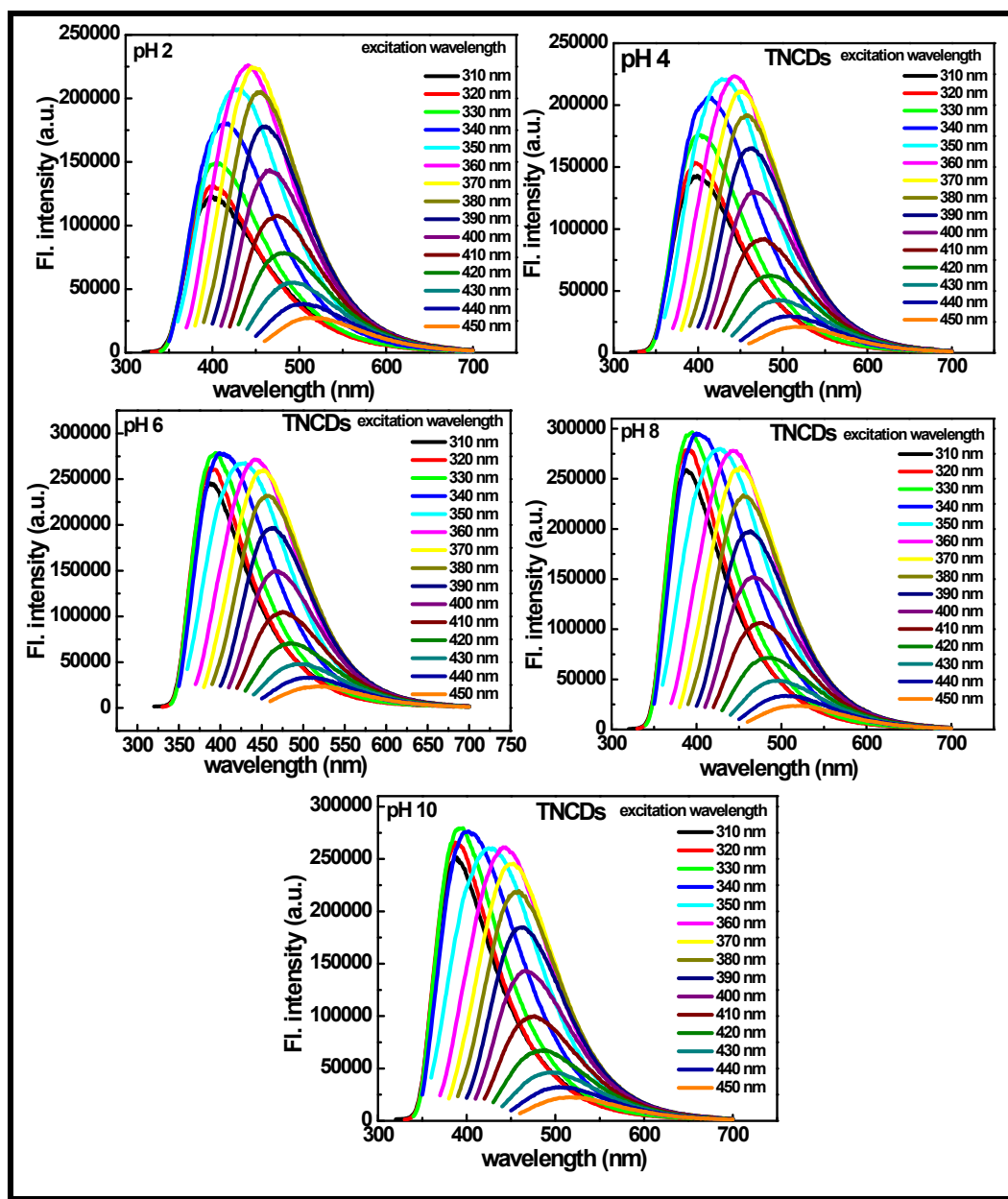


Fig. S2: Excitation dependent emission spectra of TNCDs at different pH

Supplementary References:

1. R. Atchudan, T. N. J. I. Edison, K. R. Aseer, S. Perumal, N. Karthik, Y. R. Lee, Highly fluorescent nitrogen-doped carbon dots derived from *Phyllanthus acidus* utilized as a fluorescent probe for label-free selective detection of Fe³⁺ ions, live cell imaging and fluorescent ink. *Biosensors and Bioelectronics*, 2018, **99**, 303-311.
2. L. Wang, Y. Yin, A. Jain, H. S. Zhou, Aqueous phase synthesis of highly luminescent, nitrogen-doped carbon dots and their application as bioimaging agents. *Langmuir*, 2014, **30**, 14270–14275.