

## Abstract

Nanoscale carbons are used in a variety of fields and have unique characteristics. Because of their excellent optical qualities (such as strong absorbance and high photoluminescence), low toxicity, environmental friendliness, outstanding biocompatibility, great light stability, resistance to light bleaching and easy fabrication, a large number of CDs have been synthesized and have displayed amazing advantages in a variety of application domains. Optical properties can be increased by introducing heteroatom to carbon dots via doping process. Nitrogen doped carbon dots were synthesized from lemon juice as a rich carbon source using one-step green hydrothermal method. 360 nm  $\lambda_{\max}$  of N-CQDs was observed using UV-vis spectrophotometer and the peak emission intensity occurred at 445.75 nm using photoluminescence spectrometer. When N-CQDs were tested with  $\text{Fe}^{2+}$  the fluorescence intensity of N-CQDs was quenched by  $\text{Fe}^{2+}$  which was further confirmed by Stern-Volmer plot which showed static quenching, making these N-CDs an inventive and environmentally friendly fluorescent probe. They can be used in future biomedical research for in vivo or in vitro applications of multicolor image sensing.