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Easy synthesis of highly fluorescent carbon dots from tomato lycopene and their biological imaging applications

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Fluorescent carbon dots (CDs), a new member of the carbon nanomaterial family, have drawn considerable attention in the fields of optoelectronic devices, biological labeling and biomedicine.Typically, CDs are small oxygenous carbon nanoparticles with sizes blow 10 nm, displaying size and excitation wavelength dependent photoluminescence (PL) behavior.A simple and green approach was developed to synthesize highly fluorescent carbon dots (CDs) using lycopene as a carbon source.The CDs were characterized by excellent monodispersion, superior photostability, pH-independent emission, long fluorescence lifetime and high quantum yield (QY).CDs could be considered as a potential substitute for organic dyes or semiconductor quantum dots (SQDs) in biological imaging.[2-3]

Keywords: Fluorescent carbon dots, lycopene, Green synthesis

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