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One-pot green synthesis of fluorescent carbon quantum dots from vegetable extract for optoelectronic and biomedical applications

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Carbon quantum dots (CQDs) are potential candidates for numerous modern nanotechnologies and biomedical research. Owing to their simple one-pot synthesis, unique excitation-dependent emission, excellent photochemical stability, and high biocompatibility, these water miscible CQDs have shown great potential as an alternative source to conventional organic fluorescent dyes and inorganic semiconductor QDs. Considering these advantages of CQDs, we have synthesized fluorescent CQDs from various natural sources such as pomegranate extract, D-glucose and beetroot aqueous extract in a very simple, green and cost-effective way for white light emitting material, chemical sensing and biomedical applications. The details of the synthesis, photophysical properties and applications of these CQDs are also studied.

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