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## Graphene quantum dots prepared from glucose as optical sensor for glucose

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### Abstract

Quantum Dots (QDs) show promise materials for many technological applications. In this work we utilized a simple route to prepare graphene quantum dots (GQDs) using glucose carbonization. GQDs functionalized with phenylboronic acid receptors were employed as a sensing material for a nonenzymatic glucose sensor. Photoluminance spectra of GQDs were used as a property of optical sensor for glucose. GQDs considered as a good sensing probe because of its low toxicity, high photoluminance, water solubility and excellent photochemical properties. The prepared GQDs were characterized using UV-visible, Raman and photoluminance spectroscopies, X-ray diffraction and high resolution transmission electron microscopy (HRTEM). HRTEM micrographs confirmed the preparation of 7-10 nm GQDs and the emission peak of the GQDs appeared at 450 nm. The developed sensor has linear response to glucose over a concentration range

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