**Microwave assisted synthesis of carbon dots from babul seed powder: application as excellent bio imaging agents**

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**Abstract**

Carbon quantum dots are a versatile nanomaterial with highly biocompatible and attractive optical properties, bio imaging, sensing. Here we show that simple one pot microwave assisted synthesis of carbon quantum dots using babul seed powder as a green therapeutic carbon source. The synthetic conditions were optimized by various parameters. The successful synthesis of CDs were characterized from several techniques like fluorescence spectrofluorometer, Fourier transform infrared spectroscopy (FTIR), X-ray diffraction (XRD), Transmission electronic microscopy (TEM) and X-ray photoelectron spectroscopy (XPS). The synthesized CDs exhibited good optical properties and pH dependent photoluminescence intensities. The as-prepared CDs exhibit excellent water solubility and highly stability to several effects like pH, ionic strength and continuous irradiation. Furthermore, the cytotoxicity of CDs was tested on both normal (Human embryonic kidney HEK-293) and cancerous (Human breast adenocarcinoma MCF-7) cell lines showing negligible cytotoxicity, excellent biocompatibility and great resistance to photo bleaching. Due to low toxicity, excitation dependent emission and high photo stability these CDs were applied as multi-color bioimaging agents and related fields.