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## *Research Highlights*

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- Microwave-assisted extraction of CDs from gardenia charcoal.
- CDs maintain up to 92% fluorescence intensity after prolonged UV exposure, indicating remarkable photostability.
- Proven non-antibacterial activity and enhanced fluorescence properties position these CDs as promising candidates for bioimaging.
- CDs-2 exhibit superior antioxidant activity, with an SC-50 value of 21.7  $\mu\text{g/mL}$ .