

Water-soluble Fluorescent Carbon Dots Derived from Lignin

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Fluorescent quantum-sized carbon dots (FCDs) are considered to be next generation green materials and are promising alternatives to fluorescent semiconductor nanocrystals, which are composed of toxic heavy metals such as cadmium. The potential of FCDs in biomedical applications is enormous because the major component is the nontoxic element carbon. Here, we report the sequential subcritical fluid process and chemically synthesized highly fluorescent and environmentally benign carbon dots from lignin which was the renewable and waste products from pulp and paper industries, and renewable bioethanol production. The synthesized FCDs have good water solubility and well distributed particles sizes. Besides, due to high photostability and biocompatibility are demonstrated as excellent probes in cellular imaging.