In-situ growth of manganese oxide/bamboo powder nanocomposites with excellent activity in methylene blue removal

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ABSTRACT

Cellulose is rich in sources and contains a large number of hydroxyl groups in the molecule, which can be used as the carrier of nanomaterials and reducing agents of KMnO4. Manganese oxide (MnO2)/bamboo powder nanocomposites were prepared at 60°C using wood powder as a reducing agent and nanomaterials carrier. KMnO4 was utilized as an oxidant and manganese source of MnO2 nanoparticles. Methylene blue was used as the target pollutant to test the activity of nanocomposites. Under neutral conditions, the removal efficiency of methylene blue reached 98.5% under room temperature and atmospheric pressure, and the maximum adsorption capacity of the nanocomposite reached in 10 min.

Keywords: Wood powder; Manganese oxide; Composite material; Methylene blue; Wastewater treatment

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