



## *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  $\text{KMnO}_4$ . Manganese oxide ( $\text{MnO}_2$ )/bamboo powder nanocomposites were prepared at  $60^\circ\text{C}$  using wood powder as a reducing agent and nanomaterials carrier.  $\text{KMnO}_4$  was utilized as an oxidant and manganese source of  $\text{MnO}_2$  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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