



POLLUTANTS REMOVAL BY PHOTOCATALYSIS ON TANNIN-DERIVED ORDERED MESOPOROUS CARBONS

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Ordered mesoporous carbons (OMCs) were prepared by a soft templating method using tannin (T) as carbon precursor and the triblock copolymer Pluronic F127 (P) as micelle generator. Water was used as solvent and to promote the interaction between the phenolic groups of T and the hydrophilic sections of P in order to favor the T-P mesophase formation. After carbonization of the T-P mesophase, an OMC was obtained that was further activated with CO₂ to develop its textural properties. The resultant activated OMCs (AOMCs) had BET areas ranging from 780 to 1090 m²/g after 0.5 and 2h of activation, respectively. The photocatalytic performances of the AOMC with the highest surface area were evaluated to remove a model pollutant, rhodamine B (RhB), in aqueous phase. The photocatalytic activity of this OMC was up to 3.4 times higher than that of commercial TiO₂ mainly due to the higher surface density of RhB molecules adsorbed on the AOMC compared to TiO₂. Finally, different kinetics and isotherm models were applied to the RhB adsorption data and correlated with the photocatalytic activity. The obtained RhB removal performances were compared with those published in the open literature.