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Singlet oxygen-dominated peroxydisulfate activation by sludge-derived biochar for sulfamethoxazole degradation through a nonradical oxidation pathway: Performance and mechanism

Renli Yin[†], Wanqian Guo^{,†}, Huazhe Wang[†], Juanshan Du[†], Qinglian Wu[†], Jo-Shu Chang^{*,‡}, Nanqi Ren[†]*

[†]State Key Laboratory of Urban Water Resource and Environment, Harbin Institute of Technology, Harbin, China

[‡]Department of Chemical Engineering, National Cheng Kung University, Tainan, Taiwan

ABSTRACT

In this study, sludge-derived biochar (SDBC) was prepared and applied in peroxydisulfate (PDS) activation for sulfamethoxazole (SMX) degradation. Compared to the slight adsorption (16.5%) by SDBC alone and low direct oxidation (10.1%) by PDS alone, the SMX degradation rate was drastically increased to 94.6% in the combined SDBC/PDS system, suggesting that SDBC can successfully and efficiently activate PDS. The observed rate constant of the combined SDBC/PDS system was 48.3 times those of both PDS alone and SDBC alone processes. Material characterization

* Corresponding author:

Email address: guowanqian@hit.edu.cn (W.Q. Guo), phone: +86-451-86283008

changjs@mail.ncku.edu.tw (J.S. Chang), phone: +00886-93816

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