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Study on the resistance of severe acute respiratory syndrome-associated coronavirus

Xin-Wei Wang [a], Jin-Song Li [b], Min Jin [a], Bei Zhen [b], Qing-Xin Kong [a], Nong Song [a], Wen-Jun Xiao [b], Jing Yin [a], Wei Wei [b], Gui-Jie Wang [b], Bing-yin Si [b], Bao-Zhong Guo [b], Chao Liu [c], Guo-Rong Ou [a], Min-Nian Wang [b], Tong-Yu Fang [d], Fu-Huan Chao [a], Jun-Wen Li [a]

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Abstract

In this study, the persistence of severe acute respiratory syndrome-associated coronavirus (SARS-CoV) was observed in feces, urine and water. In addition, the inactivation of SARS-CoV in wastewater with sodium hypochlorite and chlorine dioxide was also studied. In vitro experiments demonstrated that the virus could only persist for 2 days in hospital wastewater, domestic sewage and dechlorinated tap water, while 3 days in feces, 14 days in PBS and 17 days in urine at 20 °C. However, at 4 °C, the SARS-CoV could persist for 14 days in wastewater and at least 17 days in feces or urine. SARS-CoV is more susceptible to disinfectants than *Escherichia coli* and f_2 phage. Free chlorine was found to inactivate SARS-CoV better than chlorine dioxide. Free residue chlorine over 0.5 mg/L for chlorine or 2.19 mg/L for chlorine dioxide in wastewater ensures complete inactivation of SARS-CoV while it does not inactivate completely *E. coli* and f_2 phage.

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Keywords

SARS-CoV; Resistance; In vitro; Disinfection

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