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Size-dependent impact of inorganic nanoparticles on sulfamethoxazole adsorption by carbon nanotubes

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ABSTRACT

Multiple nanoparticles (NPs) have been released into the environment due to their increasing widespread applications. Studies have shown that the interactions between different types of NPs could have an impact on the adsorption of pollutants thereon. However, whether this impact depends on the particle size is still unknown. In this study, we have investigated the adsorption of sulfamethoxazole (SMX) on multi-walled carbon nanotubes (CNTs) in the presence of SiO_2 (15, 30, and 100 nm) or Al_2O_3 (20, 50, and 100 nm). The results showed that SiO_2 or Al_2O_3 inhibited the SMX adsorption by CNTs. Moreover, the inhibitory effects depended on both the particle size and the type of NPs. The inhibitory effect increased with increasing

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