



Effect of salinity on formaldehyde interaction with sand media and kaolinite colloid particles

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Formaldehyde (FA) is a highly reactive compound that is used extensively in medicine, agriculture and industrial processes as a disinfectant for killing bacteria and fungi. Therefore, the probability of FA release in the environment, with subsequent surface and ground water contamination is significant. In this study, the effect of salinity on the interaction of FA with quartz sand and kaolinite colloid particles under static and dynamic conditions was examined. Emphasis was given to salinity fluctuations, as related to typical saltwater intrusion cases commonly encountered in coastal cultivated agricultural lands. All experiments were performed under controlled conditions at room temperature. The butch experimental data were adequately fitted with a linear adsorption isotherm. The transport of FA through columns packed with quartz sand under different salinity concentrations were also conducted. FA was analyzed spectrophotometrically according to the Hantch reaction. The results of this study indicated that FA has a weak affinity for sand, but a relatively strong affinity for kaolinite colloid particles. Furthermore, salinity was shown to have minor effects on FA transport.