Adsorption of toluene, ethylbenzene and xylenes by activated carbon-impact of molecular oxygen

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\ABSTRACT

The effect of the presence of molecular oxygen on the adsorption of toluene, ethylbenzene and xylenes in distilled Milli-Q water and in surface water supplemented with background organic matter is evaluated using activated carbon from rice husk. Experiments are conducted under conditions where molecular oxygen is present (oxic adsorption), and where oxygen is absent (anoxic adsorption) from the test environment. Significant increase in the adsorptive capacity had been observed under oxic condition compared to anoxic condition. Molecular oxygen induces polymerization of these compounds on the carbon surface, which resulted in a significant increase in the adsorptive capacity of activated carbon.

\Keywords: Oxic and anoxic adsorption; Toluene; Ethylbenzene; Xylenes; Background organic matter