

## Characteristics of Adsorption Interactions of Cadmium(II) onto Humic from Peat Soil in Freshwater and Seawater Media

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<b>Abstract</b>	The present study examined Cd solubility in pH 2-12 fresh and seawater media with and without humic to determine Cd species composition. The study, based on the Langmuir-Hinshelwood kinetics model, was conducted to determine the kinetic parameters of Cd(II) adsorption onto humic. We employed the Langmuir and Freundlich models to derive thermodynamic parameters. Aquo (Cd(H <sub>2</sub> O) (6) (2+) ) and chloro- (CdCl <sup>+</sup> and CdCl <sub>2</sub> ) complexes were responsible for Cd(II) adsorption onto humic. Results showed Cd as Cd(II) and Cd(H <sub>2</sub> O) (6) (+2) was water soluble at 2 < pH < 7; with a portion of the soluble Cd precipitating as Cd(OH) <sub>2</sub> . The Cd(II) rate constant (k) in freshwater was 0.5 x 10 <sup>(-3)</sup> (min <sup>(-1)</sup> ), occurring in a single phase, while in seawater fast and slow phase values for k were 31.88 x 10 <sup>(-3)</sup> and 6.2 x 10 <sup>(-3)</sup> (min <sup>(-1)</sup> ), respectively. The adsorption curves showed a better fit with the Langmuir than the Freundlich model.
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