



Effect of structure and hydrophobicity of soil on the accessibility of diuron

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Retention process plays a major role in the fate and impact of organic contaminants in soils. We studied the global trend of accessibility by measuring the influence of soil hydrophobic properties and soil structure on the retention of diuron. We selected seven plots with pH 3.4 to 8.2 of the long-term experiment of 42 plots in Versailles. Textural properties and composition were similar. The organic content was low. Sorption isotherms were obtained on soil slurries and kinetic measurements of diuron sorption were performed on undisturbed soil samples built up using sieved air-dried soil. The results showed that the Freundlich coefficient k_f deduced from isotherm curves decreased as pH increased. For a given density, (i) the Koc coefficient, k_f/TOC , was linearly related to the contact angle measured on the clay fraction over a wide range of pH (ii) kinetics slightly increased when pH decreased. On the contrary, when a compact structure was involved, a low initial adsorption rate and low adsorption equilibrium were observed. In this case, the structure in micro-aggregates due to the dispersion of fine particles induced by repeated treatment of soil with $NaNO_3$, was assumed to limit the accessibility of adsorption sites.