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Does phosphate sorption influence soil particle disperdibility?

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Phosphorus is a limiting element for algae growth, thus contributing to euthrophication. In some regions, agriculture is considered the principal non-point source of P entering surface waters. Most phosphorus transfer from rural watershed towards waters occurs during storm-flow periods and particulate P is often the major form transported because the P is attached to eroding soil particles. Phosphorus transfer is thus closely linked to P accumulation on soil particles, mainly due to elevated P loading, and to detachment and dispersion processes occurring at the soil surface which, in turn, are strongly influenced by soil chemical-physical properties such as soil texture, organic matter (OM) and pH. In addition, soil colloidal particles dispersion is influenced by their surface charge characteristics. Sorption of inorganic or organic P forms on clay particles is known to modify the surface charge which induces clay dispersion or flocculation.
The effect of P sorption on particles disperdibility will be discussed at laboratory, plot and catchment scale taking into account the effects of organic matter content, pH and composition of the soil solution.