



## **Dissolved organic matter (DOM): Dissolved or colloidal?**

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Dissolved organic matter (DOM) is generally operationally defined by filtration  $<0.45\mu\text{m}$ . DOM is important for the export of terrestrial carbon into the ocean and, on the other hand, is an easily accessible substrate for soil microorganisms. Previous investigations and evidences from the literature show that the DOM as well as water extracted organic matter (WEOM) contain colloidal particles. Whether the organic material is associated with those particles or forms a true solution, may be crucial for our understanding of its transport and sequestration. Numerous incubation experiments of DOM and WEOM - which is a common surrogate for DOM in situ - have observed an accumulation of polysaccharides, which are supposed to be rapidly mineralized. This may indicate a stabilization by colloidal particles, presumably metal oxides, and is consistent with literature data that suggest a stabilization of carbon by interaction with iron/aluminium oxides in the subsoil. DOM is also believed to be a carrier of iron and aluminium in podzols. In addition, leaching of clay particles, including iron and aluminium oxides, in soil profiles is a well known fact. To investigate the colloidal fraction, WEOM was extracted from the A horizon of two forest sites in Bavaria (Germany) and filtered through  $1\mu\text{m}$  and  $0.45\mu\text{m}$ . Colloidal particles were separated from the filtrate by centrifugation with 48,000g and TOC and Fe/Al and  $^{14}\text{C}$  concentrations were used to characterize the fractions.  $^{14}\text{C}$  changes with depth in different organic fractions in two other soil profiles will be discussed in the light of these findings.