

Evaluation of the effect of soil organic matter on groundwater using fluorescence of water and solvent extractable organic matter

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In order to know relationships between soil organic matter and dissolved organic matter in surface water and groundwater, this study investigate fluorescence properties of the soil extractable organic matter with various solvents(H₂O, 0.1M CaCl₂, 0.1M H₂SO₄, 0.5M H₂SO₄)[1, 2, 3]. The sulfuric acid as solvent was selected to trace the influence on groundwater chemistry by chemical release accident using organic matter. As the artificial effects such as agriculture and chemical accidents were increased, the high concentration of heavy metals and organic matter were also observed in extraction solution. The humic-like organic matter observed in organic and clay rich soil resulted in high fluorescent intensity with 3D-EEM. The impact on the agricultural activity reduces terrestrial humic-like matters due to adsorption and chemical structure decomposition. From the experimental results, the fluorescent characteristics of extractable water and soil organic matter could be used to trace the influence of spilled chemicals and agriculture on groundwater chemistry.

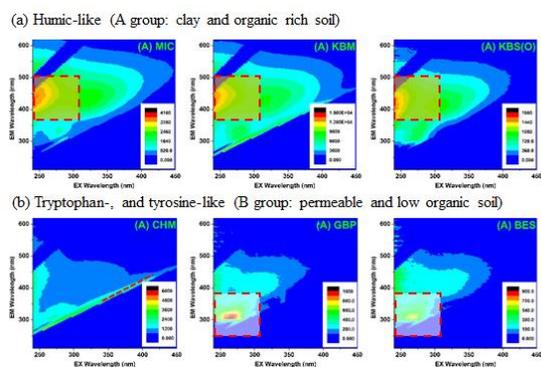


Figure 1: EEMs of soil samples were leached by water.

- [1] Gabor *et al.* (2015) *Environ. Sci. & Technol* **49**, 4425-4432. [2] Wei *et al.* (2015) *Int. J. Mol. Sci.* **16**, 14464-14476. [3] Hassouna *et al.* (2010) *Geoderma* **155**, 75-85.