

Surface water pH associated with organic matter, mineral components and organic-complexed iron concentration in the Oze peatland.

Baku Ohji[1]; Muneoki Yoh[2]

[1] Env., Agri., Tokyo Univ. Agri. Tech.; [2] Tokyo Univ. Agri. Tech.

Dissolution and transport of iron (Fe) in terrestrial ecosystem sometimes interact with dissolved organic matter, and it is therefore important to investigate the role of iron and organic matter for more comprehensive understanding of terrestrial biogeochemical cycle.

In this study, we conducted chemical analysis of peat surface water and stream water in the Ozegahara peatland in order to investigate organic matter concentration, iron dissolution, and organic-complexed iron concentration in peatland.

pH value of peat surface water ranged from 3.9 to 7.0. pH decreased with increasing the organic matter concentration, suggesting that the presence of organic acid gives low pH value. In addition, pH value increased with increasing the concentrations of mineral components (Na, K, Ca, Mg) and also with increasing Fe and Mn concentrations which dissolve from soil through reduction process. Organic-complexed iron concentration, which is determined using spectrophotometric method, showed mountain-shaped distribution for pH value with the maximum concentration at the intermediate pH (about 5.5) among all the pH values measured in this study (fig.1).

We concluded that peatland was a source of both dissolved iron and organic matter, and each concentration varied with pH. Dissolved iron and organic matter mostly coexisted at around pH 5.5, and therefore organic-complexed iron could be formed around this condition.

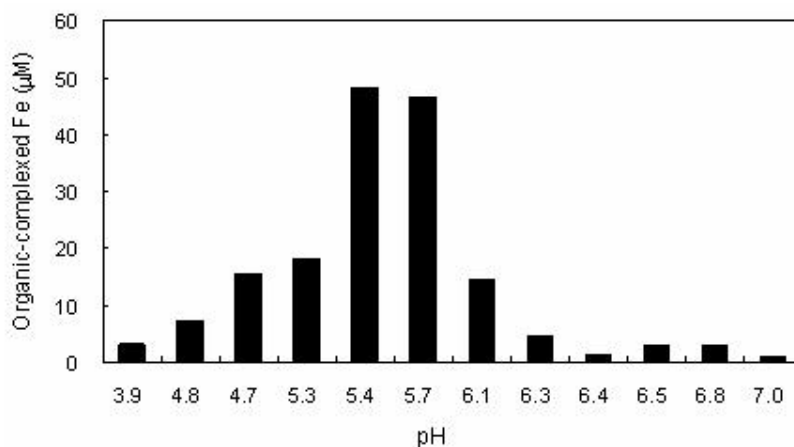


Fig. 1 Relationship between pH and organic-complexed iron concentration.