

Relationship between nutrient stoichiometry of mosses and water regime in high Arctic tundra

Takeshi Ueno[1]; Takashi Osono[2]; Hiroshi Kanda[1]

[1] NIPR; [2] Grad. Sch. Agric., Kyoto Univ.

Nutrient stoichiometry is a very powerful tool to detect the nature of nutrient limitation or the impact of environmental change in plants. However, there are few studies of nutrient stoichiometry in bryophytes. As global warming is expected to affect profoundly water availability in high Arctic ecosystems, the examination of the effect of water availability on the nutrient stoichiometry of bryophytes can help predict the impact of climate change on high Arctic vegetation.

To clarify the effect of water availability on the nutrient stoichiometry of bryophytes, we compared the carbon (C) : nitrogen (N) : phosphorus (P) : potassium (K) ratios among (*Calliergon giganteum*, *Hylocomium splendens*, *Racomitrium lanuginosum*) and within (*H. splendens*) moss species collected in habitats of contrasting water regimes in the Canadian high-Arctic tundra.

Mosses from hydric habitats had lower C : N, C : P, C : K, N : P and N : K ratios than mosses from drier habitats. However, there were no intraspecific variation of C : N ratios along the water regime gradients in the different populations of *H. splendens*. Interspecific variation of C : P ratios was more important than intraspecific variation. These results suggest C : K, N : P and N : K ratios in mosses are strongly correlated with water availability in high Arctic tundra.