

Stable isotopes of nitrate in natural mosses Stable isotopes of nitrate in natural mosses

Xueyan Liu^{1*}, Keisuke Koba², Congqiang Liu¹, Muneoki Yoh²
LIU, Xueyan^{1*}, KOBA, Keisuke², Congqiang Liu¹, YOH, Muneoki²

¹Institute of Geochemistry, Chinese Academy of Sciences, ²Tokyo University of Agriculture and Technology

¹Institute of Geochemistry, Chinese Academy of Sciences, ²Tokyo University of Agriculture and Technology

Natural mosses have been employed as reactive and accumulative indicators of atmospheric pollutants. Using the denitrifier method, the concentration, nitrogen and oxygen isotopes of moss nitrate were measured to elucidate the sources of nitrate trapped in natural mosses. Oven drying, not lyophilization, was recommended to dry mosses for moss nitrate analysis. Preliminary investigation suggested that moss nitrate can respond to nitrate availability in different habitats. Nitrate in terricolous mosses showed isotopic ratios as close to those of soil nitrate, reflecting the utilization of soil nitrate. Isotopic signatures of nitrate in corticolous and epilithic mosses could elucidate atmospheric nitrate sources and strength of anthropogenic NO_x emission at urban-rural scales. However, mechanisms and isotopic effects of moss nitrate utilization must be further verified to enable the application of moss nitrate isotopes for source identification and partitioning.

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