

The taxonomic status of an aquatic *Bryum* species in lakes of the Sôya Coast region, continental Antarctica

Kengo Kato¹, Satoshi Imura² and Hiroshi Kanda²

¹The Graduate University for Advanced Studies (SOKENDAI)

²National Institute of Polar Research

Two aquatic moss species are known to be found at the bottom of many lakes in the Sôya Coast region. They have been thought to be a species belonging to genus *Leptobryum* and an aquatic form of *Bryum pseudotriquetrum* based on the morphological characters. However, it is well known that the morphological characters of mosses are quite variable in the submerged condition as lake. Recently, the taxonomic status of *Leptobryum* species in these lakes was examined using the molecular analysis and identified as *L. wilsonii* (Mitt.) Broth., originally described from South America (Kato et al. 2013). In the other aquatic moss species, our preliminary molecular analysis suggested that aquatic and terrestrial forms of *B. pseudotriquetrum* collected from the Sôya Coast region are completely different species. In this study, therefore, we tried to identify this “aquatic *Bryum*”.

At present, seven species of the genus *Bryum* are recognized in Antarctic region and one of these species might be the counterpart of the aquatic *Bryum* in lakes of the Sôya Coast region. In this study, we gathered over 350 specimens that include the aquatic *Bryum* and all other known (seven) species of the genus both from continental and maritime Antarctic region. Using these specimens, the molecular phylogenetic analyses based on the chloroplast and nuclear ITS regions were conducted.

In the results of the analyses, we found that some specimens collected from the terrestrial grounds of the Sôya Coast region (referred as “terrestrial *Bryum*” here) and two specimens of *B. nivale* from maritime Antarctica have completely identical DNA sequences with aquatic *Bryum*. The morphological characters of the terrestrial *Bryum* were also quite similar to those of *B. nivale*. From these molecular and morphological evidences, we identified the aquatic *Bryum* and terrestrial *Bryum* as *B. nivale*, which is known as a quite rare species in maritime Antarctica and the world. The species “*Bryum nivale* Müll. Hal.” was firstly described from the Sôya Coast region and continental Antarctica in this study.

References

Kato, K., Arikawa, T., Imura, S., Kanda, H., Molecular identification and phylogeny of an aquatic moss species in Antarctic lakes, *Polar Biology*, Article in Press, 2013