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Room:Convention Hall

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Chemical signature of Antarctic Marimo and Antractic soils

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A great number of Antarctic Marimo that is mainly composed with cyanophyta and green algae are developing in the low-salinity lake (Skallen Oike) in Antarctica. In order to study chemical and biological characteristics, the Antarctic Marimo sample was characterized by amino acid analysis and by fluorescence microscopy. Antarctic soil samples in Skallen Oike and other areas in Antarctica were also chemically characterized. These samples were collected near Showa Station during the 49th Japanese Antarctic exploration mission in 2006-7.

Outer part and inner part of the Antarctic Marimo was sampled, and observed by fluorescence microscopy. The inner part sample showed stronger fluorescence due to autofluorescence of chlorophylls. There are little difference in amino acid concentration and composition between the inner and the outer parts. Amino acids in Antarctic soil samples are positively correlated with alkaline phosphatase activity, which suggested that these parameters reflect biological activity in soils. Characteristics of amino acids and phosphatases in Skallen Oike soil and Antarctic Marimo will be compared in order to study the roles of Antarctic Marimo in the environments.

Keywords: Antarctic, Antarctic Marimo, soil, microscopic fluorometry, amino acid