Investigation of diversity and distribution of tardigrades in moss environment around Syowa Station and Mt. Riiser-Larsen

Miyu Sato[1], *Hideto Naito*[2], *Satoshi Imura*[2, 3], *Megumu Tujimoto*[1, 3]
[1]*Keio University*
[2]*National Institute of Polar Research*
[3]*SOKENDAI (The Graduate University for Advanced Studies)*

Tardigrades are microscopic animals belonging to the phylum Tardigrada. Tardigrades can survive in extreme environments and live in a wide variety of habitats from marine to terrestrial. More than 1,400 species of tardigrades were reported in the world, and more than 70 species were reported in Antarctica. Although a comprehensive study using genetic analysis revealed distribution patterns of tardigrade species in a broad range of Antarctica, detailed surveys in each area of Antarctica with different environmental features are still not sufficiently conducted. Meanwhile, there are four publications on the tardigrade studies carried out around Syowa Station so far, and ten species were reported (Sudzuki. 1964, Utsugi & Ohyama. 1989, Morikawa. 1962, Tsujimoto et al. 2014). However, a limited number of samples were used in those studies, and the distribution pattern and the diversity of tardigrades in this area remain partially understood. In this study, we determined the distribution pattern and species diversity of tardigrades inhabiting moss environment using terrestrial moss samples collected around Syowa Station and Mt. Riiser-Larsen.

The terrestrial moss samples used in this study were collected from East Ongul Island, Skarvsnes, Langhovde, Mukai Iwa, Skallen, Shinnan Iwa and Mt. Riiser-Larsen during the 49th Japanese Antarctic Research Expedition (JARE-49) summer operation from December 2007 to February 2008. Tardigrades were extracted from moss samples and were observed for species identification by their morphological features with the differential interference contrast microscope (Olympus BX53). After extracting the tardigrades, we dried the moss samples and weighed in order to determine the number of tardigrades present in each moss sample.

A total of 3,794 tardigrades were extracted from a total of 40 moss samples, giving the presence of tardigrades in 87.5% of the samples. This result suggest that tardigrades are widely and ubiquitously distributed around the study sites, and do not sparsely inhabit in any particular environments in these areas as previously reported (Tsujimoto et al. 2014). The possible reason of this difference in the occurrence of tardigrades will be discussed. In addition, at least five genus of tardigrades were identified in this study; *Acutuncus*, *Diphascon*, *Macrobiotus*, *Milnesium*, and *Hebesuncus*. This presentation will include the results of the species identification analysis based on the morphological observations that is currently underway.

References

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