

Title: Ecology of moss-inhabiting diatom assemblages from Edgeøya (Svalbard, Arctica)

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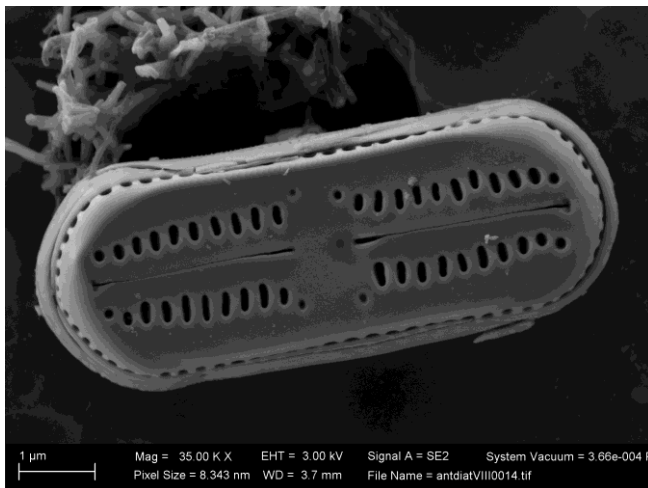
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Summary: Diatoms (Bacillariophyta) are one of the most abundant and diverse algal groups in Polar ecosystems. Their characteristic silica outer shell (= valve) and significant responses on changes in their physical and chemical environment make them excellent bio-indicators used in both applied environmental, biogeographical, and paleo-ecological studies.

Especially in Polar regions diatoms proved to be very useful indicators of environmental and climatic changes. It is generally accepted that the current climate changes will have their greatest impact in Polar regions, with the Arctic warming up to 3 times faster than the global average. Moss-inhabiting diatoms form a special group within the polar diatom flora as they show resilience and tolerance to changing environmental conditions, such as decreasing moisture levels in their habitat, increased



temperature, and destruction of their habitat due to climate change. Unfortunately, our knowledge of both the species composition of polar diatom communities and their ecological preferences are only poorly known, mainly due to historic force-fitting and incorrect species identifications.

Diatom communities in the Arctic have been studied in the past, but usually based on a too broad species concept. This most likely obscures important ecological patterns controlling their occurrence.

In the present proposal, we would like to extend the study of the diversity of the moss-inhabiting diatom flora by analysing the diatom assemblages in 45 moss samples, collected over the past 30 years in various moss vegetations in Edgeøya, the second largest island of the Svalbard Archipelago, located in the Arctic Ocean. The diatoms in the samples will be investigated using light microscopy and, when needed, scanning electron microscopy techniques. Based on our current knowledge of the diatom composition in the moss samples, it is likely that new species will be discovered. The obtained data will be analysed with multivariate techniques to determine the main diatom assemblages found in the moss samples on the island.

Keywords: Svalbard – morphological research – microscopical algae

Practical info: This proposal does not include field work. All samples have been collected during a previous expedition to Edgeøya. A substantial part of the research will involve microscopical analysis. Samples will be analyzed in the Diatom, Phycology & Myxomycete Unit at Meise Botanic Garden. As most of the research will be performed in Meise Botanic Garden, disposing of a personal car is a plus.