

Project acronym: COCARC

Project title: Genetic analyses of the arctic *Cochlearia groenlandica* and its close relatives

Project leader: Anne Krag Brysting, University of Oslo, Norway

Discipline: Life Sciences & Biotech

Station(s): Arctic Station (Greenland), GINR (Greenland)

The overall aim of the project is to providing a full overview of the systematic relationships of the North Atlantic and Arctic *Cochlearia* taxa – as a resource for future studies, e.g. investigations of local adaptation and evolution of cold tolerance in response to climate change. The immediate goal of the master project is to collect material from the type locality on Disko Island and other localities in West Greenland and compare this material genetically and morphologically to *Cochlearia* plants from other arctic and North Atlantic localities.

The genetic studies of *Cochlearia* so far have only to a very limited extent included plants from the North Atlantic and arctic area, and none have used a high-throughput sequencing approach. We have optimized a RAD-sequencing (RADseq) protocol for *Cochlearia* which has been used in two previous master student projects at the University of Oslo, addressing morphological, ecological and chromosomal variation in Northern Norway and Iceland. The field work in Greenland will be part of a new master student project (by Eirin Bruholt) where she will use RADseq to investigate the arctic *Cochlearia*. We will collect fresh leaves in silica gel for immediate desiccation of DNA to avoid degradation, making it suitable for later RADseq analyses in the lab. We will collect seeds to be able to grow the plants and compare morphological and reproductive characteristics under controlled conditions.