Two independent introductions of *Cladonia borealis* in King George Island, Antarctica

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Many lichens occupy large distributional ranges covering several climatic zones and are able to colonize extreme habitats, including high alpine and polar regions. *Cladonia borealis*, which is frequently found in King George Island, is highly variable in morphological features. In order to understand the origin of mophological diversity and phylogeographic history of *C. borealis*, 42 specimens from King George Island were compared with specimens from Svalbard and Punta Arenas. We generated DNA sequence data from the ITS1-5.8S-ITS2-LSU rDNA gene including introns in SSU and LSU rDNA genes and conducted phylogenetic and haplotype network analyses. *Cladonia borealis* from King George Island was separated into two monophyletic groups. It was proposed that the two monophyletic groups in King George Island have originated by two independent introduction events after long distance dispersal. As phylogenetic lineage sorting, environmental factors or algal partner could not explain morphological diversity, it is proposed that genetic diversity of functional genes in the population may explain the morphological diversity.

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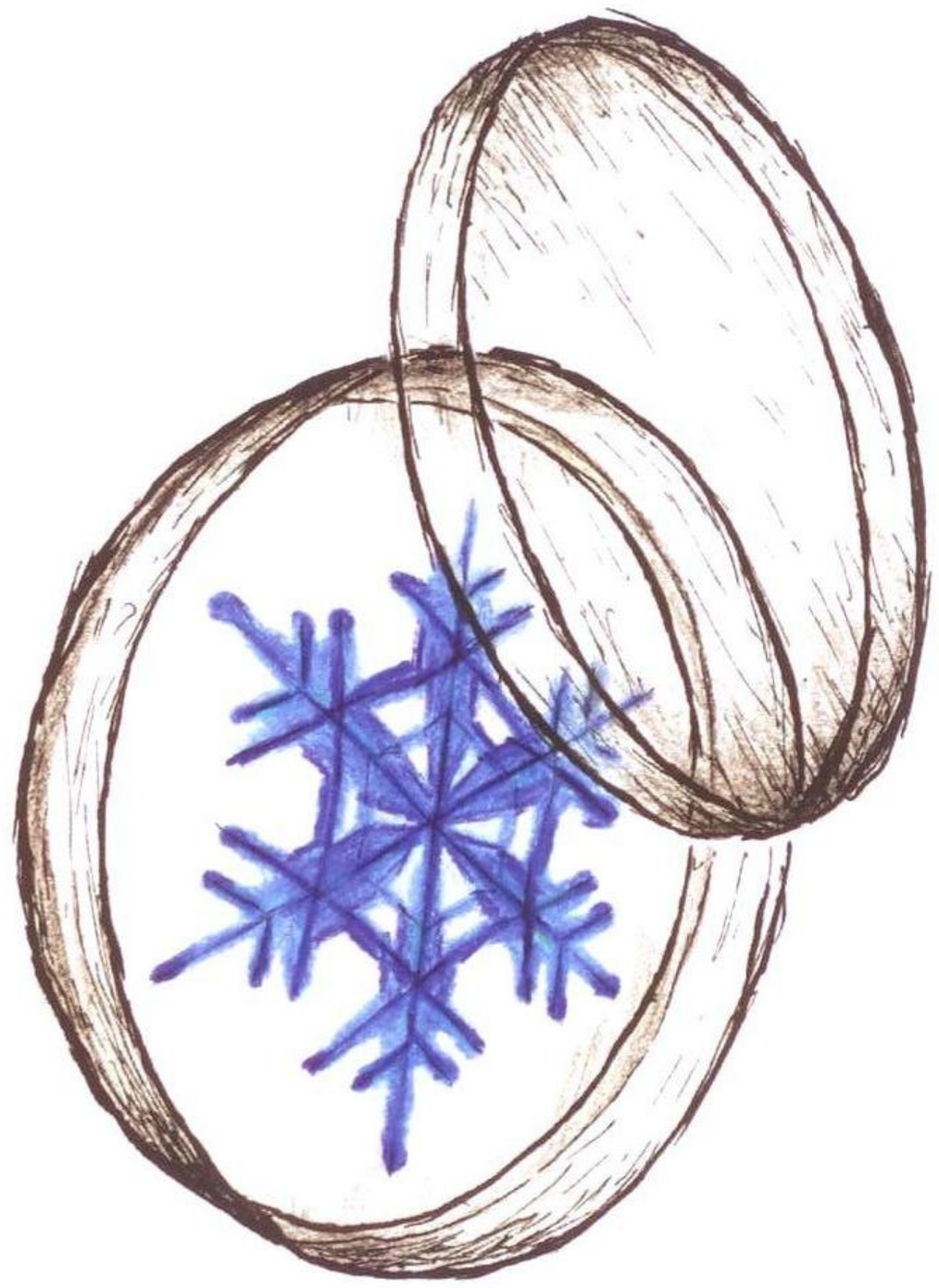

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