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Heterolobosean amoebae from Arctic and Antarctic extremes: 18 novel strains of *Allovahlkampfia*, *Vahlkampfia* and *Naegleria*

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Abstract

The diversity of heterolobosean amoebae, important members of soil, marine and freshwater microeukaryote communities in the temperate zones, is greatly under-explored in high latitudes. To address this imbalance, we studied the diversity of this group of free-living amoebae in the Arctic and the Antarctic using culture dependent methods. Eighteen strain representatives of three heterolobosean genera, *Allovahlkampfia* Walochnik et Mulec, 2009 (1 strain), *Vahlkampfia* Chatton et Lalung-Bonnaier, 1912 (2) and *Naegleria* Alexeieff, 1912 (15) were isolated from 179 samples of wet soil and fresh water with sediments collected in 6 localities. The *Allovahkampfia* strain is the first representative of the genus from the Antarctic; 14 strains (7 from the Arctic, 7 from the Antarctic) of the highly represented genus *Naegleria* complete the "polar cluster" of five *Naegleria* species previously known from the Arctic and Sub-Antarctic regions, whereas one strain enriches the "dobsoni cluster" of *Naegleria* strains of diverse origin. Present isolations of *Naegleria polaris* De Jonckheere, 2006 from Svalbard, in the Arctic and Vega Island, in the Antarctic and *N. neopolaris* De Jonckheere, 2006 from Svalbard and Greenland in the Arctic, and James Ross Island, the Antarctic demonstrate their bipolar distribution, which in free-living amoebae has so far only been known for *Vermistella* Morand et Anderson, 2007.