

Multiple application potnetial of Antarctic Micractinium KSF0031

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Antarctic microalgae have several advantages. Their evolutionary adaptation to a wide range of habitats and extreme environments has allowed them to have an abundance of biological and genetic diversity, as well as to produce a variety of bioactive molecule. We have been conducting research to apply Antarctic microalgae from basic to applied research for multiple purposes.

We here introduce Antarctic freshwater microalga KSF0031, one of new species of the genus *Micractinium* collected on the snow surface on the South Shetland Islands, Antarctica. Based on the morphological and molecular characteristics, it was named *Micractinium variabile* sp. Nov. KSF0031 (hereafter referred to as KSF0031). We analyzed the transcriptome of KSF0031 and used nanopore sequencing to produce 4,617,230,585 bp and an average read length 4,957bp. The contig number was 103 and N50 contig size is 1.9Mbase. We are especially analyzing unsaturated fatty acid-related genes and gene coding low-temperature active enzyme proteins. Also, we are investigating the chemical composition and the biological function to reveal the antioxidant, anti-inflammatory, and anticancer potentials of Antarctic microalga KSF0031.