A phytoplankton that synthesizes petroleum-equivalent hydrocarbons

30 July 2021

Moreover, we examined ten additional strains of *Dicrateria* stored in culture collections, all of which were found to be similarly capable of hydrocarbon synthesis, indicating that this was common to the entire *Dicrateria* genus. This study is the first to report on an organism with the capability to synthesize hydrocarbons equivalent to petroleum.

The capability of the ARC1 strain to synthesize saturated hydrocarbons was shown to increase depending on the environmental conditions, and the findings of this study are expected to contribute to the development of biofuels in the future.

Director-General Naomi Harada and colleagues from the Research Institute for Global Change at the Japan Agency for Marine-Earth Science and Technology, in collaboration with Assistant Professor Yuu Hirose from Toyohashi University of Technology and Specially Appointed Professor Kazuyoshi Murata from the National Institute for Physiological Sciences, discovered that the phytoplankton *Dicrateria rotunda* (*D. rotunda*) can synthesize a series of saturated hydrocarbons with a carbon number ranging from 10 to 38.

A phytoplankton community was collected from seawater of the Chukchi Sea during a science cruise of the research vessel "Mirai" in the Arctic Ocean in 2013, from which we isolated and cultured the Arctic strain of *D. rotunda*, ARC1. ARC1 contained a series of saturated hydrocarbons with a carbon number ranging from 10 to 38, which are categorized as petrol (carbon number 10 to 15), diesel oils (carbon number 16 to 20), and fuel oils (carbon number 21 or higher).

Provided by Toyohashi University of Technology

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