

Discovery of three novel *Minorisa* species, the smallest predatory marine picoplankton

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Researchers at the University of Tsukuba have made a significant discovery by identifying and characterizing three novel species within the *Minorisa* genus of marine picoplankton. Before this study, only one species of *Minorisa* was recognized. This finding reveals previously unseen diversity of *Minorisa*, thereby enhancing species identification and our understanding of its ecological functions in marine ecosystems. Credit: University of Tsukuba

Minorisa, a group of unicellular eukaryotes (protists), is renowned as one of the smallest predators in the world. These microorganisms are widely distributed in oceans, with a particular abundance in coastal regions, where they are believed to play a crucial role in marine ecosystems.

Moreover, their close association with chlorarachnion algae, possessing plastids, makes Minorisa essential for understanding how chlorarachnion algae acquired plastids. Nevertheless, until now, only one [species](#), *Minorisa minuta*, had been formally described, and the absence of available culture strains hindered taxonomic investigations.

In a study [published](#) in *Phycological Research*, researchers from the University of Tsukuba successfully isolated five cultured strains of *Minorisa* from seawater collected along Japanese coastlines. Detailed microscopic observations and comparisons of gene sequences were conducted.

All five isolates exhibited a distinctive feature of *Minorisa*, a single flagellum coiled spirally around the cell. However, there were variations in cell size and pseudopodia shape among the isolates. Additionally, the analysis of nucleotide sequences revealed that three out of the five strains were genetically distinct from *M. minuta*. These three [new species](#) were identified and named as *M. fusiformis*, *M. magna*, and *M. megafusiformis*.

This study has revealed the previously unknown diversity within the genus *Minorisa*. The culture strains identified in this study present promising opportunities for investigating the ecological role of *Minorisa* and gaining insights into the [evolutionary processes](#) associated with chloroplast acquisition in chlorarachnion algae.

More information: Takashi Shiratori et al, Molecular and morphological characterization of three novel *Minorisa* species

(Chlorarachnea) and proposal for an emended description of the *Minorisa minuta*, *Phycological Research* (2023). DOI: [10.1111/pre.12533](https://doi.org/10.1111/pre.12533)

Provided by University of Tsukuba

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