

HS-242:

Observing the Mysterious Ecology of Hikarimo

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“ Hikarimo ” is a microalgae that foams a golden membrane with a metallic luster on the surface of water. The golden membrane has a deeply impressive color. It is so impressive, in fact, that Hikarimo habitats have been designated natural monuments. There are two: one in Takeoka, Futtsu-city, Chiba, and another in Bizen-cho, Mito-city, Ibaraki.

Near our school in Hitachi-city, Ibaraki, there are a number of gloomy caves in a green tract of land called “ The Higashi-Namekawa Seaside Park. ” These caves are a precious habitat of Hikarimo. Interestingly, the golden membrane of Hikarimo is observed all year round at the park in Hitachi-city, though it is usually observed only from April to June in the other Hikarimo habitats. The city government of Hitachi is trying to preserve the habitat of Hikarimo in the park, and our school has created a preservation research project in collaboration with the city to promote these efforts. To maintain the habitat in our city, we have been studying the ecological characteristics and physiological properties of Hikarimo on a long-term basis. Hikarimo is a fresh water single-celled organism, which is classified into the relatives of the class Chrysophyceae, the phylum

Heterokontophyta by taxonomic classification. Hikarimo has two phases in its life cycle: the motile phase and the floated phase. It moves in water during the motile phase, whereas it floats on the water's surface during the floated phase. From the results of our microscopic analysis, including SEM (scanning electron microscope), we found that cells in the motile phase are covered with a transparent and spherical material, which we call a “ shell. ” Cells on the water surface, on the other hand float by contact with a hydrophobic stem. We also observed the structural and functional features of the shell and discuss the function of shells for floating on the water and progressing the Hikarimo's life cycle.

keywords: