

Diatom 11: 1-7 (英文)

石川依久子・大洲竹晃：中心目珪藻 *Pleurosira laevis* (Ehrenberg) Compère のミトコンドリアの分布と移動

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Abstract

The distribution and behavior of mitochondria in the centric diatom *Pleurosira laevis* were observed using two fluorescent dyes, DAPI for mitochondrial DNA and DiOC for the mitochondrial membrane. When chloroplasts were located in the cortical cytoplasm, most of the mitochondria were evenly distributed at the interspace of the chloroplasts and a lesser number of them were in the nuclear cytoplasm. When all of the chloroplasts rapidly migrated into the nuclear cytoplasm due to an increase in light intensity, one third of the mitochondria also migrated into the nuclear cytoplasm, being dragged by the chloroplasts during this movement. Mitochondria gathered in the nuclear cytoplasm with the aggregated chloroplasts. When the chloroplasts migrated from the nuclear region to the cortical region as a result of a decrease in light intensity, the mitochondria migrated to the cortical cytoplasm again being dragged by the chloroplasts. Time-lapse video observation showed that cytoplasmic streaming and organelle movements did not take place if there were no changes of light conditions.

From the observations, it was proved that the mitochondria of this diatom are not capable of moving independently but could migrate in a whole cell depending on chloroplast movement which is regulated by light conditions.

Key index words

cytoplasm, DAPI, diatom, DiOC, mitochondria, *Pleurosira laevis*.