

FEATURES OF TEMPERATURE ADAPTATION OF *PHAEODACTYLUM TRICORNUTUM*, *NITZSCHIA* SP., AND *SKELETONEMA COSTATUM* (BACILLARIOPHYCEAE) IN DIFFERENT LIGHT CONDITIONS

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Two types of possible adaptive response of the photosynthetic apparatus of diatoms to changes in the temperature conditions of growth are shown. The first type is a temperature-dependent change in the content of chlorophyll in the cell, aimed at matching the rates of light and dark reactions of photosynthesis (noted in *Phaeodactylum tricornutum* and *Nitzschia* sp. № 3). At the limiting light intensity, a decrease in temperature from 20 to 5°C leads to an increase in the initial slope of the of the C/Chl ratio light dependence; in optimal light conditions, when the temperature decreases from 20 to 10°C and from 10 to 5°C, the C/Chl ratio increases by 1.5 times in both species. The second type of response to changes in the temperature conditions of growth was observed in *Skeletonema costatum*, for which the chlorophyll content in the cell does not depend on the temperature in the range of 10–20°C. The adaptation of the photosynthetic apparatus in this case probably occurs due to changes in the activity of enzyme systems and the rate of enzyme processes. The potential productivity of all the studied species of algae at 10°C, calculated as the increase in biomass per unit of chlorophyll per day, does not differ significantly. Under conditions of light inhibition, a decrease in temperature leads to a progressive decrease in the content of chlorophyll in the cells of all the studied species of algae, which is due to a decrease in the rate of pigment synthesis against the background of its intense photooxidation.

Keywords: diatoms, specific growth rate, chlorophyll, C/Chl ratio, temperature, light intensity

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