



## Phylogenetic diversity in cadmium : phosphorus ratio regulation by marine phytoplankton

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**ABSTRACT:** We examined the effect of irradiance and growth rate on cadmium : phosphorus ratio in five species of phytoplankton representing four different phylogenetic groups to determine the relative importance of growth rate, irradiance, and taxonomic differences on Cd : P ratios. Irradiance and growth rate are responsible for >2 orders of magnitude variation in the Cd : P of phytoplankton. Diatoms exhibit an increase; cyanobacteria, a decrease; and prasinophyte and dinoflagellate species, no functional response in Cd : P with increasing growth rate because of changes in irradiance. These results are consistent with a metabolic demand for Cd in diatoms and a metabolic sensitivity to Cd by cyanobacteria.

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