LIGHT-INDUCED GERMINATION OF RESTING SPORES IN A COASTAL DIATOM *LEPTOCYLINDRUS DANICUS*

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Photophysiological and pharmacological approaches were used to examine light-induced germination of resting spores in the red tide diatom *Leptocylindrus danicus*. The equal-quantum action spectrum for photogermination had peaks at about 440 nm (blue light) and 680 nm (red light), which matched the absorption spectrum of the resting spore chloroplast, as well as photosynthetic action spectra reported for other diatoms. DCMU, an inhibitor of photosynthetic electron flow near photosystem II, completely blocked photogermination. These results suggest that the photosynthetic system is involved in the photoreception process of light-induced germination. Results of pharmacological studies of the downstream signal transduction pathway suggested that Ca^{2+} influx is the closest downstream neighbor, followed by steps involving calmodulin, nitric oxide synthase, guanylyl cyclase, protein-tyrosine-phosphatase, protein kinase C and actin polymerization and translation.