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Effects of solar radiation on phycobiliproteins of marine red algae

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ABSTRACT

Three strains of marine red algae, *Callithamnion byssoides* Lyngbye, *Ceramium rubrum* (Huds.) Ag., and *Corallina officinalis* Linnaeus, isolated form Patagonia, Argentina in February 2002, were tested for the presence and the type of phycobiliproteins. Changes in their specific pigment content were monitored over a period of 36 h during alternating light/dark cycles under total solar radiation (without filter) or only the PAR component of solar radiation (under a 395 nm cut-off filter). Phycoerythrin (PE) was found to be the predominant accessory light harvesting phycobiliprotein in all three red algae. Phycocyanin (PC) was present only in *Ceramium rubrum* whereas allophycyanin (APC) was not detected from all the red algae tested so far. There was a decline in the amount of PE and PC during light periods and an increase during dark periods in all the red algae showing a circadian rhythm of the phycobiliprotein destruction and resynthesis. Although the pattern of the rhythm was similar in both samples receiving either total (unfiltered) solar radiation or only PAR, the degree of bleaching of phycobiliproteins was more pronounced, and there was less recovery in the samples that received unfiltered solar radiation.

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