Effect of Photon Flux Density and Temperature on the Production of Halogenated Monoterpenes by *Plocamium cartilagineum* (Plocamiaceae, Rhodophyta)

Rodrigo Palma\textsuperscript{a}, Mario Edding\textsuperscript{a}, Juana Rovirosa\textsuperscript{b}, Aurelio San-Martín\textsuperscript{b}, and Victor H. Argandoña\textsuperscript{b,*}

\textsuperscript{a} Facultad de Ciencias del Mar, Universidad Católica del Norte, Coquimbo, Chile
\textsuperscript{b} Facultad de Ciencias, Universidad de Chile, Casilla 653 Santiago, Chile. Fax: 5622717580. E-mail: vargando@uchile.cl

* Author for correspondence and reprint requests

Z. Naturforsch. 59c, 679–683 (2004); received March 24/May 21, 2004

The effect of different photon flux densities (PFD) and temperatures on the relative growth rate (RGR) and the concentration of three halogenated monoterpenes in samples of *Plocamium cartilagineum* L. (Dixon), a marine alga (Rhodophyceae), were studied. The highest RGR (22.8 ± 0.04 d\textsuperscript{-1}) was obtained at 15 °C and 41 \(\mu\)mol m\textsuperscript{-2}s\textsuperscript{-1} of PFD and the lowest (18.0 ± 0.12 d\textsuperscript{-1}) was obtained at 18 °C and 120 \(\mu\)mol m\textsuperscript{-2}s\textsuperscript{-1}. The different temperatures and light used in assays did not affect significantly the production of organic compounds. The production of mertensene and violacene was not affected significantly. However, compound 1 reached the highest concentration at 15 °C and 65 \(\mu\)mol m\textsuperscript{-2}s\textsuperscript{-1}. The relationship between growth and production of monoterpenes of *P. cartilagineum* and the effect of temperature and the PFD were analyzed.

Key words: *Plocamium cartilagineum*, Halogenated Monoterpenes