

Survey of ultraviolet radiation-absorbing mycosporine-like amino acids in adult females of planktonic copepods

Dorothy G. Lacuna

Department of Biological Sciences, MSU-Iligan Institute of Technology

ABSTRACT

Lacuna D. G. 2002. Survey of ultraviolet radiation-absorbing mycosporine-like amino acids in adult females of planktonic copepods. *Ann. Trop. Res.* 24(2):1-22.

The presence of UV-absorbing mycosporine-like amino acids (MAAs) from nine planktonic calanoid copepod species were investigated. MAA concentrations from methanol extracts of adult females were analyzed by High Performance Liquid Chromatography (HPLC). A total of 4 MAAs were identified, namely mycosporine-glycine, palythine, porphyra-334 and shinorine. Although all the experimental copepods had MAAs, the occurrence of these compounds varied among species. For *Acartia omorii*, *Calanus sinicus* and *Pontella spinicauda*, 4 MAAs were identified; *Pontellopsis tenuicauda* and *P. yamadae*, had 3 MAAs while *Acartia sinjiensis*, *Centropages abdominalis*, *Paracalanus* sp. and *Sinocalanus tenellus* had only one MAA. Concentrations of total MAAs were also assessed. Total MAA concentrations ranged from 3.53 $\mu\text{g mgC}^{-1}$ (*Pontella spinicauda*) to 0.003 $\mu\text{g mgC}^{-1}$ (*Sinocalanus tenellus*). Since UV-absorbing MAAs act as a biochemical defense or sunscreen against the harmful wavelengths of UVB, increase content of these compounds, specifically MAAs with UVB-absorbing properties, in all neustonic copepods (*Pontella spinicauda*, *Pontellopsis tenuicauda* and *P. yamadae*) may suggest a physiological adaptation to high UV exposure which is the natural condition in neustonic environment.

Keywords: UV-absorbing compounds, copepods, mycosporine-like amino acids, neuston, plankton