

Fatty acid composition in the krill *Euphausia mucronata* from the coastal upwelling zone of central Humboldt Current System

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Euphausia mucronata is the most abundant and endemic krill species of the Humboldt Current System (HCS), one of the most productive ecosystems of the world ocean. This krill species plays a central role in the pelagic food web because it transfers carbon from lower to higher trophic levels. *E. mucronata* population dynamics is strongly influenced by coastal upwelling and associated high primary production. We studied the nutritional condition of *E. mucronata* by analyzing fatty acid composition of frozen specimens by gas chromatography-Mass spectrometry. Sampling was carried out during an annual cycle in 2013-2014 off central Chile (Oceanographic Time Series Station 18 of the COPAS Center at University of Concepcion). Seasonal differences related to upwelling regimes were verified. Twenty-six fatty acids were detected including c16:0, c16:1 ω , c20:5 ω (biomarkers of diatoms), c18:1 (biomarker of bacteria), c18:4 ω , c22:6 ω (biomarkers of dinoflagellates), and c20:1 ω , c22:1 ω (biomarkers of copepods). Saturated fatty acids (SAFA) were 29.4% during upwelling and 70.6% during weak upwelling periods. Polyunsaturated fatty acids (PUFA) were 77.5% during upwelling and 22.5% during weak upwelling periods. *E. mucronata* was found to mostly be a herbivore species but, Principal Component Analysis showed significant changes in fatty acid composition between upwelling and weak or non-upwelling periods with a higher proportion of bacteria biomarkers during non-upwelling periods. We concluded that coastal upwelling regime modify the food web structure that sustains *E. mucronata* population in this highly productive ecosystem. Funding: Fondecyt 3130387 & 11150914, COPAS Sur-Austral PFB-31.

Keywords: Fatty acids, euphausiids, *Euphausia mucronata*, coastal upwelling, Humboldt Current

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