May 06, 2019

Working

Carbon and nitrogen stable isotope analysis in harbor seal pup fur at CICESE

Juan Carlos Herguera-García[1], Gisela Heckel[1]

[1]Centro de Investigación Científica y de Educación Superior de Ensenada, Mexico (CICESE)

dx.doi.org/10.17504/protocols.io.2m3gc8n

Gisela Heckel

ABSTRACT

In the Stable Isotope Laboratory at CICESE (Ensenada Center for Scientific Research and Graduate Education, Mexico) animal tissues (pup fur from Pacific harbor seals, *Phoca vitulina richardii*) were ground for isotopic determinations. Samples were stored in a dissecator until they were loaded into a Costech® Carrousel. Samples were combusted at high temperature (1000˚C) in a pure oxygen atmosphere in an elemental analyzer coupled to a Finnigan MAT Delta V Advantage continuous flow stable isotope mass spectrometer.

Stable carbon and nitrogen ratios are expressed as $\delta^{13}C$ or $\delta^{15}N$ according to the following equation:

$\delta^{13}C$ or $\delta^{15}N$ (‰) = [Rsample/Rstandard)−1]* 1000 (1)

where R is $^{13}C/\ ^{12}C$ or $^{15}N/\ ^{14}N$.

Isotopic values of carbon and nitrogen are reported relative to Pee Dee Belemnite and atmospheric nitrogen standards, respectively. The accuracy of isotopic measurements was verified using secondary standard reference materials (Glutamic acid, a pure carbonate Merck and the laboratory internal references Lanugo for N, and CH94 for C).

THIS PROTOCOL ACCOMPANIES THE FOLLOWING PUBLICATION

Juárez-Rodríguez, M., Heckel, G., Herguera-García, J.C., Elorriaga-Verplancken, F.R., Herzka, S.Z., Schramm, Y. Trophic ecology of Pacific harbor seals in Mexican colonies based on δ13C and δ15N stable isotopes. Submitted to PLOS ONE.

DOCX

CICESE_Stable_Isotope_Lab_Protocol.docx