

Bruker Topspin NMR files for ¹³C-labeled sterols used for metabolic studies analyzed in Syracuse, NY during 2011 (PhytosterolsZooplank project)

Website: <https://www.bco-dmo.org/dataset/565297>

Data Type: experimental

Version: 2015-08-27

Project

» [Collaborative Research: Effects of Marine Algal Sterols on Zooplankton Growth and Reproduction](#)
(PhytosterolsZooplank)

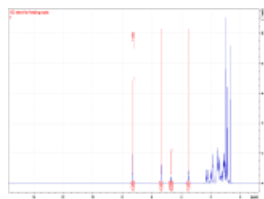
Contributors	Affiliation	Role
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Dataset Description

This dataset includes NMR results ¹³C-labeled sterols used for metabolic studies of the Northern Bay scallop, *Argopecten irradians irradians*. The zipped files may also be downloaded here: https://datadocs.bco-dmo.org/d3/data/giner_nmr/13C-sterols.zip (16.4 GB).



These data were published in Giner et al (2016).

Methods & Sampling

The spectra were acquired using a Bruker Avance-600 instrument at 30 °C using CDCl₃ as the solvent. The data was processed using Bruker Topspin. See Giner et al (2016) for details.

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Data Files

File
13C_sterols.csv (Comma Separated Values (.csv), 103 bytes) MD5:01cdf7511a877c4f251dc2ddb2cb1e2b
Primary data file for dataset ID 565297

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Related Publications

Giner, J.-L., Zhao, H., Dixon, M. S., & Wikfors, G. H. (2016). Bioconversion of 13C-labeled microalgal phytosterols to cholesterol by the Northern Bay scallop, *Argopecten irradians irradians*. *Comparative Biochemistry and Physiology Part B: Biochemistry and Molecular Biology*, 192, 1–8.

doi:[10.1016/j.cbpb.2015.11.003](https://doi.org/10.1016/j.cbpb.2015.11.003)

Results

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Parameters

Parameter	Description	Units
file_link	Link to the compressed data file.	

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Instruments

Dataset-specific Instrument Name	NMR
Generic Instrument Name	Nuclear Magnetic Resonance Spectrometers
Dataset-specific Description	Instrument: Bruker Avance 600 Bruker Topspin NMR software package used for the data analysis: https://www.bruker.com/products/mr/nmr/nmr-software/software/topspin/ove...
Generic Instrument Description	Instruments that identify and quantify magnetically active chemical entities by subjecting a sample to orthogonal magnetic and electrical fields.

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Deployments

Giner_lab

Website	https://www.bco-dmo.org/deployment/565303
Platform	SUNY-ESF
Start Date	2011-01-18
End Date	2016-03-31
Description	Chemical analysis of algae

Project Information

Collaborative Research: Effects of Marine Algal Sterols on Zooplankton Growth and Reproduction (PhytosterolsZooplank)

Description from NSF award abstract:

Autotroph-herbivore interactions in marine food webs are important to fisheries, the global carbon cycle, and, because of harmful algal blooms, human health. The recent hypothesis that harmful algae interfere with the growth and reproduction of zooplankton because of specific structural modifications of the algal sterols will be tested in research on the roles of nutritional factors in planktonic food webs. The effects of marine algal sterols on herbivorous crustaceans will be investigated in three calanoid copepods, *Acartia hudsonica*, *Eurytemora affinis*, and *Calanus finmarchicus*, and brine shrimp, *Artemia salina*. In this project, studies will be carried out to determine whether marine algal sterols can be metabolized to cholesterol by zooplankton and the relative efficiency of this process. This information is critical for assessing the nutritional value of different algal diets. Using the metabolic studies as a foundation, further experiments will seek to determine whether selected sterols, some of which have structural similarities to steroid hormones, have an inhibitory impact on the growth and reproduction of crustaceans. The analytical techniques used in these experiments will be high-field ¹³C-nuclear magnetic resonance spectrometry (NMR) and gas chromatography-high resolution mass spectrometry (GC-HRMS). Test sterols for these experiments will be labeled with stable isotopes (¹³C and ²H) in specific positions by chemical synthesis.

Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1061957