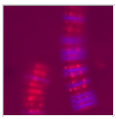

Oct 15, 2019

Quantifying Biogenic Silica (bSi) Deposition Rates Adapted Method & Fluorescence Reading (PDMPO) via Fluorometer

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1 Works for me dx.doi.org/10.17504/protocols.io.735hqq6

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ABSTRACT

This method can be used to assess and quantify the rate of silica deposition (bSi) over time in diatoms to determine their rate of frustule synthesis. This protocol has been adapted for the processing of both cultures as well as environmental samples when inoculated with PDMPO [2-(4-pyridyl)-5-((4-(2dimethylaminoethylaminocarbamoyl)methoxy)phenyl)oxazole], which is a fluorescent dye that is co-deposited with silica during frustule biosynthesis in a 3230:1 Si:PDMPO (mol:mol) ratio.

EXTERNAL LINK

http://wilhelmlab.utk.edu/

THIS PROTOCOL ACCOMPANIES THE FOLLOWING PUBLICATION

Brittany N. Zepernick1, Matthew A. Saxton2, Steven W. Wilhelm1 University of Tennessee Knoxville1, Miami University2 Adapted from: (Saxton et al, 2012), (LeBlanc and Hutchins 2005) Original Methods Leblanc, K., & Hutchins, D. A. (2005). New applications of a biogenic silica deposition fluorophore in the study of oceanic diatoms. Limnology and Oceanography: Methods, 3(10), 462-476. Saxton, M. A., D'souza, N. A., Bourbonniere, R. A., McKay, R. M. L., & Wilhelm, S. W. (2012). Seasonal Si: C ratios in Lake Erie diatoms—evidence of an active winter diatom community. Journal of Great Lakes Research, 38(2), 206-211.

MATERIALS

NAME	CATALOG #	VENDOR
LysoSensor™ Yellow/Blue DND-160 - Special Packaging	L7545	Fisher Scientific

MATERIALS TEXT

Utilize a TD-700 Laboratory Fluorometer linked to a computer monitor with the downloaded Turner software to obtain fluorescence readings of the samples

SAFETY WARNINGS

See SDS (Safety Data Sheet) for hazards and safety warnings.

Collection protocols