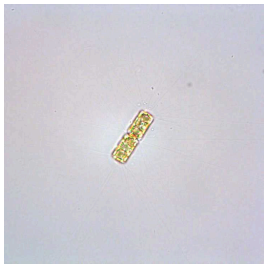
Aug 04, 2020

Preparing phytoplankton samples for elemental carbon and nitrogen analysis



DOI
https://dx.doi.org/10.17504/protocols.io.8epv51jk5l1b/v1

Jana Hinners[1], Sinead Collins[1]

[1]University of Edinburgh

Jana Hinners

DOI: https://dx.doi.org/10.17504/protocols.io.8epv51jk5l1b/v1

Protocol Citation: Jana Hinners, Sinead Collins 2020. Preparing phytoplankton samples for elemental carbon and nitrogen analysis. **protocols.io** https://dx.doi.org/10.17504/protocols.io.8epv51jk5l1b/v1

Protocol status: Working
We use this protocol and it's working

Created: December 12, 2019

Last Modified: August 04, 2020

Protocol Integer ID: 30929

Keywords: POC PON, elemental analysis, diatoms, phytoplankton samples for elemental carbon, phytoplankton sample, preparing phytoplankton sample, nitrogen analysis, nitrogen analysis protocol for the preparation, nitrogen analysis protocol, elemental carbon

Abstract

Protocol for the preparation of phytoplankton samples for elemental carbon and nitrogen analyses.

Attachments

DOCX

POC PON protocol.doc...

14KB

Materials

MATERIALS

- Distilled Water
- Tissue Culture Flask, 50ml, 10/Cs **Bio Basic Inc.** **Catalog #**TCF70-50.SIZE.1PK
- Hydrochloric acid **Merck MilliporeSigma (Sigma-Aldrich)** **Catalog #**H1758
- 6-well plate **Corning**
- Vacuum Manifold Filtration Unit **Merck Millipore (EMD Millipore)** **Catalog #**MSVMHTS00 or equivalent
- Whatman GFF filters 25mm **Merck MilliporeSigma (Sigma-Aldrich)** **Catalog #**Z242489

Preparing GFF filters

2d

1 Wrap up to 20 Whatman GFF filters in aluminium foil and precombust them for 6 hours at 450degrees C, store filters airtight afterwards

2 Weigh precombusted filters and store labelled and individually (e.g. in 6-well microtitre plates)

Preparing phytoplankton cultures

5d

3 Grow 45 mL phytoplankton cultures in 50 mL flasks until they reach mid-exponential phase, culture are dense enough when some colour is visible

Applying samples onto filters

1d

4 1 mL used of each sample used for cell counting (e.g. with fluorescence plate reader/FlowCam/FlowCytometry?Microscopy)

5 Use a vacuum filtration unit to apply the phytoplankton samples onto the GFF filters
From the remaining 44 mL per sample, 20 mL each used for 2 replicate filters
Apply the ample onto filter using a pipette, carefully check volume
Wash each the edge of the filter unit and the filter with 10mL dest. water

6 Filters with biomass can be stored again in the 6-well plates,
Let filters dry with loose lid overnight

Preparation of filters for elemental analysis

5d

7 Dry filters at 40 degrees C for 2-3 days
Weigh all dried filters again and calculate the net weight of the dry biomass for each filter

8 For work with an elemental analyzer that measures total carbon content, the inorganic carbon content has to be removed: (this can take place in the 6-well plates
Soak filters with 200uL dest. water, then apply 100uL 2M HCl onto each filter to remove any inorganic carbon from the filters
Let filters dry overnight

9 Filters are now ready for elemental analysis