

Nodularin Report

Project: Central Davis Sewer District

Submitted to: Leland Myers
Organization: Central Davis Sewer District
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Sample Receipt Date: 28 June 19
Sample Condition: 25.1 °C
Report #: 190627 – Central Davis Sewer District
Date Prepared: 8 July 19
Prepared by: Mark Aubel

<u>Sample Identification</u>	<u>Description/Site</u>	<u>Sample Collection Date</u>
FB1	Great Salt Lake	27 June 19
FB4	Great Salt Lake	27 June 19

Analytes: Nodularin (NOD)

Sample Preparation

Water Sample Ultrasonication

Upon receipt, the samples were inverted for 60 seconds to mix and free/thawed multiple cycles to lyse cells and release of toxins.

Solid Phase Extraction (SPE)

Preconditioned Strata X Polymeric SPE (200 mg) columns were loaded with 5.0 mL of sample, rinsed with deionized water and eluted with 90% acetonitrile. Elutions were blown to dryness (N₂ at 60°C) and reconstituted in 0.5 mL deionized water (10x preconcentration).

Quality Control

Table 1: LFSM/LFSMD QC sample prepared for analysis (unless otherwise noted)

Analyte	Concentration (ng/mL)	Sample ID(s)	Return
NOD	0.1	FB1	85%

Additional Quality Control/Quality Assurance checks included method blanks and a LFB.

Analytical Techniques

NOD

The method described in Foss and Aibel (2015) was modified to accommodate only nodularin. A Certified Reference Standard of NOD (1.0 ng/mL) was used to calibrate the method. Table 2 below shows the transitions monitored. A MDL was determined through standard addition (LFSM).

Table 2

Analyte	Precursor Ion (<i>m/z</i>)	Fragment Ions (<i>m/z</i>)
NOD	[M+H] ⁺ 825.5	599, 674, 776, 781, 808

Summary of Results

Sample ID	NOD (ng/mL)
FB1	ND
FB4	ND
MDL (ng/ mL)	0.05
Analyst Initials	MA
Date Analyzed	7/8/19

Qualifier	Flag
CL	Analytical result is estimated due to ineffective quenching.
J	Analyte was positively identified; the associated numerical value is estimated.
PT	The reported result is estimated because the sample was not analyzed within required holding time.
B	Analytical result is estimated. Analyte was detected in associated reagent blank as well as the samples.
E	Analytical result is estimated. Values achieved were outside calibration range.
N	Spiked sample control was outside limits
T	The reported result is estimated because the sample exceeded temperature threshold when received

Abbreviations

NA	Not Applicable	LFSM	Lab Fortified Sample Matrix
MDL	Method Detection Limit	LFSMD	Lab Fortified Sample Matrix Duplicate
MQL	Method Quantification Limit	LD	Lab Duplicate
ND	Not Detected above the MDL	SUR	Surrogate
Blank	Regent Water free from interferences	—	Not Analyzed
LFB	Lab Fortified Blank	MRL	Method Reporting Limit

Submitted by:



Mark T. Aubel, Ph.D.

Date:

July 8, 2019

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