Cambridge Isotope Laboratories, Inc.
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CIL Spotlight
ENVIRONMENTAL STANDARDS

Cyanotoxins

Cyanotoxins are toxic bioactive compounds that are released from planktonic cyanobacteria (blue-green algae) under certain conditions.[1] This can result in harmful algal blooms (HABs) that contaminate water systems and bioaccumulate in aquatic vertebrates/invertebrates. There are several classes of cyanotoxins with varying degrees of physicochemical properties and toxicity (e.g., microcystins are established nephrotoxins, β-*N*-methylamino-L-alanine is a known neurotoxin).[2] Despite the risks, cyanotoxins have not been historically regulated, but have been nonetheless identified as microbial contaminant candidates by the US EPA under the Safe Drinking Water Act (SDWA). In an effort to promote regular testing of cyanotoxins in water samples, the US EPA has established a number of analytical methods to include the monitoring of cyanotoxins under the fourth Unregulated Contaminant Monitoring Rule (UCMR 4).[3]

Cambridge Isotope Laboratories, Inc. (CIL) is pleased to offer a collection of highly characterized cyanotoxins for research testing purposes. These currently include four microcystins (MC-LR, -RR, -YR, and -LA)[4] and β-*N*-methylamino-L-alanine (BMAA),[5] in their labeled and unlabeled forms. Please inquire for pricing.

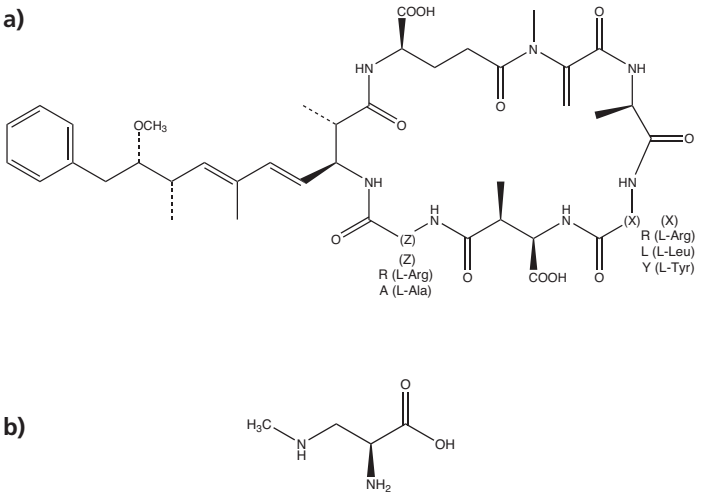

Figure. Chemical structure of featured cyanotoxins – MC in **a)** and BMAA in **b)**. The MC structure is cyclo-(D-Ala-L-X-D-isoMeAsp-L-Z-Adda-D-isoGlu-Mdha), where D-isoMeAsp is D-erythro-β-methyl-aspartic acid, Adda is 3-amino-9-methoxy-2,6,8-trimethyl-10-phenyl-4,6-decadienoic acid, and MDha is *N*-methyl-dehydro-alanine.[6] The X and Z positions are variable L-amino acids that determine the suffix in the MC nomenclature (e.g., MC-LR has L at X and R at Z).

Featured Products

Catalog No.	Description	Concentration	Amount
DLM-10260-0.025MG	Microcystin-LR, ethylated (D_5, 98%)	Neat	25 µg
NLM-10295-1.2	Microcystin-LR ($^{15}N_{10}$, 98%)	10 µg/mL in methanol:water (1:1)	1.2 mL
ULM-10342-1.2	Microcystin-LR (unlabeled)	10 µg/mL in methanol:water (1:1)	1.2 mL
NLM-10340-1.2	Microcystin-RR ($^{15}N_{13}$, 98%)	10 µg/mL in methanol:water (1:1)	1.2 mL
ULM-10341-1.2	Microcystin-RR (unlabeled)	10 µg/mL in methanol:water (1:1)	1.2 mL
NLM-10343-1.2	Microcystin-YR ($^{15}N_{10}$, 98%)	10 µg/mL in methanol:water (1:1)	1.2 mL
ULM-10344-1.2	Microcystin-YR (unlabeled)	10 µg/mL in methanol:water (1:1)	1.2 mL
NLM-10345-1.2	Microcystin-LA ($^{15}N_7$, 98%)	10 µg/mL in methanol:water (1:1)	1.2 mL
ULM-10346-1.2	Microcystin-LA (unlabeled)	10 µg/mL in methanol:water (1:1)	1.2 mL
CNLM-10424-1.2*	β-*N*-Methylamino-L-alanine (BMAA) ($^{13}C_3$, 99%; $^{15}N_2$, 98%)	100 µg/mL in 0.1 M HCl	1.2 mL
ULM-10493-1.2	β-*N*-Methylamino-L-alanine (BMAA) (unlabeled)	100 µg/mL in 0.1 M HCl	1.2 mL

*US Patent Pending 62/368,562

References

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