ELISA Kit for Environmental Pollutants

Cylindrospermopsin ELISA Kit

◇ The antibody binds Cylindrospermopsin and does not cross-react with other non-related toxins or compounds.

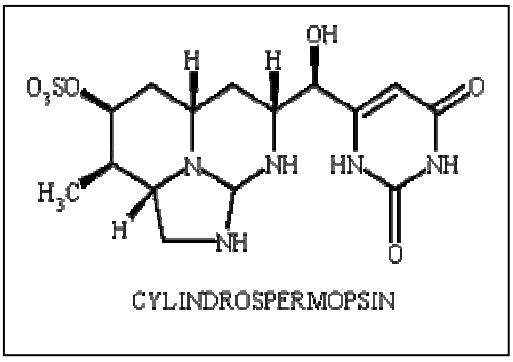
◇ The assay range is between 0.05 ppb and 2.0 ppb. The assay sensitivity allows the determination of Cylindrospermopsin in a range of environmental samples (water, fish tissue, fish plasma, etc.).

◇ Only 100 uL needed per assay. No time-consuming sample pre-concentration or the use of hazardous organic solvents.

◇ Total time for measurement is less than 90 minutes.

◇ The kit, a 96-well microtiter plate format with ready to use, color coded reagents, enables the simultaneous measurement of multiple samples at a reasonable cost.

Chemical Structure



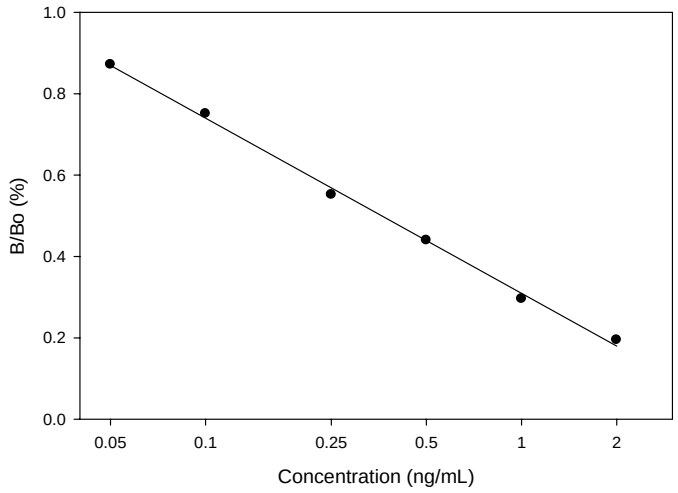
CYLINDROSPERMOPSIN

Most of the world's population relies on surface freshwaters as its primary source for drinking water. The drinking water industry is constantly challenged with surface water contaminants that must be removed to protect human health. Toxic cyanobacteria (blue-green algae) blooms are an emerging issue in the U.S. and the world because of increased source water nutrient pollution caused by eutrophication. Cylindrospermopsin is a naturally produced toxin of several cyanobacterial strains and has been found in fresh water throughout the world. Certain strains of *Cylindrospermopsis raciborskii* (Australia, Hungary, United States), *Umezakia natans* (Japan), *Aphanizomenon ovalisporum* (Australia, Israel) have been found to produce cylindrospermopsin. The production of cylindrospermopsin seems to be strain specific and not species specific.

Acute poisoning of humans and animals constitutes the most obvious problem from toxic cyanobacterial blooms, and in several cases has lead to death. These toxins mediate their toxicity by inhibiting liver function and are potent inhibitors of protein synthesis and glutathione, leading to cell death. Human exposure to cylindrospermopsin may occur by ingestion of toxin contaminated water during recreational activities or by ingestion of food (fish) or water contaminated with the toxin. Dermal contact with cylindrospermopsin may occur during showering or bathing, or during recreational activities such as wading, swimming, boating, or water skiing. To protect consumers from adverse health effects caused by algal toxins, the WHO has proposed limits for some toxins (i.e microcystin-LR) in drinking water and in recreational waters. A tolerable daily intake (TDI) of cylindrospermopsin along with the guideline values for human exposure have been calculated based on acute toxicity studies in mice. The TDI is 0.02 g/Kg body weight/day. It was estimated that GVs for adult, children, and infants were 0.48, 0.16,, and 0.11 g/L, respectively, based on a drinking water consumption of 2L for a 60-Kg adult, 1 L for a 10-Kg child, and 0.75 L for a 5-Kg infant.

This ELISA test kit detects Cylindrospermopsin in environmental samples at the sub-ppb levels.

Cylindrospermopsin Standard Curve



Samples containing Cylindrospermopsin within the dynamic range (0.05-2.0 ppb) can be directly tested in the assay.

Basic Test procedure

- Add 50 uL of sample, 50 uL of enzyme conjugate, and 50 uL of antibody solution.
- Incubate for 45 minutes.
- Wash 4 times with 250 uL of wash solution.
- Add 100 uL of color solution.
- Incubate for 30-45 minutes.
- Stop the reaction by adding 100 uL of stop solution and read color at 450 nm. Quantitate results.

Kit Format

Cylindrospermopsin ELISA Kit (Microtiter plate format, 96T) PN 522011

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