

A Simple Cyanobacteria (Blue-Green Algae) Test

The “Jar & Stick Test” is an easy way to distinguish between good algae and cyanobacteria.



SolarBee® and AerationPlus® Lake & Pond Circulators can help fight blue-green algae blooms and improve water quality.

The original paper was written by the Kansas Department of Health and Environment and published on their website:

www.kdheks.gov/algae-illness/download/Jar_Test.pdf

Ixom Watercare has edited & reformatted the original content for use by its Customers and the general public.

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www.medoraco.com/circulation-solutions

There are a couple simple no-cost tests a pond owner can do to determine if a “green looking” pond is suffering from toxic blue-green algae (cyanobacteria) blooms.

Note: No test is 100% perfect and this includes the jar test for blue-green algae referenced later in this document.

The jar test test relies on the buoyancy adaptation of most planktonic blue-green algae. In Kansas, bloom complaints are overwhelmingly the result of buoyant forms of blue-green algae; however, there is a small possibility (perhaps 1 to 2%) that the species in your particular test happen to be non-buoyant blue-green algae (resulting in a false negative test). Likewise, some swimming forms of other organisms (like

Euglenoids) may form a surface layer during a jar test (resulting in a false positive). Fortunately, most Euglena blooms will be reddish in color rather than green allowing for their identification.

Although the jar test does provide a quick and inexpensive way to confirm whether you have a blue-green algae community in your lake, it does not tell you what species are present nor does it tell you whether they are actually producing cyanotoxins.

Also be aware that just having blue-green algae present does not mean your pond is automatically hazardous. Many lakes and ponds in Kansas typically have blue-green algae in them. Hazardous conditions occur when the amount of blue-green algae is large and composed of species capable of generating toxins. For that information, a microscopic examination of the water combined with a chemical test for toxins would be required for a more complete picture.

The Jar Test

Look out over the pond and observe if the water looks very green. To determine whether the “green” is blue-green algae or just an overabundance of more beneficial types of planktonic algae, a simple test can be conducted called the “jar test.”

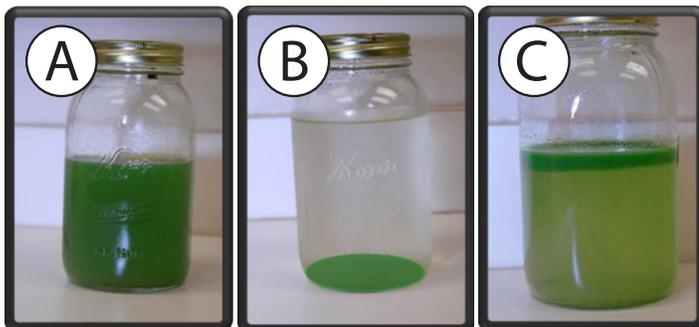
Learning

The Jar Test *(continued)*

1. Find a clear glass jar with a screw top lid (i.e. a pint-to-quart size jar).
2. Use gloves to fill it to three-quarters full with lake water (not directly from the surface, but collected just under the surface).
3. And set it in a refrigerator where it can be left without being disturbed overnight. (reference Image A below)

The next day, carefully (don't agitate and mix the water) take the jar out and look to see where the algae have accumulated.

- If the algae are all settled out near the bottom of the jar, then that is a likely indication that the lake does not have a lot of blue-green algae growing in it. (reference Image B below)



Initial Water
Sample Taken

Negative For
Blue-Green Algae

Positive For
Blue-Green Algae

- If, instead, the algae have formed a green ring around the top of the water in the jar, or just seem to be collected at the air/water divide, there is a strong possibility that the pond does have a blue-green algae community present. (reference Image C below)

The Stick Test

Look out over the pond and see if a mat of green material is floating on the surface. Is it blue-green algae forming a surface scum, or is it a mat of floating filamentous green algae (often called “fisherman’s moss”)? A simple test to determine what the material might be is called the “stick test.”

Find a sturdy stick long enough to reach the water without getting algae on your hands. Thrust it into the surface mat (Careful! Don't fall in!) and observe.

If the stick comes out looking like it has been thrust into a can of paint, the mat on the pond is likely to be a blue-green algae scum.

If the stick pulls out strands that look like green hair or threads, the mat on the pond is likely filamentous green algae. Although filamentous green algae can be a nuisance when over-abundant, they do not pose a danger to health.



Filamentous algae can be unsightly but is harmless.

Important Note: The stick test can fail when a particular type of blue-green algae is present, *Lyngbya wollei*. This species of blue-green algae can form tough filamentous mats that float to the surface similar to the mats formed by harmless filamentous green algae; however, *Lyngbya wollei* typically will have a very putrid sewage-like odor which filamentous green algae do not. *Lyngbya wollei* mats also will often release a purple pigment in the water around them (filamentous green algae do not do this).



Example of *Lyngbya wollei*

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