Procedure for jar and stick tests

Quality Control	Samplers follow the steps described under the *Procedure* section.
Equipment	Clear jar with removable screw top or lid (e.g., Mason jar) Rubber or latex gloves Sturdy stick of sufficient length to reach bloom
Procedure	**Monitoring Objectives:** The following procedures describe simple and inexpensive tests that can be used to assess whether cyanobacteria are present within a bloom. The jar test determines if cyanobacteria are present in the planktonic community by observing the buoyancy of a bloom sample. Cyanobacteria are naturally buoyant and generally aggregate at the surface layer when placed in a jar. It is important to note that a small percentage of cyanobacteria are not buoyant and may not float to the surface layer during a jar test, resulting in a false-negative. Further, certain species of harmless algae are naturally buoyant and may float to the surface layer during a jar test, resulting in a false-positive. Jar tests provide a cursory analysis of cyanobacteria presence, yet the results should not be used as conclusive evidence. Moreover, jar tests do not tell samplers which species of cyanobacteria are present or if cyanotoxins are present in the sample. Results from jar tests should only assist samplers in determining whether further testing is needed. The stick test also determines if cyanobacteria are present by observing how blooms aggregate at the surface layer of a lake or reservoir. Unlike many species of harmless algae, cyanobacteria generally do not form long, filamentous overgrowths that can be largely removed from the water with a stick. The stick test takes advantage of this distinction by determining what type of material is removed from the water when placing and lifting the end of a stick out of a surface scum. It is important to note that cyanobacteria can form small filamentous colonies, however these colonies are not readily removed from water with sticks and form much less extensive networks than algal filaments. As with the jar test, results from a stick test should not be considered definitive, but rather assist samplers during bloom screening events. **Sampling:** Recommend visual inspection of publicly accessible lakes and reservoirs at least weekly during recreation season. In the event of a suspected harmful cyanobacterial bloom (HCB), perform the following tests. Sampling should occur in a location that best characterizes a bloom, represents the area of greatest public threat, and ensures the safety of the samplers. <u>Jar Test</u> 1. Locate a clear jar with a removable screw top or lid. 2. As a precaution, put on rubber or latex gloves prior to sample collection. 3. Remove top from jar and submerge jar in water just below the surface layer.

a. DO NOT collect only surface scums. Collect under the surface scum so sample consists of scum, water and bloom material throughout the upper water column.

4. Ensure that the jar has sufficient volume of water (3/4 full).
5. Remove any scum or bloom material from the outside of the jar.
6. Place and/or screw lid onto the jar.
7. Place jar in refrigerator overnight.
    a. DO NOT disturb the jar during this time.
8. The following day, remove jar from refrigerator and observe.
    a. DO NOT shake or agitate the jar upon removal. Mixing jar contents will not provide useable results.
9. If the bloom material is settled near the bottom of the jar, it is likely that the sample does <u>not</u> contain a significant amount of cyanobacteria.
10. If the bloom material is aggregated at the surface and/or has formed a ring at the top of the jar, it is likely that the sample <u>does</u> contain a significant amount of cyanobacteria.

<u>Stick Test</u>

1. Locate a stick of sufficient length to reach the water surface layer.
    a. DO NOT use a short stick that will result in skin contact to the water.
2. As a precaution, put on rubber or latex gloves prior to sample collection.
3. Place stick into surface scum and lift slowly and as horizontal as possible out of the water.
    a. DO NOT attempt to retrieve material from an unstable location at the water's edge.
4. Observe the end of the stick.
5. If the stick is covered with long strands that appear as green hair or threads, it is likely that the bloom material does <u>not</u> contain a significant amount of cyanobacteria.
6. If the stick is covered with a layer that appears as paint, coagulated clumps, or small grass clippings, it is likely that the bloom material <u>does</u> contain a significant amount of cyanobacteria.

Health and Safety

If skin is directly exposed to cyanobacteria and/or cyanotoxins, immediately rinse with fresh water. Use soap and water to further clean skin. If experiencing additional health effects related to cyanobacteria and/or cyanotoxin exposure, seek medical attention.

References

Kansas Department of Health and Environment. The Jar and Stick Tests. www.kdheks.gov/algae-illness/download/Jar_Test.pdf