Utilization of Surrogates to Assess the Removal of Algal Toxins in Conventional Drinking Water Treatment

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STATUS: NEW X Continuation

Rationale

In recent years, the occurrence of algal toxins in source waters has increased significantly. It poses a technical challenge for the drinking water utilities and other stakeholders. Information regarding their removal during water treatment procedures is largely based on anecdotal evidence.

Objectives

The removal of plant Lectins and Saponin as surrogates of toxin in conventional water treatment processes including coagulation, flocculation and sedimentation are evaluated.

Approach

Bench scale experiments are performed according to the ASTM D2035- standard practice for coagulation, flocculation and sedimentation. The coagulant and polymer doses selected represent common practices in industry.

Coagulant and Polymer

- Alum (0, 10, 25 and 40 mg/L;
- Magnafloc LT-7996 (0 and 2.7 mg/L)

Key Deliverables:

- Removal of a plant lectin and a plant saponin were assessed in jar test under different pH and coagulant doses.
- A removal profile for lectins and saponins is developed.
- The removal profiles for the surrogates will be compared with the trend of algal toxin removal. Similar patterns will be applied as the optimal conditions for the removal of algal toxins during drinking water treatment processes.

Budget Requested

- No additional funds requested.

Project Duration:

- July 2018 to May 2019