SENSITIVITY OF MAT-FORMING CYANOBACTERIA TO A POTENTIAL BIOLOGICAL CONTROL AGENT, BACTERIUM SG-3. Kathryn J. Wilkinson, H. Lynn Walker, and Carole A. Lembi, Graduate Research Assistant, Professor, Professor, Department of Botany and Plant Pathology, Purdue University, West Lafayette, IN 47905 and School of Biological Sciences, Louisiana Tech University, Ruston, LA 71270.

Mat-forming cyanobacteria (blue-green algae) are an increasing problem in bodies of water, especially small, shallow ponds. These organisms tend to be difficult to control with copper compounds; therefore, the development of a biological control agent to manage cyanobacteria mats would be extremely useful. Bacterium SG-3 (NRRL B-30043) has been shown to lyse a number of planktonic species of cyanobacteria including bloom-forming species of *Anabaena* and *Oscillatoria*. The objective of this research was to determine the sensitivity of mat-forming cyanobacteria isolated from ponds throughout Indiana to bacterium SG-3. Nine isolates of mat-forming cyanobacteria representing seven species within the genera *Oscillatoria*, *Lyngbya*, and *Phormidium* were tested. Plugs (0.5 cm diameter) were cut from mats of cyanobacteria, inoculated with liquid cultures of SG-3, and incubated as static cultures. Three rates, determined as PFU/mL, of SG-3 inoculum were used. All species tested were sensitive to treatment and exhibited 71-100% reduction in dry weight at the highest concentration of SG-3. However, certain species of mat-forming cyanobacteria were highly sensitive to a low treatment rate while others required a larger effective dose. For example, over the three treatment rates, dry weight reduction of *Oscillatoria amoena* ranged from 99.6% to 100% whereas the reduction in dry weight of *Phormidium ambiguum* ranged from 33% to 84%. Although results varied among and within species, they indicate that this bacterium could have potential for use as a biological control for mat-forming cyanobacteria. Light microscopic observations indicate that SG-3 does not penetrate the cyanobacteria cells. Currently, we are studying the possible causes of the observed cell lysis.

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