

A b s t r a c t

T i t l e	Evaluation the growth inhibition test by the cyanobacteria <i>Microcystis aeruginosa</i> for toxicity evaluations of residual antibiotics in the environments
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<p>Antibiotics in the environment may disturb ecosystem that receives treated wastewater. Green alga are usually used in the impact assessment for chemical substances. However, it is reported that cyanobacteria are more sensitive to antibiotics than green alga. Therefore, the establishment of test methods using cyanobacteria is important because there are little toxicity data on the effects of antibiotics to the ecosystem. In this study, a test method for the toxicity of antibiotics by the cyanobacteria <i>Microcystis aeruginosa</i> was examined. A part of cell suspension (<i>M. aeruginosa</i>) which had been precultured by MA nutrient medium was inoculated into a nutrient medium in the test tubes at the target initial cell concentration. The effect of initial cell concentration, and light conditions (intensity and light-and-dark cycle) was examined as experimental conditions for 5 days after the addition of antibiotics. The influence of the antibiotics on the cyanobacteria was evaluated. EC50s with the conditions of the initial cell density 1.0×10^5 cells/mL, 2000 lux, under intermittent light were 3.3μg/L for LVFX, 4.2μg/L for CPFY by fluorescence intensity measurement, whereas those by cell counting were 1.9μg/L for LVFX, and 2μg/L for CPFY. EC50s with the condition of the initial cell density 1.0×10^5 cells/mL, 2000 lux, under continuous light were 2μg/L for LVFX and 2.1μg/L for CPFY by fluorescence intensity measurement, whereas those by cell counting were 1.5μg/L for LVFX and 1.6μg/L for CPFY. Among two antibiotics examined in this study, LVFX showed higher toxicity than CPFY on both conditions. The difference in EC50 under the different conditions was as small as several μgs/L. In addition, significant effects of initial cell concentration and light conditions on the obtained toxicity values were not observed in this study.</p>	