



Effect of cell extract from toxic strains of *Microcystis aeruginosa* (Cyanobacteria) on their development

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Some hypotheses indicate that microcystins present allelopathic activity. However, there is not yet a clear understanding of their function and control production. Aiming to learn about the effects of the cell extract of *Microcystis aeruginosa* strains on their growth and morphology, we used two strains: one produces greater concentration of microcystin RR and less LR and YR (CCIBt3194) and the other produces microcystin YR as the dominant toxin and a small amount of RR and LR (CCIBt3454). The strains were isolated from the same drinking water supply in Brazil, at different time periods: August 2001(CCIBt3194) and January 2011 (CCIBt3454). Both strains are kept in the Cyanobacteria Culture Collection of the Institute of Botany, Brazil, under controlled conditions: irradiance 40-50 $\mu\text{mol photons m}^{-2}.\text{s}^{-1}$, temperature 23+2°C, medium ASM-1 (pH 7.4) and photoperiod 14:10h light-dark cycle. These conditions were considered as control (n=3). Treatment 1: CCIBt3194 strain grew in a medium previously conditioned by the cell extract of CCIBt3454 for 15 days. Treatment 2: the same as Treatment 1, but the study was performed with CCIBt3454 strain growing in the cell extract of CCIBt3194. According to our results, two strains isolated from the same environment are able to inhibit the growth of each other. The data indicate that metabolites produced by strains of the same species induced different responses. Therefore, there is indication that the cell extract where the amount of proteins was higher and the microcystin-YR was predominant caused more intense effect on the development of the other strain that produces predominantly microcystin-RR. These results support the hypothesis that microcystins and/or other compounds can inhibit the growth of other organisms, including *Microcystis aeruginosa*.

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