TITLE: MICROCYSTIN AND CYLINDERSPERMOPSIN CONTENT IN WATER SAMPLES OF THE GRANDE STREAM, BOA VISTA, RORAIMA, BRAZIL

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ABSTRACT:

Cyanobacteria cells release water when occur its rupture which may contains secondary metabolites named cyanotoxins, classified according the chemical structure, such as: cyclic peptides, alkaloids and lipopolysaccharides. Microcystins are examples of cyclic peptides, while cylinderspermopsins are alkaloids, both of them are characterized for the presence of hepatotoxins and dermatotoxins. Individuals who have been cronically exposed to these toxins can develop tumors in the liver and irritation in the skin and mucous, respectively. The study aimed to determine the microcystin and cylinderspermopsins content in Grande Stream water. The studied water body is located in the municipality of Boa Vista in the State of Roraima, on the right margin of Branco River, presents an area of 31,70 km^2 and your temperature vary between 20 and 38ºC. For this study, it was selected five spots to collect water samples, which occurred bimonthly from August 2014 to June 2015. The collect, preservation and analyze techniques followed the recommendations established by *Standart Methods for Examinationof Waterand Wasterwater*. Microcystin and cylinderspermopsin determination occurred through comparison between the chromatogram of the pattern and samples.The retention time of 3,5 minutes (microcystin) and 7,5 minutes (cylinderspermopsin) were chosen for identification for presenting well defined peaks and a good separation of the chromatogram of the pattern and the chromatogram of the sample. For the confirmation of the species of interest, microcystin and cylinderspermopsin were measured at 265 nm and 238 nm using UV spectrophotometer, respectively. The determination of the proportion between the mobile stages (acetonitrile and water + TFA 0,1%) was tested with a gradual variation of acetonitrile of 0,05% until 99,5%, where the mixture of 65,5% of acetonitrile demonstrated to be the most efficient for the separation of the constituents of the tested samples, because it allowed the separation of microcystin and cylinderspermopsin in a short time, 10 minutes. The method was able to indicate the presence of microcistystin at concentrations between 0.36 and 0.95 µg MC-LR/mL and of cylinderspermopsin between 0.0000001 and 0.000005 µg CYL-LD / mL, which are hepatotoxic and dermatotoxic, respectively. According to the ANOVA test there were no significant differences between the levels of microcystin and cylinderspermopsin at the collection points.

Keywords: Alkaloids. Cyanotoxins. Cyclic peptides. Dermatotoxin. Microcystin.

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