

CHROMATOGRAPHIC SEPARATION OF PEPTIDES-PROTEINS FROM *Microcystis aeruginosa*

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ABSTRACT

Microcystis aeruginosa is a species of freshwater cyanobacteria, which are classified among oxygenic photosynthetic bacteria. It is commonly found in drinkable freshwater sources that are not adequately chlorinated, and able to produce many metabolites harmful to human and animal health, especially during toxin-producing bloom. Here we aimed to separate the major peptides and proteins of *Microcystis aeruginosa* using HPLC, and to identify their approximate molecular weights by fast silver staining followed by SDS-PAGE, for checking their cytotoxic activities in further studies. For this purpose, *Microcystis aeruginosa* was incubated at 28 °C in a shaking incubator at 110 rpm under continuous light source for 21 days in BG-11 medium and the algal cells were lysed using homogenizer. The fractionation of the algal cell extract was performed by using an optimized HPLC method. Separately collected fractions were first concentrated in a lyophilizator, and analyzed by gel electrophoresis utilizing fast silver staining. The determined molecular weights were then matched to the retention times of HPLC separation. The optimized chromatographic and electrophoretic techniques used in this study might be helpful for further studies on both cytotoxic peptides-proteins of *Microcystis aeruginosa* and their use in precise measurement of enviromental threats arising from *Microcystis aeruginosa* bloom.

Keywords: HPLC, cyanobacteria, *Microcystis aeruginosa*, SDS-PAGE, algal bloom