Comparison of the accuracy of bromocresol green, reverse titration, Wagner and Meyer methods for detecting alkaloids in *Spirulina Platenis*

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Abstract

Microalgae are valuable sources of secondary metabolites with diverse biological activity. Among the different bioactive compounds, alkaloids due to the unique medicinal properties have attracted much attention. There are different methods to determine the presence of alkaloids in natural resources. The aim of this study was to compare the sensitivity of Meyer and Wagner methods with the bromocresol green method in the early detection of alkaloids in the microalgae. For this purpose, in 2018, the methanol extract of Spirulina platensis was prepared. Using two standard methods (Mayer and Wagner) and bromocresol green colorimetric method, the presence of alkaloids in Spirulina was investigated. Next, thin layer chromatography (TLC) was performed to confirm the presence of the alkaloid. Total alkaloid content was also measured using the acid–base titration procedure. Evaluation result of methanol extract of Spirulina for the presence of alkaloids by the standard reagents was negative. But bromocresol green method and TLC showed the presence of alkaloids in this microalgae. The total alkaloid content was 11.4 mg/g dry weight. Overall, this study showed that bromocresol green method is a better detection method of alkaloids in the microalgae biomass because of the simplicity, lack of requirement of expensive equipments, particularly high sensitivity.

Keywords: Microalgae, Secondary metabolite, Mayer, Wagner, Bromocresol green.