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**A study on the enhancement of microcystins analysis
method
for reversed-phase HPLC/PDA**

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This paper was aimed to enhance the present analysis method of algal toxins (microcystines -RR, microcystin-LR and microcystin-YR) in the process of clean-up and extraction. In case of clean-up process, we selected two kinds of solvents (100% methanol and 0.1%TFA in methanol) to assess their properties on the liquid separation process and investigated the elute patterns. In addition, we compared the efficiencies of various solvents for extraction which were applied to real samples from Nagdong river.

As a result, the microcystin-LR recovery rate of 「methanol solvent」 (63-79%) was higher than that of 「methanol+TFA solvent」 (84-87.7%). Both of microcystin-LR and microcystin-YR showed the same results. The reason of showing high recovery rate can be explained that the methanol added by TFA showed rapid elute pattern of microcystins with polarity. Recovery rate of microcystin-RR was higher than that of microcystin-YR and microcystin-LR.

Experiment for the efficiency of each extraction process with different solvents, 5% acetic acid was the most suitable solvent : it extracted pigment much lower than other solvents (methanol and acetonitrile). The reason can be ascribed to the fact that microcystin-RR, microcystin-YR and microcystin-LR were soluble in water, and polarity was the dominant quality. However, microcystin had a lot of variants which can be soluble in oil. Therefore, we could suggest to use methanol solvent after 5% acetic acid solvent for the extraction process, if variants of microcystin were soluble in oil.