Nutrient removal by microalgae isolated from two water sources

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A number of microalgae species are able to grow in various aquatic environments such as wastewater, river, stream, and lake and have been reported to be effective for removing nitrogen, phosphorous. The aim of this study was to isolate novel microalgae species from different water sources and to compare their microalgal community and nutrient removal rate.

A total of 10 microalgae was isolated from two different water sources, i.e., stream and wastewater treatment plant. The identification of microalgae speices was performed by investigating the ITS partial sequences. Only six microalgae species were isolated from stream and identified as *Chlorella sorokiniana*, *Micractinium inermum*. Four microalgae species isolated from wastewater treatment plant were identified as *C. miniata*, *C. sorokiniana*, *C. vulgaris*, and *Tetradesmus obliquus*. The isolated ten microalgae cultures were incubated at 25 °C with continuous illumination of 45 μmol/m^2-s in modified Bold's Basal Medium. The nutrient removal rate of 10 microalgae cultures was monitored by measuring the concentrations of total nitogen and total phosphorous. *C. sorokiniana* showed the highest nutrient removal efficiencies of 5.8 mg-T-N/L-d and 0.8 mg-T-P/L-d in this study.