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Assimilable organic carbon generation from algogenic organic matter in drinking water

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Abstract: A study of assimilable organic carbon (AOC) derived from algogenic organic matter in different drinking water resources was conducted. Seasonal changes in the concentration of AOC at Kamafusa Dam were dependent on the algal cell numbers. Variations in AOC concentrations were found to be more reliant on the AOC-P17 component than the AOC-NOX component. The algal culture experiment showed that extracellular organic matter (EOM) released during the growth of Phormidium tenue in M-11 culture medium led to a significant increase in AOC concentration; however, no significant variations of AOC concentration were observed in CT culture medium containing high amounts of dissolved organic matter. The AOC included in EOM was not easily removed by chlorination; however, the AOC included in intercellular organic matter (IOM), which was released from algal cells, was easily removed under conditions where residual chlorine was detected.

Key Words: Dissolved organic compounds, bacterial regrowth, chlorination, algal material

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