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## Fluorescence spectroscopy as a tool for determination of organic matter removal efficiency at water treatment works

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**Abstract.** Organic matter (OM) in drinking water treatment is a common impediment responsible for increased coagulant and disinfectant dosages, formation of carcinogenic disinfection-by products, and microbial re-growth in distribution system. The inherent heterogeneity of OM implies the utilization of advanced analytical techniques for its characterization and assessment of removal efficiency. Here, the application of simple fluorescence excitation-emission technique to OM characterization in drinking water treatment is presented. The fluorescence data of raw and clarified water was obtained from 16 drinking water treatment works. The reduction in fulvic-like fluorescence was found to significantly correlate with OM removal measured with total organic carbon (TOC). Fluorescence properties, fulvic- and tryptophan-like regions, were found to discriminate OM fractions of different removal efficiencies. The results obtained in the study show that fluorescence spectroscopy provides a rapid and accurate characterization and quantification of OM fractions and indication of their treatability in conventional water treatment.

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