Title: **Source apportionment of drinking water supply sources for the Barcelona Distribution System by UV spectrophotometry, fluorescence and chemometrics**

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Tap water in Barcelona results from the blending of three different water sources: water from the Llobregat and Ter rivers (in bigger proportion) and water from the new desalination plant. Knowing the source apportionment of the different waters that comprises the water distribution system (WDS) is necessary to carry out maintenance tasks of the distribution system itself. Taking advantage of the optical characteristics of dissolved organic matter (DOM) along with chemometrics methods, rapid predictions of this composition can be made.

In this study, UV-Vis spectrophotometry, and excitation-emission molecular (EEM) fluorescence instrumental techniques will be used in conjunction with PLS and MCR-ALS chemometric methods, respectively , to solve binary blends from three different drinking water treatment plants (DWTP).

Keywords: Source apportionment, water, Water Distribution System (WDS), Dissolved organic matter (DOM), chemometrics, UV spectrophotometry, Excitation-emission fluorescence spectroscopy (EEM), Partial Least Squares (PLS), Multivariate Curve Resolution-Alternating Least Squares (MCR-ALS).