

Molecular-level characterization of dissolved organic matter in inland waters using FT-ICR MS

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Ultrahigh resolution mass spectrometry, i.e., Fourier transform ion cyclotron resonance mass spectrometry (FT-ICR MS) is currently the only mass spectrometry technique capable of achieving the resolution and mass accuracy required to determine molecular formulae of Dissolved Organic Matter (DOM), and has recently contributed substantially to the molecular understanding of DOM. DOM from various water sources has been examined extensively for its molecular characteristics. Numerous approaches were used to define the chemical composition of the DOM, and these include elemental ratios of O/C and H/C, double bond equivalents (DBE), functional group series identification determined by Kendrick mass defect (KMD) analysis, average molecular weights, etc.

We examined variety of inland waters including river, lake, rain, soil waters using FT-ICR MS, and tried to characterize them by determining their molecular constituents.

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