**Chromatographic Characterization**

The molecular weight distribution of HMWDOM was determined by size exclusion chromatography (SEC) using two 8 mm x 300 mm NOVEMA Max 100 Å 10 micron columns (polymer standards services, Amherst, MA, USA) connected in series with an 8x50 mm guard column. The SEC columns were calibrated with pullulan standards ranging in molecular weight from 342 Da (DP-2) to 708000 Da (DP-4370) eluted in ultra pure water and detected by refractive index (Figure 6, top panel). To minimize interaction with the SEC column, HMWDOM was eluted in 0.1M NaCl in 0.1% trifluoroacetic acid (Figure 6, middle panel), and the results transformed into the molar mass distribution (Figure 6, bottom panel). Size exclusion chromatography shows a well-defined peak in molecular mass at ~2000 Da, and a broad distribution of molecular weights up to 1 x 105 Da, the upper weight range of the column. Different molecular weight fractions were collected and characterized by proton NMR. Each fraction showed the same NMR spectra, suggesting aggregation of HMWDOM constituents is significant.