Supplement of Aerosol Research, 4, 589–602, 2026
https://doi.org/10.5194/ar-4-589-2026-supplement
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AEROSOL Research
Open Access

Supplement of

Isomer-resolved online analysis of organic aerosols using ion mobility mass spectrometry

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S1. Tofware IMS analysis workflow

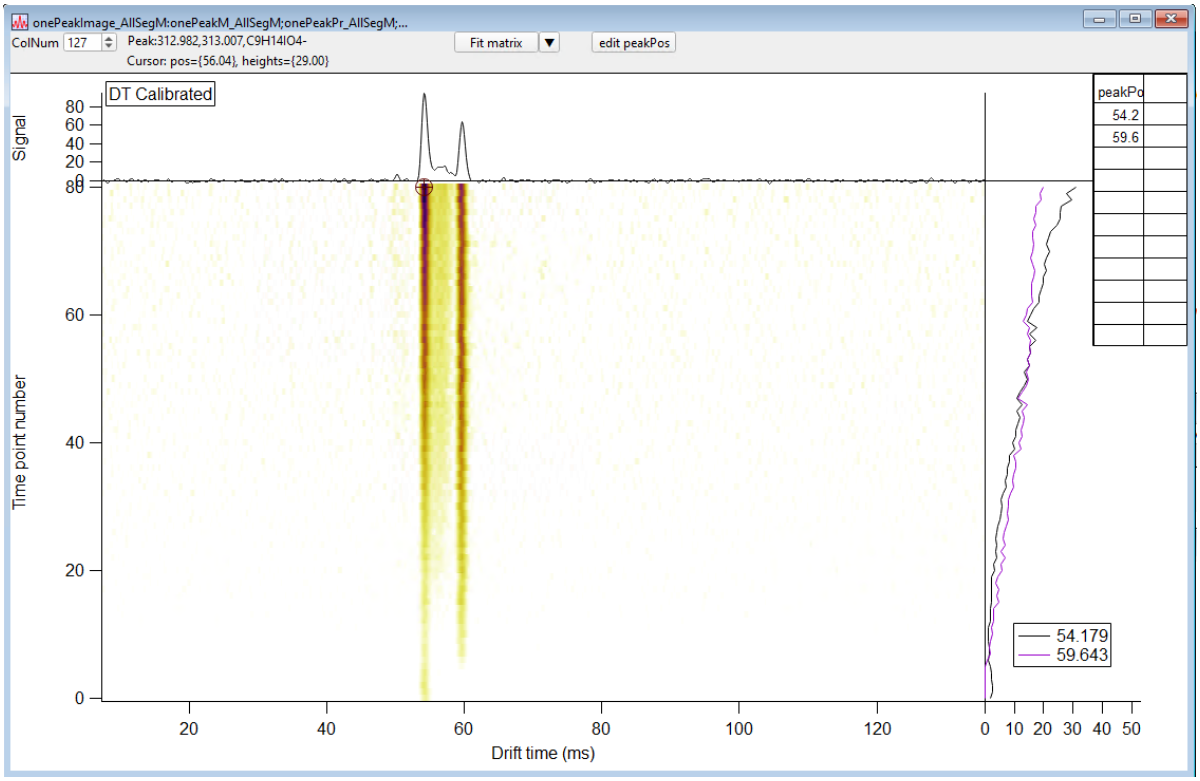


Figure S1. A 2-dimensional image plot showing the IMS spectrum of $C_9H_{14}O_4I^-$ generated using the Tofware IMS workflow.

S2. VIA Temperature Ramping

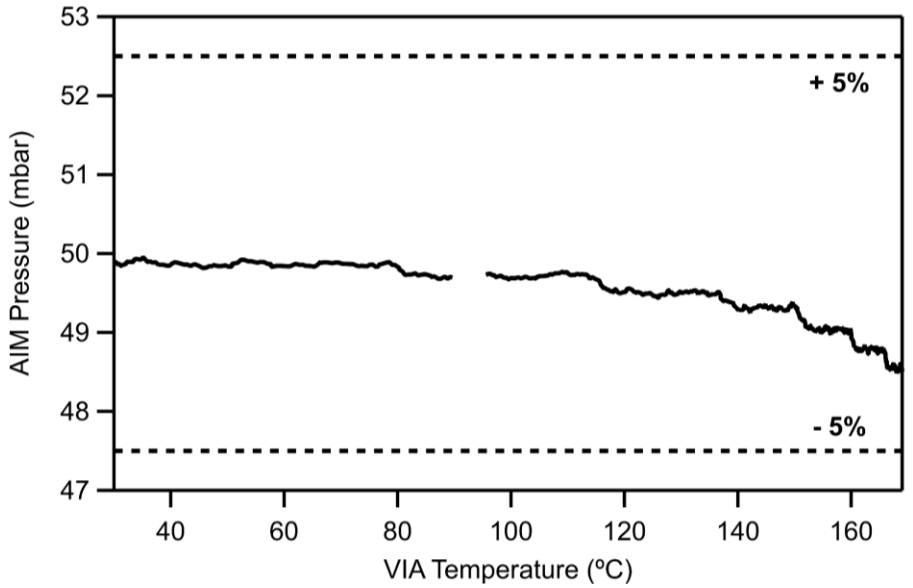


Figure S2. AIM reactor pressure plotted as a function of VIA temperature during the temperature ramping experiment. Note the weak inverse relationship between VIA temperature and AIM pressure.

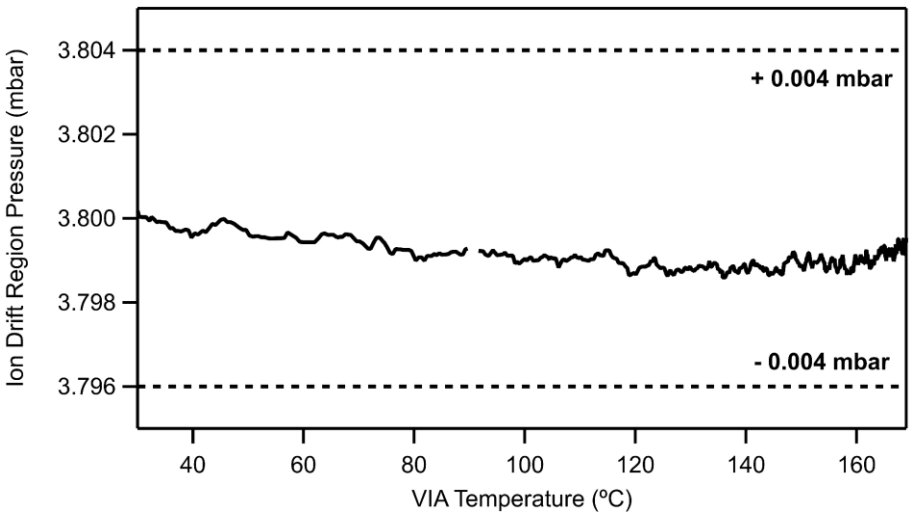


Figure S3. IMS drift region pressure pressure plotted as a function of VIA temperature during the temperature ramping experiment. Note the minor decrease in pressure as the temperature increased. The slight pressure increase near the end of the temperature ramp is due to the automatic pressure regulation in the IMS.

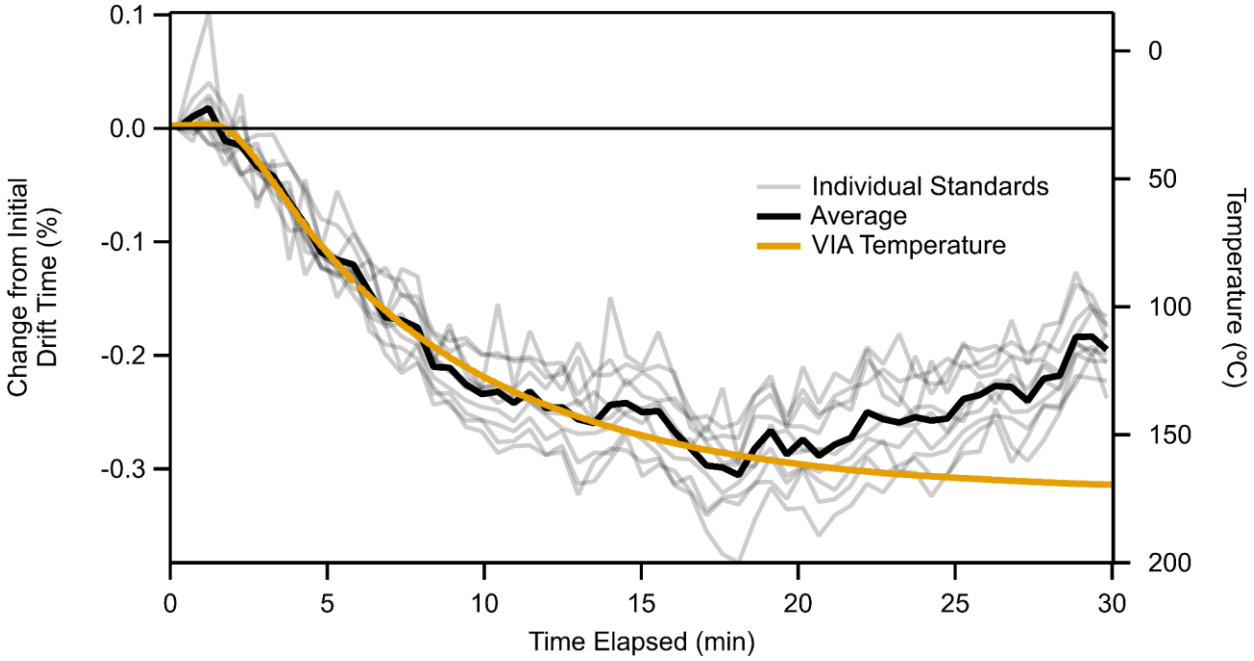


Figure S4. Relative changes in carboxylic acid standard drift times and VIA temperature before drift time calibration.

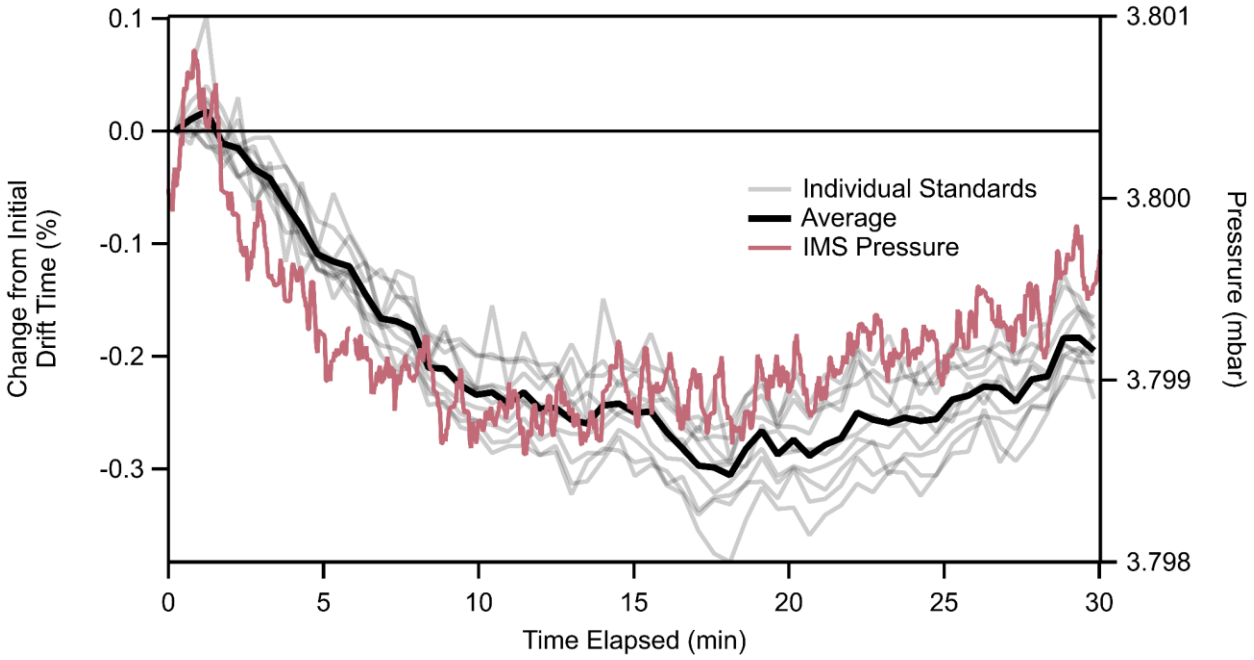


Figure S5. Relative changes in carboxylic acid standard drift times and IMS drift region pressure before drift time calibration.

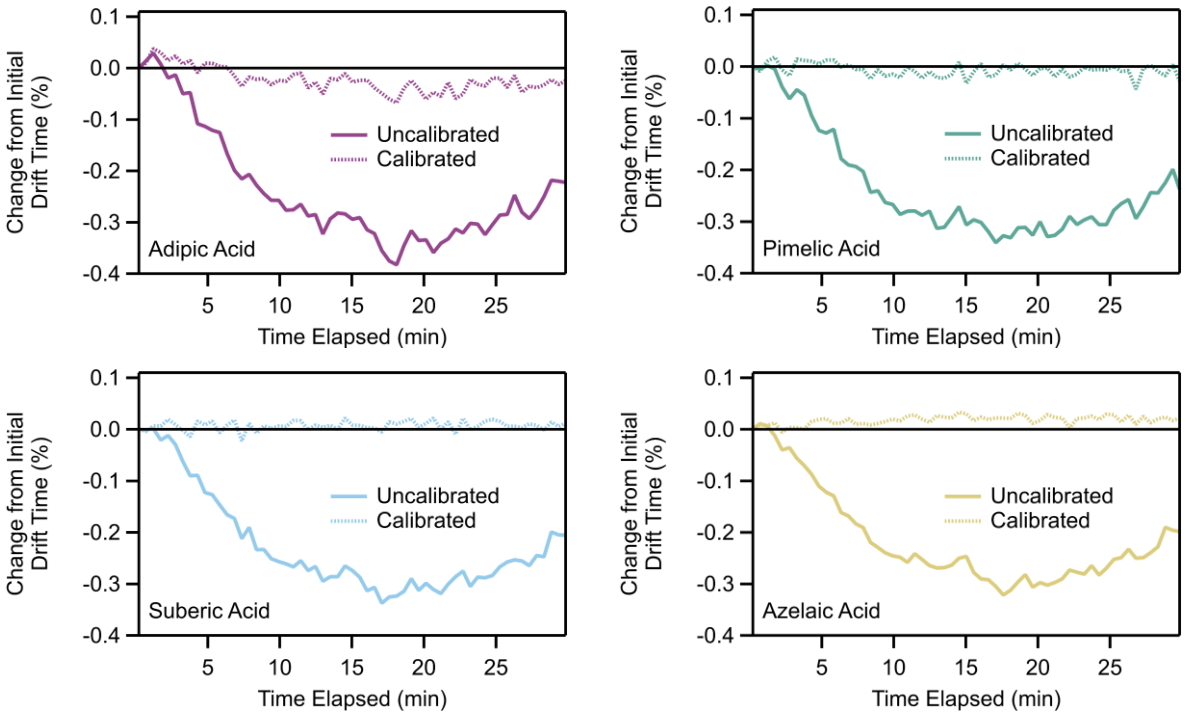


Figure S6. Relative drift time changes of carboxylic acid standards before and after drift time calibration.

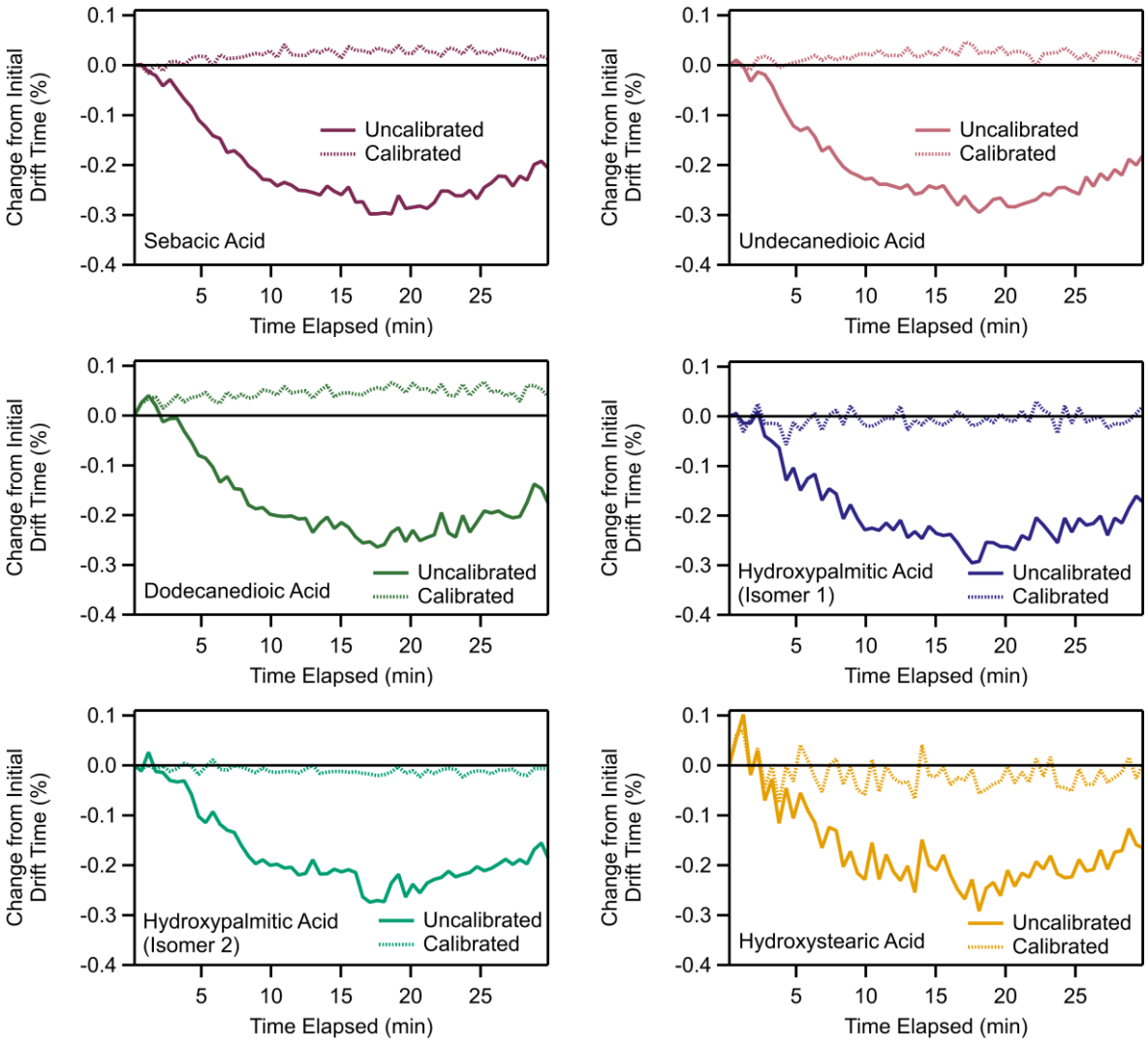


Figure S6 continued. Relative drift time changes of carboxylic acid standards with and without drift time calibration.

S3. 2-Dimensional Image Plot of VIA-CI-IMS-TOF Analysis of α-Pinene SOA

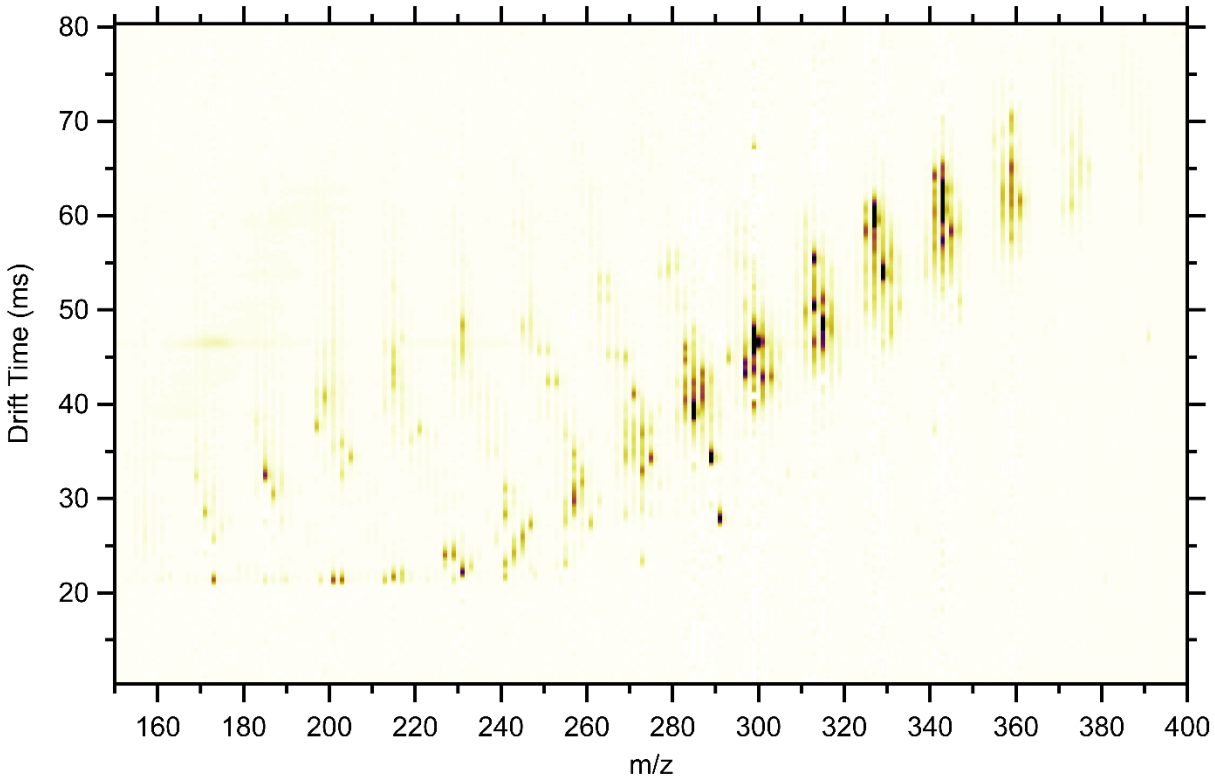


Figure S7. A 2-dimensional image plot of I^- adduct drift time versus m/z (I^- mass included) averaged over the second half of the chamber experiment (~40 min). Signal strength is depicted by the color gradient with stronger signals appearing the darkest.

S4. Reagent Ion Comparison

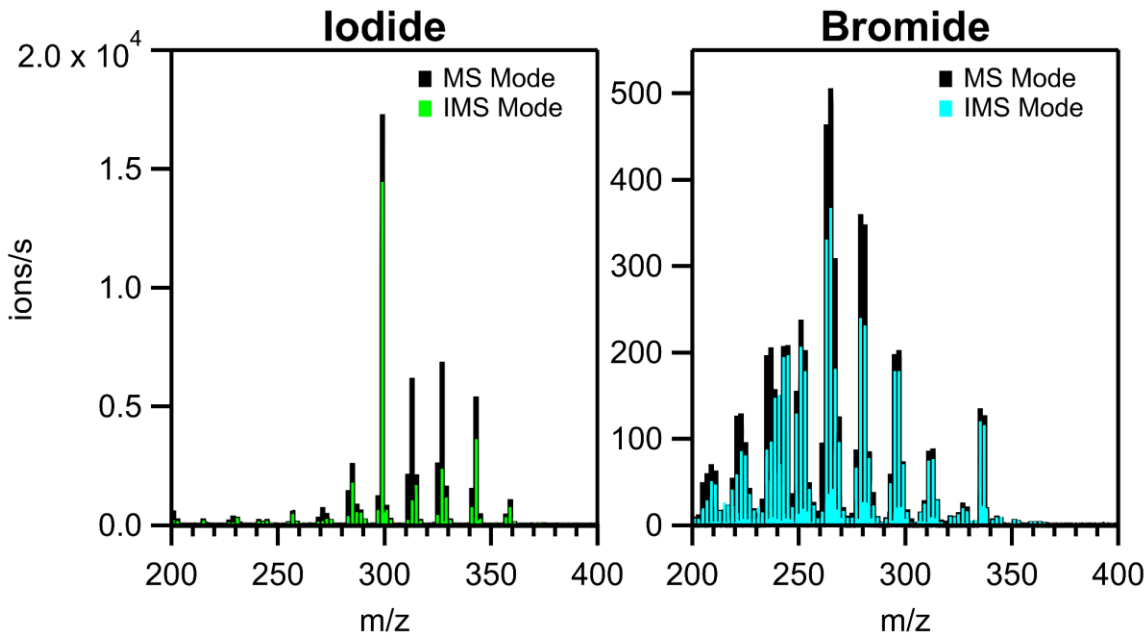


Figure S8. VIA-CI-IMS-TOF spectra collected in MS and IMS modes using I^- (left) and Br^- (right) reagent ions. Spectra were averaged over ~1 min near the end of the experiment. Note the larger number of peaks detected with Br^- and the larger signal losses in the I^- spectrum for some peaks.