

Detection and Screening of Organic Contaminants in A Riverine System of Georgia Using Non-Targeted Analysis

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1. Microbial degradation study of malathion in different environmental conditions

Ultra-purified type 1 water (Elga® water purification system, UK) was considered as a laboratory blank. HgCl₂ was added to laboratory blank and also in samples to prevent the growth of microorganisms in water samples by acting as a bacteriostatic agent.

The study is continued using the samples from Firefly trial, the type1 water is the ultra-purified water, which is considered as the lab blank; HgCl₂ is taken from a stock solution that is prepared using 0.8 gm in 40 mL in water out of which 5 mL is added to the sample resulting in an end concentration of 0.1%. The autoclaved water and HgCl₂ water are the blanks for the experiment; the river water is autoclaved at 121 °C for 30 minutes. The malathion that is used for the analysis is commercial grade and filtered using 0.22 µm filter, 400 µL of the filtered pesticide is used for the sample preparation. Two sets of study are framed to understand the reproducibility (observe the consistency of the result).

Table S1. Experiment conditions for the microbial degradation of pesticides.

Name	Environmental conditions	Sample type	Laboratory condition before addition of pesticide
Set 1	0.2% malathion	Firefly trail - sample water	None
Set 2	0.2% malathion	Ultra-purified type 1 water as lab blank	None
Set 3	0.2% malathion + HgCl ₂ (resulting in an end concentration of 0.1%)	Firefly trail - sample water	None
Set 4	0.2% malathion	Firefly trail - sample water	Autoclaved at 121 °C for 30 mins

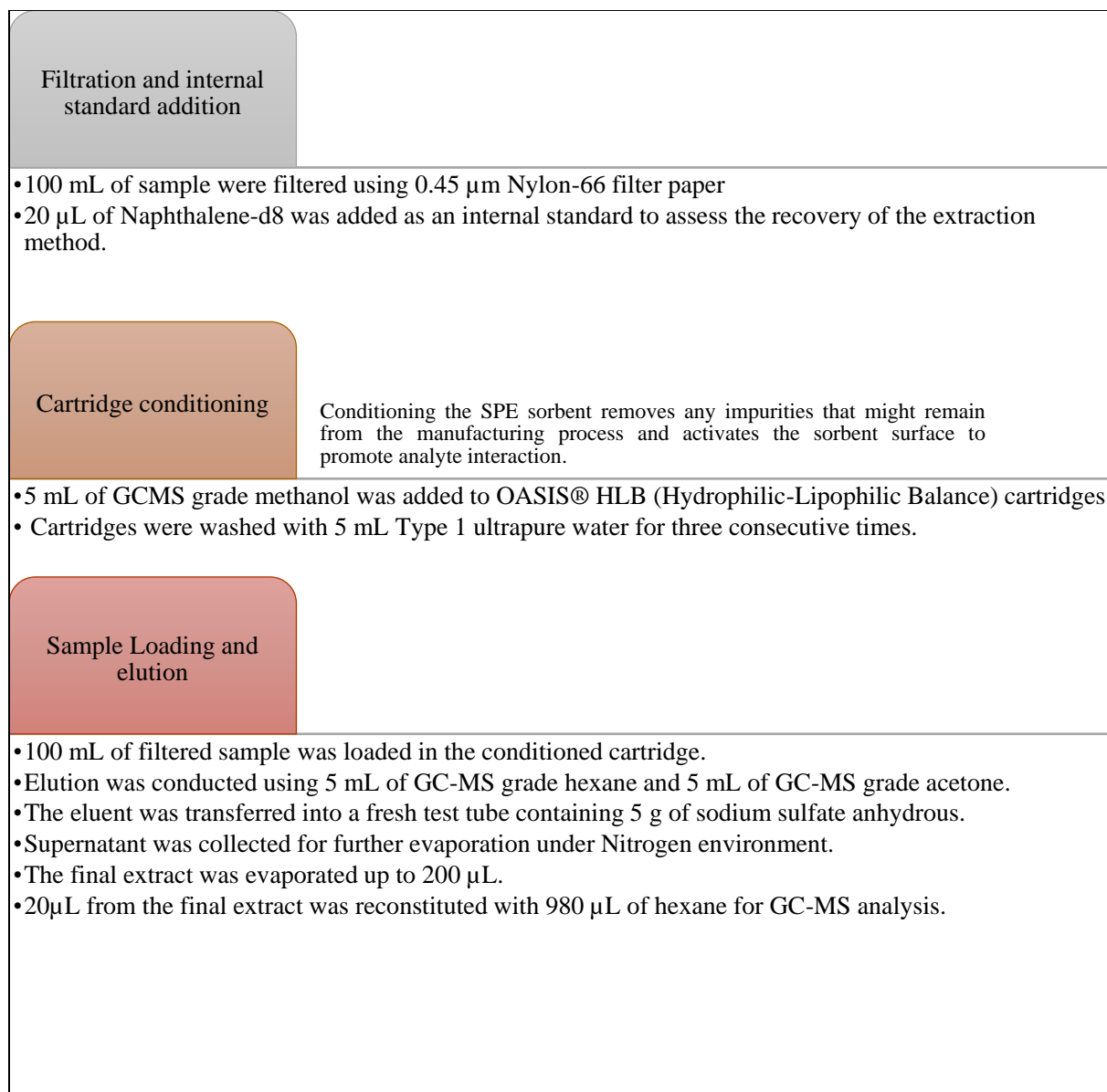
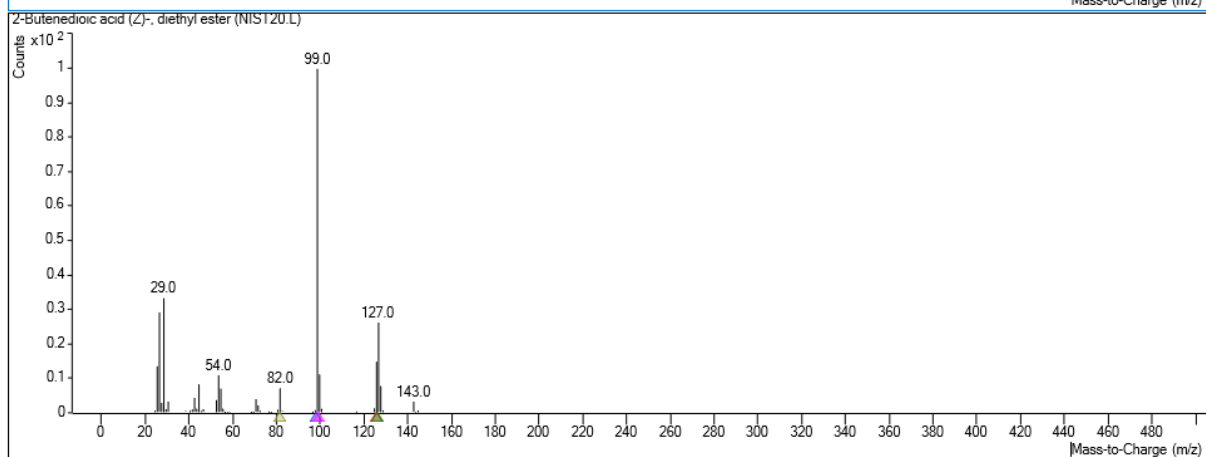
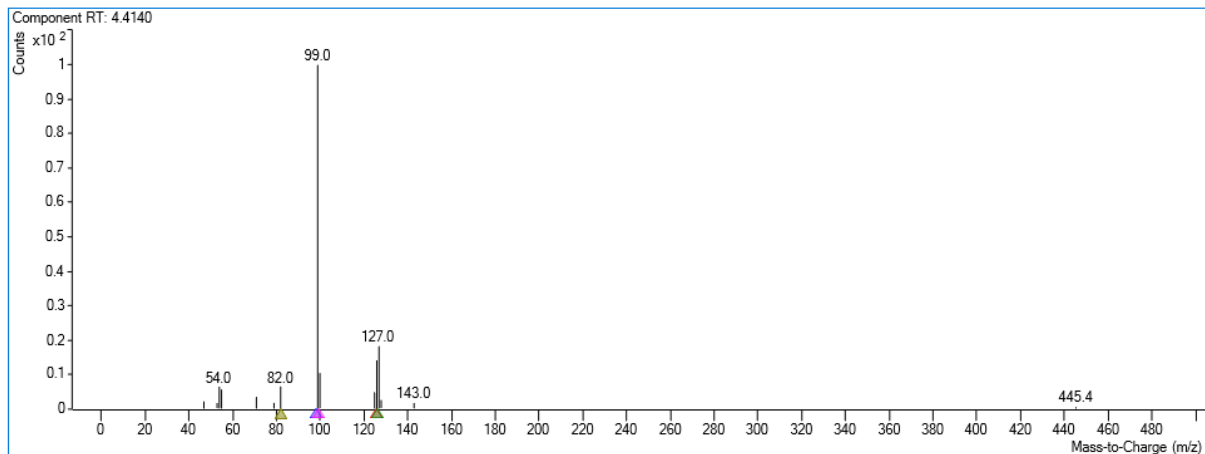
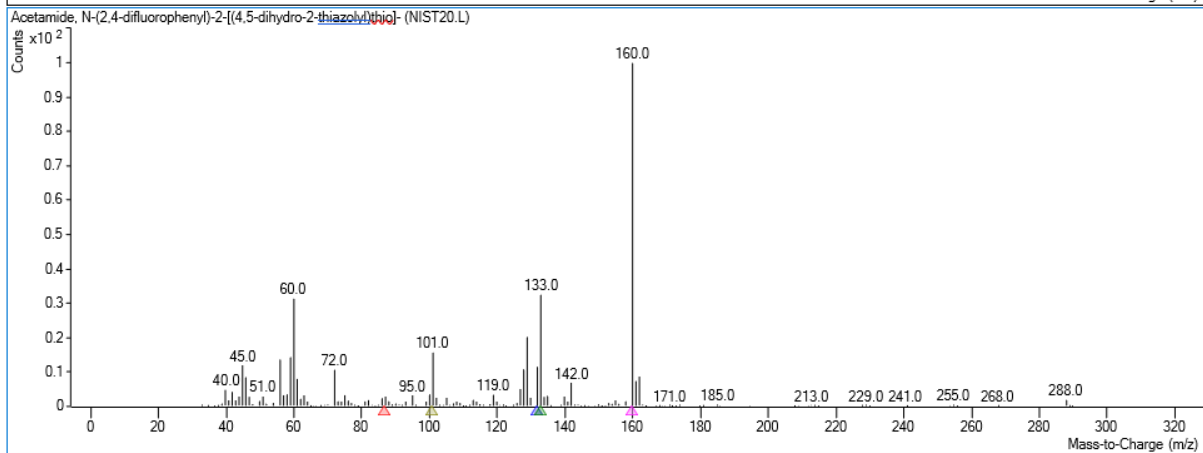
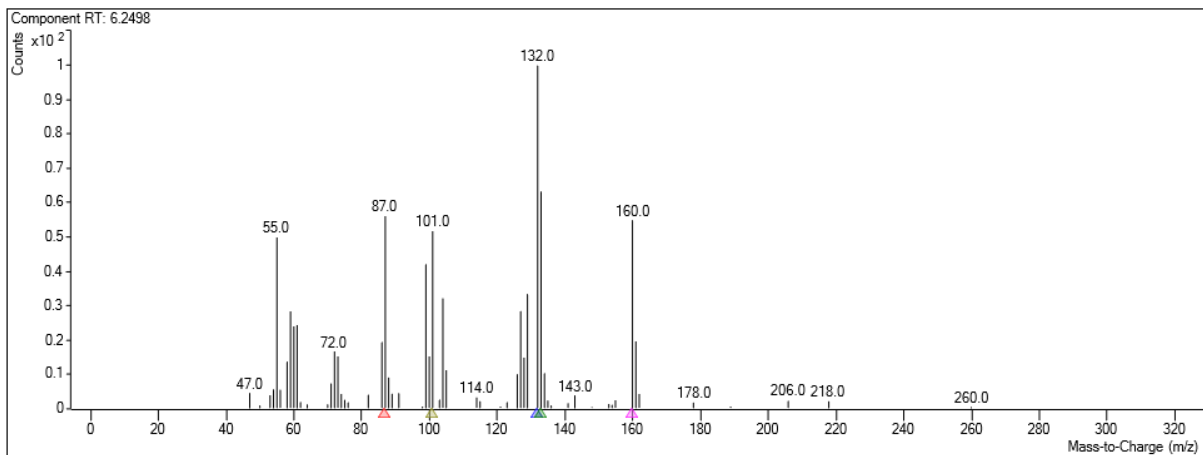
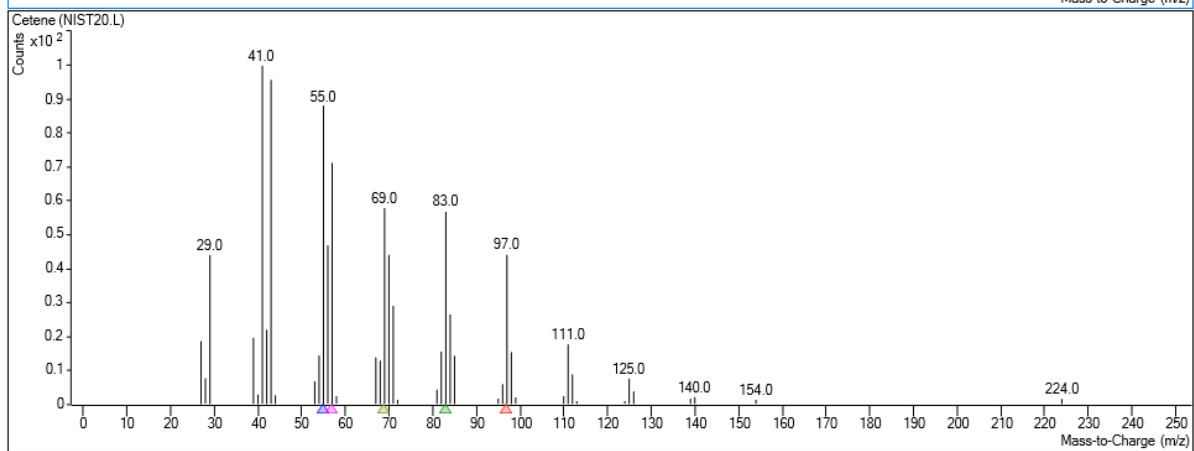
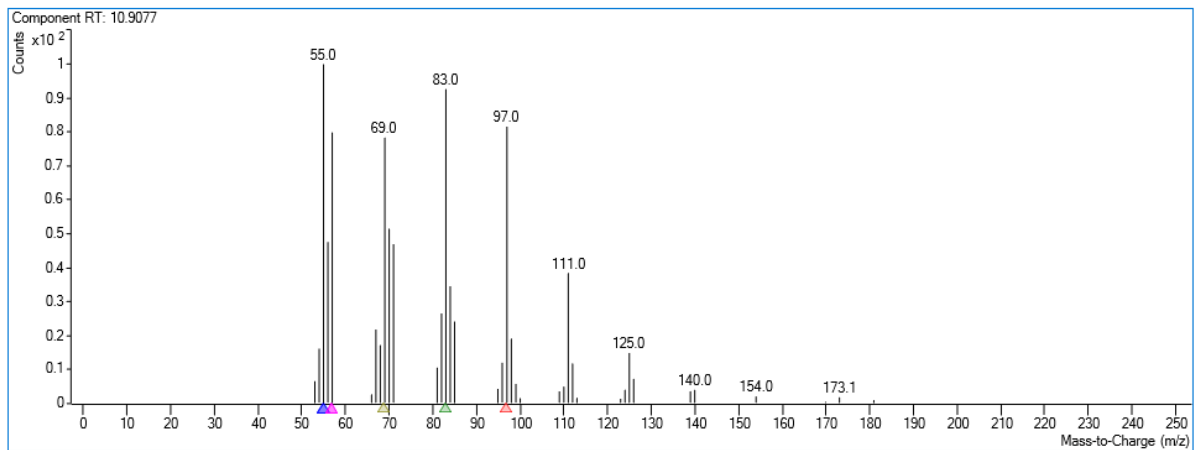
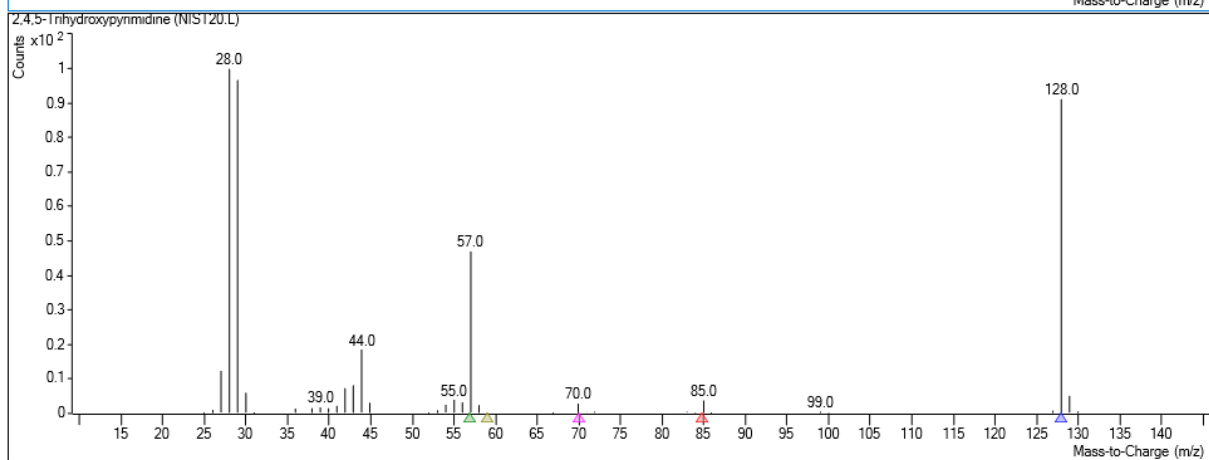
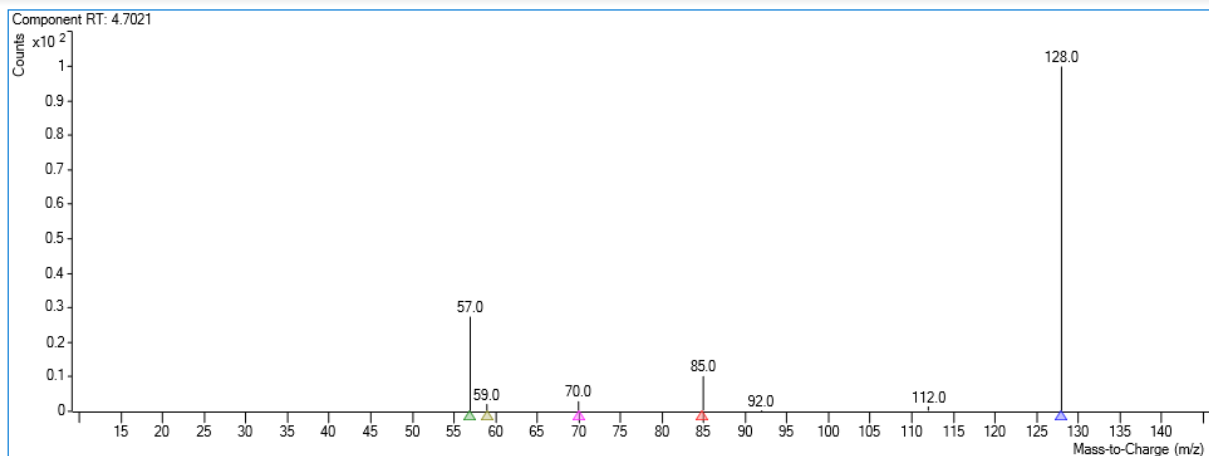


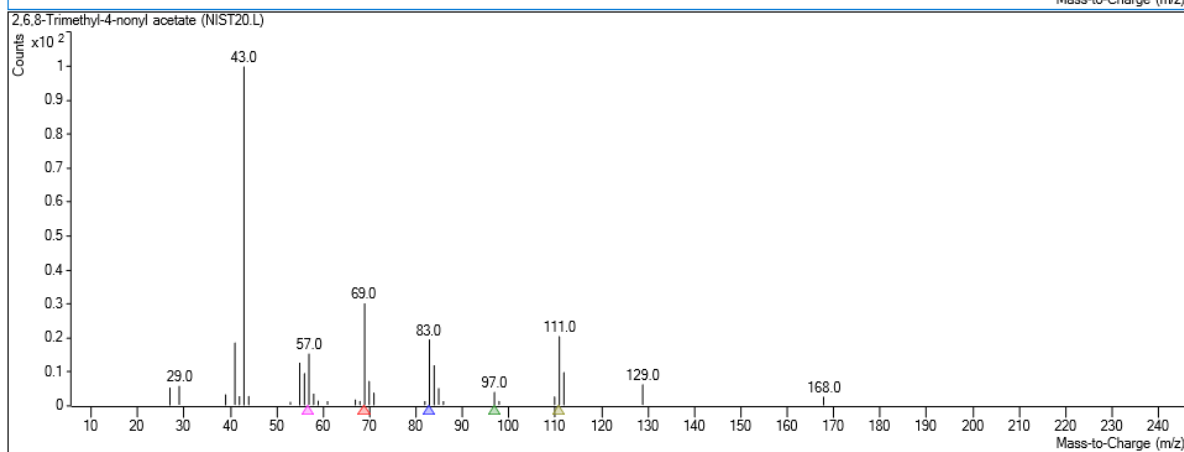
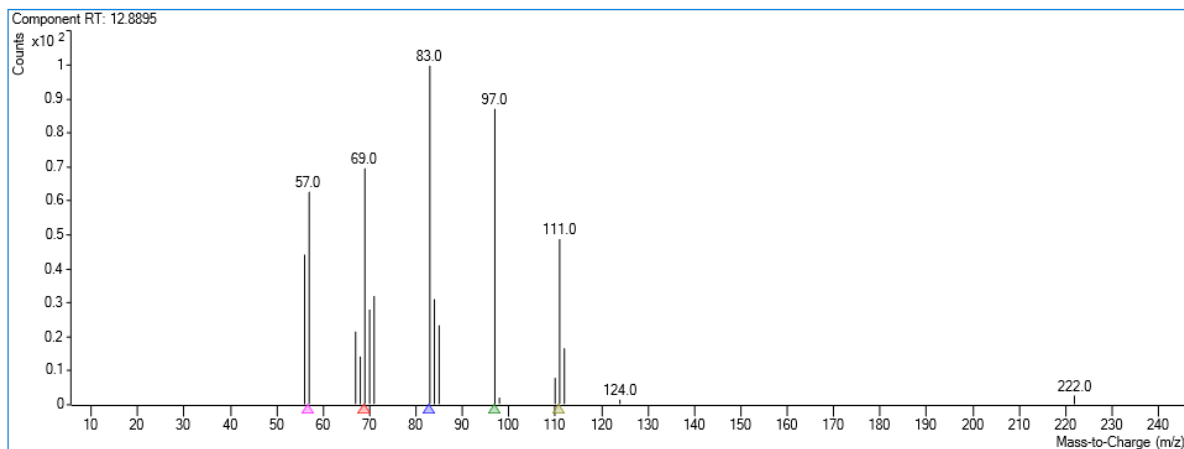
Figure S1. Schematic flow chart for the extraction of water sample using solid phase extraction.

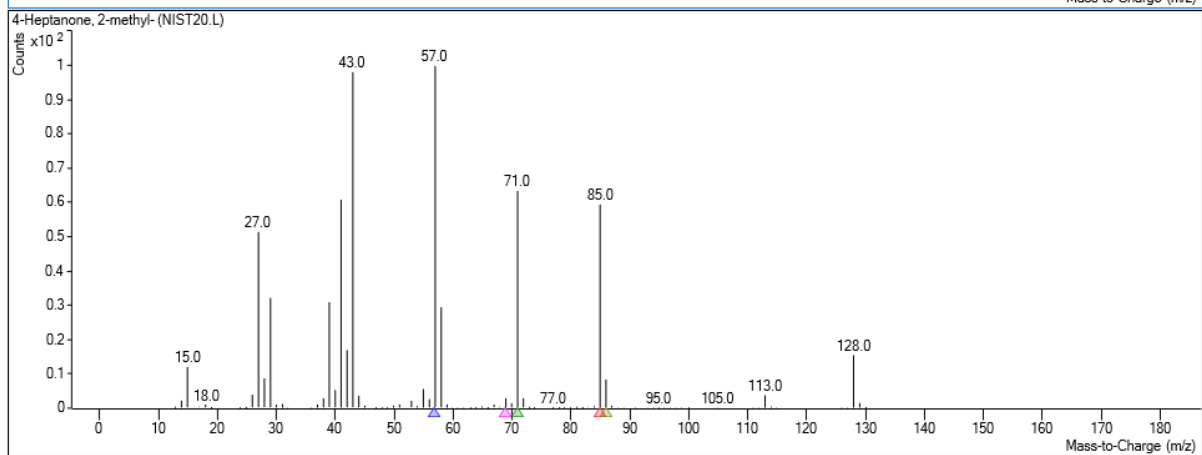
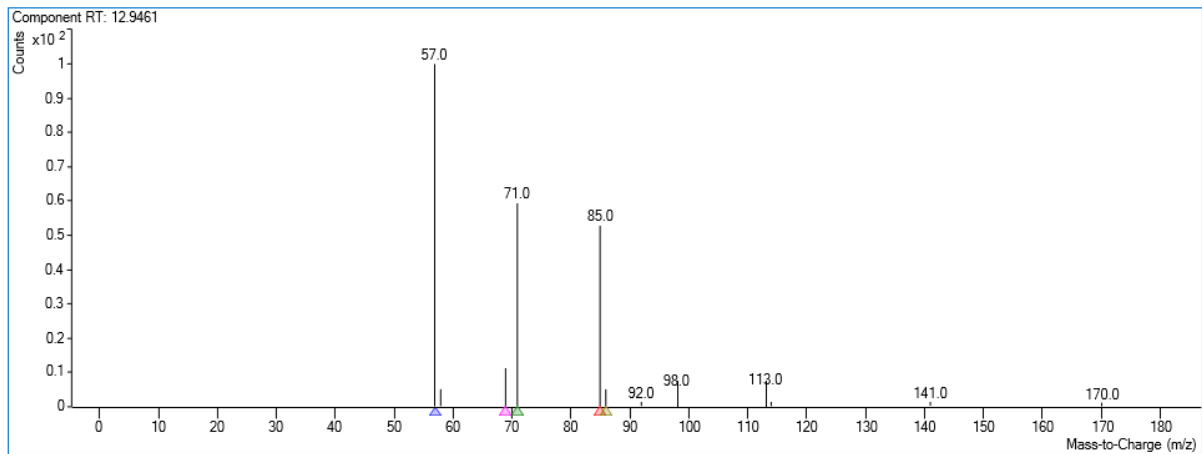


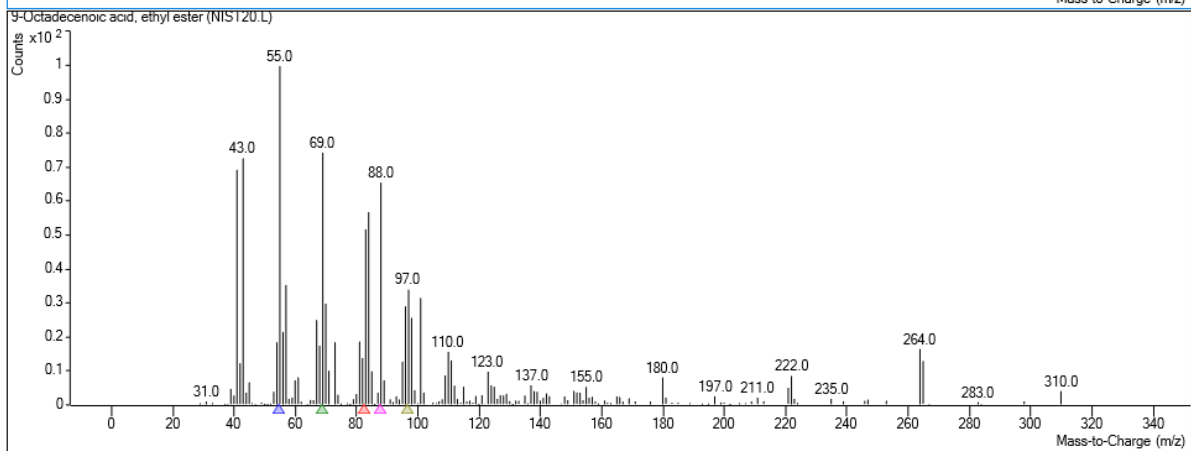
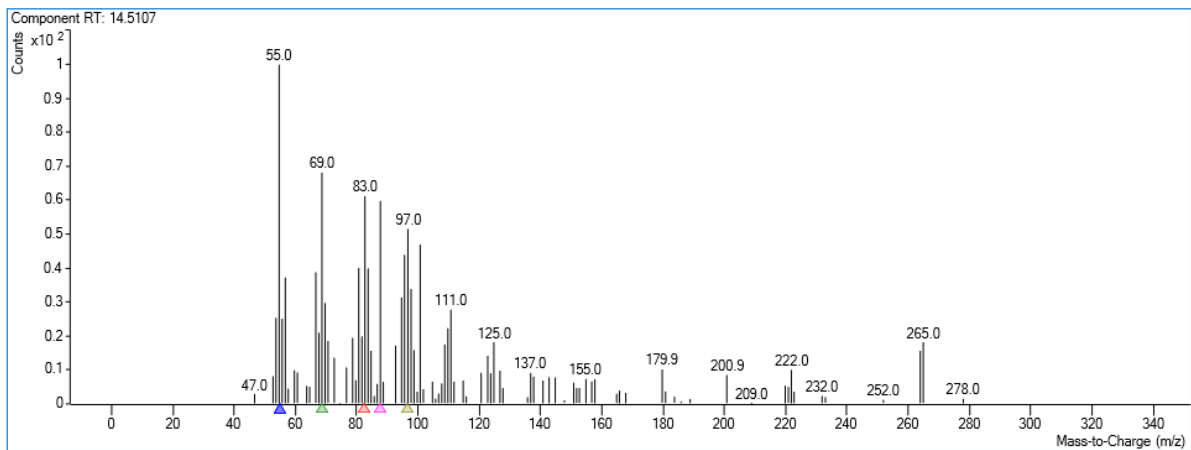


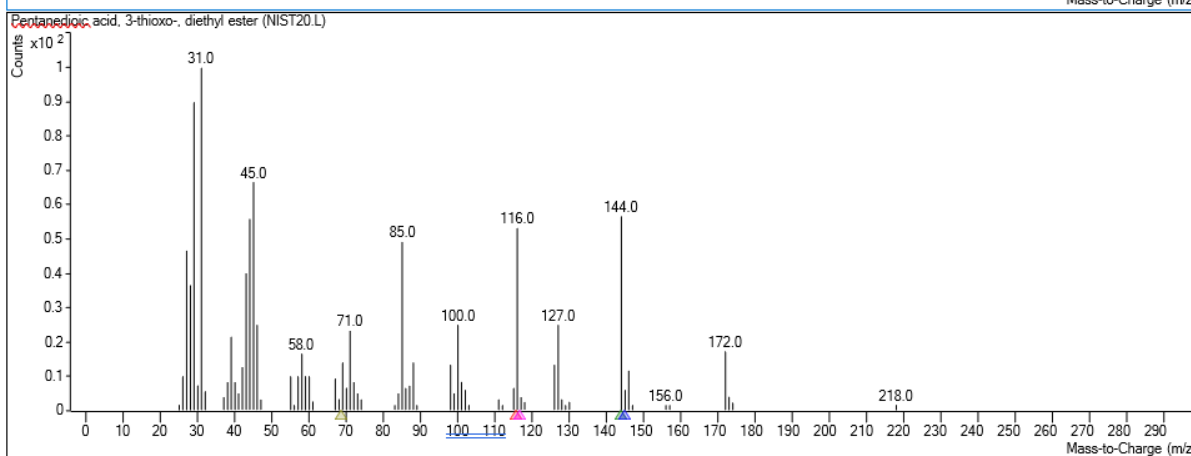
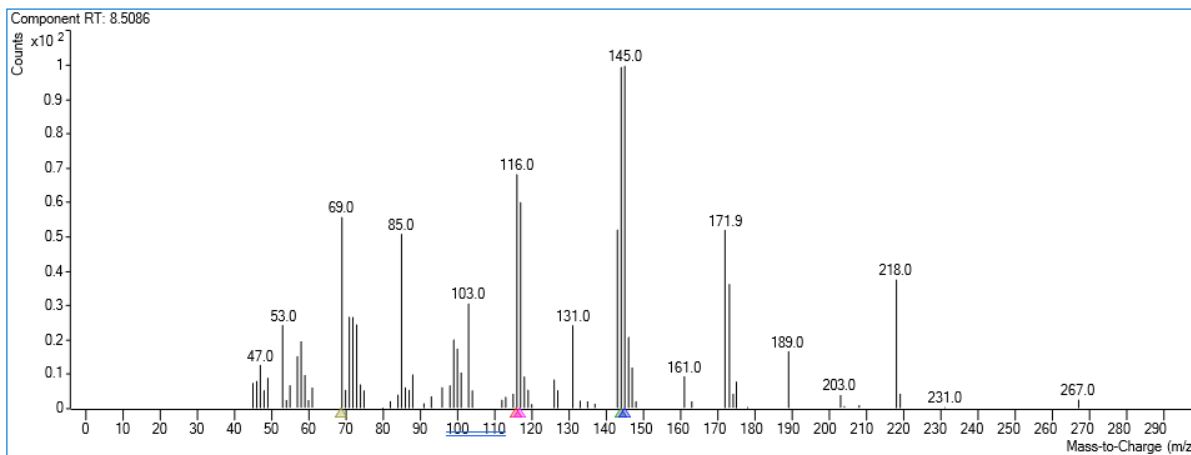


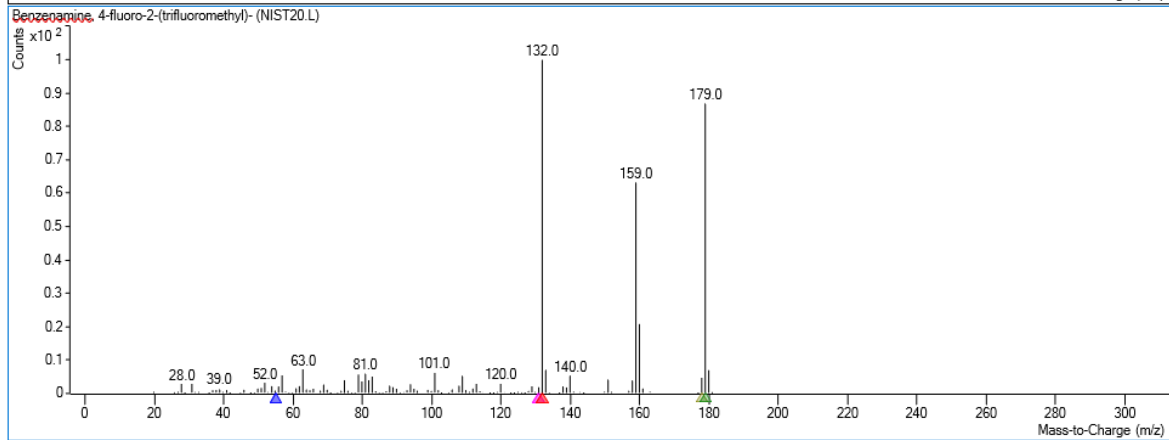
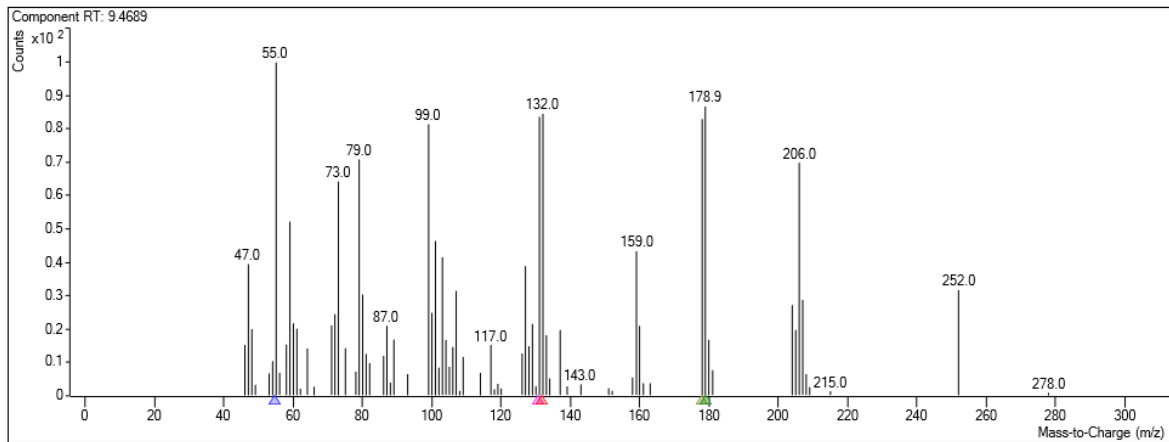


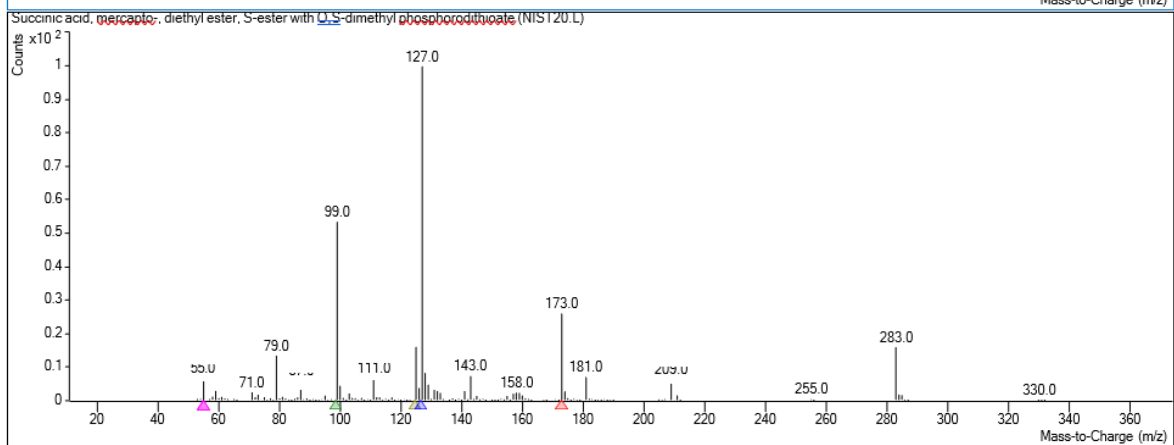
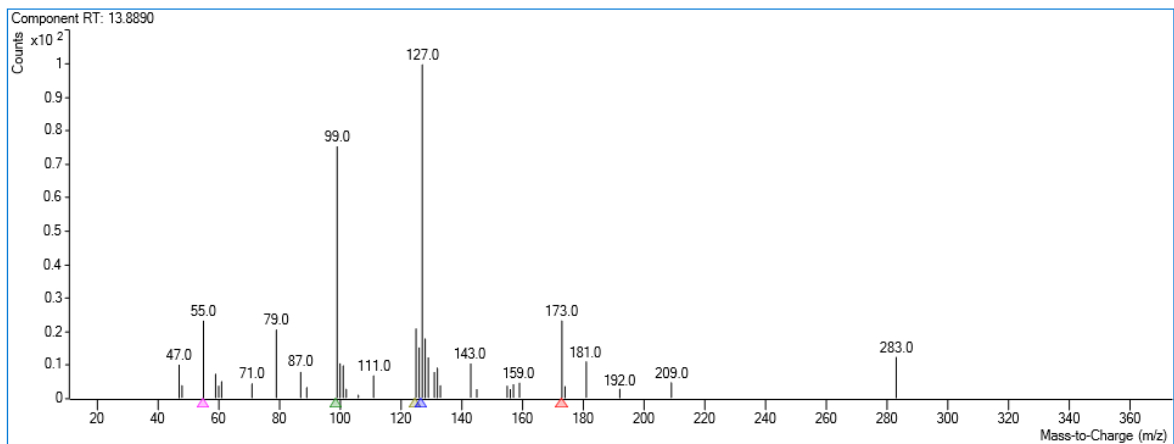


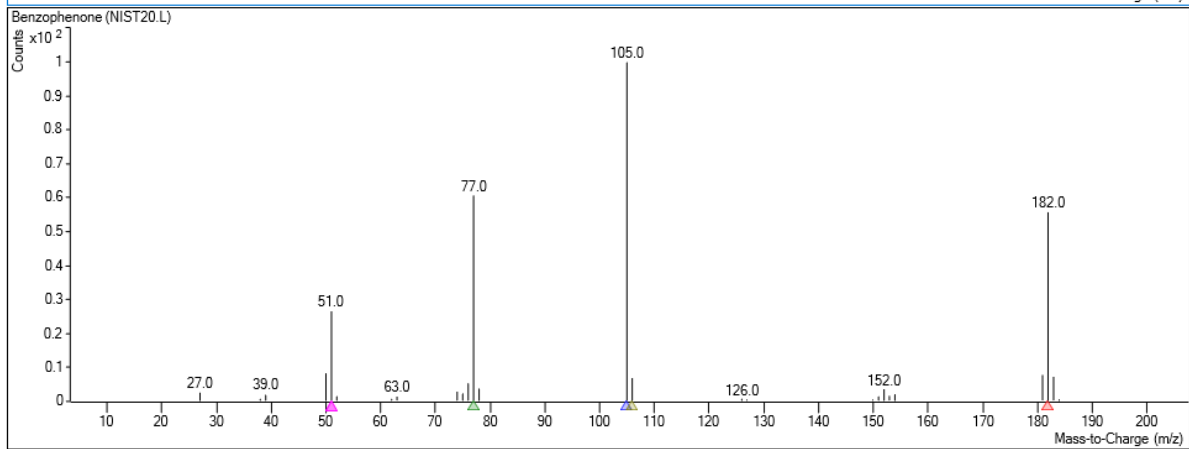
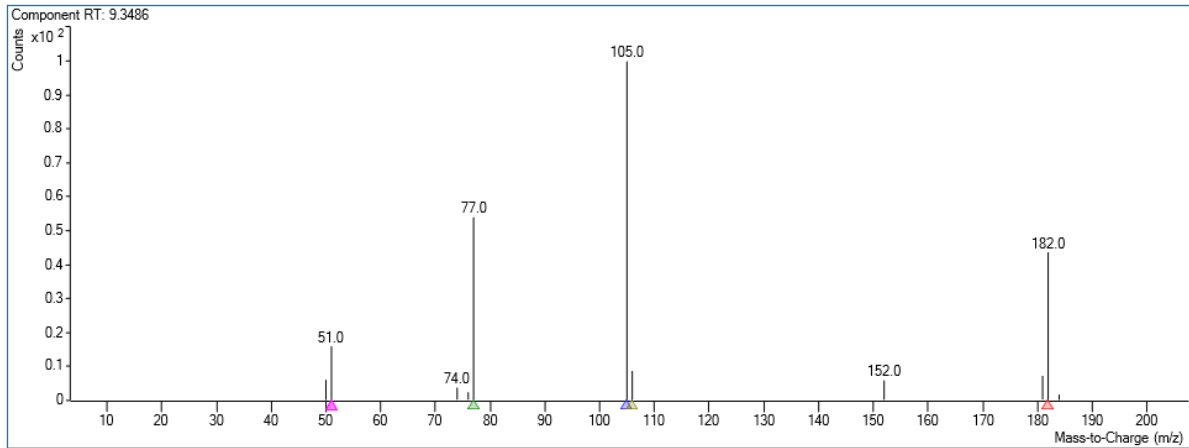


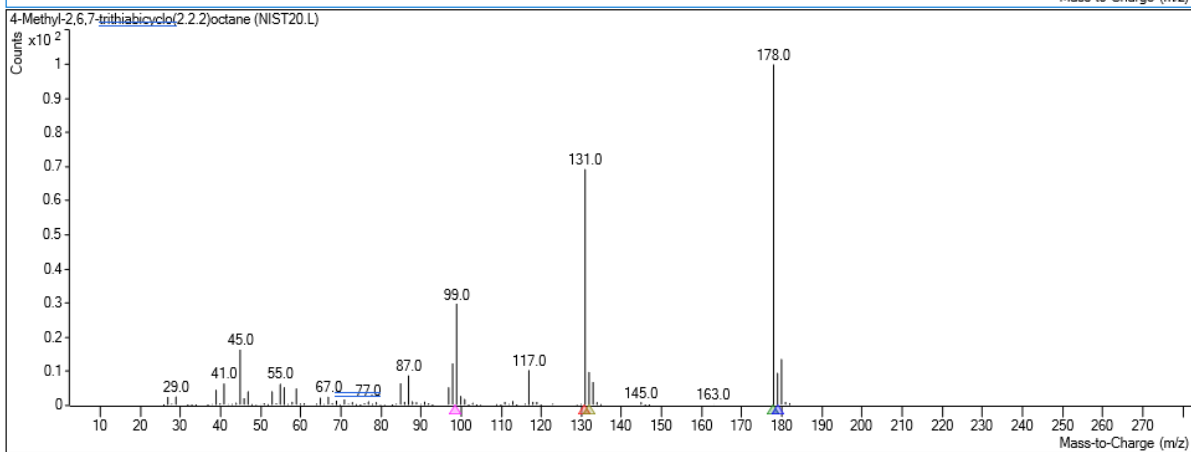
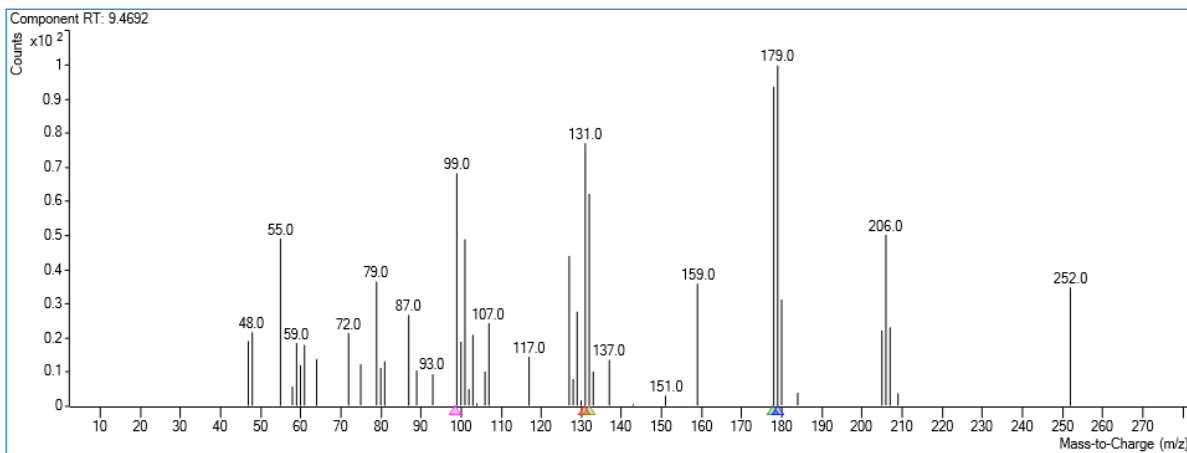


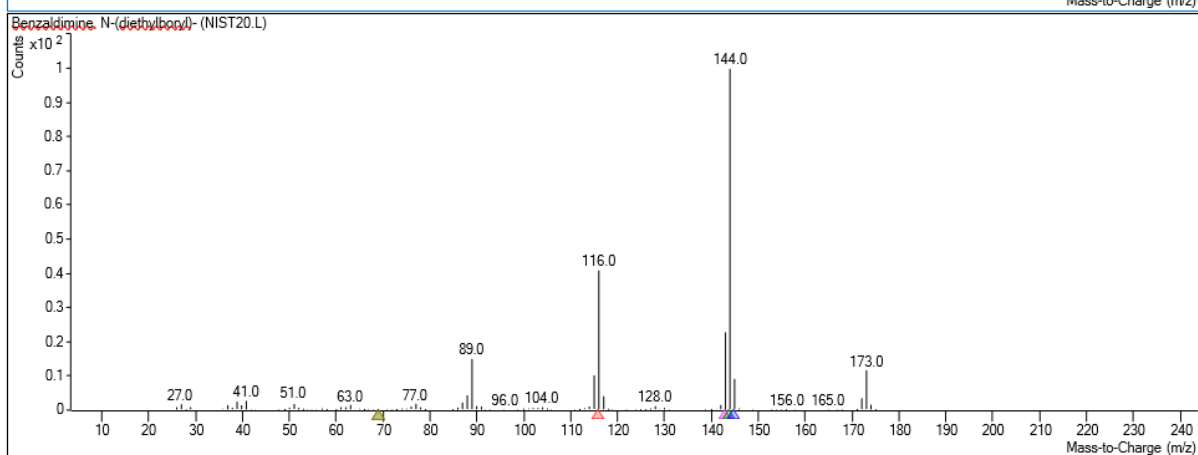
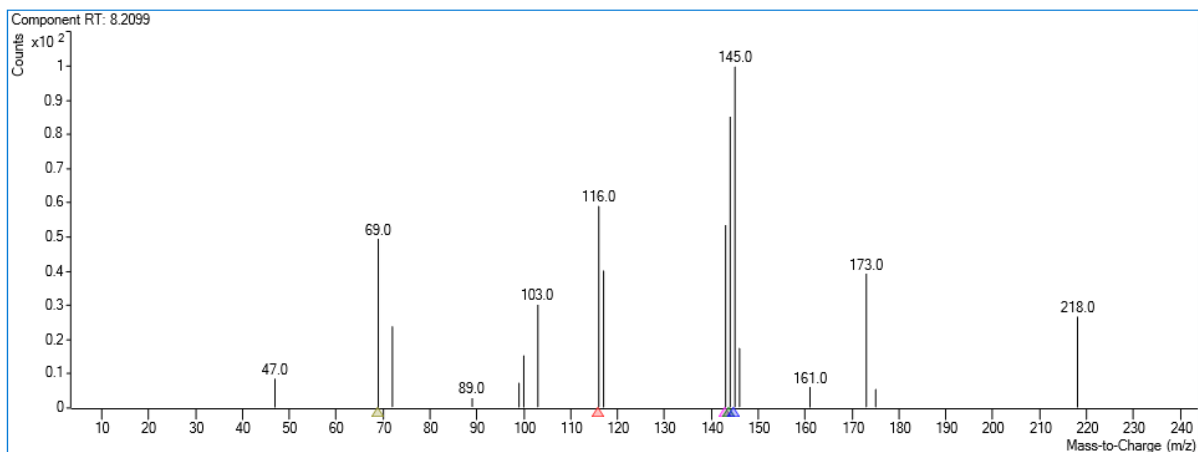


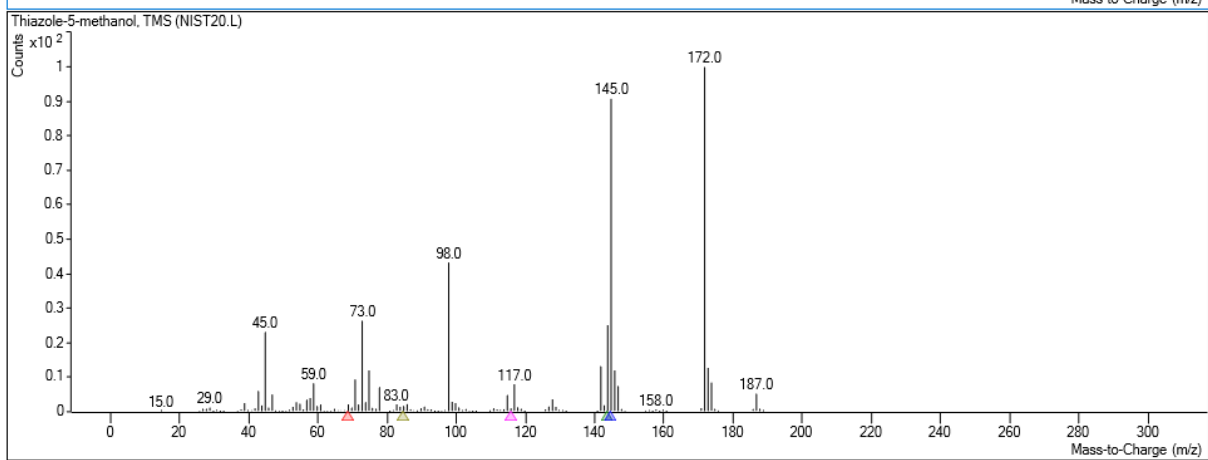
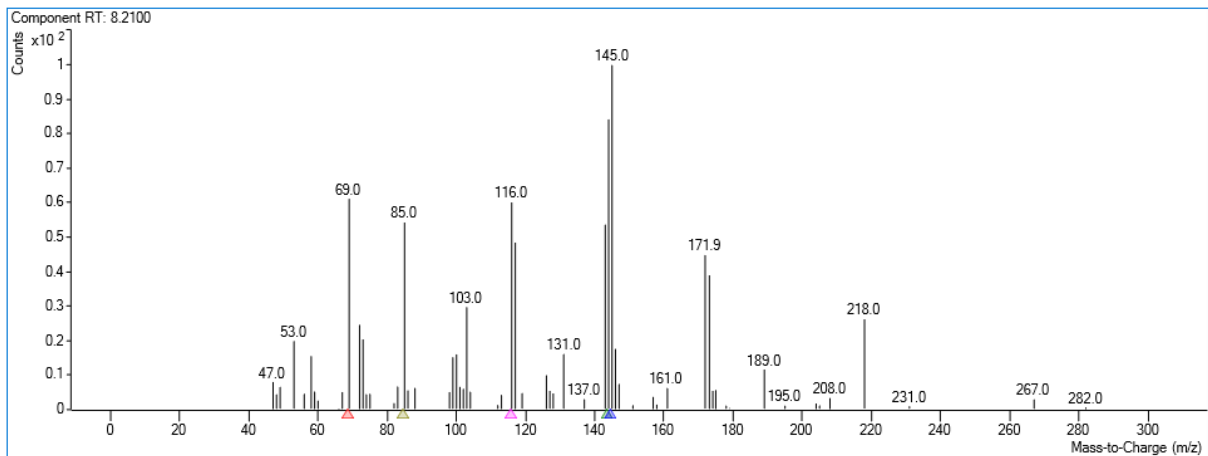


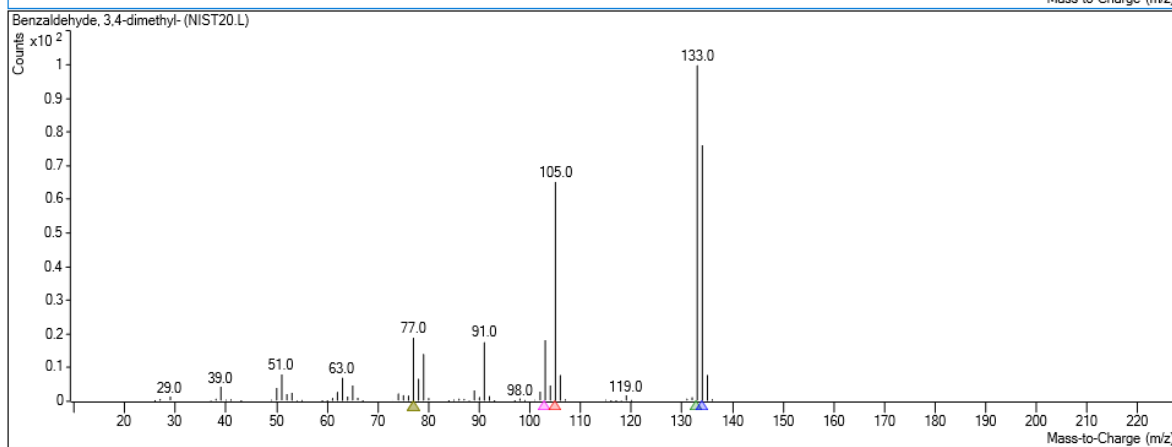
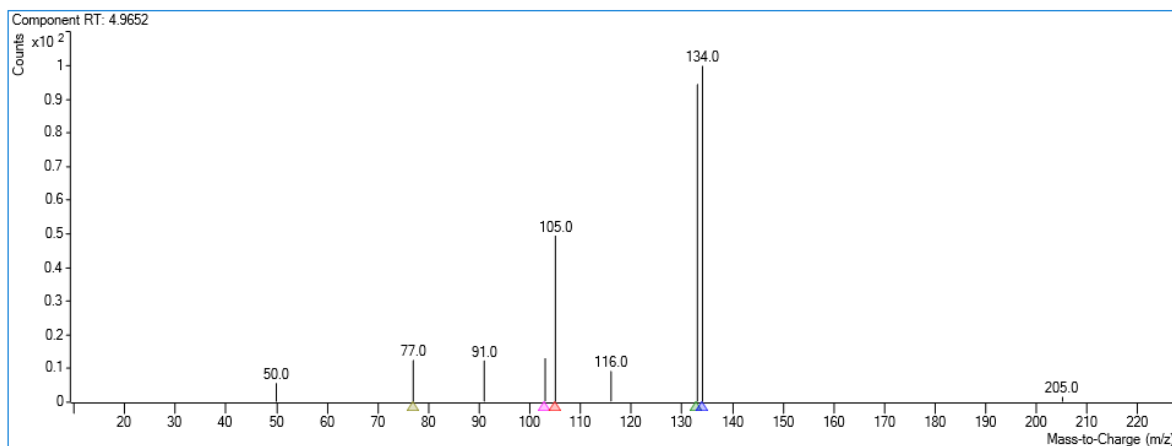


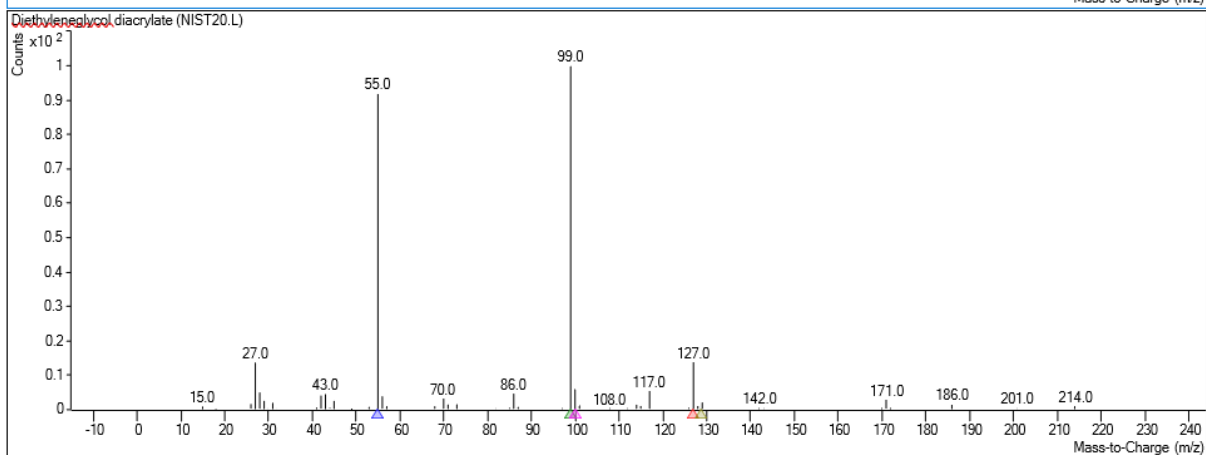
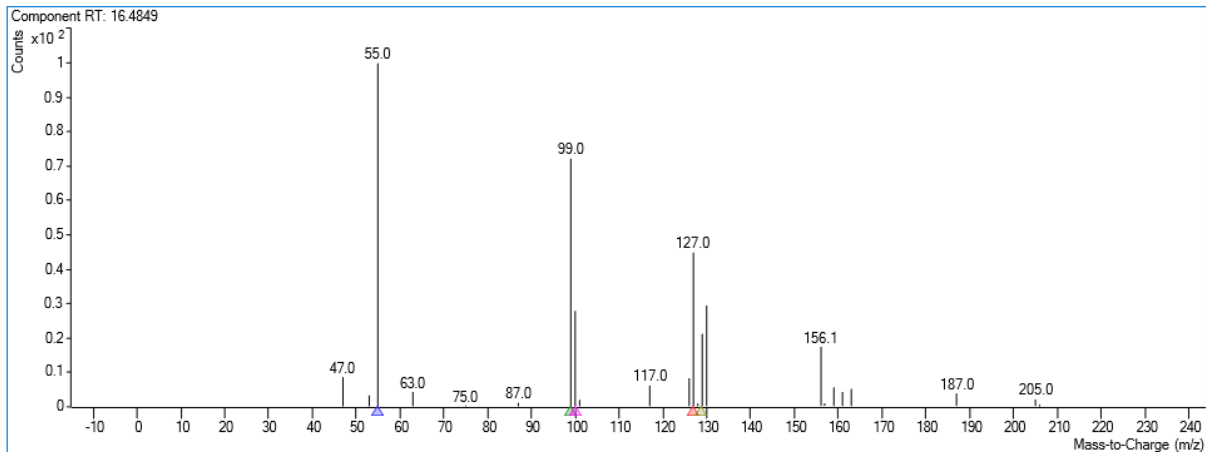


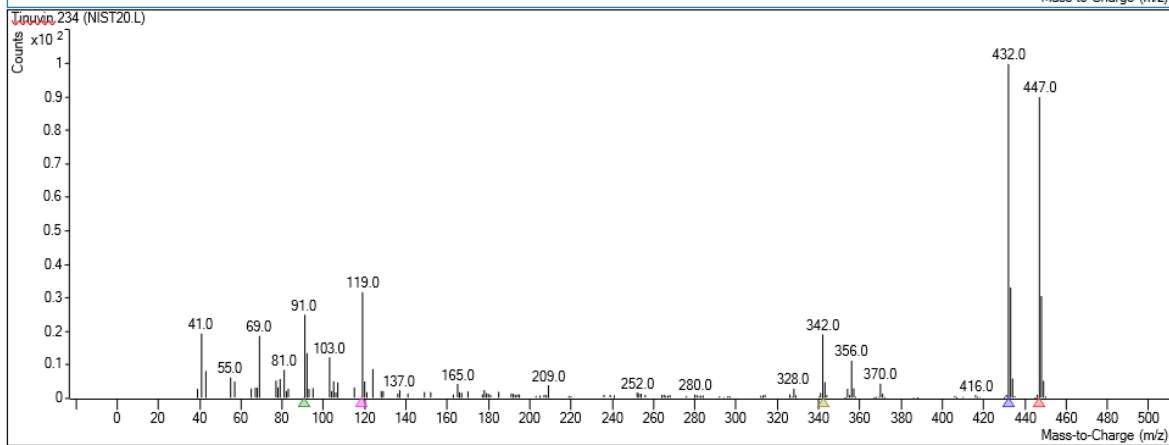
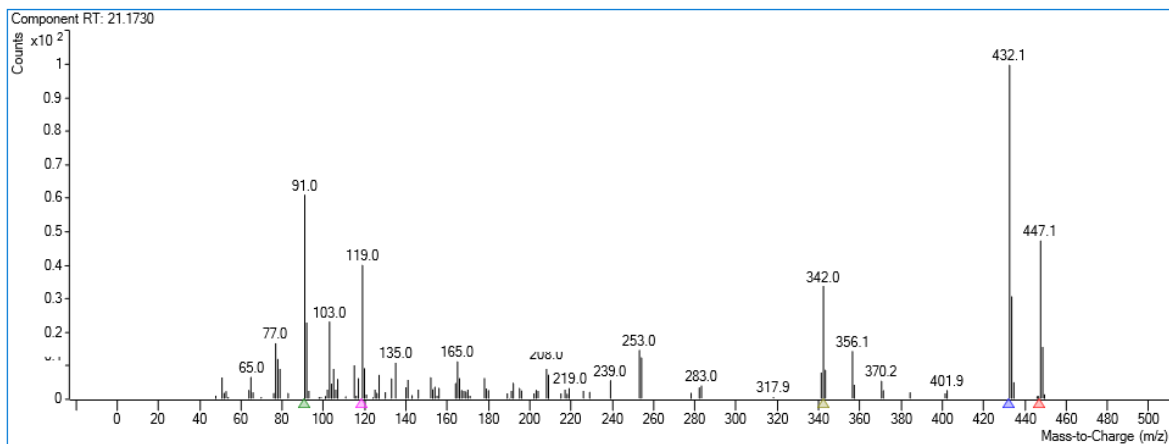


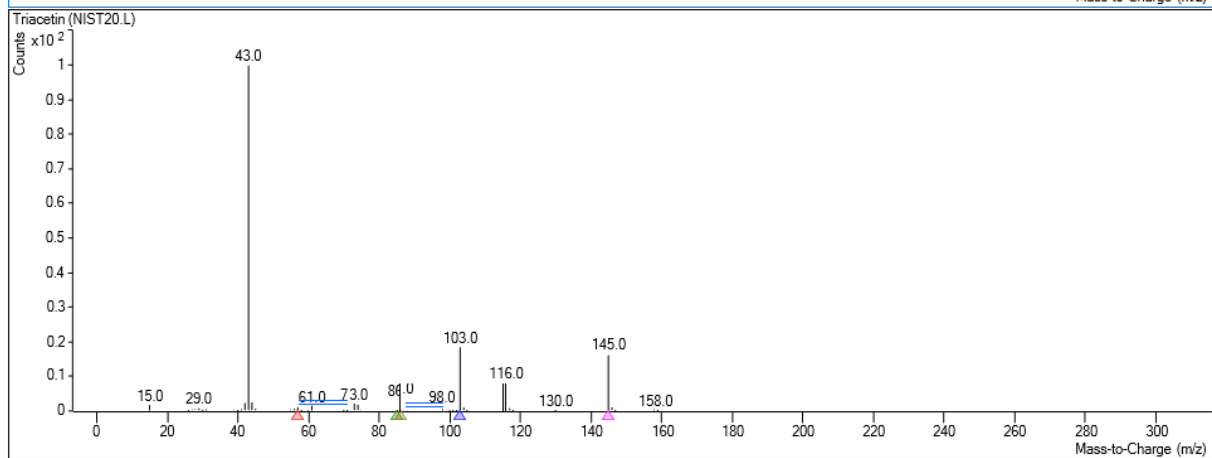
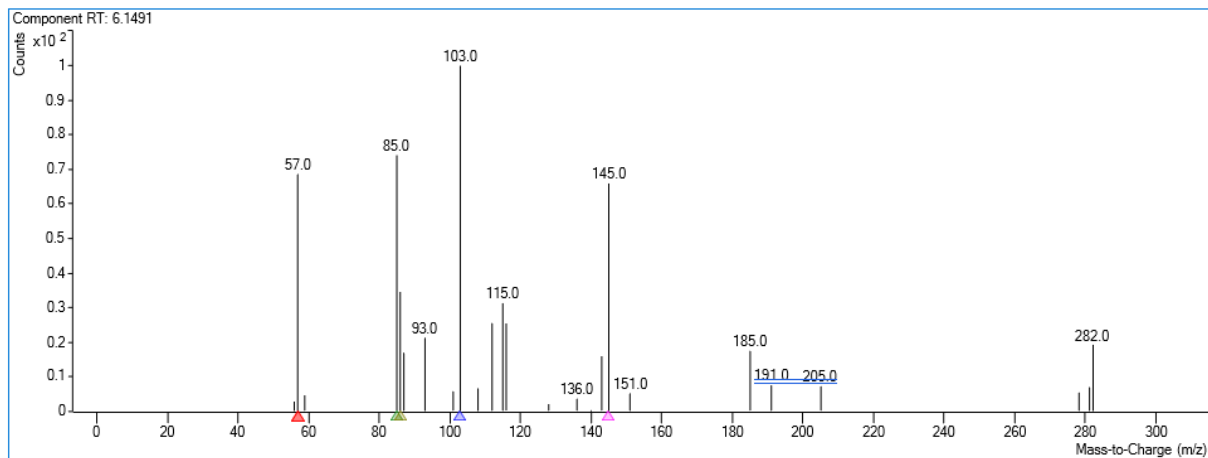


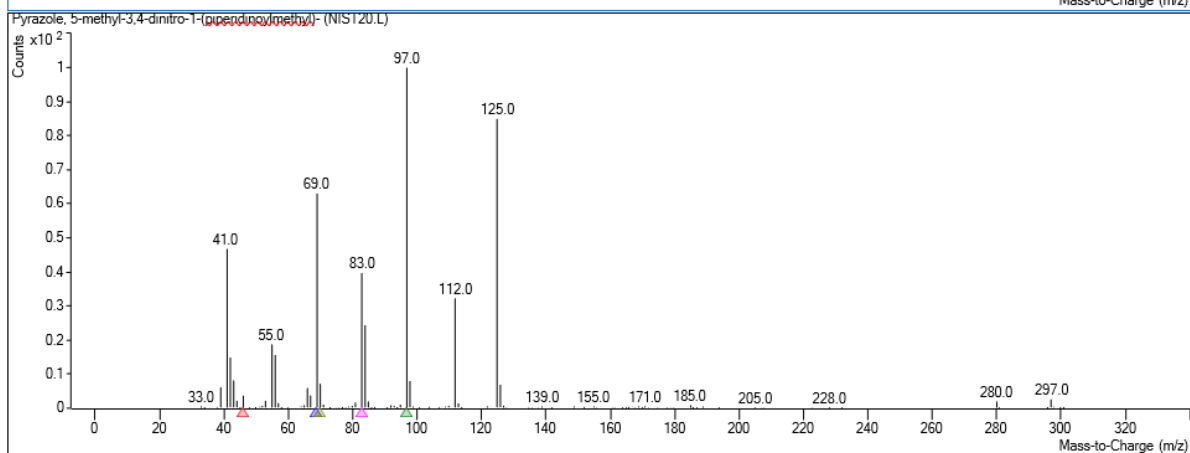
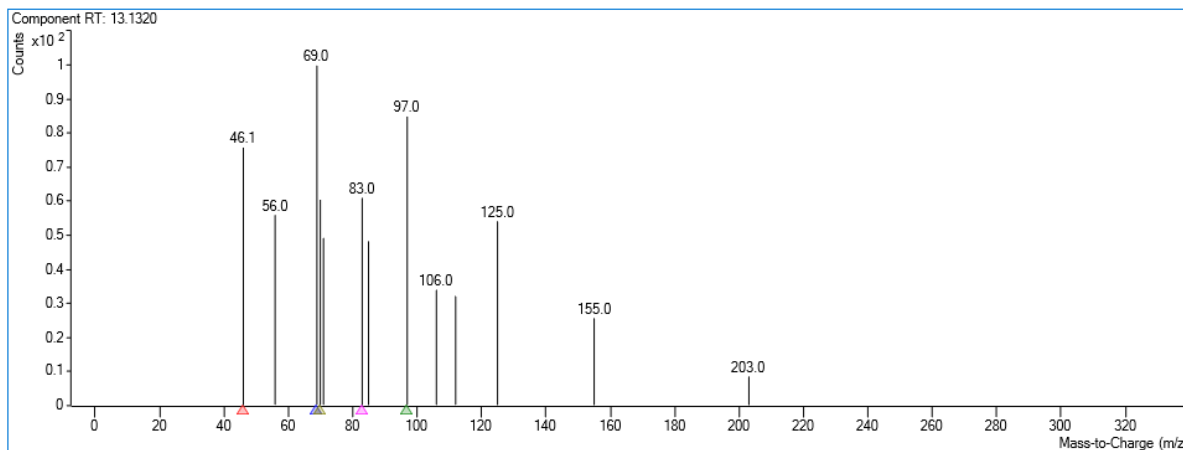


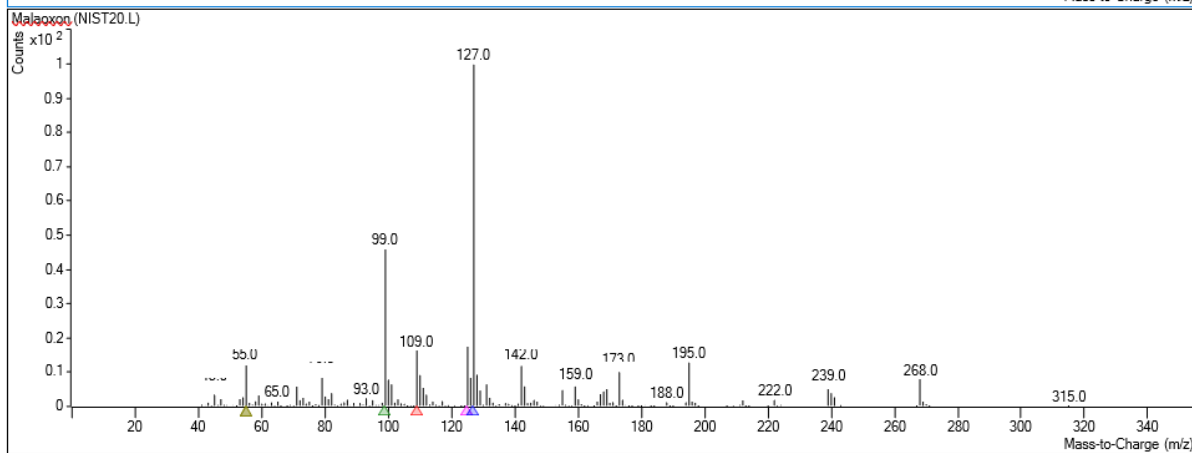
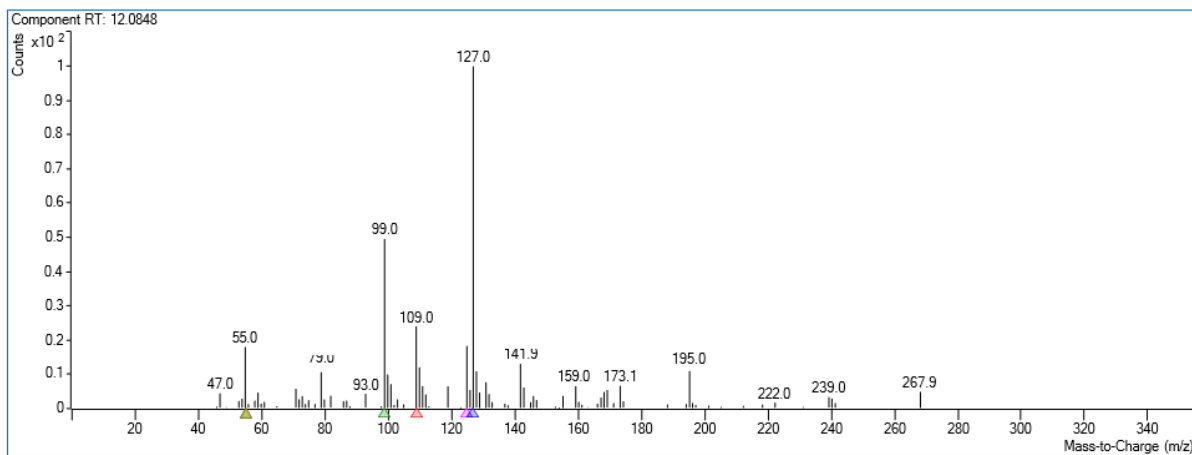


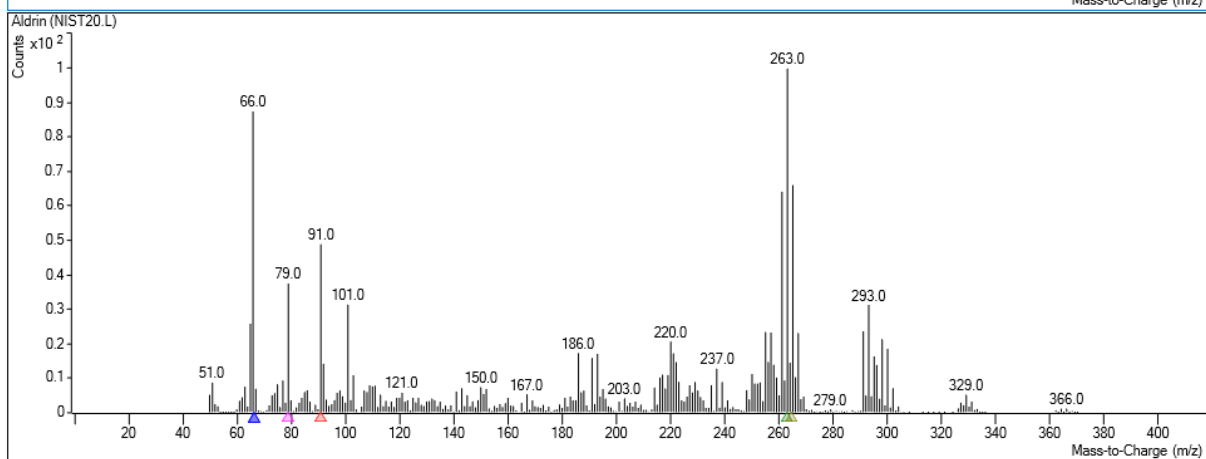
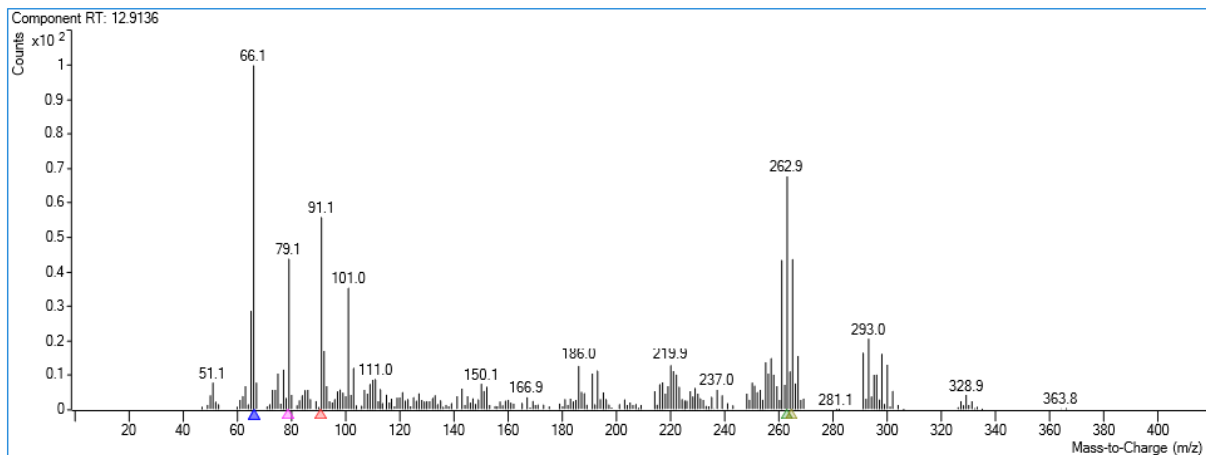


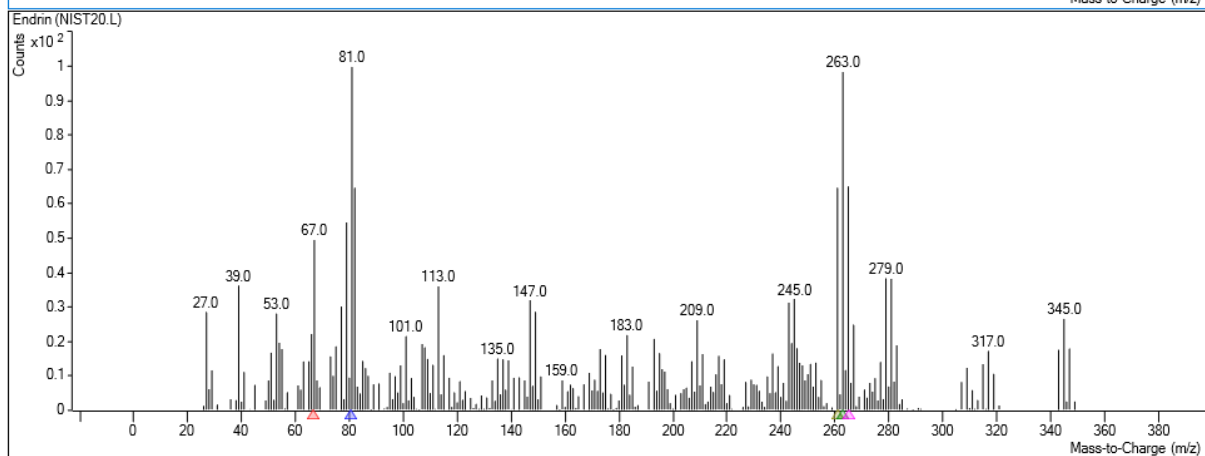
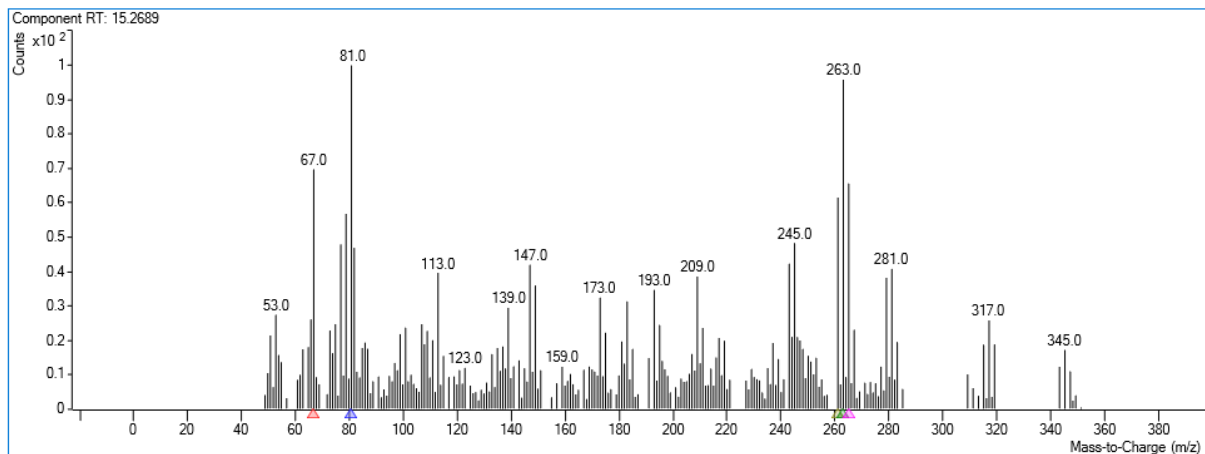


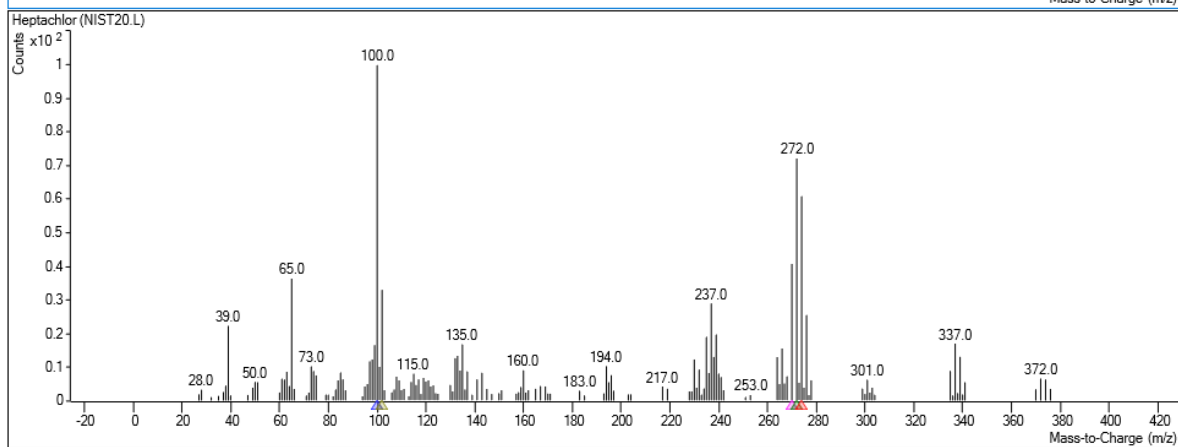
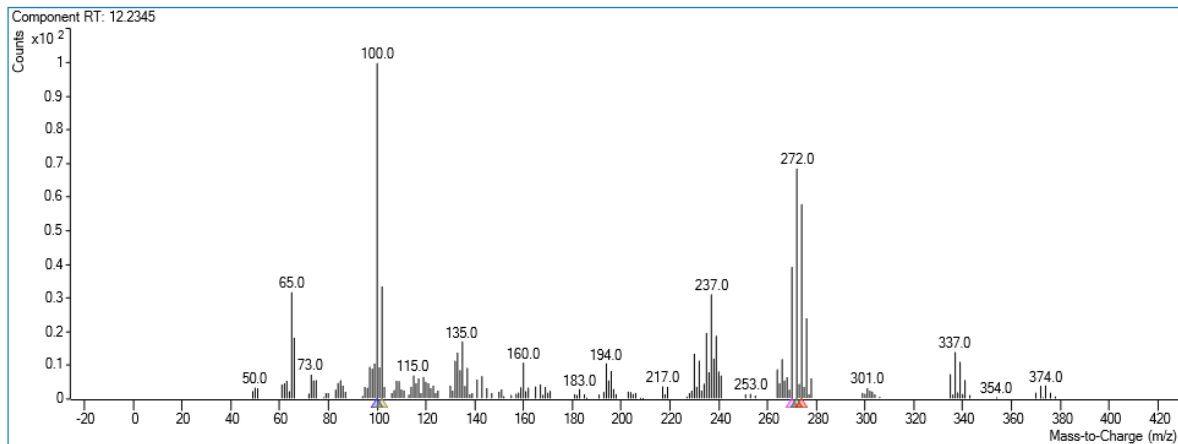


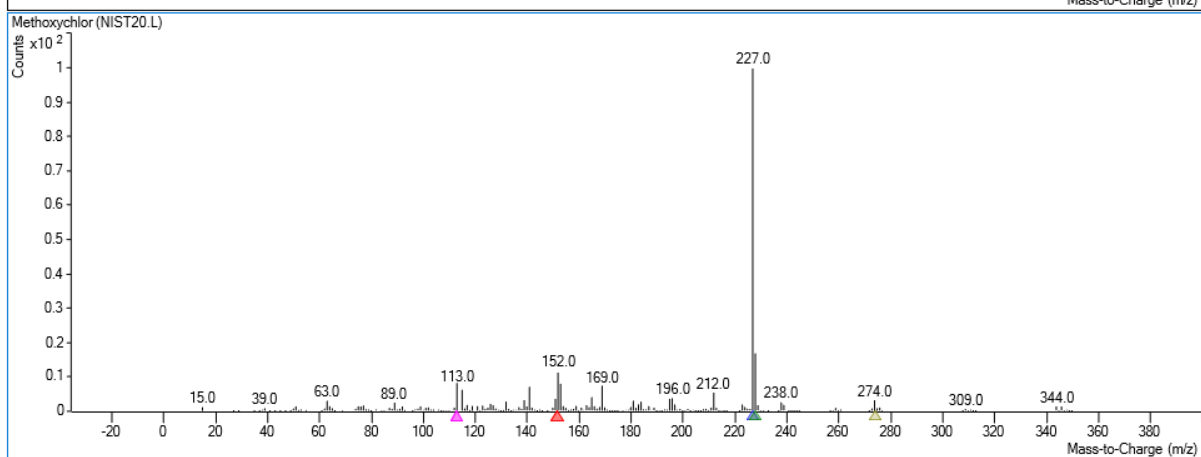
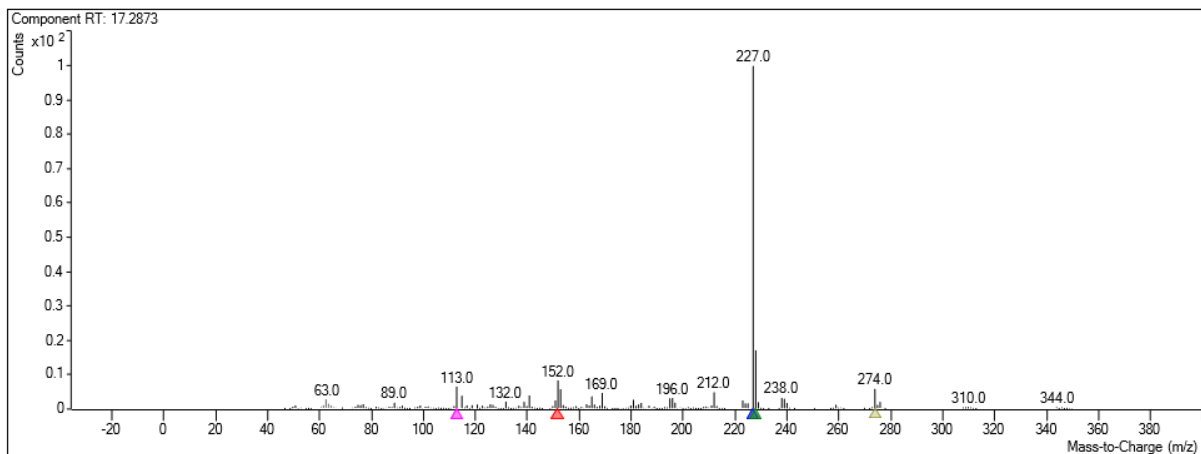


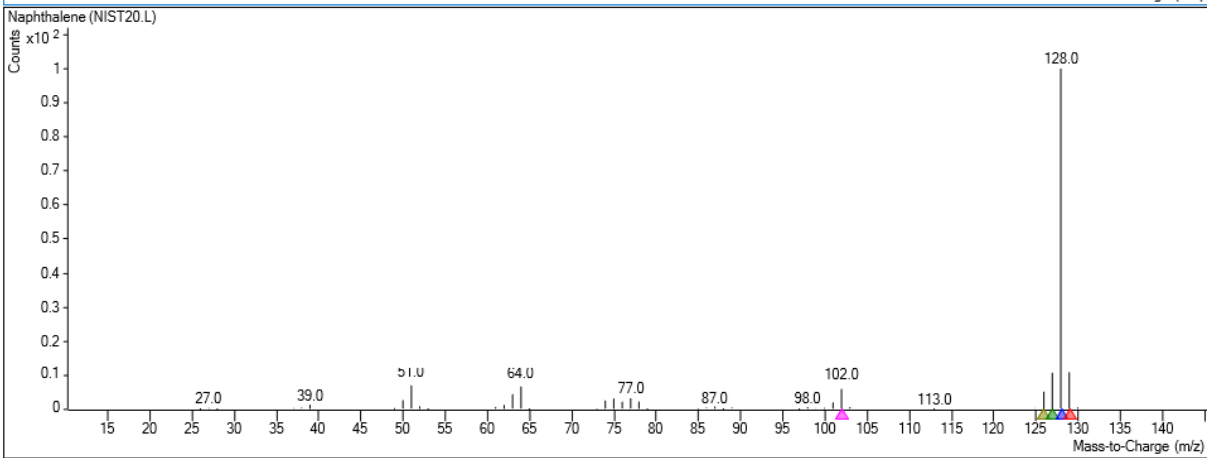
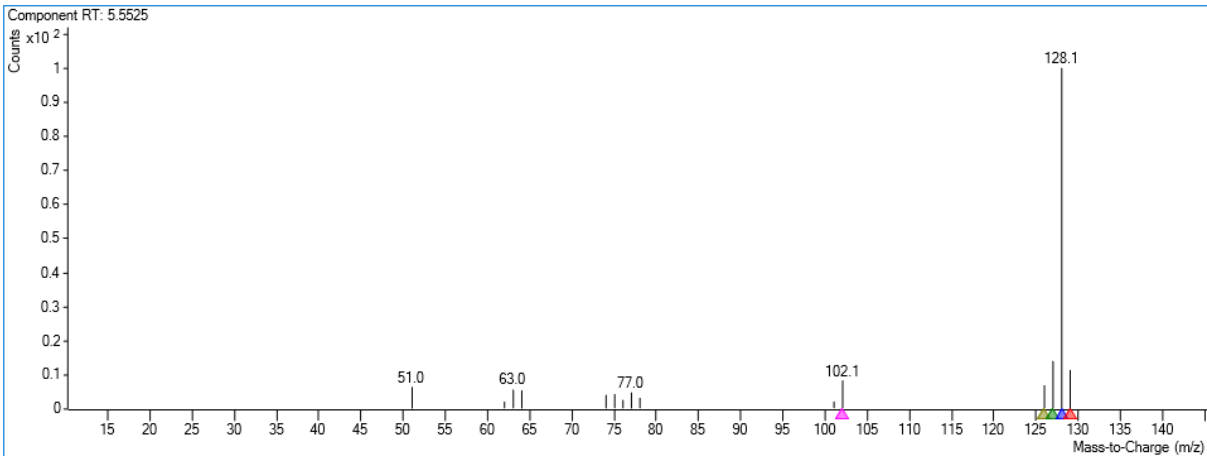


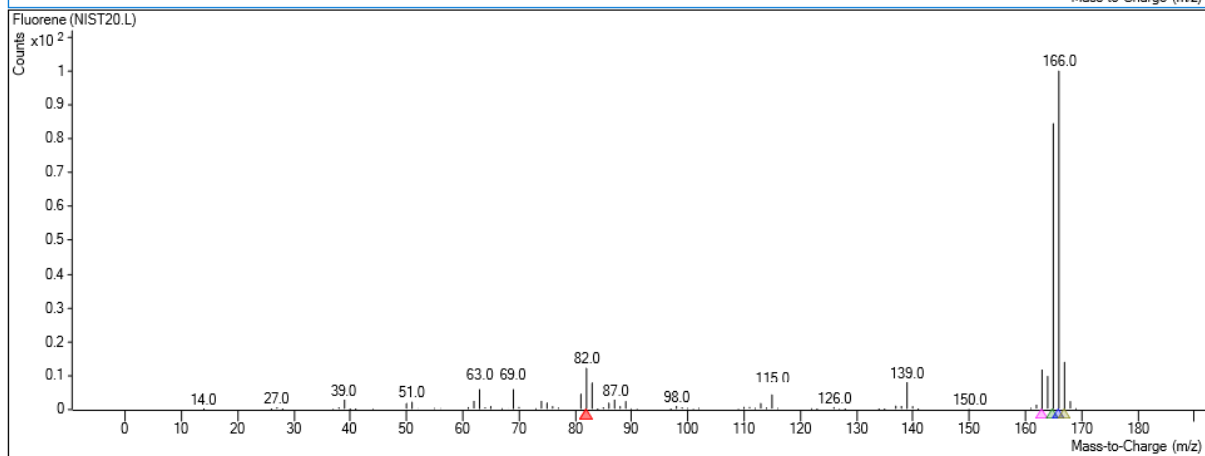
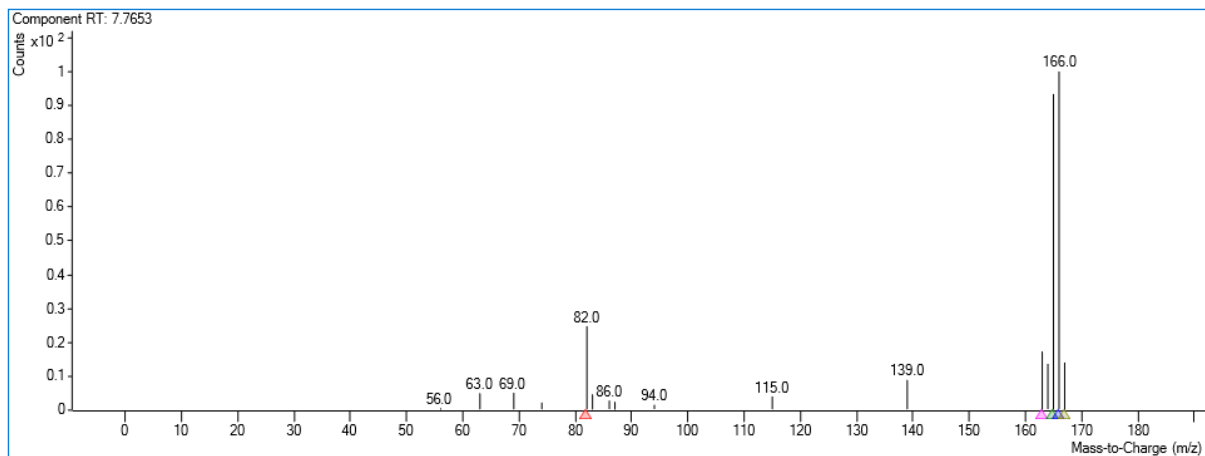


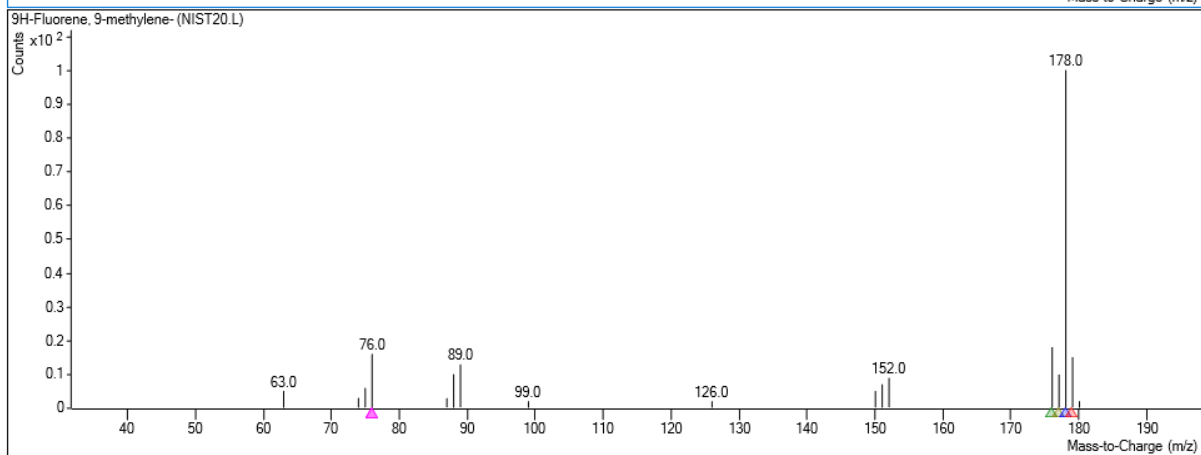
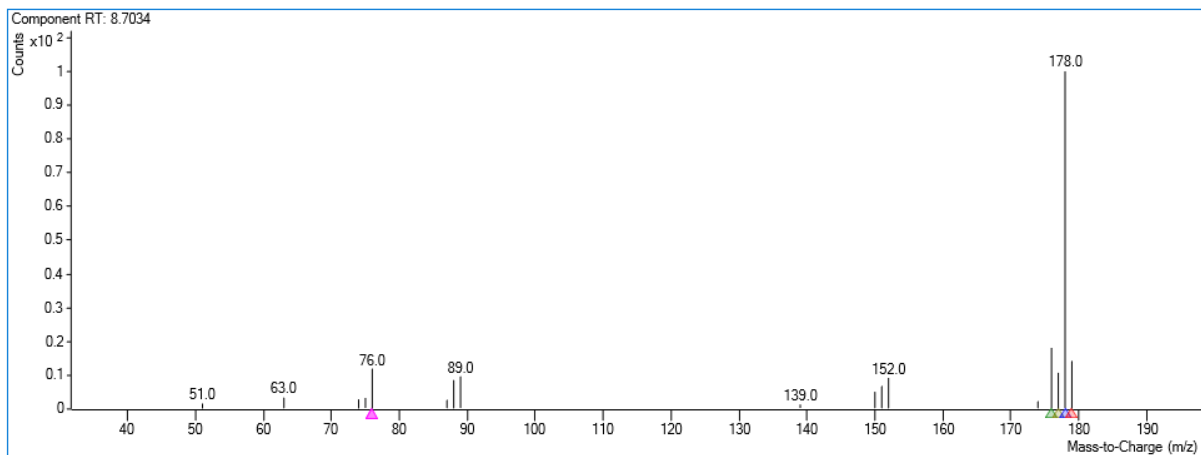


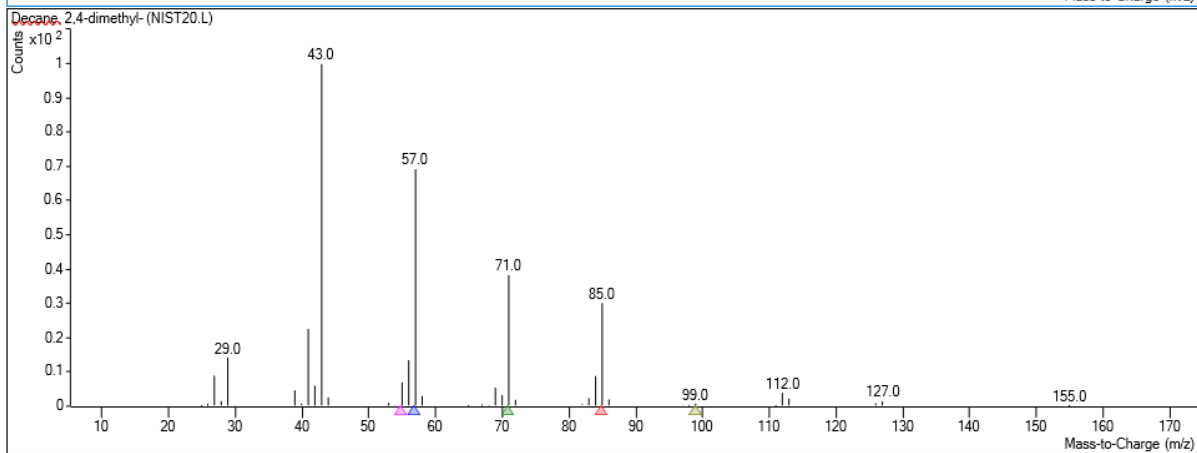
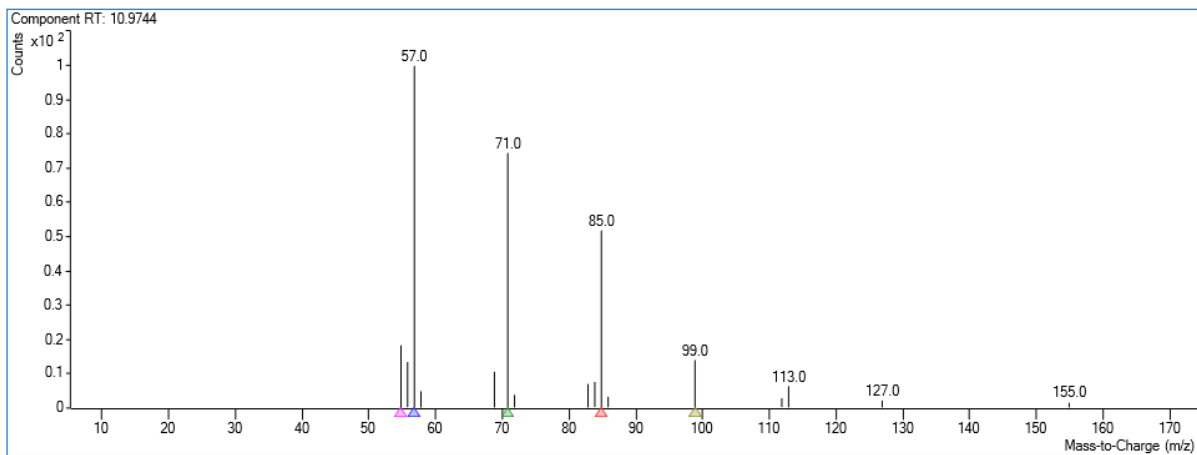


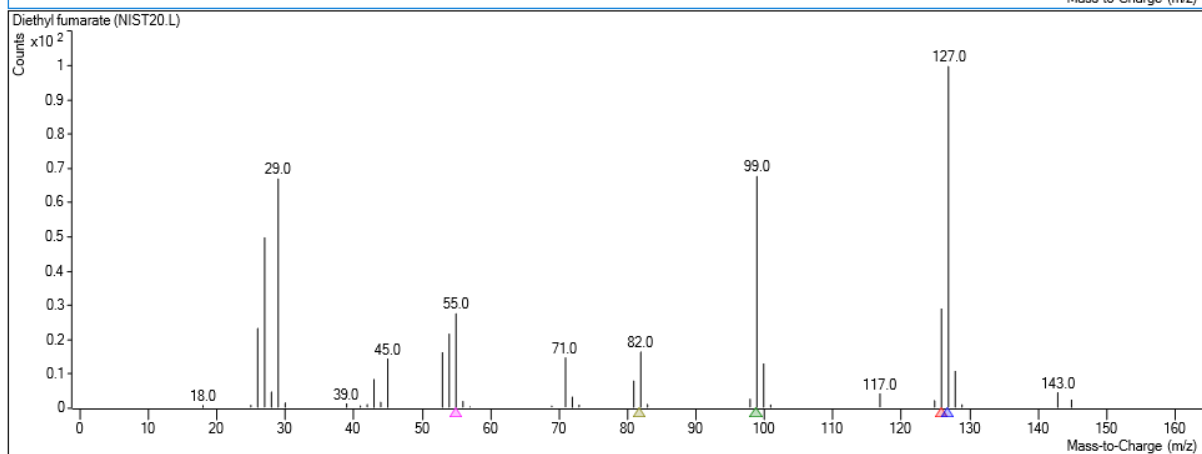
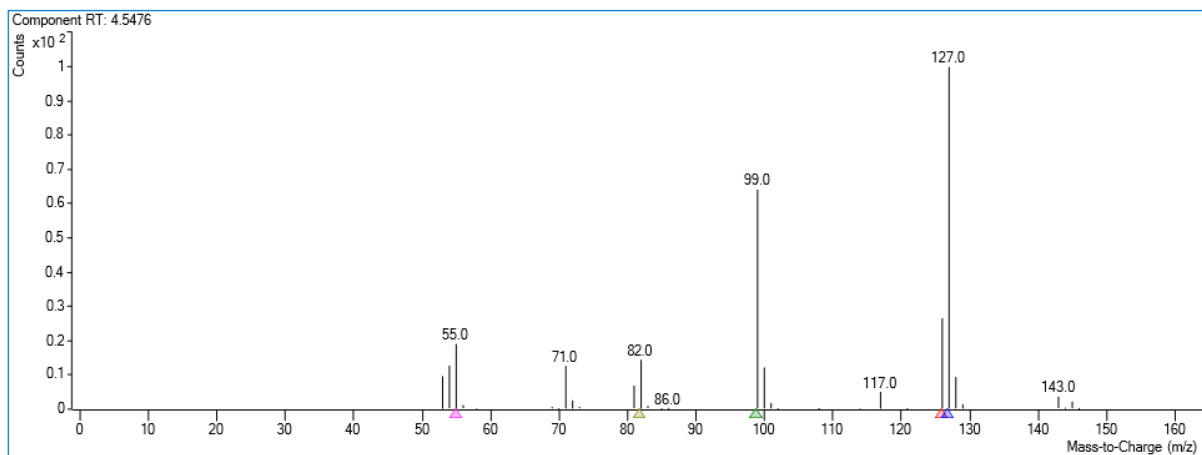


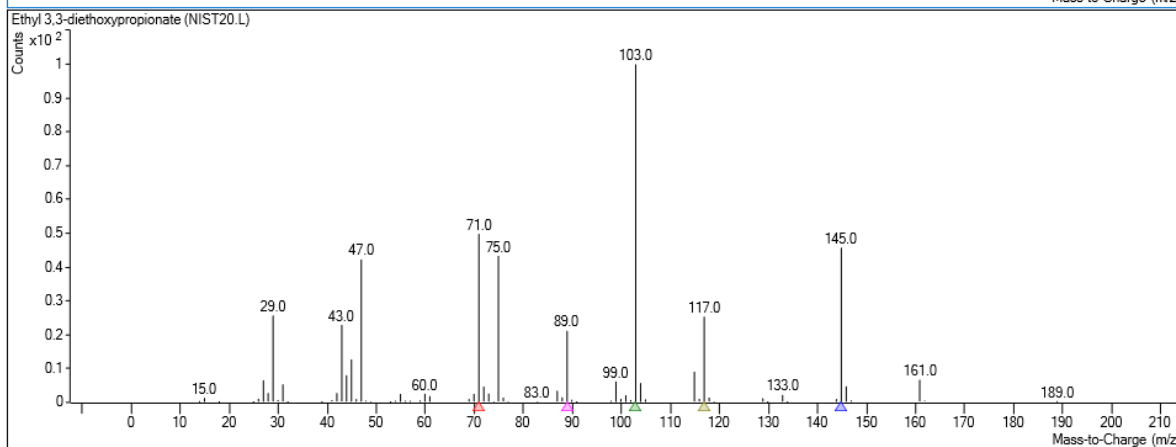
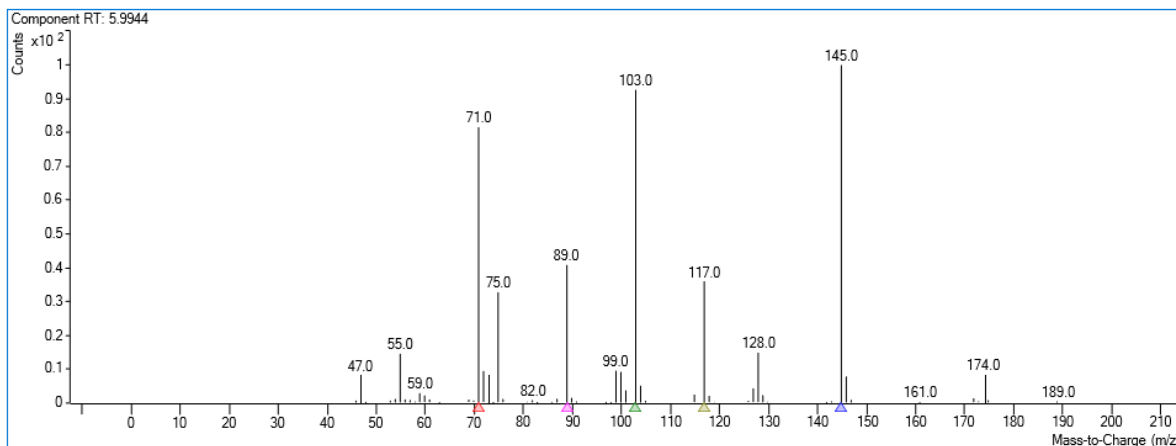


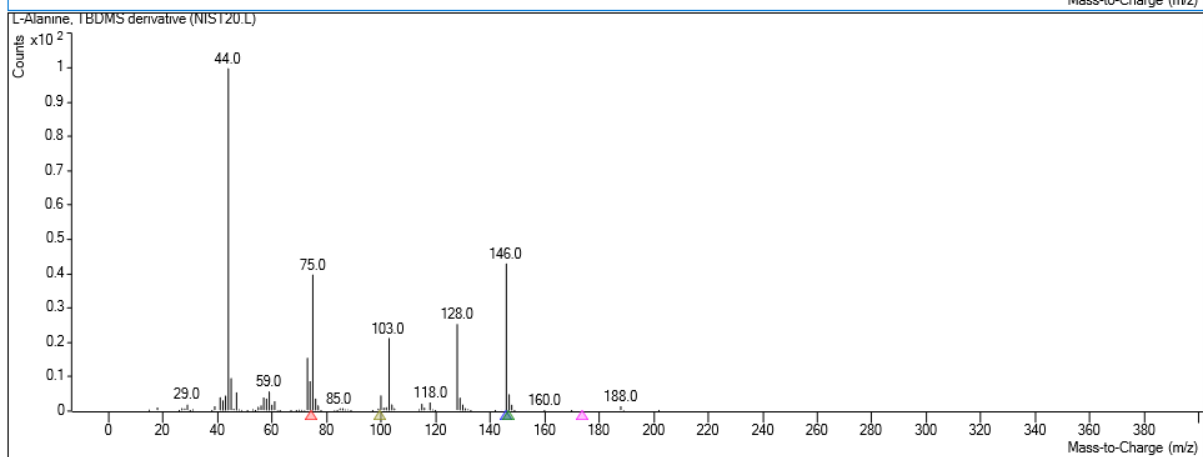
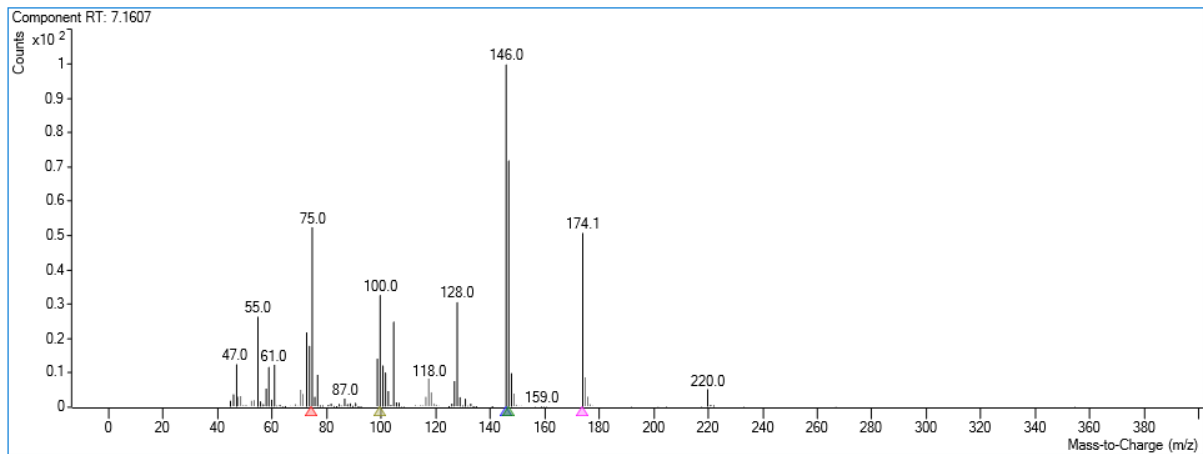


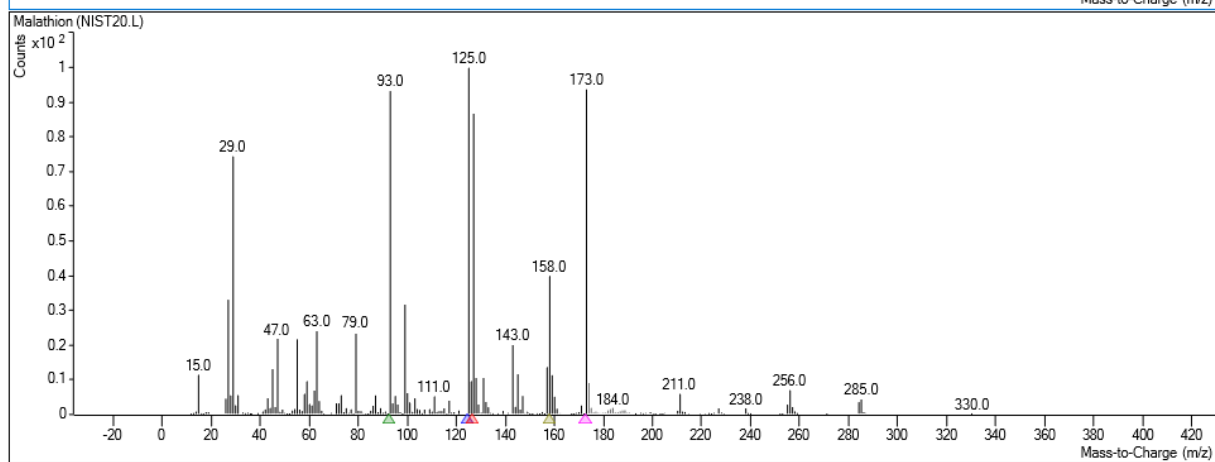
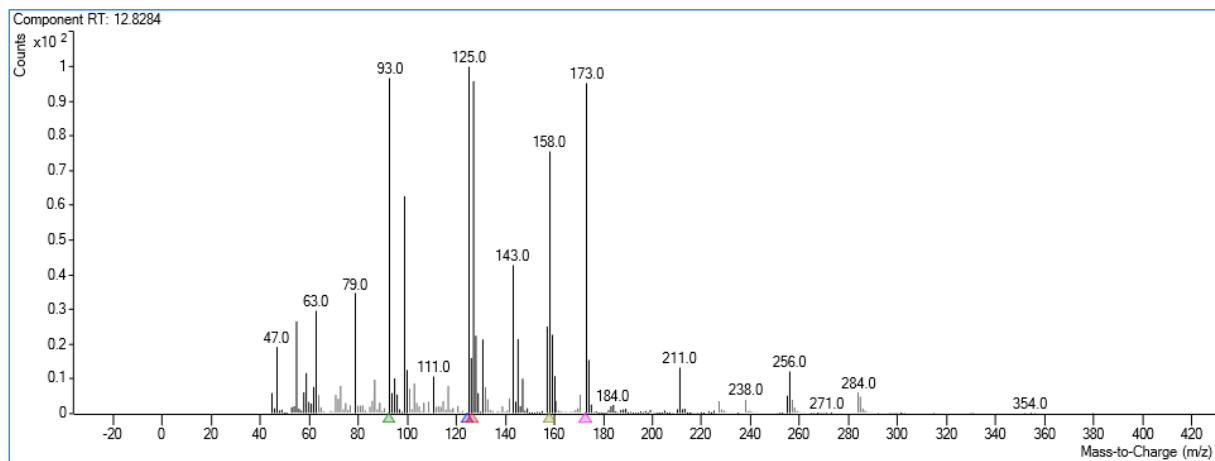












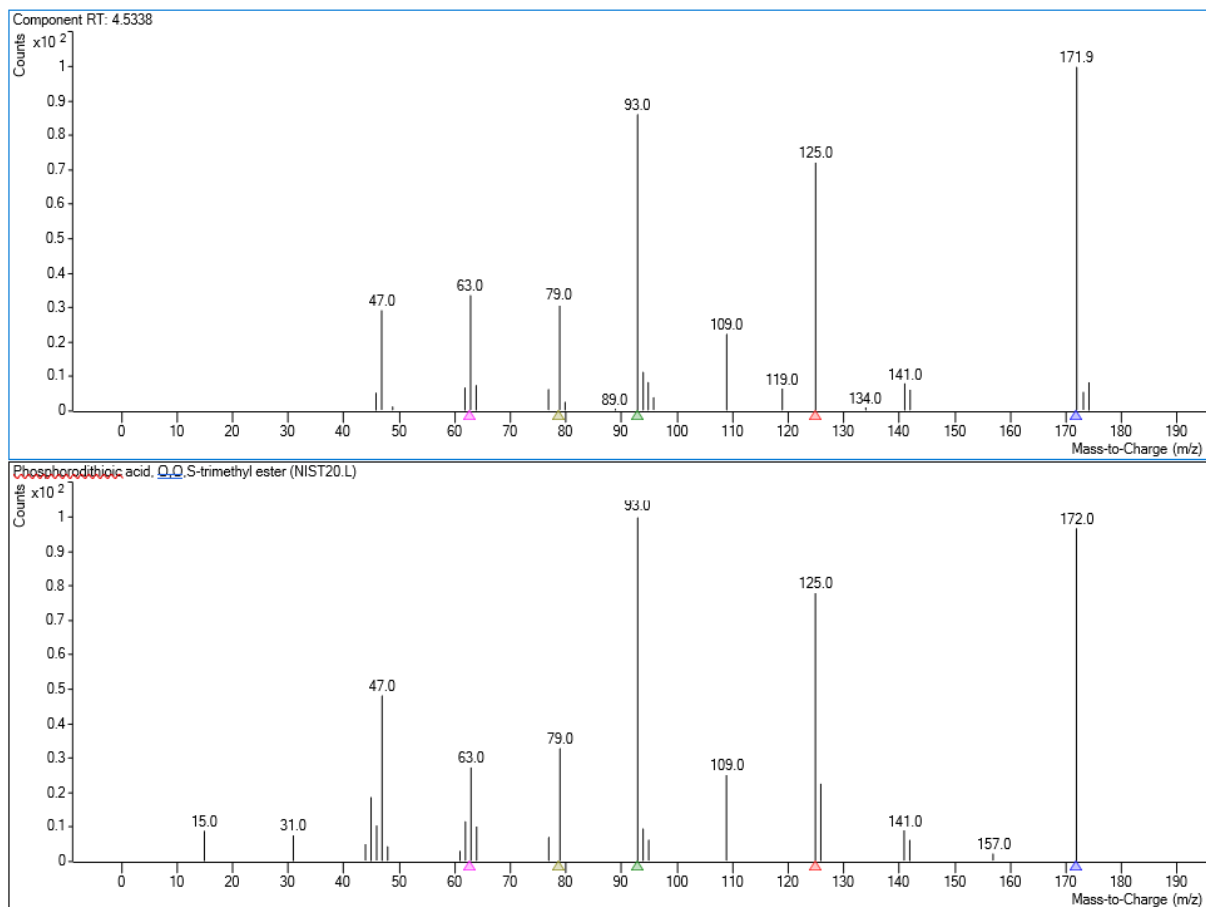


Figure S2. Mass spectra of all compounds identified with high confidence using non-targeted data analysis and molecular ion matches with corresponding spectra in the NIST library.