

Supplementary Information

Table S1 Jet Stream electrospray ionization(ESI) source parameters for fructoselysine(Fru-Lys) detection

| Source parameter | Setting |
|------------------------|----------|
| Drying gas temperature | 300 °C |
| Drying gas flow rate | 10 L/min |
| Nebulizer pressure | 25 psi |
| Sheath gas temperature | 350 °C |
| Sheath gas flow rate | 9 L/min |
| Nozzle voltage | 450V |
| capillary voltage | 3500 V |

Table S2 The detailed MS parameters for fructoselysine detection

| Compound | Precursor Ion | Product Ion | Dwell | Fragmentor | Collision Energy | Cell Accelerate Voltage | Polarity |
|----------------|---------------|-------------|-------|------------|------------------|-------------------------|----------|
| Fructoselysine | 309 | 84 | 200 | 70 | 17 | 3 | Positive |
| Fructoselysine | 309 | 147 | 200 | 70 | 14 | 3 | Positive |

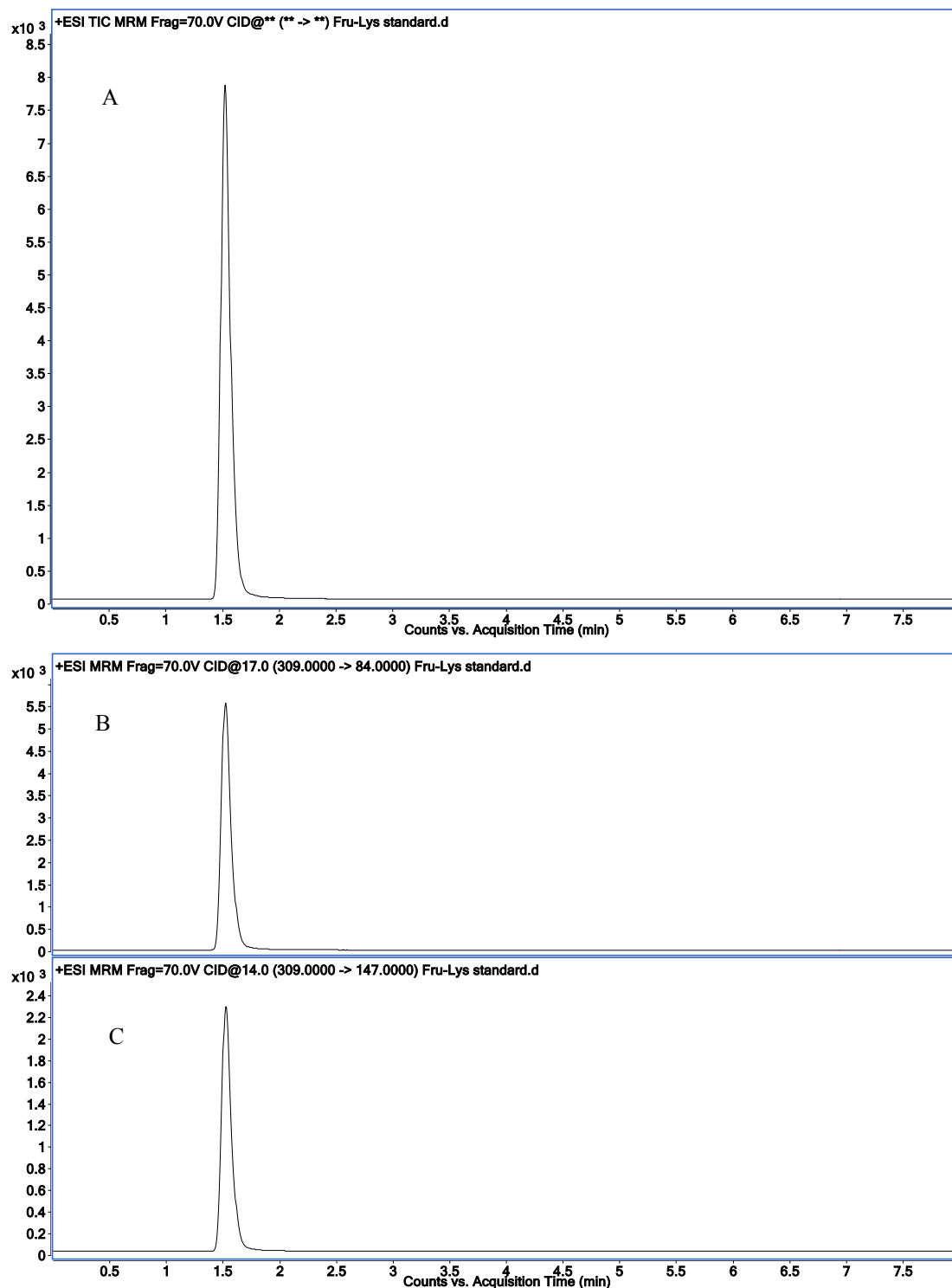


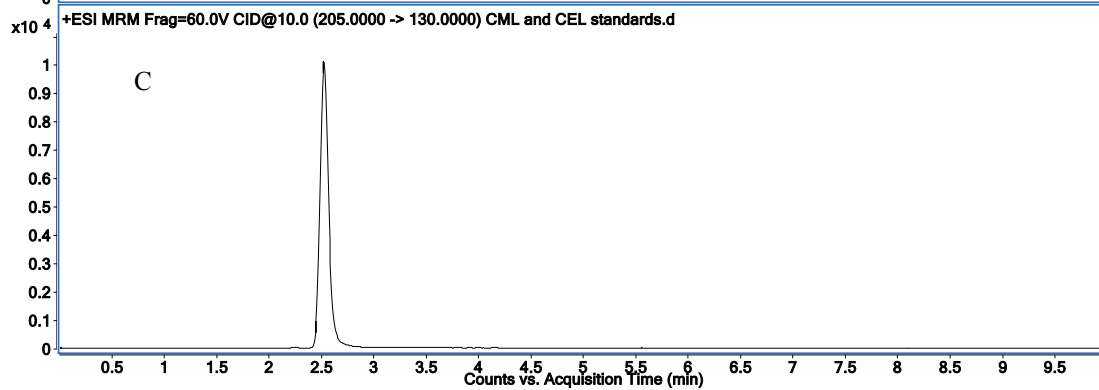
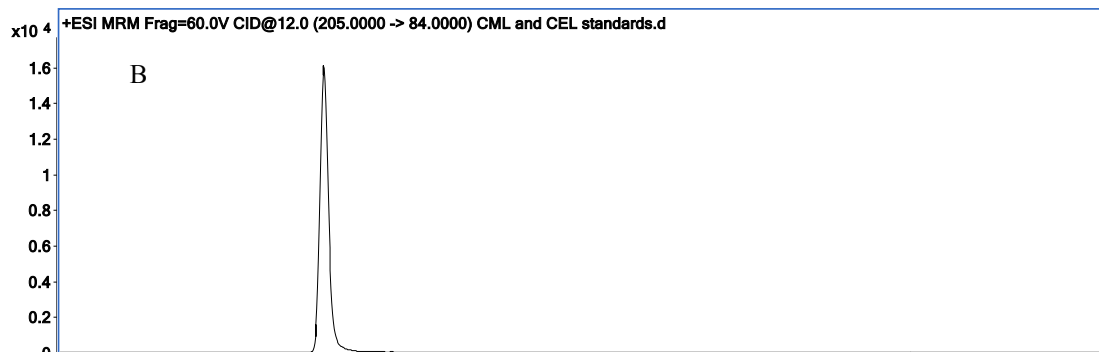
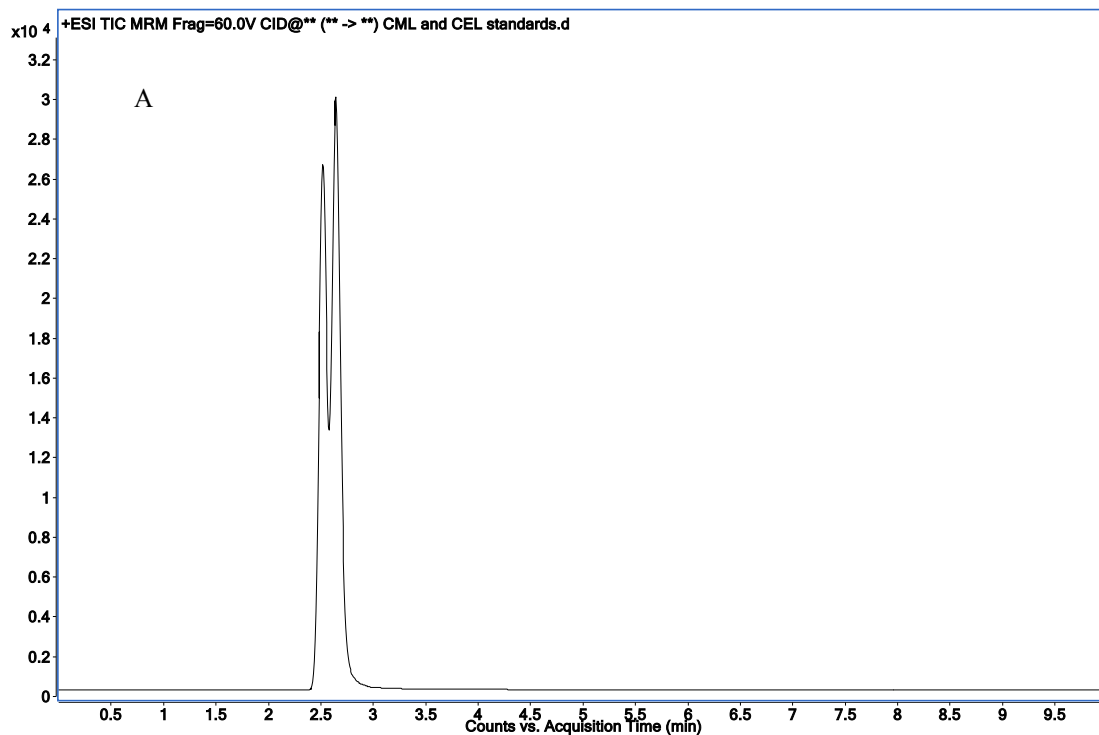
Figure S1. The total and extracted ion chromatograms of the monitored transition ions: (A) the total ion chromatograms of fructoselysine; (B) the extracted ion chromatogram of quantifying transition for fructoselysine m/z 309 \rightarrow 84; (C) the extracted ion chromatogram of quantifying transition for fructoselysine m/z 309 \rightarrow 147;

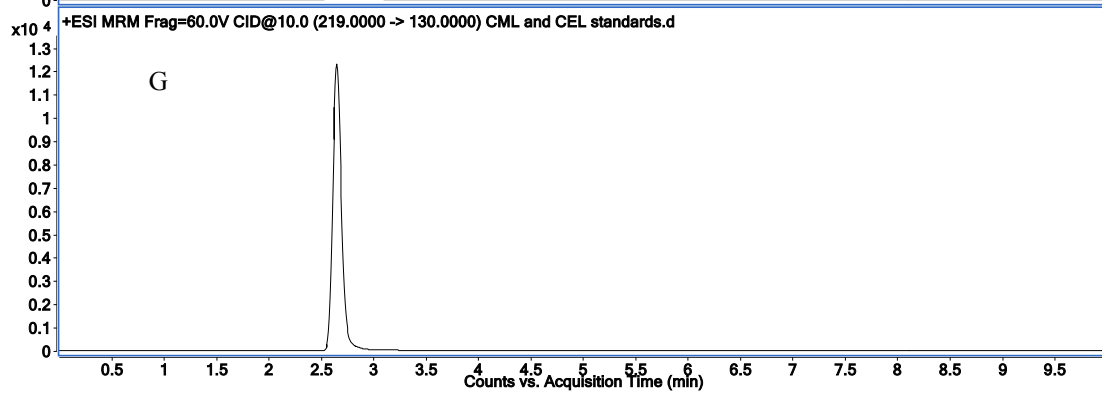
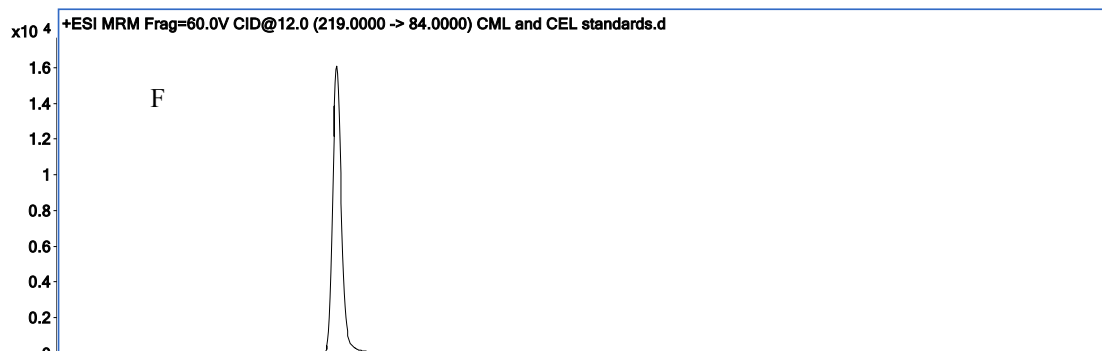
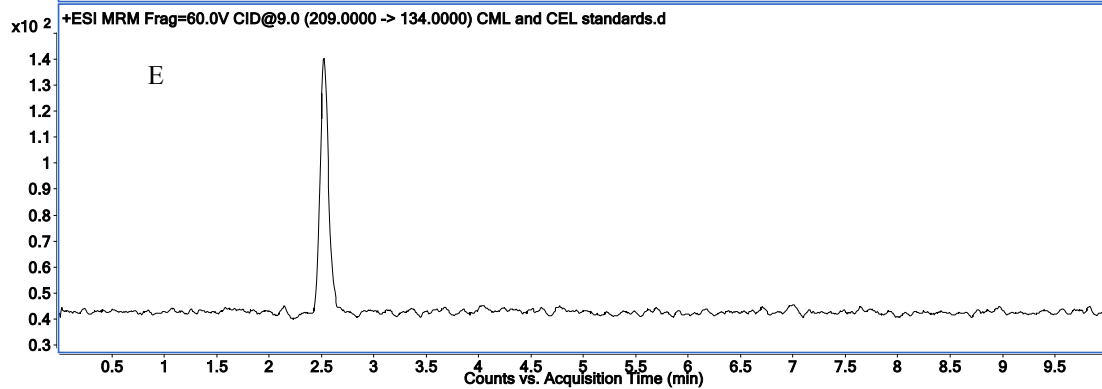
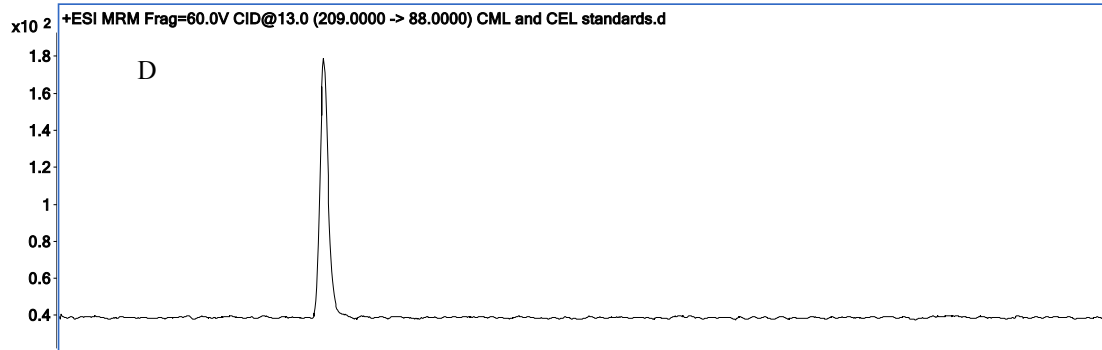
Table S3 Jet Stream electrospray ionization(ESI) source parameters for CML, d₄-CML, CEL and d₄-CEL detection

| Source parameter | Setting |
|------------------------|----------|
| Drying gas temperature | 350 °C |
| Drying gas flow rate | 10 L/min |
| Nebulizer pressure | 25 psi |
| Sheath gas temperature | 300 °C |
| Sheath gas flow rate | 9 L/min |
| Nozzle voltage | 400V |
| capillary voltage | 3500 V |

Table S4 The detailed MS parameters for CML, d₄- CML, CEL and d₄- CEL detection

| Compound | Precursor Ion | Product Ion | Dwell | Fragmentor | Collision Energy | Cell Accelerate Voltage | Polarity |
|----------------------|---------------|-------------|-------|------------|------------------|-------------------------|----------|
| CML | 205 | 84 | 50 | 60 | 12 | 3 | Positive |
| CML | 205 | 130 | 50 | 60 | 10 | 3 | Positive |
| d ₄ - CML | 209 | 88 | 50 | 60 | 13 | 3 | Positive |
| d ₄ - CML | 209 | 134 | 50 | 60 | 9 | 3 | Positive |
| CEL | 219 | 84 | 50 | 60 | 12 | 3 | Positive |
| CEL | 219 | 130 | 50 | 60 | 10 | 3 | Positive |
| d ₄ - CEL | 223 | 88 | 50 | 60 | 13 | 3 | Positive |
| d ₄ - CEL | 223 | 134 | 50 | 60 | 11 | 3 | Positive |





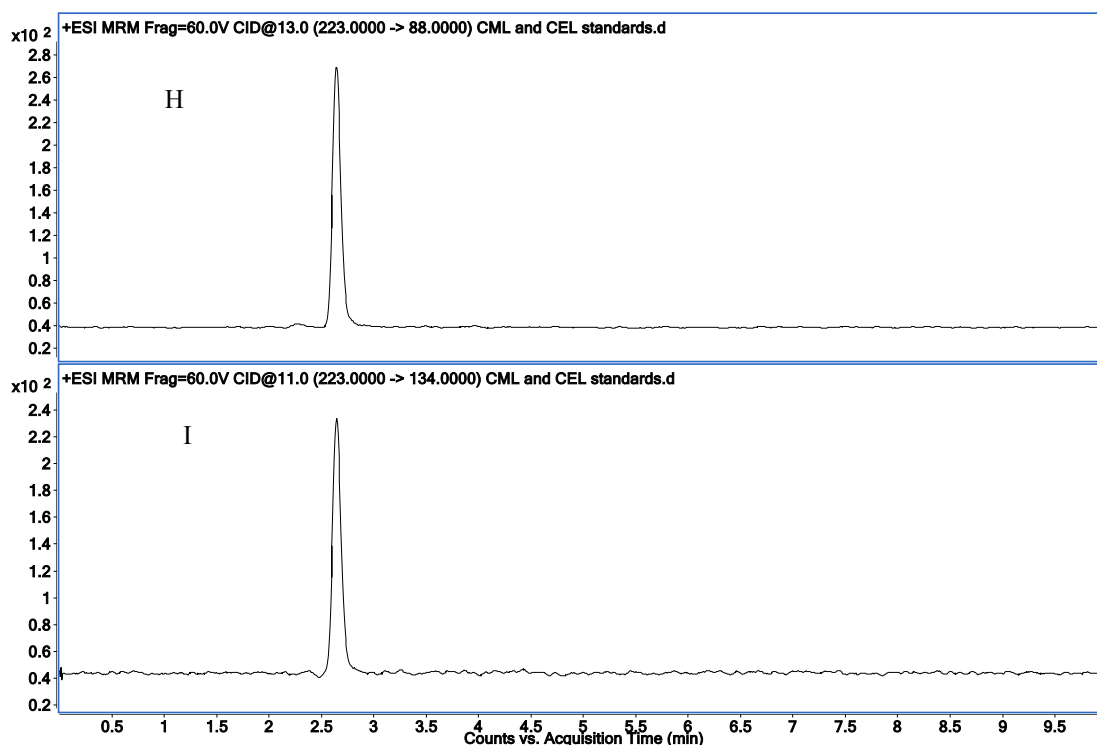


Figure S2. The total and extracted ion chromatograms of the monitored transition ions: (A) the total ion chromatograms of CML, d₄-CML, CEL and d₄-CEL mixed standards; (B) the extracted ion chromatogram of quantifying transition for CML m/z 205→84; (C) the extracted ion chromatogram of qualifying transition for CML m/z 205→130; (D) the extracted ion chromatogram of quantifying transition for d₄-CML m/z 209→88; (E) the extracted ion chromatogram of qualifying transition for d₄-CML m/z 209→134; (F) the extracted ion chromatogram of quantifying transition for CEL m/z 219→84; (G) the extracted ion chromatogram of qualifying transition for CEL m/z 219→130; (H) the extracted ion chromatogram of quantifying transition for d₄-CEL m/z 223→88; (I) the extracted ion chromatogram of qualifying transition for d₄-CEL m/z 223→134.

Table S5 Jet Stream electrospray ionization(ESI) source parameters for pyrraline detection

| Source parameter | Setting |
|------------------------|----------|
| Drying gas temperature | 350 °C |
| Drying gas flow rate | 12 L/min |
| Nebulizer pressure | 35 psi |
| Sheath gas temperature | 350 °C |
| Sheath gas flow rate | 9 L/min |
| Nozzle voltage | 400V |
| capillary voltage | 3500 V |

Table S6 The detailed MS parameters for pyrraline detection

| Compound | Precursor Ion | Product Ion | Dwell | Fragmentor | Collision Energy | Cell Accelerate Voltage | Polarity |
|-----------|------------------|----------------|-------|------------|---------------------|-------------------------------|----------|
| Pyrraline | 255.1 | 175 | 200 | 60 | 6 | 3 | Positive |
| Pyrraline | 255.1 | 237 | 200 | 60 | 5 | 3 | Positive |

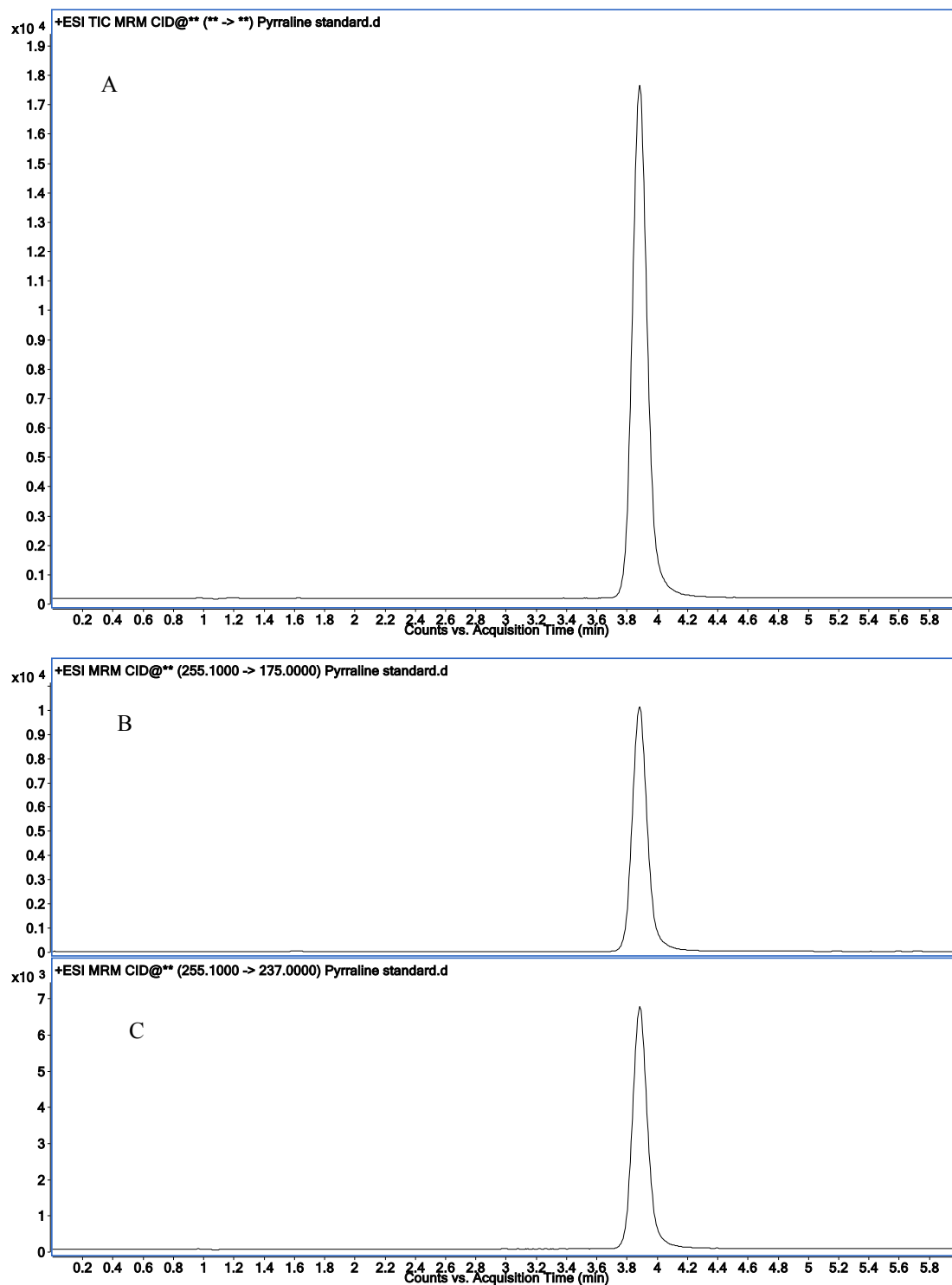


Figure S3. The total and extracted ion chromatograms of the monitored transition ions: (A) the total ion chromatograms pyrraline standard; (B) the extracted ion chromatogram of quantifying transition for pyrraline m/z 255.1 \rightarrow 175; (C) the extracted ion chromatogram of qualifying transition for pyrraline m/z 255.1 \rightarrow 237.