

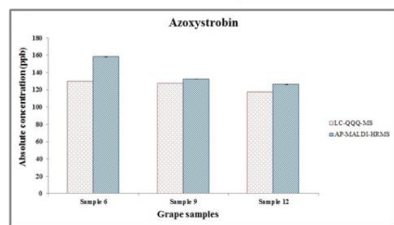
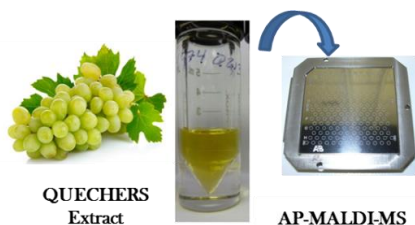
AP MALDI – High throughput companion in food authenticity analysis

Mass spectrometry ensures reliable, sensitive and selective food authenticity analysis. Chemical residues, contaminants, antibiotics, packaging additives, authenticity markers and food-borne toxins can be detected at trace levels with methods employing low and high resolution MS (HRMS). However, ensuring food safety and authenticity across food supply chains from raw materials to finished products presents significant analytical ‘scale up’ challenges.

AP-MALDI is a simplified ionization source that enables rapid MS analysis and substantial increase in analytical throughput. AP-MALDI compliments existing selective QqQ, ion traps and comprehensive HRMS (qTOF or Orbitrap®) systems or with Masstech’s own MTE 50 3D ion trap. Hundreds of samples can routinely be screened everyday using AP-MALDI MS with significant cost efficiency. AP-MALDI is a valuable tool in food authenticity workflows for timely mitigation of risks arising from food adulteration and fraud.

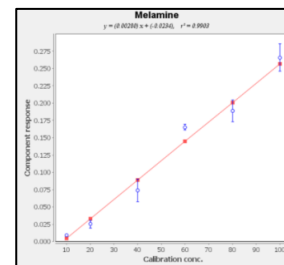


AP MALDI MS has been used for the detection of pesticide / herbicide residues, contaminants, antibiotics, pharmaceutical active ingredients and food authenticity markers



Quantitative AP-MALDI HRMS analysis method was demonstrated for trace pesticide residue detection from table grape samples¹. Samples representative of 20-acres were successfully analyzed for triazines and triazoles using AP-MALDI HRMS. Excellent analytical performance validated with LC-QqQ MS (left panel, bar plot) was achieved for this chromatography-free method.

Triazine herbicides from water and melamine from milk were also quantified using MALDI MS². Melamine was detected and quantified with high precision and accuracy at low ppb levels from milk using the method adapted for



AP-MALDI HRMS (calibration curve for melamine is shown in the right panel). The bottom panel illustrates a few other examples of AP-MALDI HRMS analysis.

