

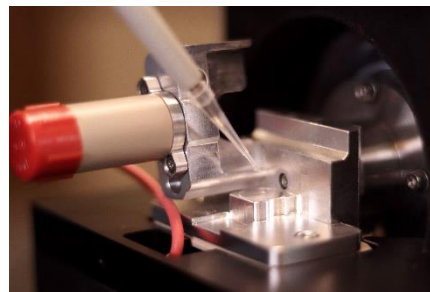
Overview

○ The MT Explorer 30 (MTE 30) is a compact ion trap tandem mass spectrometer suitable for both lab-based workflows and field deployment. It enables rapid, sensitive, and accurate identification of trace analytes.

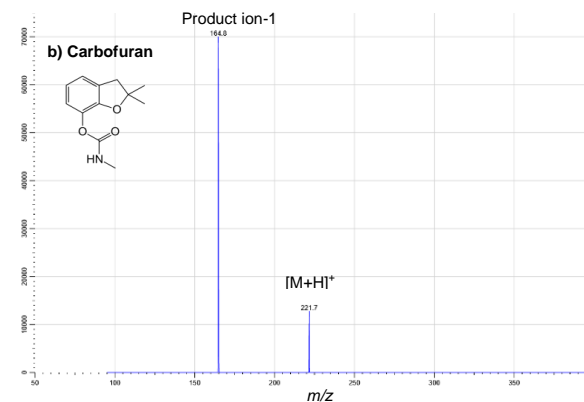
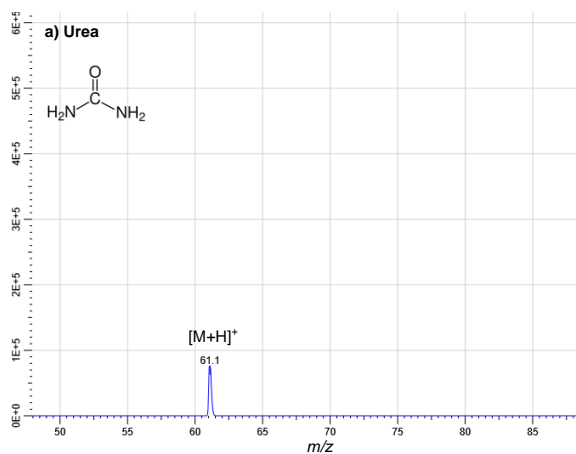
○ Agricultural productivity and environmental safety depend on accurate monitoring of fertilizers and pesticides. This application note highlights the use of a miniature portable mass spectrometer equipped with an atmospheric pressure chemical ionization source (APCI) for rapid detection of these compounds, enabling real-time decision-making to optimize crop management and reduce environmental impact.

Methods

Reference standards of carbofuran and urea, a common pesticide and common fertilizer, respectively, were obtained and diluted to working concentrations. APCI-MS and APCI-MS/MS were employed for analysis on the MTE 30 Mass Spectrometer. 2 μ L of samples were introduced to the source via micropipette and evaporated by infrared heating.



DSAP APCI Ionization Source with Sample Deposition



MT Explorer 30 Mass Spectrometer

Results and Discussion

The MTE 30 successfully detected Urea through APCI-MS analysis at [M+H]⁺ m/z 61.1. Carbofuran was analyzed using APCI-MS/MS, producing the precursor [M+H]⁺ m/z 221.7 and known product ion at m/z 164.8. These analyses indicate the robust application of the MTE30 for agricultural monitoring.