AN ELECTROSPRAY FOURIER TRANSFORM ICR MASS SPECTROMETRY STUDY OF CHLOROTRIS(1,3,5-TRIAZA-7-PHOSPHAADAMANTANE)PLATINUM(II) $[Pt(TPA)_3Cl]Cl$

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Electrospray ionization coupled with Fourier transform ICR mass spectrometry (ESI-FT/ICR-MS) has become a very powerful technique for characterizing large polar and involatile biochemical molecules such as peptides and proteins. Successful extensions to inorganic and organometallic applications have shown that it is also a versatile technique[1]. We report here our study of chlorotris(1,3,5-triaza-7-phosphaadamantane)platinum(II) $[Pt(TPA)_3Cl]Cl$ by ESI-FT/ICR-MS. Both positive-ion and negative-ion mass spectra and tandam mass spectrometry for this compound have been investigated.

The electrospray experiments were carried out on a high magnetic field (7T) Bruker BioAPEX 70e Fourier transform ICR mass spectrometer equipped with a cylindrical 'Infinity^{TM}' cell. Three cryo pumps and one turbo pump maintain four stages of differential pumping to enable ions to be transferred from the high pressure ion source region into the low pressure ($1x10^{-10}$ mbar) ultrahigh vacuum chamber where the ICR cell is located.

The electrospray was produced by pumping a sample solution through a spray needle at a flow rate of 60 µl/min. The spray needle has a 0.1 mm diameter at the tip. It was kept 1.0 cm from the end of a quartz capillary capped with nickel electrode. For the positive ions, the spray needle was grounded and a -4 kV voltage was applied to the end of capillary to create a electric field to extract ions. The end plate and the mesh cylinder around the needle has about -2.5 kV. Heated (250 ^{o}C) nitrogen as drying gas was directed toward the spray.

The positive-ion spectrum of this compound shows the molecular ion at a mass of m/z 701. The negative-ion spectrum (see Figure) shows gas phase ion molecule reactions occurred and some cluster species were formed.

For the collision induced dissociation experiment, both on-resonance irradiation and sustained off-resonance irradiation were used to study this compound. These two experiments show different product ion distributions and intensities. The unique high resolution (typically 200,000 at m/z 720) of FT-ICR mass spectrometer and correlated-shot pulse sequence has made it possible to select single isotopes of the parent ion for the tandem mass spectrometry experiments.

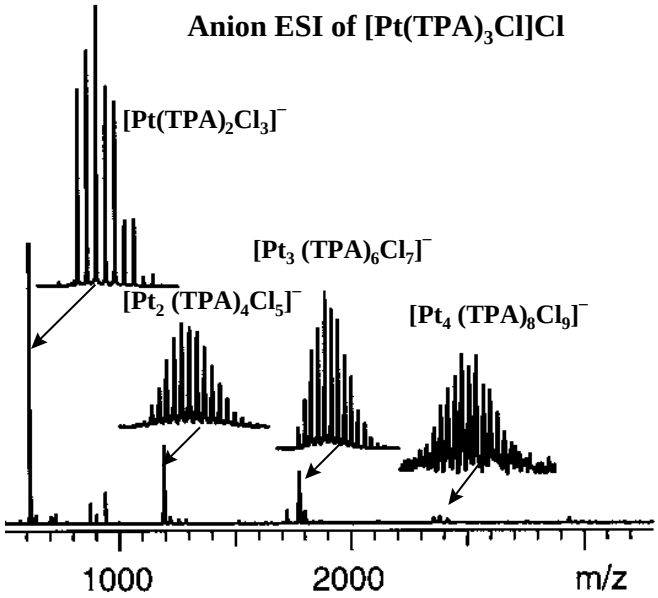

Figure. Negative-ion ESI-FTICR mass spectrum of $[Pt(TPA)_3Cl]Cl$.

Reference

1. R. Colton, A. D'Agostino and J. C. Traeger (1995) *Mass Spectrom. Reviews* **14**, 1079-1096.