

Varian 500-MS LC Ion Trap

High mass sensitivity on the Varian 500-MS

Advantage Statement: Resolution over the entire mass range when using the Varian 500-MS LC ion trap is excellent, delivering as much as eight times greater sensitivity than alternative methods.

Quadrupole mass filter base mass spectrometers are excellent instruments for quantitation of small molecules. However, these instruments are known to have ion transmission that decreases at high masses. Figure 1 illustrates excellent response over a wide mass range with the Varian 500-MS ion trap mass spectrometer to a tune/calibration sample (Ultramark™). The spectrum obtained from the 500-MS shows high intensities for the low m/z ions at 74 and 242, while also maintaining good intensity at $m/z=1922$. The mass resolution of ions 1222.2, 1223.2 and 1224.2 is excellent and baseline resolution is achieved as shown in Figure 2.

In order to demonstrate absolute high mass sensitivity achieved on the Varian 500-MS LC ion trap mass spectrometer, Cyclosporin A (CsA, C₆₂H₁₁₁N₁₁O₁₂ MW 1201amu), a non polar cyclic oligopeptide, was injected into the system under ESI positive conditions. Figure 3 shows the excellent response and signal-to-noise ratio (S/N 167:1) for 500pg of CsA obtained under full scan acquisition mode (100–2000Da). The base peak observed in the mass spectrum corresponds to the intact sodium adduct [M+Na]⁺ at m/z 1224.5. It emphasizes the superb high mass sensitivity of the Varian 500-MS at a low concentration level and makes it the ideal LC/MS of choice for trace investigation.

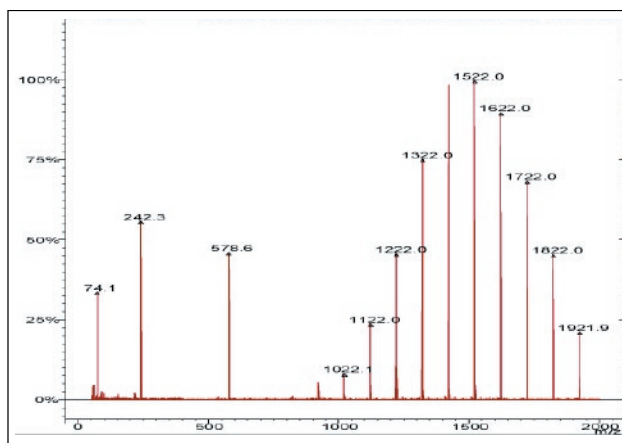


Figure 1 Full scan 50–2000 on the Varian 500-MS ion trap MS

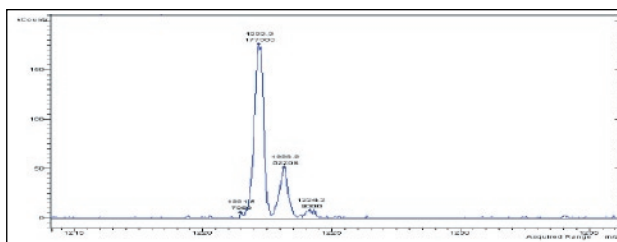


Figure 2 Excellent mass resolution demonstrated in profile acquisition mode on the Varian 500-MS

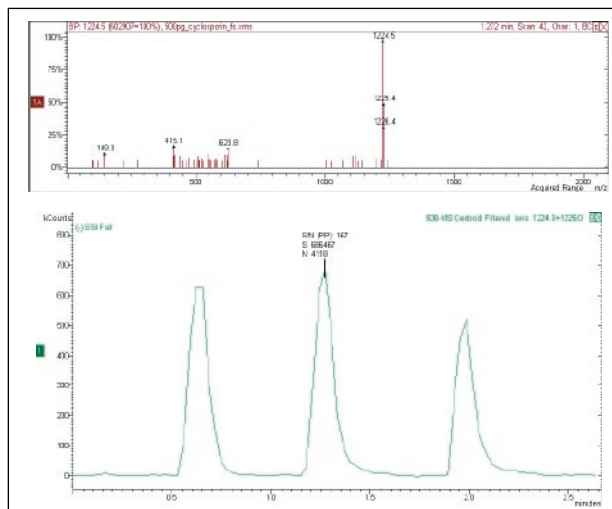


Figure 3 Full scan mass spectrum (top) and extracted ion chromatogram (bottom) of 500pg of Cyclosporin A under ESI positive mode obtained on the Varian 500-MS LC ion trap mass spectrometer.



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