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Shimadzu LCMS-2010EV *Quadrupole Mass Spectrometer* **Performance Specifications**

Key System Components

- Binary Gradient HPLC capability
- Electrospray Ionization (ESI)
- Atmospheric Pressure Chemical Ionization (APCI)
- Photo Diode Array Detector
- 2000 amu quadrupole mass analyser

HPLC Capabilities

- Acceptable solvents: water, methanol, acetonitrile, most reversed phase solvents,
- Acceptable modifiers: DMF (10%), TFA, acetic acid, formic acid (all <1%), ammonium hydroxide, tetrabutylammonium hydroxide, HFBA (all < 1mM).
- Unacceptable solvents: benzene, toluene, pentane, hexane, carbon tetrachloride, carbon disulfide.
- 2.1 mm and smaller columns preferred.
- All chromatographic procedures developed should be free of non-volatile buffers, surfactants, salts and non-volatile ion pair reagents.

Electrospray Ionization (ESI)

- Means of delivering nonvolatile analytes into the gas phase for mass analysis.
- Has the ability to place multiple charges on a single molecule. The multiply charged species are detected by their mass-to-charge ratio.
- Supports flow rates between 0.001-1.0 mL/min

*Best used on molecules which are charged in solution or readily accept a charge. Particularly well suited to the analysis of biomolecules.

- Allows for molecular weight determination of proteins and peptides with molecular weights up to 100 kDaltons; lipids, oligonucleotides and polysaccharides, up to 10 kDaltons.
- The low mass limit is around 150 Daltons.
- Provides low picomolar detection limits

Atmospheric Pressure Chemical Ionization (APCI)

- Useful for small, polar thermally labile compounds.
- Supports flow rates between 0.05-2.0 mL/min

The molecular weights of the compounds analyzed are generally less than 2000 Daltons.

Photo Diode Array Detector (PDA)

- Allows the simultaneous collection of UV/Vis spectrum and ESI/APCI Mass Spectrum of your compounds, thereby providing additional data to complement your MS data

Quadrupole Mass Analyser

- Has a mass range for singly charged ions of 10-2000 Daltons with unit resolution across the entire mass range.
- Has a maximum scan speed 6000 amu/sec (centroid) or 4000 amu/sec (profile).
- Can detect both positive and negative ions.
- Can perform a variety of MS experiments that are helpful in determining the structure of the molecule.



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