

HIGH RESOLUTION ESI-MS (LC-MS) FACILITY

Department of Chemistry, IIT Kanpur



WATER'S

Q-ToF Premier™ API
Quadrupole-Time of
Flight Tandem Mass
Spectrometer
with HPLC
Autosampler control

Capability

ESCI ionisation
capability that allows
both ESI and APCI
to be performed,
during one
experiment, with the
same source.

Resolution

3 ppm over the range
of 150-900 Da.

In-Built ESI and APCI Module

Electrospray ionization is a technique used in mass spectrometry to overcome the propensity of macromolecules to fragment (Nobel Prize in Chemistry, 2002).

In ESI, a liquid containing the analyte is pushed through a very small charged metal capillary by a carrier gas. The charge contained in the capillary is transferred to the liquid, which charges the analyte molecule. As like charges repel, the liquid pushes itself out of the capillary and forms an aerosol of small droplets. A neutral carrier gas is used to evaporate the neutral solvent in the small droplets, this in turn brings the charged analyte molecules closer together. As proximity of the molecules in the droplet becomes lesser and similarly charges molecules come closer together, the droplets explode. This process repeats itself until the analyte is free of solvent and is reduced to lone ions. The lone ions will then continue along to a mass analyzer.

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