In mass spectroscopy, an electron is removed from the sample molecule; the resultant radical cation is called the molecular ion (symbols: \( M^+ \), \( M^•^+ \)).

\[
\text{M} - e \rightarrow \text{M}^+ \\
\text{(molecule)}
\]

The electron the molecule loses to give the molecular ion is usually the highest-energy electron in the molecule.

eg. 1:

\[\text{CH}_3\text{CH}_2\text{CH}_2\text{OH} \rightarrow \text{CH}_3\text{CH}_2\text{OH}^+ \]

eg. 2:

\[\text{C}_6\text{H}_{12}^+ \]

eg. 3:

\[\text{CH}_3\text{C}^+\text{CH}_3 \]

see also molecular ion peak

Contributors

- Gamini Gunawardena from the OChemPal site (Utah Valley University)