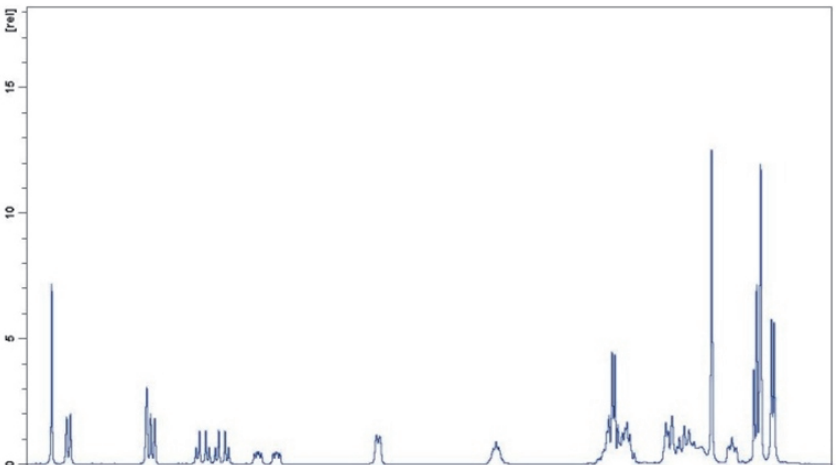
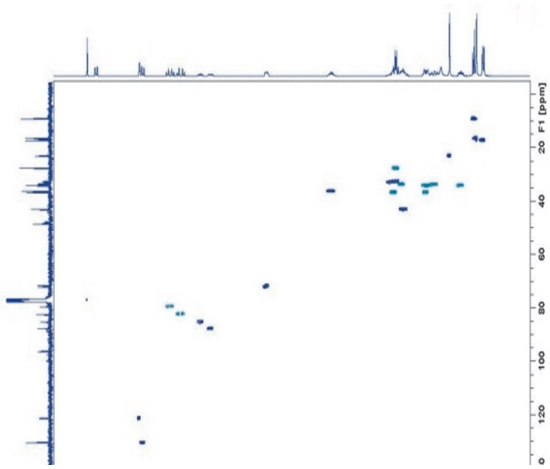
ILV

Institut Lavoisier de Versailles

NMR (NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY)

Nuclear Magnetic Resonance is currently the most widely used analytical tool in organic chemistry. It makes it possible to obtain qualitative or quantitative information on the sample analyzed, according to the pulse sequence used. The most frequently studied nuclei are 1H, 13C, 31P, 19F and 15N which, for the most part, have a non-zero nuclear spin equal to ½.





The 1H, 19F and 31P NMR is relatively fast and allows easy quantitative analysis. Thanks to the interpretation of the nature of the peaks area obtained on the spectrum (multiplets) and to the empirical knowledge of the chemical shifts of the nuclei present in each functional group, it is possible to identify in part the developed structure of all the organic molecules by application of simple logical reasoning. However, the use of 13C and 15N NMR as well as the use of 2-dimensional sequences are necessary for the complete interpretation of a spectrum and thus for the identification of a molecule.

Facilties

Bruker AVANCE1 300MHz Spectrometer equipped with:
- A BB gradient Z probe and ATMA module
- A BBI gradient Z probe
- A BB10 probe ranging from 31P (121.49MHz) to 183W (12.48MHz)
- A QNP probe (13C, 31P, 19F and 1H)
- A variable temperature unit
- A sample changer
- Software: Topspin2.1

This device is used for routine analyzes as well as for specific analyzes.

Bruker DPX 200MHz spectrometer equipped with:

- A QNP probe (13C, 31P, 19F and 1H).
- Software: Topspin 1.3

This device is dedicated to routine analysis.

Bruker AV-I 400MHz Spectrometer equipped with:
- A BBI probe with z gradient
- Two BB10 probes
- Software: Topspin 2.1

This device is used for specific studies.

Bruker AV-I 500MHz Spectrometer equipped with probes:
- MAS-4mm- (H, F) -X
- MAS-3.2mm-H-X-Y
- MAS-2.5mm-H-F-X
- MAS-2.5mm- (H, F) -X
- MAS-2.5mm-H-F-X-Y-Z
- BBO-10mm (liquid without Al 27 signal)
- Software: Topspin 2.1

This device is dedicated to multi-irradiation analyzes.

The Liquid Nuclear Magnetic Resonance Service of the Lavoisier Institute is open to the scientific community wishing to carry out NMR analyzes.

THE NMR FACILTIES ARE OPEN TO THE ENTIRE SCIENTIFIC COMMUNITY.

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