



PLENARY LECTURE

Title: “Chemical analysis, monitoring of dynamic changes, metabolomics and “in cell” applications of NMR in natural products and food chemistry: Is the role of metrology underestimated?”



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Abstract: A critical overview of recent developments of NMR spectroscopy in natural products and food chemistry will be provided with emphasis in the following applications:

- (i) chemical analysis of extracts without isolation or derivatization steps [1-5],
- (ii) ‘in situ’ direct monitoring of dynamic changes of metabolites as a function of solvent and temperature [6],
- (iii) aromatic C–H activation of flavonoids in aqueous solution at neutral pH and ambient temperatures [7],
- (iv) rapid ‘in situ’ analysis of enzymatic reaction products and enriching the biological space of natural products, through real time biotransformation monitoring [8] and
- (v) in-cell NMR in decoding the apoptotic activity of flavonoids with the Bcl-2 family of proteins [9].

Despite the significant advantages in methodology and the fact that NMR is a potentially primary analytical technique for qualification, much effort should be made in the future so that international compatibility can be achieved for a wide range of chemical constituents in natural products and in food chemistry. Selected examples of certified reference materials will be provided.

References

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