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Bordeaux Metabolome Fluxome Facility (PMFB;  
<http://www.bordeaux.inra.fr/umr619/NMR.htm>)**

Catherine Deborde, Stéphane Bernillon, Mickael M. Maucourt, Cécile Cabasson, Benoit Biais, Patricia Ballias, Duyên D. Prodhomme, Guillaume G. Menard, Daniel Jacob, Joël Masciocchi, et al.

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## Tools and Applications in Plant Metabolomics at Bordeaux Metabolome-Fluxome Facility (PMFB; <http://www.bordeaux.inra.fr/umr619/NMR.htm>)

Catherine Deborde, Stéphane Bernillon, Mickaël Maucourt, Cécile Cabasson, Benoît Biais, Patricia Ballias, Duyen Prodhomme, Guillaume Ménard, Daniel Jacob, Joël Masciocchi, Yves Gibon, Dominique Rolin and Annick Moing

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Main collaborations: in Japan (Univ. of Tsukuba - C. Matsukura), in Israel (Volcani Center, A. Schaffer; Ben Gourion University, A. Fait), in UK (Univ of Manchester -R. Goodacre and J.W. Allwood; Oxford Univ, Lee Sweetlove; Oxford Brookes Univ, D. Fell) in France (INRA Avignon, M. Causse, M. Génard, J.L. Poëssel; INRA Bordeaux, D. Thiéry ; INRA Montpellier, F. Tardieu ; INRA Sophia Antipolis, P. Frendo).

The **Bordeaux Metabolome-Fluxome Facility (PMFB)** develops and applies plant metabolomics and high-throughput metabolic phenotyping for local, national and international projects. Applications range from the characterization of plant derived extracts to systems biology:

- 1- Quantitative metabolic profiling of plant organs or tissues by  $^1\text{H-NMR}$  [1, 2, 3, 4],
- 2- Plant metabolomics by LC-HRMS,
- 3- Robotised high-throughput measurements of metabolite concentrations and enzyme activities and kinetics [5],
- 4- Storage of metadata and raw data and biostatistical analysis. A web-based application, "MeRy-B" (for Metabolomics Repository of Bordeaux) is being developed in collaboration with the Bordeaux Bioinformatics Centre (<http://www.cbib.u-bordeaux2.fr/MERYB/home/home.php>) [6],
- 5- Identification of metabolic markers for biotic or abiotic environmental changes [7] or agricultural practices [8],
- 6- Characterization of plant extracts having bioactive properties (J.L. Poëssel INRA Avignon and D. Thiery INRA Bordeaux),
- 7- Characterization of mutants [9] or transformants [10,11] for candidate genes for grain or fruit quality,
- 8- Screening of genetic resources or offsprings for fruit composition (A. Schaffer, Bet Dagan, Israel and META-PHOR consortium <http://www.meta-phor.eu/>; ISAFRUIT consortium <http://www.isafruit.org>) or resistance to water stress (F. Tardieu, INRA Montpellier, FP7 DROPS project),
- 9- Integrative modelling of tomato fruit metabolism (ERASysBio FRIM project),
- 10- Integration of metabolomics data with other 'omics data for the study of fleshy fruit development and metabolism [10,12].

In this poster, we will provide an overview of the major features of some of these metabolomics studies and tools developed at Bordeaux.

### References:

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