

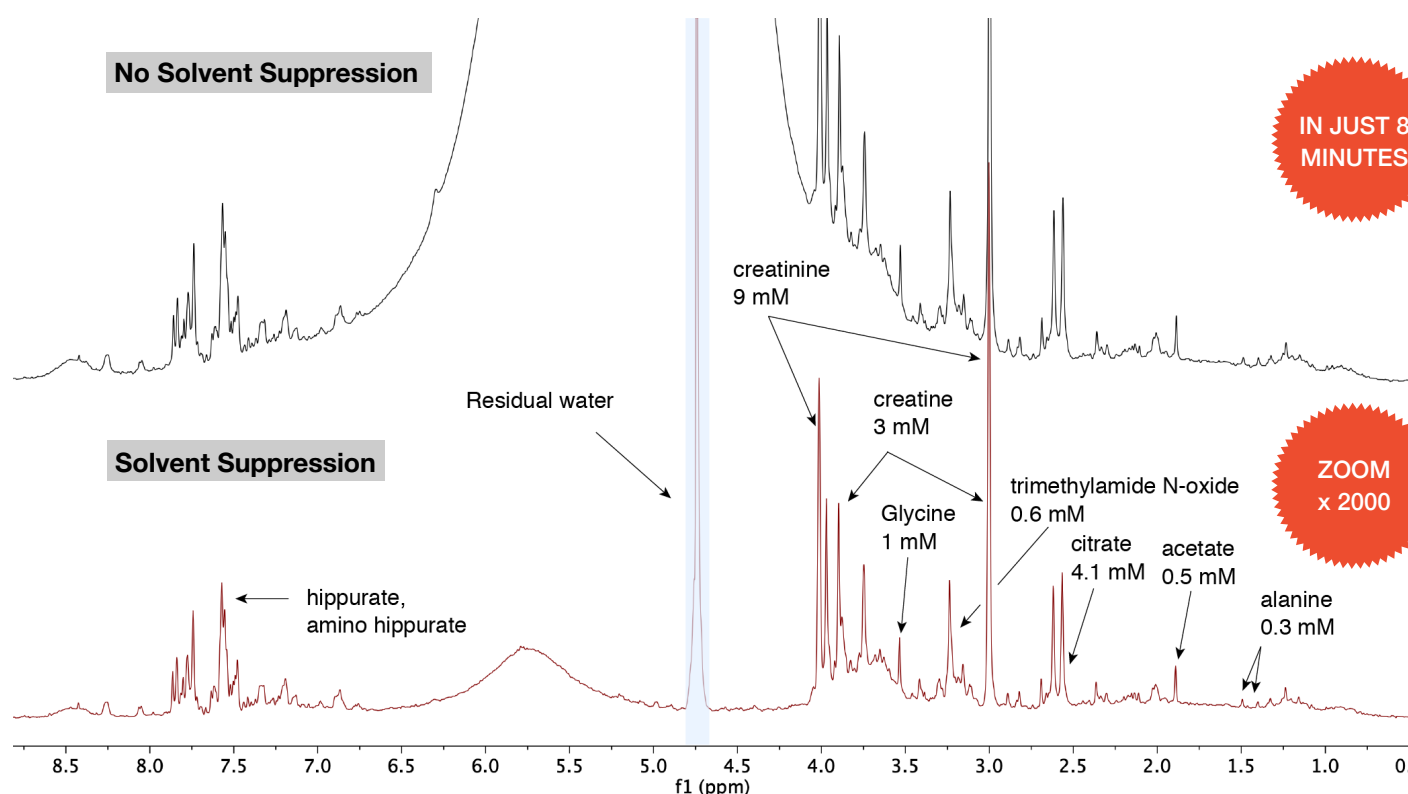
# Spinsolve<sup>ULTRA</sup>

## The homogeneity of a superconducting magnet on your bench

The Ultra-high field homogeneity of the Spinsolve ULTRA, combined with solvent suppression allows you to resolve the analytes dissolved in protonated solvents at sub-millimolar concentrations without any sample workup.

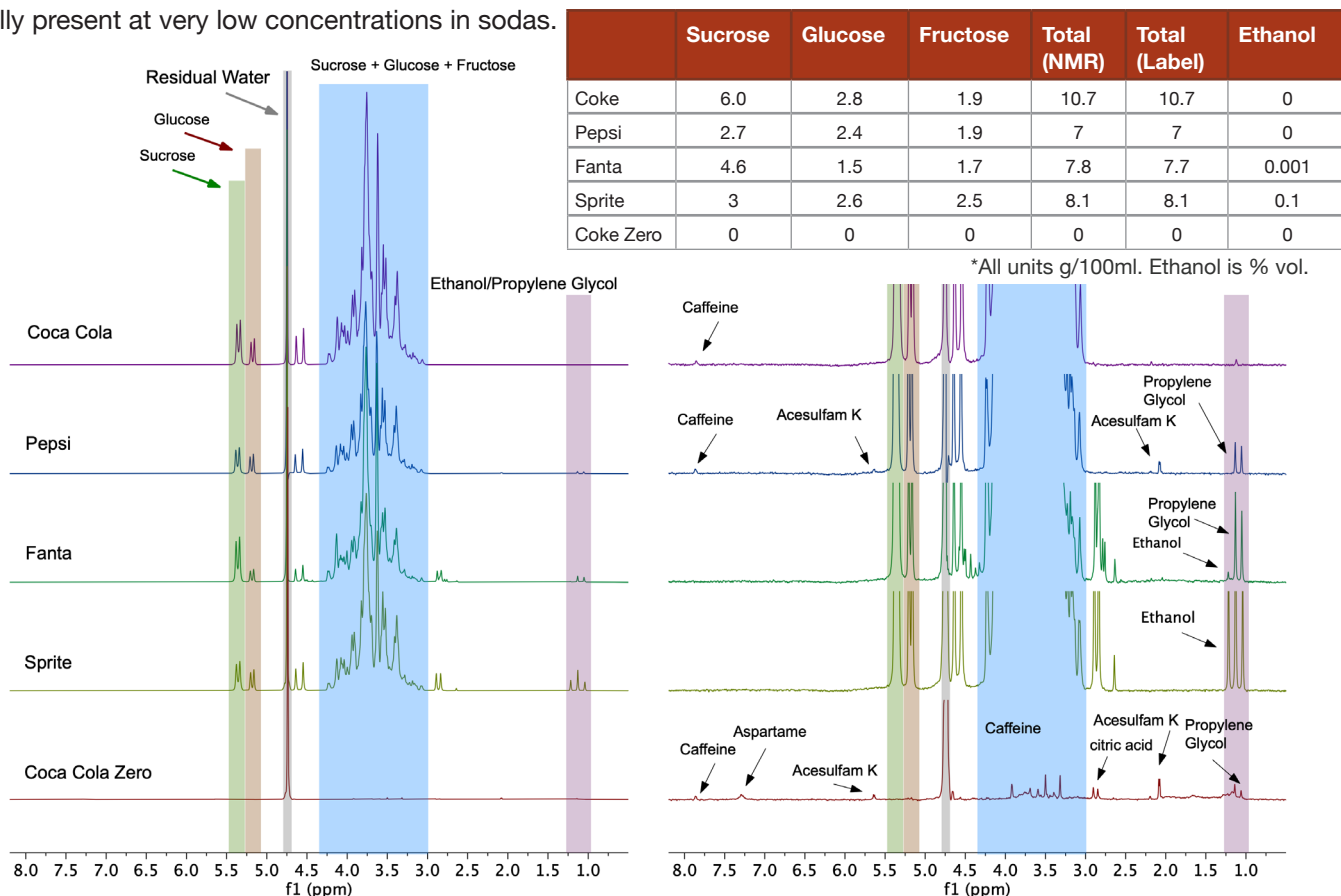


## Resolving metabolites in urine at milli-molar concentrations



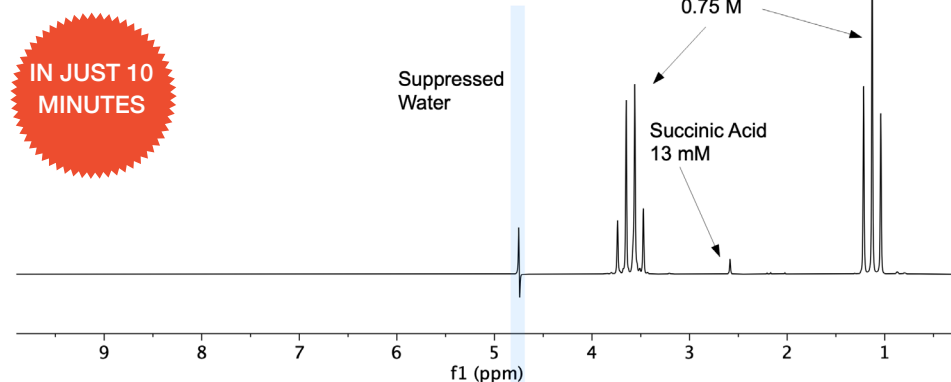
## Measuring sugar content in soft drinks

The Spinsolve 80 ULTRA was used to determine the sugar type and content present in soft beverages. The high sensitivity of the system allows you to quantify with high accuracy the concentration of several components like ethanol typically present at very low concentrations in sodas.

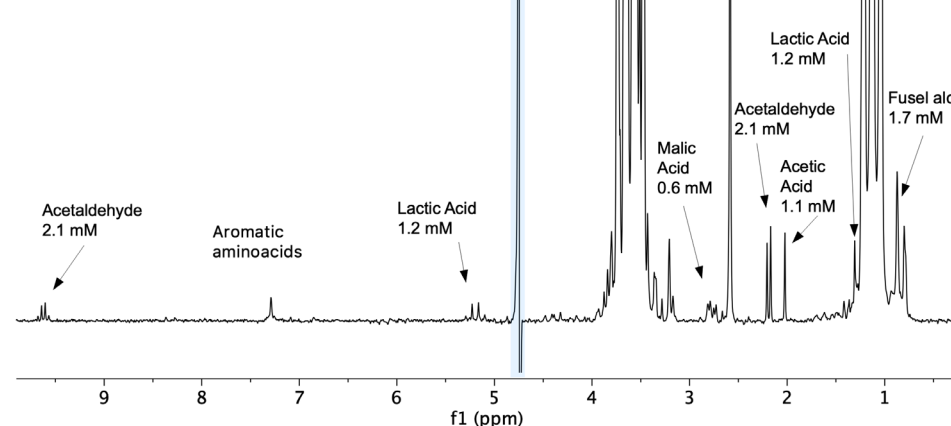


## Metabolites produced by *S. Cerevisiae* during Glucose Fermentation

Zoom x50



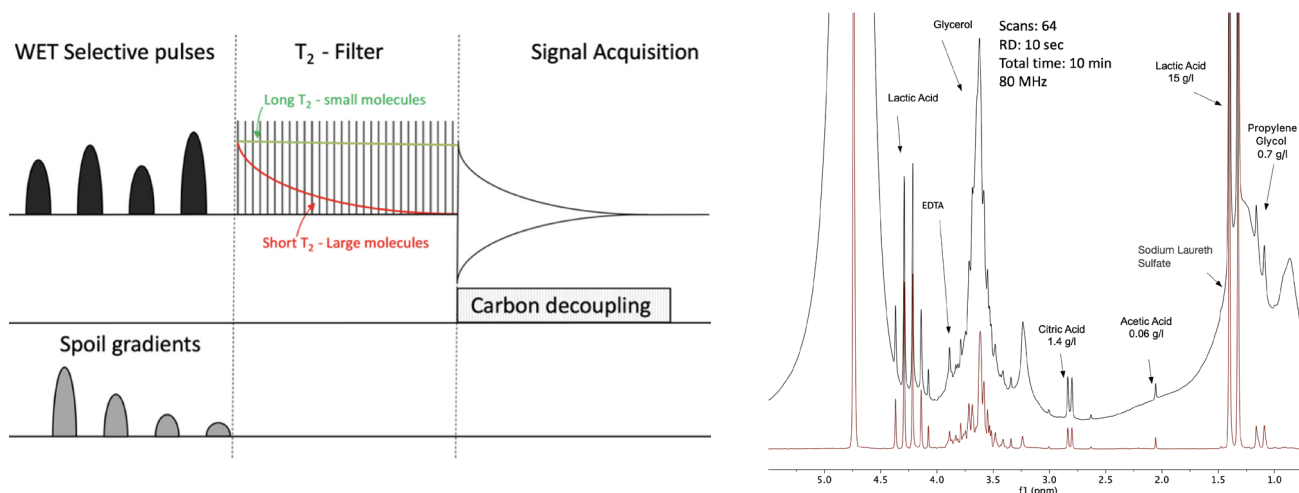
Zoom x4000



The Spinsolve 80 ULTRA is ideal to study biochemical processes like fermentations. The high sensitivity of the 80 MHz model makes it possible to detect metabolites produced at sub millimolar concentrations in just minutes. In this particular example, solvent suppression was combined with carbon decoupling to eliminate the carbon satellites of the NMR signals of ethanol produced during the fermentation process. The residual water peak covers about 0.1 ppm of the spectrum, making it possible to detect metabolites very close to the solvent peak.

## Unmask the NMR spectra of small molecules in complex formulations (WET-T2)

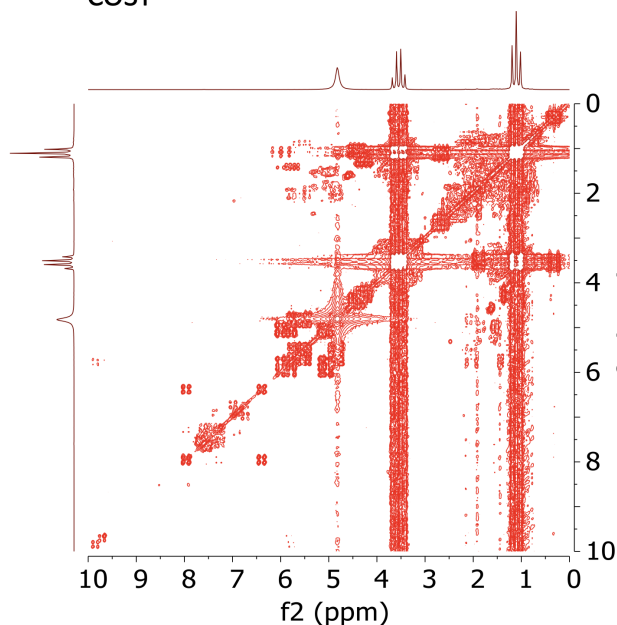
The NMR signals of small molecules present in complex formulations are often hidden by the large signals of regular solvents and the broad resonances of larger molecules. To unmask the spectra of these small molecules, the new WET-T2 method combines efficient solvent suppression with a  $T_2$  relaxation filter. As the signal of the large molecules decays much faster than the one of the small molecules, the large molecules can be filtered by properly setting the duration of the  $T_2$ -filter module. The spectrum of a liquid soap sample acquired with the WET-T2 sequence, acquired with a filter time of 300 ms, shows how efficiently the method can filter the signal of the larger molecules to resolve the signals of citric acid, acetic acid, lactic acid, and propylene glycol without overlapping.



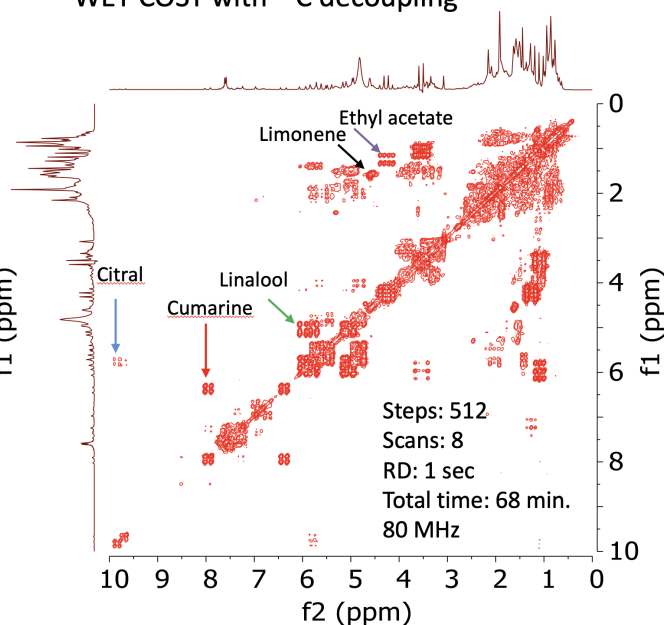
## Combining WET with multidimensional methods, the WET-COSY

The high efficiency of the WET module in the Spinsolve ULTRA models, makes it possible to combine it with multidimensional methods, like the COSY. Below we can observe the regular COSY spectrum (left) of a commercial perfume. This product contains a high concentration of ethanol, with signals that cover a large part of the spectrum. By applying the WET suppression before the COSY module, the signals of ethanol (diagonal and cross peaks) can be strongly attenuated to resolve the cross peaks of the different chemical structures present in the product. Just like in the 1D WET, the WET-COSY is run in the presence of  $^{13}\text{C}$  decoupling to eliminate the  $^{13}\text{C}$  satellites and its cross peaks.

COSY

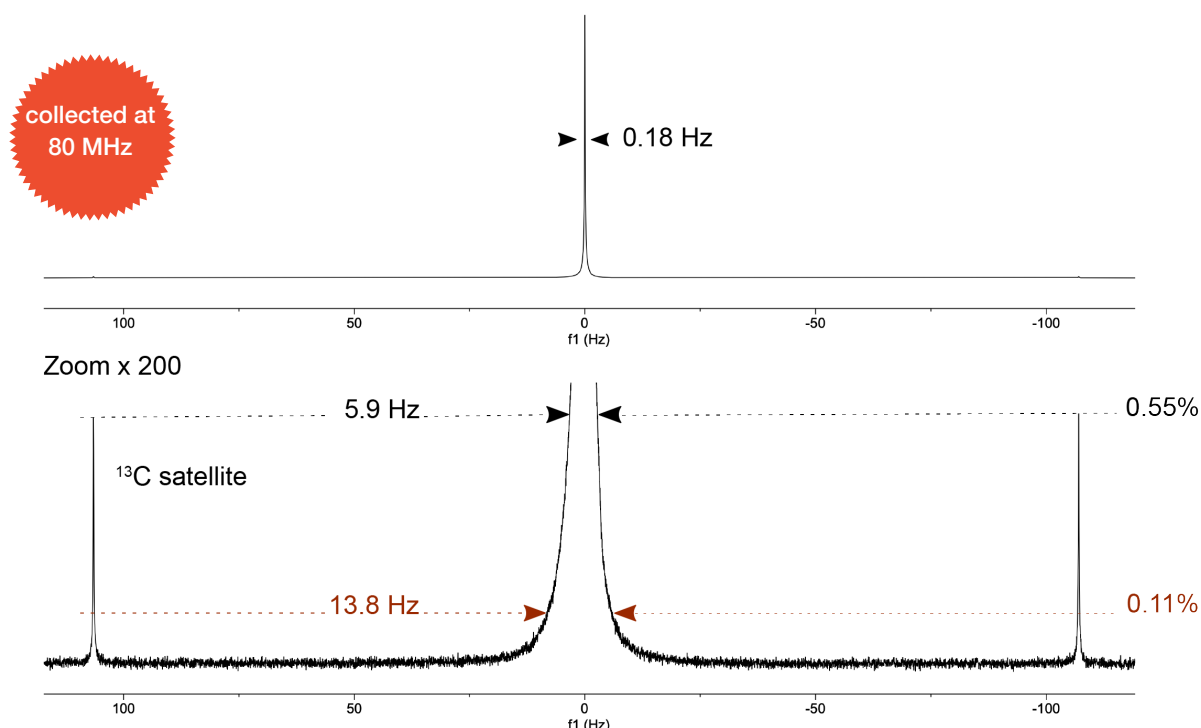


WET-COSY with  $^{13}\text{C}$  decoupling



## Linewidth measured in a chloroform spectrum

- No sample spinning, no spinning side bands, no requirement for compressed air
- No reference deconvolution, only standard NMR data processing is used



## Spinsolve ULTRA

- Available at 60, 80, and 90 MHz operating frequency (<sup>1</sup>H)
- Nuclei: All models can measure <sup>1</sup>H and <sup>19</sup>F
- Multiple X-nuclei available in one system : <sup>7</sup>Li, <sup>11</sup>B, <sup>13</sup>C, <sup>15</sup>N, <sup>29</sup>Si, <sup>31</sup>P (other nuclei available)
- Includes a powerful multi-line solvent suppression method with carbon-decoupled proton acquisition
- Sequences included: WET, WET-T2, WET-D, WET-COSY, WET-HSQC.

Linewidth specifications for all models measured on 20% chloroform in deuterated acetone:

Linewidth	Spinsolve 60 MHz	Spinsolve 80 MHz	Spinsolve 90 MHz
@ 50%	< 0.2 Hz	< 0.2 Hz	< 0.2 Hz
@ 0.55%	< 7 Hz	< 8 Hz	< 8 Hz
@ 0.11%	< 14 Hz	< 16 Hz	< 16 Hz

The high homogeneity of the Spinsolve ULTRA is possible due to advances in the patented shimming technology used in the Magritek High Homogeneity Halbach Magnets\*

\*Patent US 8,148,988 and EP 2,144,076

**Contact us now for a quote, to request a demo, or to measure your samples**

Email: [sales@magritek.com](mailto:sales@magritek.com)

Website: [www.magritek.com/contact-us](http://www.magritek.com/contact-us)

GERMANY +49 241 9278 7270

UNITED KINGDOM +44 7468 529 615

UNITED STATES +1 855 667 6835

NEW ZEALAND +64 4 477 7096

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