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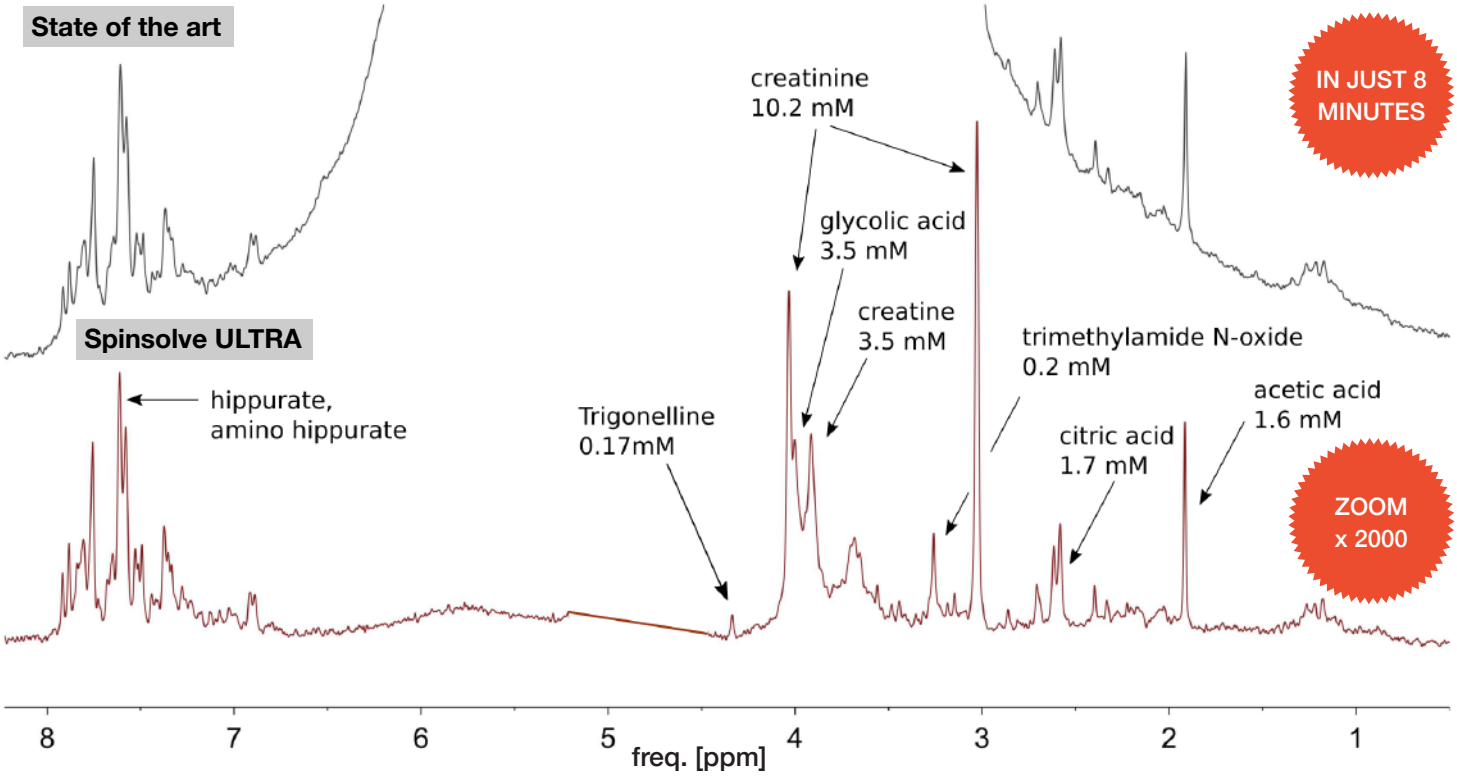
Spinsolve ULTRA

The homogeneity of a superconducting magnet on your bench

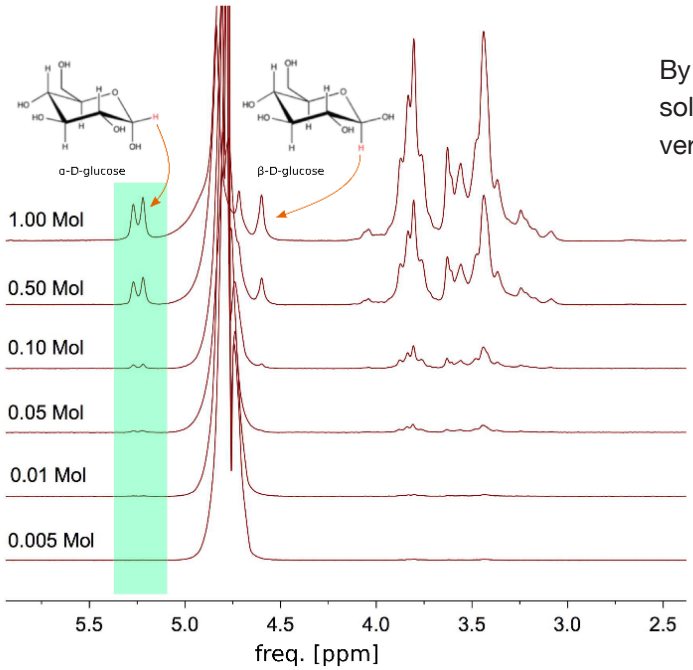
Ultra-high field homogeneity combined with solvent suppression allows you to resolve compounds dissolved at sub-millimolar concentrations in protonated solvents, such as water.

Resolving metabolites in urine at milli-molar concentrations

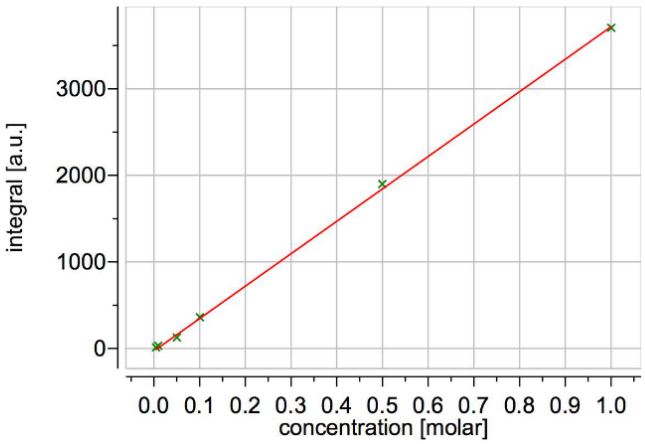


Quantifying sugar content in water

Sugars are typically dissolved in water at concentrations that can be very low and most lines overlap with the large water peak. The Spinsolve ULTRA can be used to resolve even the α and β protons to quantify the amount of glucose in water based products.

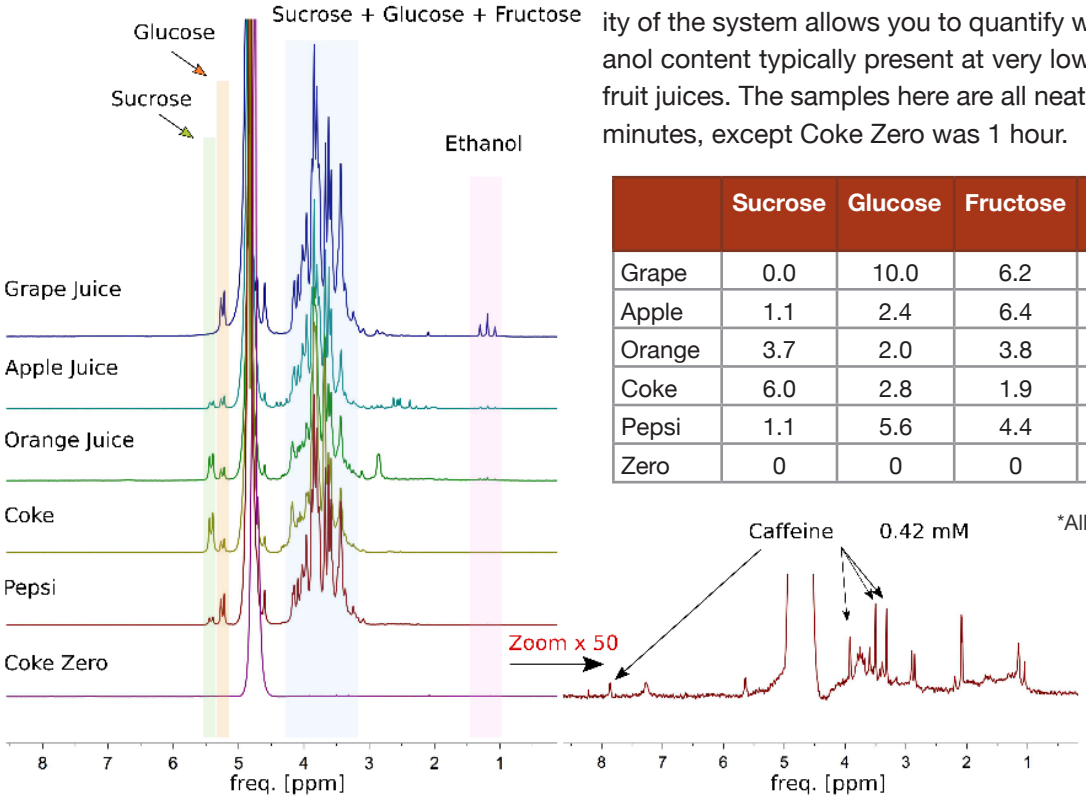


By eliminating overlap with the large solvent signals the Spinsolve ULTRA offers high linearity even for integration regions very close to the solvent peaks



Measuring sugar content in soft drinks

Spinsolve ULTRA measures not only the sugar content but can also identify the type of sugars present in the sample. The high sensitivity of the system allows you to quantify with high accuracy the ethanol content typically present at very low concentrations in natural fruit juices. The samples here are all neat. All measurements took 8 minutes, except Coke Zero was 1 hour.

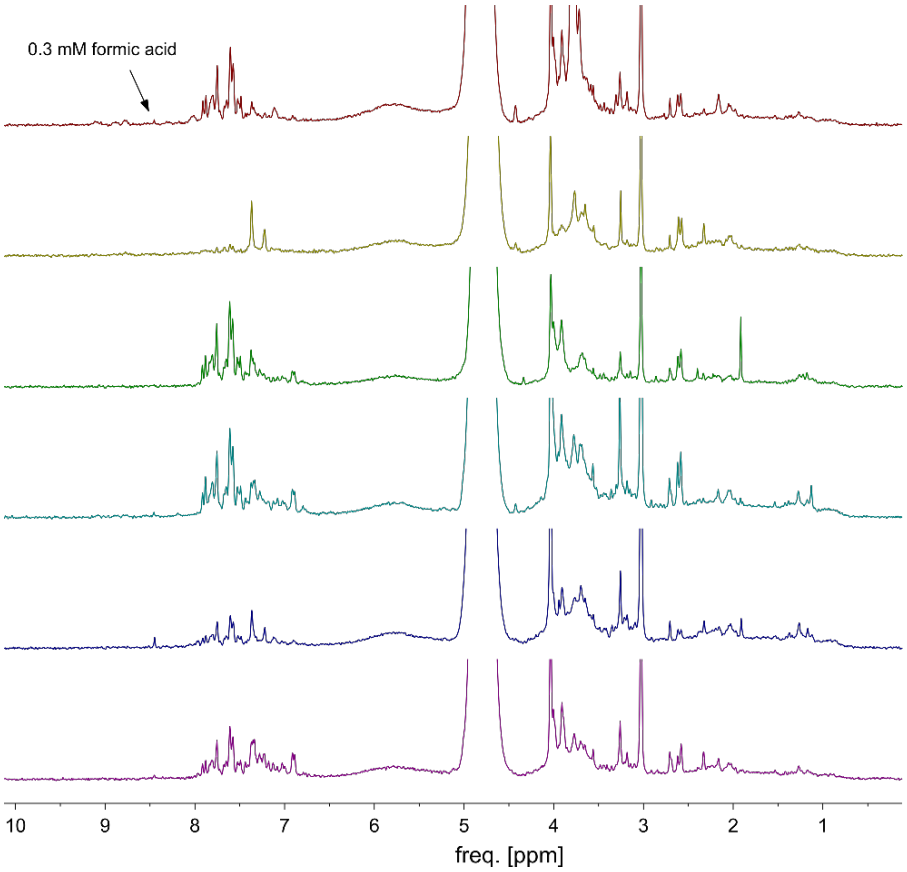


	Sucrose	Glucose	Fructose	Total (NMR)	Total (Label)	Ethanol
Grape	0.0	10.0	6.2	16.2	16.0	0.16
Apple	1.1	2.4	6.4	9.8	9.8	0.03
Orange	3.7	2.0	3.8	9.5	9.0	0.02
Coke	6.0	2.8	1.9	10.7	10.7	0
Pepsi	1.1	5.6	4.4	11.2	10.7	0
Zero	0	0	0	0	0	0

*All units g/100ml. Ethanol is % vol.

Detection of metabolites in urine

The spectra of different urine samples show large variations in the concentrations of the various observed metabolites. The Spinsolve ULTRA can detect sub-millimolar concentrations in a measurement time of just 8 minutes.



Applications

The high homogeneity of the Spinsolve ULTRA is particularly useful for samples where the compounds to be identified and quantified are dissolved in protonated solvents such as water. Applications include:

- Quantification of sugars and alcohol in beverages
- Identification and quantification of metabolites in urine
- Analysis of contaminants in waste water
- Reaction monitoring in the presence of protonated solvents
- qNMR for samples where important signals overlap
- Monitoring fermentation processes in bioreactors

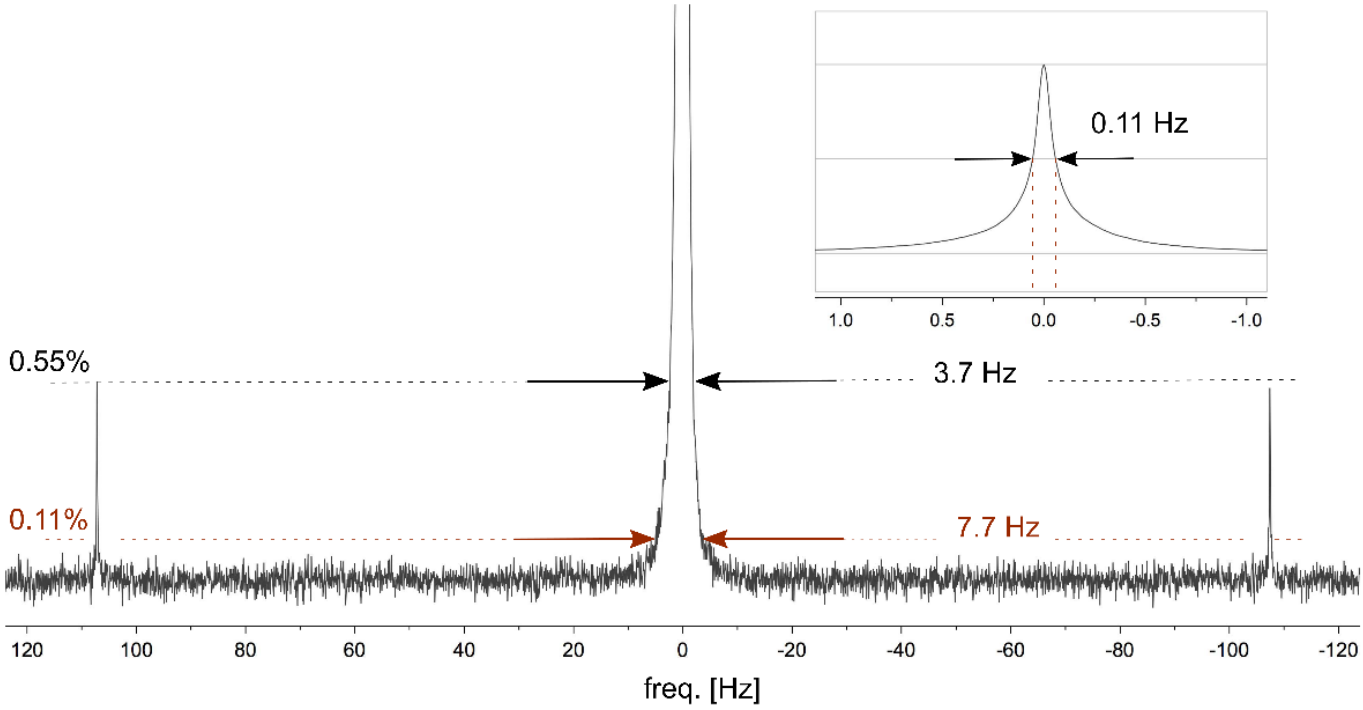
Contact us to see if your application is feasible on a Spinsolve ULTRA.

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* inside every Spinsolve ULTRA system.

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

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 with either 43 MHz or 60 MHz operating frequency (^{1}H)
- Nuclei: All models measure ^{1}H and ^{19}F

  Optional X-nuclei: ^{7}Li, ^{11}B, ^{13}C, ^{15}N, ^{29}Si, ^{31}P (ask for other nuclei available)
- Linewidth specifications for all models measured on chloroform
  - 50% Linewidth: < 0.2 Hz
  - 0.55% Linewidth: < 6 Hz
  - 0.11% Linewidth: < 12 Hz
- Includes Solvent Suppression Pulse Sequence

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

Email: sales@magritek.com

Website: 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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