Functional Carbohydrates

Prebiotics | Enzymes | Nutraceuticals

The leading expert in the development of carbohydrate-active, engineered enzymes

Manufacturing of functional carbohydrates for food, nutrition and nutraceutical applications

CarbExplore Research works with the major food industries in Europe and the US

CarbExplore •RESEARCH•

Did you know?

CarbExplore offers enzymatic digestibility services for the quantitative analysis of carbohydrate breakdown over time. These *in-vitro* screens mimic the human digestive tract and correlate glucose release with known glycemic indices. Contact us for more information!

- ✓ *Enzyme development*
- ✓ *Carbohydrate digestibility*
- ✓ *Carbohydrate development*

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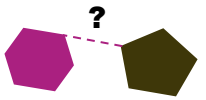
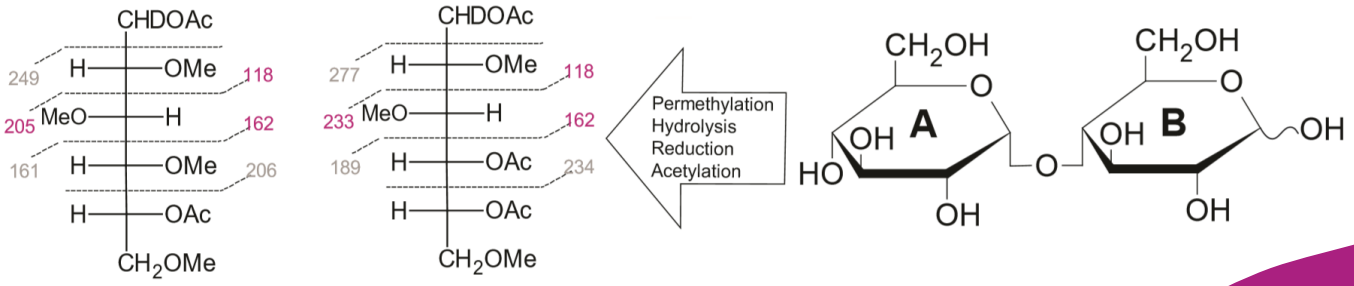
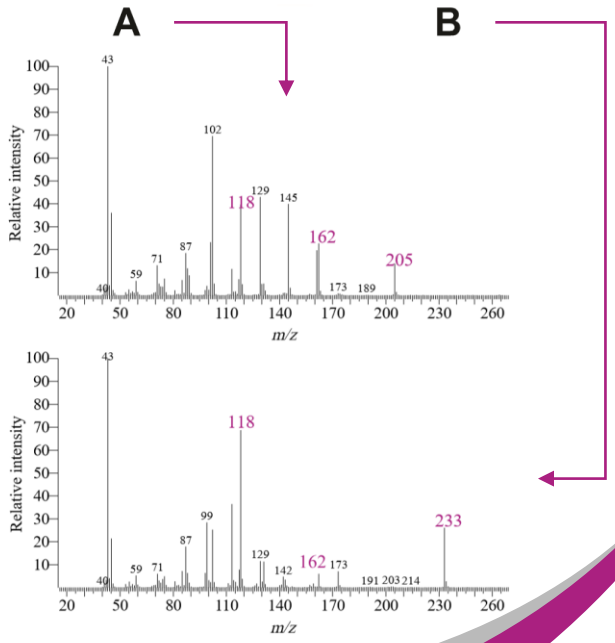
CarbExplore Research

Monosaccharide Composition & Linkage analysis







Example: Maltose

Maltose consists of 2 glucose units linked through an a(1→4) glycosidic bond. After derivatization, the maltose is analyzed with a GC-MS, where the produced A and B fractions leave a characteristic fingerprint.

We execute the following techniques for the carbohydrate structure analyses:

- ✓ Partially methylated alditol acetate (PMAA) derivatization for linkage analysis
- ✓ Trimethyl silyl (TMS) derivatization for monosaccharide composition analysis
- ✓ Alditol acetate (AA) derivatization for monosaccharide composition analysis
- ✓ GC-MS analysis

We also use the following analytical techniques:

- ✓ NMR spectroscopy
- ✓ HPLC-UV
- ✓ HPLC-FLD
- ✓ HPAEC-PAD

The most comprehensive and straightforward way of obtaining carbohydrate knowledge

Get in-depth knowledge of your carbohydrate products

Carbohydrates are increasingly important food ingredients, serving many purposes such as texturizing and energy release. In other industries, the wide variety of functionalities make carbohydrates suitable for e.g. coatings, drug delivery, and bioplastic applications.

All carbohydrates share the property that their monosaccharide constituents are connected through glycosidic linkages. Both the monosaccharide constituents and the type of linkages account for the 3D-structure and hence the functionality of the carbohydrate.

CarbExplore has developed a broad range of carbohydrate fingerprinting techniques. We screen for oligosaccharides, poly-saccharides, glycoproteins, glucosamines, glucuronic acids, sialic acids and other carbohydrate derivatives.

Our scientifically established methods are available to support your quality control of raw materials and products. For novel substances and impurities, we offer extensive carbohydrate structure elucidation.

You provide:

- ✓ At least 250 µg of carbohydrates (dried, desalted, free of detergent)
- ! For glycoproteins, at least 1 mg