CARBOHYDRATES

v0.0 2014/04/22

carbohydrate molecules with chemfig

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CARBOHYDRATES offers macros for making exercise sheets when teaching carbohydrate chemistry a lot less tedious. It uses chemfig for drawing the formulae.

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1 Licence and Requirements

Permission is granted to copy, distribute and/or modify this software under the terms of the LaTeX Project Public License (LPPL), version 1.3 or later (http://www.latex-project.org/lppl.txt). The software has the status "maintained."

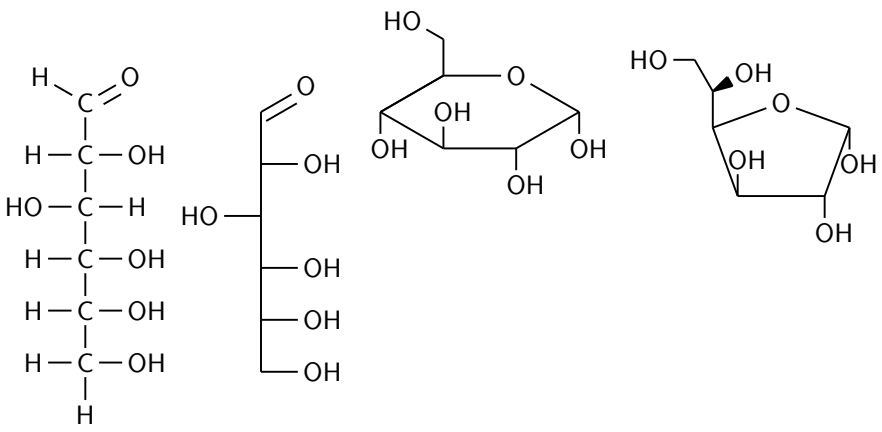
2 The Idea

When teaching chemistry – and in the case of this package: carbohyddrate chemistry – you have to show many examples of the basic aldoses and you have to explain the Fischer and the Haworth representation as well. This means you may have nearly the same chemfig [Tel13] formulae over and over in your documents. CARBOHYDRATES aims to ease this task.

The following example will give a short impression of what the package does:

```
\glucose
\glucose[model={fischer=skeleton}]
\setatomsep{2.5em}
\glucose[model=haworth,ring]
```

```
\glucose[model=haworth,ring=furanose]
```



3 The Basic Macro

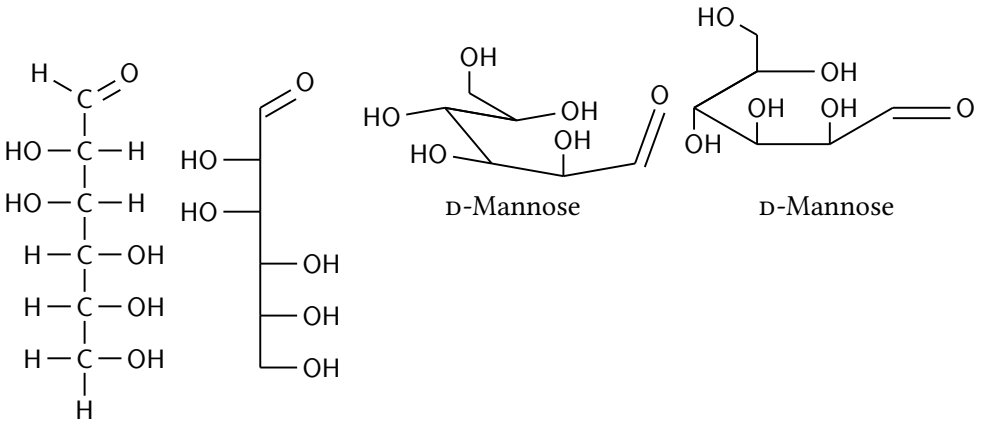
`\carbohydrate[`⟨*options*⟩`]{`⟨*spec*⟩`}`

A generic macro for typesetting carbohydrates.

We will talk about the options in a bit. First lets see what ⟨*spec*⟩ means. This argument is a series of the tokens `r`, `l` and `0` denoting an hydroxy group placed to the right or the left in the Fischer projection of the carbohydrate. A `0` means thet the hydroxy group is to be left out. The series of tokens is meant to describe the hydroxy groups at the chiral centers. The aldehyde group[1] and the hydrohy group at the end of the molecule will be set automatically. Unless specified otherwise the command expects a hexose which means a series of *four* tokens.

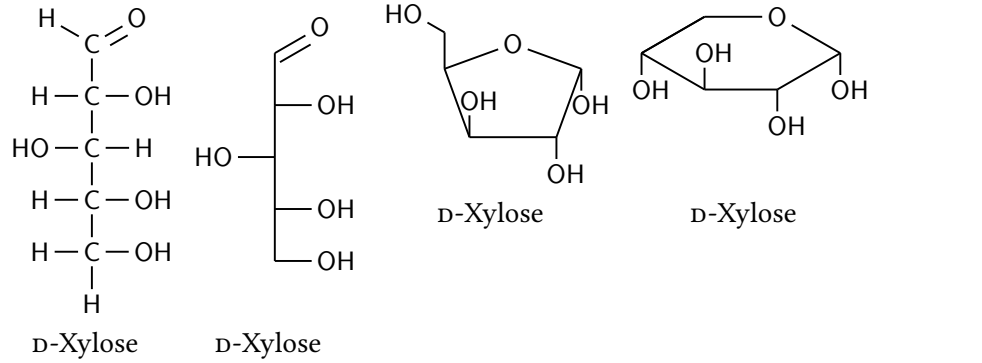
```
\chemname{\carbohydrate{llrr}}{\iupac{\D-Mannose}}
\chemname{\carbohydrate[model={fischer=skeleton}]{llrr}}{\iupac{\D-Mannose}}
\setatomsep{2.5em}\chemnameinit{}
\chemname{\carbohydrate[model=chair]{llrr}}{\iupac{\D-Mannose}}
\chemname{\carbohydrate[model=haworth]{llrr}}{\iupac{\D-Mannose}}
```

1. Also the keto group once ketoses will be implemented.



Adding the option `pentose` means that now only *three* tokens need to be specified.

```
\chemname{\carbohydrate[pentose]{rlr}}{\iupac{\D-Xylose}}
\chemname{\carbohydrate[pentose,model={fischer=skeleton}]{rlr}}{\iupac{\D-
  Xylose}}
\setatomsep{2.5em}\chemnameinit{}
\chemname{\carbohydrate[pentose,model=haworth,ring]{rlr}}{\iupac{\D-Xylose}}
\chemname{\carbohydrate[pentose,model=haworth,ring=pyranose]{rlr}}{\iupac{\D-
  Xylose}}
```



4 Restrictions

References

[Tel13] Christian Tellechea. chemfig. version 1.0h, Nov. 28, 2013. URL: http://mirror.ctan.org/macros/generic/chemfig/.

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