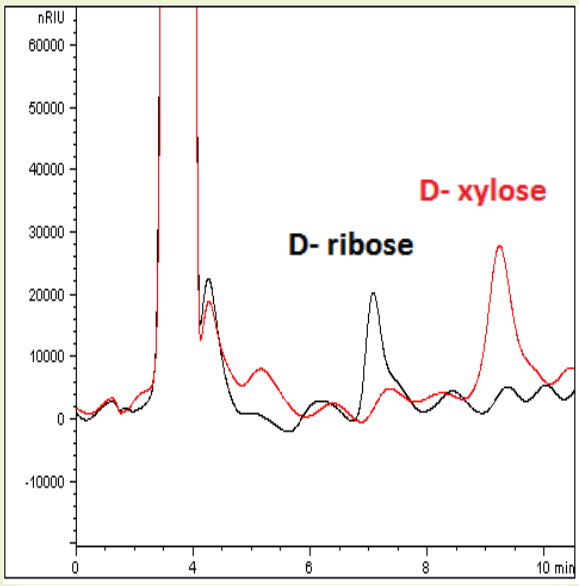
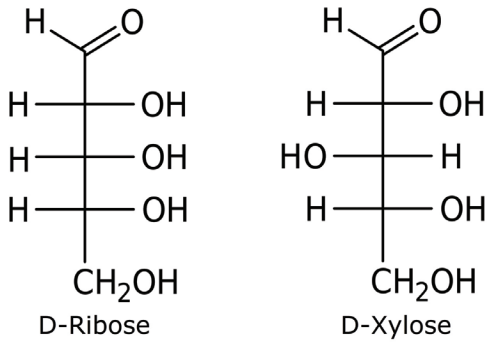
Ribose and Xylose

Retention and separation of simple sugars





Note: Ribose and xylose are aldopentoses that differ only by a chiral center. In addition to the open chain forms, these sugars exist in equilibrium with ring forms (five or six membered) as well as α and β anomers. Both sugars are highly polar and not generally suitable for conventional reversed phase retention.

Method Conditions

Column: **Cogent Amide™**, 4µm, 100Å

Catalog No.: 40036-10P

Dimensions: 4.6 x 100 mm

Mobile Phase: 95% acetonitrile / 5% DI water / 0.1% triethylamine (TEA) (v/v)

Injection vol.: 5µL

Flow rate: 1.0mL/min

Detection: Refractive index

Sample: D-ribose and D-xylose reference standards (8 mg/mL) in diluent of 50% acetonitrile / 50% DI water / 0.1% TEA (v/v)

Peaks: 1. D-Ribose
2. D-Xylose

Discussion

Sugars can be difficult to analyze by HPLC due to their polarity. Columns with amine ligands are often used for retention of simple sugars like ribose and xylose, but they have a number of drawbacks. The amine group can form Schiff bases with aldehydes in the sample, resulting in irreversible deactivation of the ligand's retention functionality. Poor robustness and column life have been reported for amine columns for this reason. The Cogent Amide avoids this problem because its ligand is less chemically reactive than an amine, while still obtaining good retention and separation of the two sugar analytes.

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