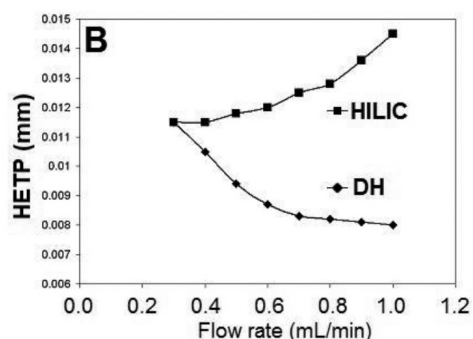
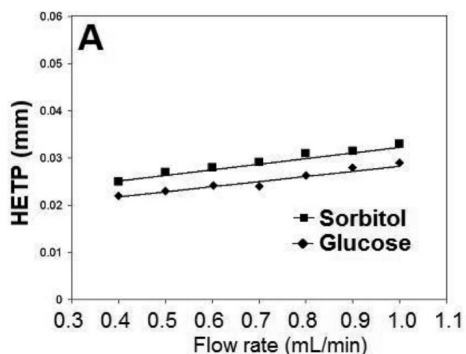


Very High Flow Rate, High Efficiency & Selectivity Standard HPLC Equipment



Notes:

A) Glucose and sorbitol on Diamond Hydride column (2.1 x 150 mm, particle size 4µm)
 B) Comparison of commercial HILIC (4.6 x 150 mm, particle size 3.5µm) and Diamond Hydride column (4.6 x 150 mm, particle size 4.0µm) in Aqueous Normal Phase retention of uracil.

Charts are adapted from "Analysis of Hydrophilic Metabolites in Physiological Fluids by HPLC-MS using a Silica Hydride-Based Stationary Phase". J.J. Pesek, M.T. Matyska, J.A. Loo, S.M. Fischer, T.R. Sana, J. Sep. Sci., 32 (2009) 2200-2208

Method Conditions

Column: Cogent Diamond Hydride™, 4µm, 100Å

Catalog No.: 70000-15P-2

Dimensions: All

Solvents: A: DI H₂O + 0.1% formic acid
 B: Acetonitrile + 0.1% formic acid

Mobile Phase: 20%A/ 80%B

Injection vol.: 10µL

Flow rate: Variable

Detection: UV (Uracil) and LC-MS (Sorbitol, Glucose)

Figures: Plots of efficiency (HETP) vs. flow rate

Discussion

Figure A shows a plot of "Flow Rate vs. HETP" for two carbohydrates analyzed using a 2.1 x 150 mm column. From the plot it is evident that while the flow rate is increased by a factor of 2.5 the efficiency is only slightly lower (~15%). When a 1 mm column was used over the same flow rates (linear flow rates more than four times higher) the decrease in efficiency was only 20%.

Figure B shows a plot of "Efficiency vs. Flow Rate" for uracil using a 4.6 x 150 mm column. From the plot it can be seen that efficiency increases as the flow rate increases from 0.3 to 1.0 mL/min. In contrast when a market leading HILIC column was used under the same conditions, the efficiency dropped by more than 30% over this same range of flow rates. It should be noted that linear flow rates are more than 6 times greater in the 2.1 mm column than in the 4.6 mm.