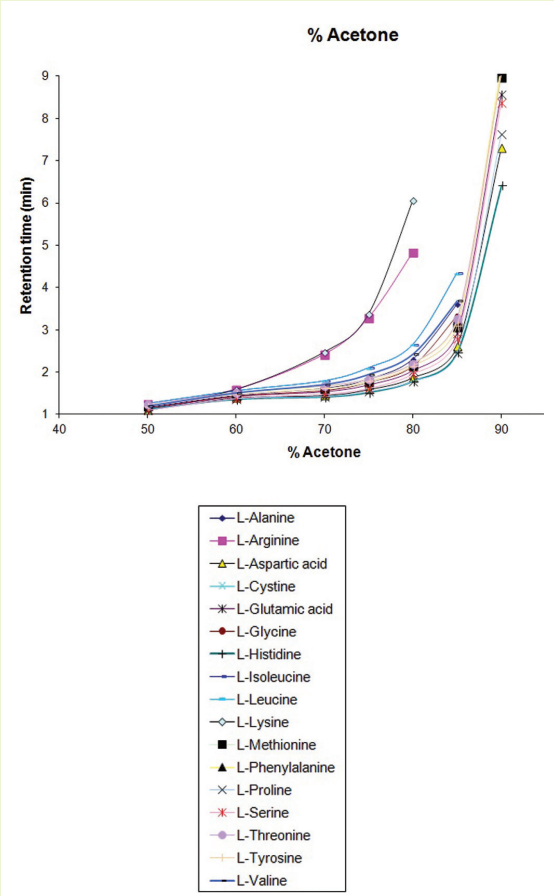
Acetone as the Organic Mobile Phase Component

"Green" substitute for separation of amino acids



Note: "Green" HPLC is Better and Easier Than You Think, by Joe Pesek and Bill Ciccone, Chromatography Today, November/December 2012 (Literature Reference).

Method Conditions

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

Catalog No.: 70000-15P-2

Dimensions: 2.1 x 150 mm

Solvents: A: DI H_2O / 0.1% formic acid
B: Acetone / 0.1% formic acid

Mobile Phase: Isocratic 50–90% B in 10% steps

Injection vol.: 1µL

Flow rate: 0.4 mL/min

Detection: ESI – POS - Agilent 6210 MSD TOF mass spectrometer

Sample: A solution of 17 amino acid standards (0.1 mg/mL in DI H_2O) was prepared in DI H_2O. This solution was filtered through a disposable 0.45µm filter (MicroSolv Tech Corp.). The sample for injection was diluted 1:100 with 50:50 solvent A:B mixture.

Discussion

Acetone has a high UV cutoff and therefore is generally unsuitable for UV detection. However, this is not a problem when using LCMS or ELS detectors such as the Corona CAD. Acetone can be used to replace acetonitrile with the Cogent TYPE-C™ HPLC columns. It is a more environmentally friendly solvent and is easier to recover and reuse. When amino acids are analyzed using acetone as the mobile phase component, the range for the onset of retention is similar to what is obtained using acetonitrile. Therefore acetone and acetonitrile can be used interchangeably for analysis of amino acids. It is important to note that while most compounds will retain and elute in similar fashion with either solvent, this cannot be said for every compound.

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