



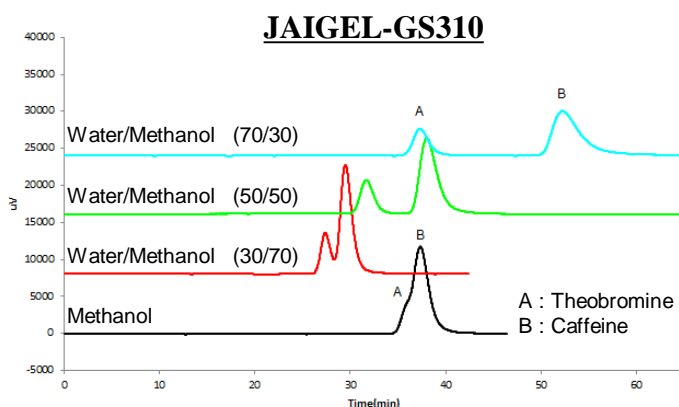
Recycling Preparative HPLC (Manual model)
LC-9210NEXT

Elution behavior of Caffeine and Theobromine with Mobile Phase Compositions

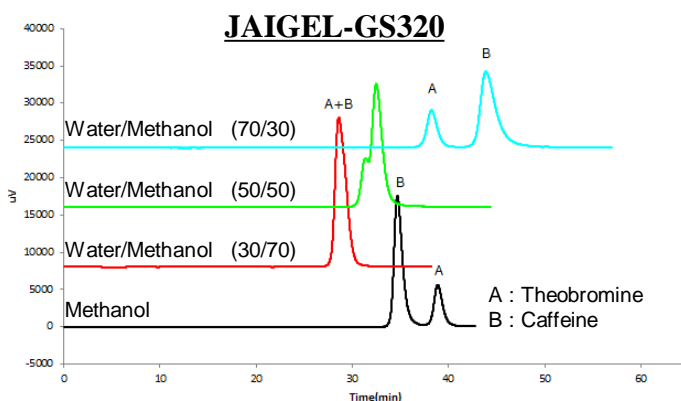
Point

This is to introduce different elution behavior of alkaloids, such as Caffeine and Theobromine sample, based on mobile phase compositions (water/methanol), using JAIGEL-GS series columns.

◆ JAIGEL-GS310 or GS320 Chromatograms



Column : JAIGEL-GS310-A
Eluent : Water/Methanol
Detector : UV-370 NEXT @ 270 nm
Sample : Caffeine , Theobromine



Column : JAIGEL-GS320-A
Eluent : Water/Methanol
Detector : UV-370 NEXT @ 270 nm
Sample : Caffeine , Theobromine

JAIGEL-GS series are Polyvinyl Alcohol (PVA) type polymer packed aqueous SEC (GFC) column can apply for wide range of applications, using water to nonpolar solvent. Depends on the polarity of mobile phase, it can be SEC (Size Exclusion) or adsorption and partition mode or ion exchange mode as secondary interaction.

From the adobe chromatograms, under watery condition (Water/Methanol = 70/30) , both GS310 and GS320 columns showed dilated retention time due to SEC + hydrophobic interaction. Under more methanol condition, it reduced hydrophobic interaction and drove more to SEC separation. Furthermore, 100% of methanol, it becomes more normal phase mode and high polar samples elute later.

Both GS310 and GS320 contains with hydrophobic and hydrophilic group packing materials. GS320 has twice more of hydrophilic group that leads to the reversed retention time with Theobromine and Caffeine with GS320 under methanol 100% condition.