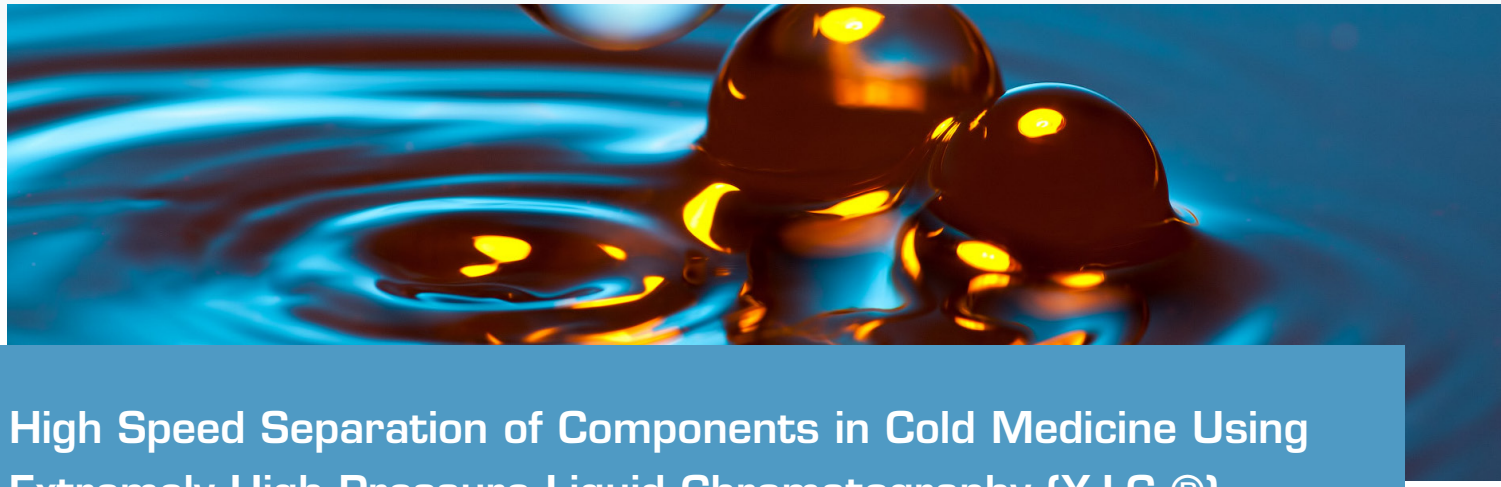
Application Note



High Speed Separation of Components in Cold Medicine Using Extremely High Pressure Liquid Chromatography (X-LC ®)

Introduction

The main components of a common cold medicine includes acetoaminophen, anhydrous caffeine, hesperidine, ethenzamide, tipepidine hibenzate, and apronalid. We examined the applicability of an X-PressPak C18S column (2.1 mm.I.D. x 50 mm L.) packed with 2 µm diameter packing material for the ultra-high speed separation of the above medicines. The results were examined to determine whether the performance of the column and chromatography separation exceeds that of conventional HPLC.

JASCO X-LC system

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Experimental

The X-LC system utilized in this experiment was a JASCO X-LC system consisting of a 3185PU pump, 3080DG degasser, 3067CO, column oven, 3070UV UV/Vis detector, 3059AS autosampler and a chromatography data system.

Results and Discussion

Figure 1 shows the separation of a standard mixture including acetoaminophen (0.02 mg/mL), anhydrous caffeine (0.02 mg/mL), phenol (for internal standard, 0.02 mg/mL), hesperidine (0.02 mg/mL), ethenzamide (0.02 mg/mL), tipepidine hibenzate (0.02 mg/mL) and apronalid (0.1 mg/mL). The X-LC system provides an analysis time 6 times faster than conventional HPLC without sacrificing the resolution between each peak.

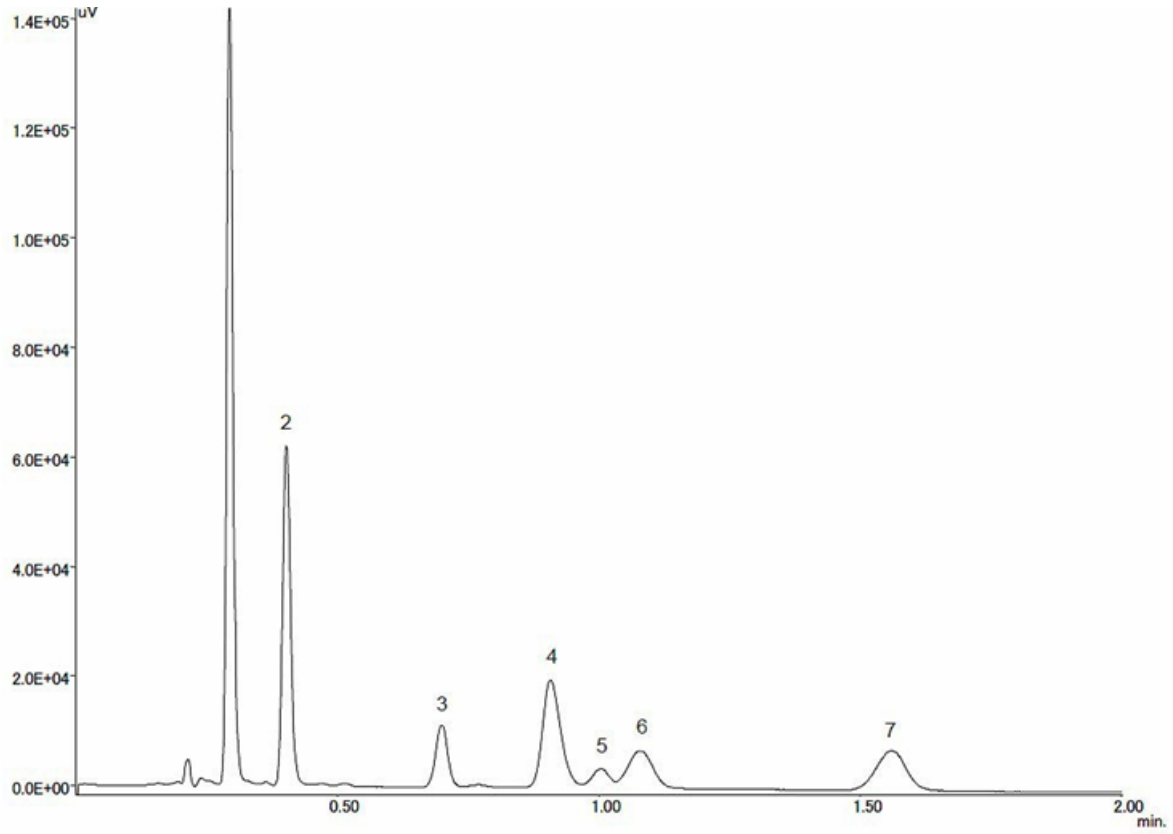

Figure 1 Chromatogram of a standard mixture of components of cold medicines Peaks: 1=acetoaminophen (0.02 mg/mL),, 2=anhydrous caffeine (0.02 mg/mL), 3=phenol (internal standard, 0.02 mg/mL), 4=hesperidin (0.02 mg/mL), 5=ethenzamide (0.02 mg/mL), 6=tipepidine hibenzate (0.02 mg/mL), and 7=apronalid (0.1mg/mL) Chromatografic conditions:column=X-PressPak C18S (2.1 mm I.D. x 50 mm L.), column temperature=40 ºC, mobile phase=methanol/0.1% phosphoric acid (40/60), flow rate=0.5 mL/min, detection wavelength=260 nm, injection volume=1 µL

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