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[APPLICATION HIGHLIGHT]

Chiral Separation of Phenylalanine Methyl Esters using UPC²

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INTRODUCTION

Phenylalanine methyl and other amino acid esters are used as starting material for the production of some active pharmaceutical ingredients (APIs). To ensure the correct and pure isomer is used for synthesis, it is important to perform chiral separations to resolve the enantiomers.

CONCLUSIONS

A UPC²™ method was developed for the chiral separation of D- and L-phenylalanine methyl esters. The method provides better resolution and 5X the throughput of normal phase HPLC, allowing for high throughput analysis. Due to the low baseline noise observed in UV, the method is capable of detecting down to 500 ng/mL of each enantiomer, which is 0.01% of a 5 mg/mL stock solution. UPC² provides a rapid method for determining the purity of chiral compounds prior to and during API synthesis.

INSTRUMENTATION & CONSUMABLES

System:	ACQUITY UPC²™ with photodiode array (PDA) detection
Column:	CHIRALPAK ID, 4.6 x 100 mm, 3 µm
Column temp.:	40 °C
Mobile phase A:	CO_2
Mobile phase B:	MeOH with 0.1% NH_4OH
Isocratic conditions:	90% A, 10% B
Flow rate:	1.5 mL/min
Back pressure:	2500 psi
Detection:	UV 210 nm, compensated mode
Injection volume:	4 µL
Sample:	5 mg/mL and 500 ng/mL in isopropanol with 0.1% triethanolamine
Vials:	Waters® Maximum Recovery
Data management:	Empower® 3 Software

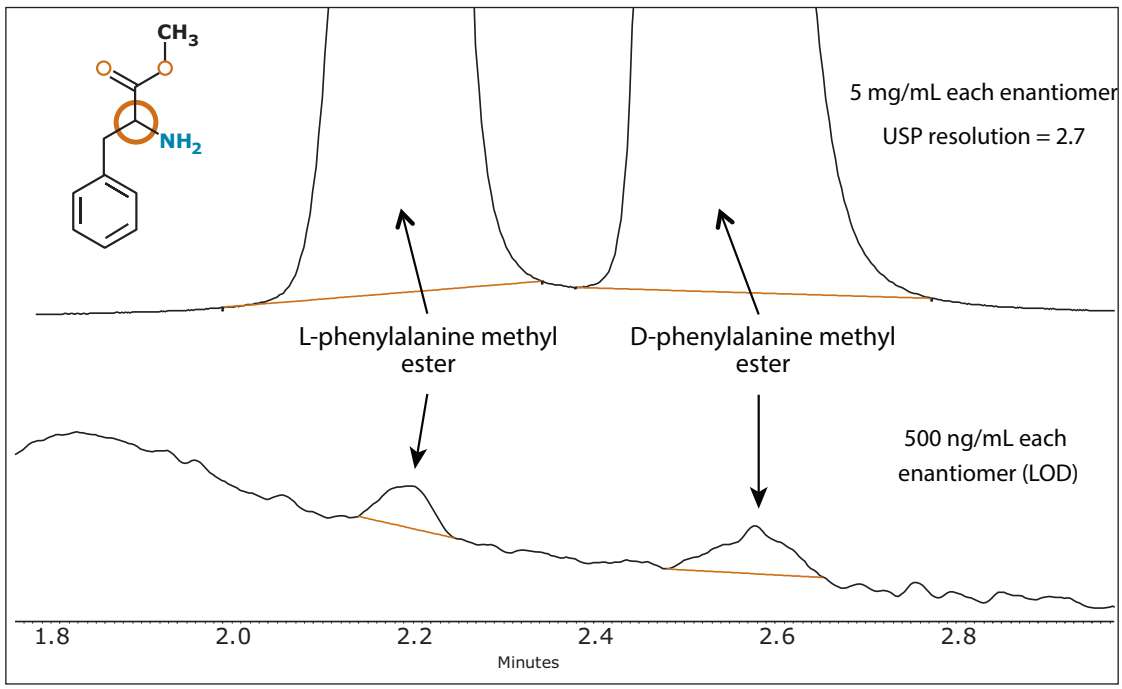

Figure 1. Separation of phenylalanine methyl ester enantiomers using UPC².

Click on the underlined blue text for details on the products used in this application.

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