



K7 Optimizing HPLC Separation of Antidepressant Drugs Through Stationary Phase Selection

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The goal of this educational presentation is to enhance the understanding of the separation mechanisms involved in the HPLC analysis of toxicologically relevant antidepressants.

Treatment of primary depression has traditionally been accomplished using tricyclic antidepressant drugs. Over the past five years, several new antidepressant drugs have entered the marketplace and are now some of the most widely prescribed medications.

Analysis of antidepressant drugs is typically accomplished using reverse phase HPLC combined with UV detection. While the analysis of individual compounds is relatively easy, testing for antidepressants as a class or group of drugs in a clinical setting for therapeutic drug monitoring is sometimes complicated by poor or incomplete resolution of all these compounds.

Fourteen antidepressant drugs were analyzed on three different reverse phase columns. Conditions were optimized for each stationary phase for best resolution and shortest analysis time. Chromatograms illustrating the different retention mechanisms of these reverse phase columns will be shown.

Antidepressants, HPLC, Stationary Phases