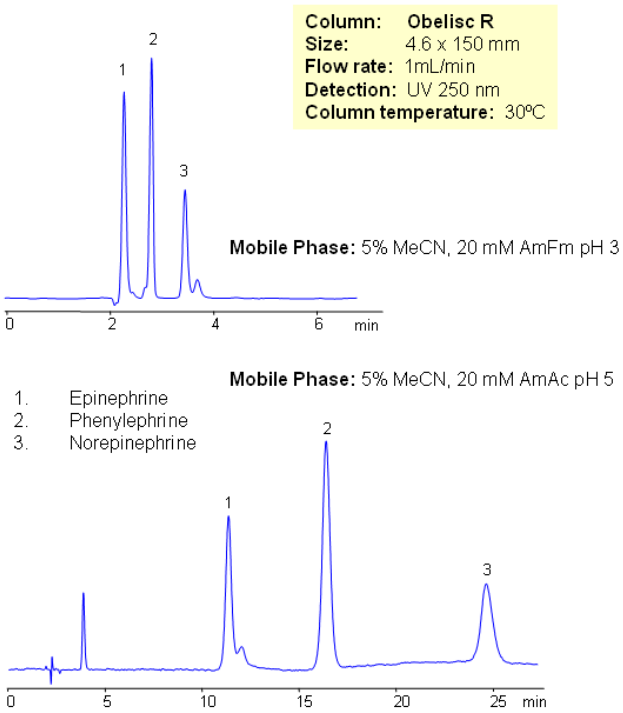
HPLC Separation of Neurotransmitters and Related Drugs



Epinephrine and norepinephrine (adrenaline and noradrenaline) are hormones and neurotransmitters. Epinephrine is synthesized from norepinephrine in a synthetic pathway shared by all catecholamines, including L-dopa, dopamine, norepinephrine, and epinephrine. Phenylephrine is used as a decongestant, available as an oral medicine or as a nasal spray. Phenylephrine is now the most common over-the-counter (OTC) decongestant. All three compounds are used in various drug compositions. Separation of epinephrine and norepinephrine is a challenging task due to polarity and close properties of two compounds. Epinephrine, norepinephrine and phenylephrine are separated in this method on Obelisc R mixed-mode HPLC columns. The method is very sensitive to variation of pH and pH adjustment can be used to achieve desired selectivity and retention time. Other catecholamines can be analyzed using this HPLC method. The method can be used as a stability indicating or a impurity profiling approach to the analysis of neurotransmitters in drug formulation, blood, serum and urine.

SIELC has developed the Obelisc™ columns, which are mixed-mode and utilize Liquid Separation Cell technology (LiSC™). These cost-effective columns are the first of their kind to be commercially available and can replace multiple HPLC columns, including reversed-phase (RP), AQ-type reversed-phase, polar-embedded group RP columns, normal-phase, cation-exchange, anion-exchange, ion-exclusion, and HILIC (Hydrophilic Interaction Liquid Chromatography) columns. By controlling just three orthogonal method parameters - buffer concentration, buffer pH, and organic modifier concentration - users can adjust the column properties with pinpoint precision to separate complex mixtures.

Method Parameters

Column	Obelisc R, 4.6×150 mm, 5 µm, 100 Å
Mobile Phase	MeCN/H2O
Buffer	AmFm
Flow Rate	1.0 mL/min
Detection	UV, 250 nm

Quelle: https://sielc.com/Application-HPLC-Separation-of-Neurotransmitters-and-Related-Drugs