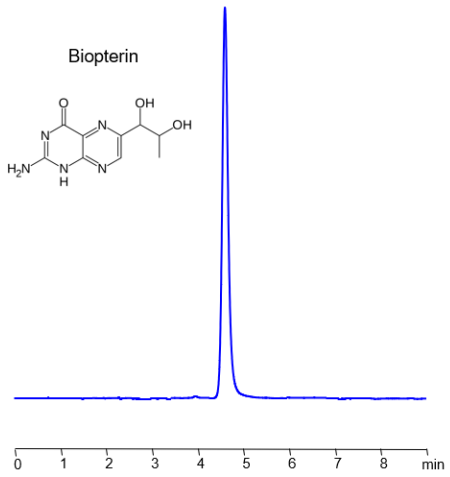
HPLC Method for Analysis of Biopterin on Primesep 100 Column



Column:	Primesep 100
Column size:	4.6 × 150 mm, 5 µm
Column part number:	100-46.150.0510
Mobile phase:	MeCN/H_2O – 5/95%
Buffer:	Ammonium formate pH 3.0 – 20 mM
Flow rate:	1.0 mL/min
Detection:	UV 275 nm

Separation type: Liquid Chromatography Mixed-mode

Biopterin belongs to the chemical group known as pteridines. Pteridines are aromatic compounds that consist of a pyrimidine ring fused to a pyrazine ring. These compounds are involved in various biological processes and can be found in different organisms, including bacteria, plants, and animals.

Biopterin, specifically, plays a critical role in the body as a cofactor in the synthesis of several important neurotransmitters, including serotonin, melatonin, dopamine, norepinephrine, and epinephrine. These neurotransmitters are crucial for many physiological functions, including mood regulation, sleep, and response to stress.

Deficiency in biopterin metabolism can lead to various disorders, such as neurodegeneration due to BH4 deficiency, a group of rare inherited neuro-metabolic disorders. This is why understanding and potentially modulating biopterin and its derivatives could be significant for certain therapeutic approaches.

Biopterin retained and analyzed using a reverse-phase Primesep 100, 4.6 x 150 mm, 5 µm, 100 Å, dual ended column. The mobile phase for this method consists of water, acetonitrile (MeCN), and ammonium formate, which serves as a buffer. This analytical method can be monitored using UV detection at 290 nm, an Evaporative Light Scattering Detector (ELSD), or any other evaporative detection method such as Charged Aerosol Detection (CAD) or Electrospray Ionization Mass Spectrometry (ESI-MS)

LOD was determined for this combination of instrument, method, and analyte, and it can vary from one laboratory to another even when the same general type of analysis is being performed.

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Method Parameters

Column	Primesep 100, 4.6 x 150 mm, 5 µm, 100 Å, dual ended
Mobile Phase	MeCN/H2O -5/95%
Buffer	Ammonium formate pH 3.0 – 20 mM
Flow Rate	1.0 mL/min
Detection	UV 275 nm
Limit of Detection	20 ppb
Injection Volume	1 µl

Quelle: https://sielc.com/hplc-separation-of-biopterin