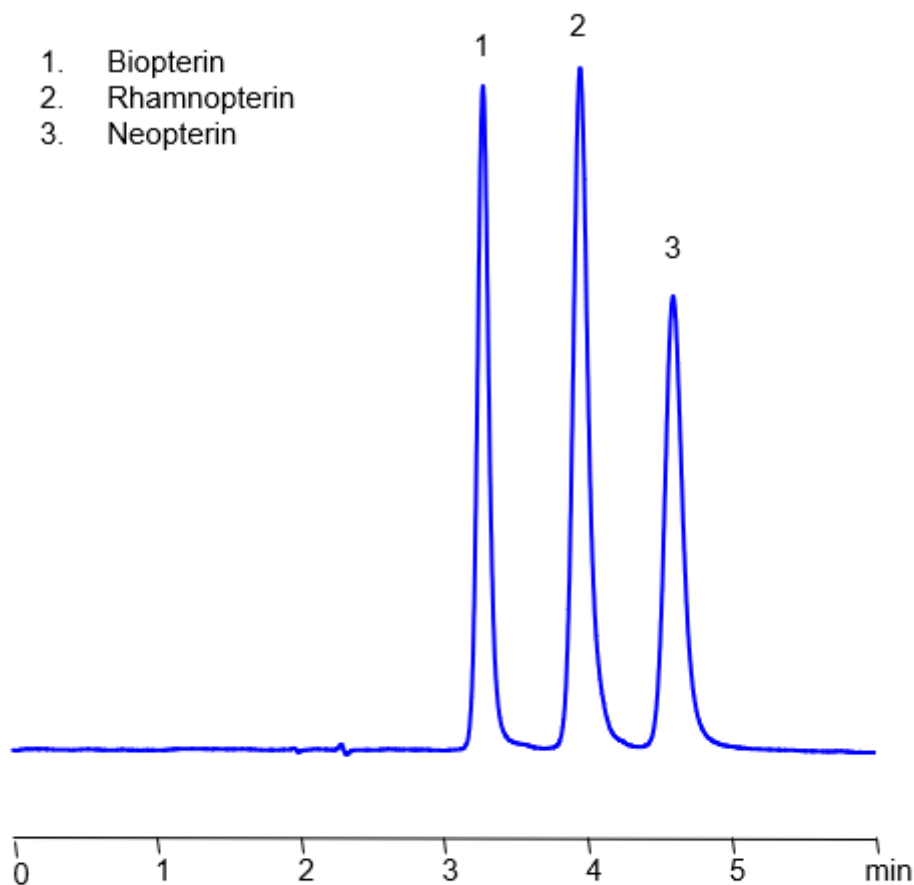


HPLC Method for Separation of Biopterin, Rhamnopterin and Neopterin on Primesep 100 Column

<https://sielc.com/hplc-separation-of-pterins>

Chromatogram



Column:	Primesep 100
Column size:	4.6 × 150 mm, 5 µm
Column part number:	100-46.150.0510
Mobile phase:	MeCN/H ₂ O – 5/95%
Buffer:	Ammonium formate pH 3.0 – 20 mM
Flow rate:	1.0 mL/min
Detection:	UV 275 nm

Description

High Performance Liquid Chromatography (HPLC) Method for Analysis of Biopterin , Rhamnopterin , Neopterin .

Biopterin is a coenzyme with the chemical formula C₉H₁₁N₅O₃ . It is involved in the biosynthesis of several important bioactive substances, including neurotransmitters like serotonin and dopamine. It's also integral to the creation of nitric oxide, a potent vasodilator. It 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. You can find detailed UV spectra of Biopterin and information about its various lambda maxima by visiting the following link.

Rhamnopterin is a derivative of biopterin with the chemical formula $C_{10}H_{13}N_5O_4$. It demonstrating remarkable properties in dietary studies. Research has shown that when it is administered alongside certain carcinogens, rhamnopterin can decrease the occurrence of liver tumors in rats. Additionally, it serves as an internal standard for measuring biopterin and neopterin concentrations in rat plasma. You can find detailed UV spectra of Rhamnopterin and information about its various lambda maxima by visiting the following link

Neopterin is a catabolic product of guanosine triphosphate (GTP) with the chemical formula $C_9H_{11}N_5O_4$. It is a molecule involved in energy transfer. It's often used as a marker for immune system activation, particularly in response to certain diseases, including viral infections, autoimmune diseases, and cancer. It is indicative of a pro-inflammatory immune status, therefore it typically serves as a marker of the activation of the cellular immune system. You can find detailed UV spectra of Neopterin and information about its various lambda maxima by visiting the following link.

Biopterin, Rhamnopterin, Neopterin can be retained, separated and analyzed using a reverse-phase Primesep 100 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 275 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.

Method Parameters

Mobile Phase	MeCN/H ₂ O -5/95%
Buffer	Ammonium formate pH 3.0 – 20 mM
Flow Rate	1.0 ml/min
Detection	UV 275 nm
Peak Retention Time	3.28, 4.01, 4.85 min
Sample concentration	0.02 mg/ml
Injection volume	5 µl
Sample diluent	H ₂ O + NaOH
LOD	20 ppb
Class of Compounds	Pteridines
Analyzing Compounds	Biopterin,Rhamnopterin,Neopterin

HPLC Column Used

Primesep 100, 4.6 x 150 mm, 5 µm, 100 A, dual ended

[Order this column at hplc-shop.de →](https://www.hplc-shop.de)