

TITLE:

UPLC-MS as a new trend in separation processes – application in analysis of biological active substances

SUMMARY:

Neopterin, a pterine derivate, is produced by human monocytes/macrophages stimulated by interferon gama. Neopterin represents an important parameter for the monitoring of the immune system activation that accompanies different diseases. In several scientific studies the coherency between neopterin and 7,8-dihydroneopterin and intracelular oxidative stress and apoptosis of the cells was demonstrated. The value of neopterin or other substances from pterin's group in clinical practice are expressed as the ratio of neopterin / creatinin. This diploma work was dealing with the development of an analytical method for the identification and quantitation of biological active substances neopterin, biopterin, 7,8-dihroneopterin, 5,6,7,8-tetrahydroneopterin and creatinin by utltra-performance liquid chromatography connected to the mass spectrometry triple of quadrupole type. Analytical method for the determination of biological active substances neopterin, biopterin, 7,8-dihroneopterin, 5,6,7,8-tetrahydroneopterin and creatinin by UPLC has been developed.

KEYWORDS:

Neopterin, 7,8-dihydroneopterin, 5,6,7,8-tetrahydroneopterinu, biopterin, creatinin, UPLC, mass spectrometry, triple quadrupole