

Abstract

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Title of diploma thesis: High performance liquid chromatography determination of selected amino acids and agmatine in biological material

Keywords: agmatine, L-arginine, L-citrulline, L-ornithine, UHPLC, chronic wounds

This thesis follows up the method development for the determination of agmatine, L-arginine, L-citrulline, L-ornithine in chronic wounds using ultra-high performance liquid chromatography. The aim of this thesis was to optimize suitable chromatographic conditions for the already mentioned analytes with possibility to use this method in clinical research and practice.

Four chromatographic columns were tested. Finally the Meteoric Core C18 BIO the dimensions 100 x 4.6 mm, 16 nm, 2.7 μm (YMC, Germany) was chosen, using these conditions: the mobile phase (MF) was 100% 10 mM AMFO (pH 2.5), the temperature was set at 25 °C, the MF flow rate was 0.25 mL / min, and the injection volume was 2 μL . After optimization of the separation conditions, the method was applied to biological material (exudate from chronic wounds), samples were modified by selected extraction procedures as ultrafiltration and protein precipitation. The method has been partially validated.

Treatment of chronic wounds is very difficult; this new method can be used for clinical research and practice, and could improve prognosis prediction and the treatment of patients with chronic wounds.