Javorska L et al., J Chromatogr Sep Tech 2016, 7:6(Suppl)
http://dx.doi.org/10.4172/2157-7064.C1.020

Monitoring of chronic wound healing process via determination of arginine and its metabolites using HPLC-FD method

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Chronic wound is the skin defect persisting longer than 6 weeks or is frequent reoccurrence defect[1]. These wounds remain in a chronic inflammatory state failing a normal healing process patterns[2]. The incidence of the non-healing wounds impaired quality of life for the affected patients and leads to the time-consuming and high cost treatment[3]. The amino acid arginine plays important role in wound healing as the precursor of nitric oxide (NO), proline and polyamines affect all phases of the wound healing process[4]. Monitoring of arginine metabolism directly in the chronic wound could be another indicator of the chronic wound healing process and significantly improve the therapy. Our HPLC method with fluorescence detection enable determination of arginine, ornithine and citrulline in a fluid obtained from chronic wounds. Separation of amino acids was performed using C18 monolithic HPLC column. Sodium acetate buffer (solution A) and mixture of ACN and MeOH (solution B) were used as the mobile phase in gradient elution mode. Total time of analysis was 14 min including the column-wash step. The method was validated by testing its linearity, precision, accuracy, recovery, robustness and detection limit/quantitation limit values. This method will be used for clinical research of the chronic wound healing process.

The study was supported by the SVV 260 292, Project MH CZ-DRO (UHHK, 00179906), PRVOUK P37/12.

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Biography

Javorska L has completed her Master's degree in 2013 from the Faculty of Pharmacy, Charles University in Prague. Since 2013, she is a PhD student at the Faculty of Pharmacy, Charles University in Prague. She is interested in LC chromatography with UV, FD, MS detection and sample preparation techniques. She has published 1 paper in reputed journal.

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