

**DETERMINATION OF DIMETHYLTRYPTAMINE IN RAT PLASMA USING 2D-LC-MS/MS METHOD**

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**Abstract**

Dimethyltryptamine (DMT) is a natural psychoactive compound which plays a role in oxidative stress-included changes at the endoplasmic reticulum–mitochondria interface. This makes the protective effect of DMT to be significant in hypoxic-anoxic cases.

Online two-dimensional liquid chromatography coupled to tandem mass spectrometry (2D-LC-MS/MS) can provide higher peak capacity, selectivity, resolution and sensitivity than one-dimensional approach. Generally, it is an orthogonal method with combination of different LC techniques such as hydrophilic interaction liquid chromatography (HILIC), reversed-phase (RP) and normal-phase (NP) separation.

Heart-cutting 2D-LC-MS/MS breaks the link between sampling time and the 2D-cycle with taking only the given fraction of the effluent - containing the target compounds - from the first dimension separation.

In this pilot study, heart-cutting 2D-LC-MS/MS method with combination of HILIC and RP separation was fully developed and applied for analysis of exogenous DMT in rat plasma samples. The effluent of first dimension containing DMT and  $\alpha$ -methyltryptamine as internal were trapped before second dimensional separation by using RP trap column.

**Acknowledgements**

This research was supported by the EU-funded Hungarian grant EFOP 3.6.1-16-2016-00008.