

## POSTMORTEM MEASUREMENT OF CADAVERIC VOCs IN HUMAN INTERNAL CAVITY GASES

*PH Stefanuto<sup>1</sup>, V Varlet<sup>2</sup>, S Grabherr<sup>3</sup>, Jean-Francois F. Focant<sup>1</sup>*

<sup>1</sup> CART, Organic and Biological Analytical Chemistry, Department of Chemistry - University of Liège, Allée du 6 août B6C, B-4130 Liège, Belgium

<sup>2</sup> Forensic Toxicology and Chemistry Unit, University center of Legal Medicine, 1011 Lausanne, Switzerland

<sup>3</sup> Forensic Imaging Unit, University Center of Legal Medicine, 1011 Lausanne, Switzerland

In search for minimally invasive alternatives to post-mortem autopsy, forensic radiology became a very promising approach for medico-legal investigation. Post-Mortem Computed Tomography (PMCT) is an example of a medical imaging technique that allows to access internal body parts without compromising its physical integrity [1]. PMCT is especially of prime interest for the detection of gases inside a body. On one hand, it allows to visualize gases that can be linked to the cause of the death such as air embolism or scuba-diving accident, on the other hand, thanatology is a field of great interest to better understand postmortem putrefactive phenomena. It was recently evidenced that the appearance of postmortem gases had a specific distribution scheme [2]. Despite the fact that intestinal zones were thought to be the initial area of alteration process due to bacteriological actions and development of intestinal microflora [3], it was identified that putrefactive biological processes were starting in the hepatic and cardiac zones. Abdominal thoracic, and heart cavities were further identified as the main sites of early putrefactive processes. A better understanding of the composition of gaseous samples present in cavities of altered bodies could possibly appear to be essential in the comprehension of postmortem alteration processes and in contributing to elucidations of causes of death. Based on our recent results of using GCxGC-TOFMS for the characterization of cadaveric decomposition VOCs [4], we investigated human postmortem gases sampled in cardiac and abdominal cavities of altered bodies sampled under PMCT supervision to target the aeric region to be punctured [5].

<sup>1</sup>Jacobsen C. et al., *Forensic Sci. Int.* (2010) 194, 9-14.

<sup>2</sup>Egger C. et al., *Int. J. Legal Med.* (2012) 126, 3-12.

<sup>3</sup>Vass A., *Microbiol. Today* (2001) 28, 190-192.

<sup>4</sup>Stadler S. et al., *Anal Chem* (2013) 85, 998–1005.

<sup>5</sup>Varlet V. et al., *Anal. Chim. Acta* (2013) 784, 42-46.