

GC×GC-TOFMS identification of new cadaveric VOCs**PESESSE R, STEFANUTO P-H, STADLER S, PERRAULT K, FORBES S, FOCANT J-F***CART, Organic and Biological Analytical Chemistry Group, Chemistry Department, University of Liège, Allée de la Chimie 3, B-6c Sart-Tilman, B-4000 Liège, Belgium*

Degradation of human corpses is a process still poorly understood [1]. This can partly be explained by the fact that it is difficult to have access to such samples, mainly for ethical reasons [2]. This is why the scientific community uses similar to mimic the decomposition of human bodies. The main one is the pig because it is the most similar to our anatomy [3]. However, no studies justified the accuracy of using a pig carcass to mimic that of a human.

In this work, it was therefore issues to compare samples from human cadavers and pigs in order to compare them. To do this, volatile organic compounds (VOCs) from both types of bodies were studied. Generally, VOCs are compounds analyzed by methods of gas chromatography coupled to a mass spectrometer. In this case, the complexity of mixtures of VOCs studied due to the large number and different types of molecules, forcing us to choose another method. The comprehensive two-dimensional gas chromatography coupled to a time of flight mass spectrometer (GC×GC-TOFMS) allows such analysis of the samples [4].

Given the large amount of data generated by the two-dimensional chromatograms and the number of different samples, the use of statistical tools is needed to draw conclusions from these analyzes (Fisher ratio and PCA). Thanks to these statistical tools, it is possible to characterize a short list of compounds among the large number of peaks detected initially. With these statistical methods of treatment data, 54 compounds have been detected and characterized using mass spectra libraries and retention indices. A comparison with the literature shows that, only 16 of the 54 compounds have been previously listed. It is possible on the basis of these VOCs to make a reliable comparison of the two types of bodies.

1. M. Lee Goff (2009) *Exp Appl Acarol* 49: 21–36
2. Furton K, Greb J, *et al.* (2010) U.S. Department of Justice No.231952
3. Stokes K, Forbes S, *et al* (2013) *J Forensic Sci* 58: 583-591
4. Dimandja JM (2004) *Anal Chem* 76: 167A