Special Issue

Development of Mass Spectrometric Methods for the Analysis of Volatile Organic Compounds in Breath

Message from the Guest Editors

Volatile organic compound (VOC) analysis has recently arisen as an innovative means of conducting non-invasive diagnostics and disease monitoring. The numerous VOCs contained in breath could potentially reflect biochemical processes taking place throughout the entire human body. Several prospective clinical studies have shown that multiple pathophysiological conditions cause imbalances in the metabolic profile of exhaled breath. Mass spectrometry (MS) is the dominant technique for breath analysis, either coupled with gas chromatography or conducted in real time. Breath is a complex biological matrix containing VOCs at a wide range of concentrations, varying from ppm to ppt levels. Furthermore, due to the nature of the matrix, several challenges regarding sample collection, transport, storage, pooling and analysis often compromise the quality of its investigation. Thus, there is a pressing need for improved and highly standardized mass spectrometric techniques which can offer increased volatilome coverage and more reliable measurements.

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