

INFLUENCE OF WORKPLACE EXPOSURE ON VOCs PROFILE IN HUMAN BREATH

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Nowadays people spend most of their time indoors: sleeping at home, working in offices, eating in canteens or restaurants, or spending free time in cinemas, shopping malls and other stores. It is in those places where we are exposed to a high content of volatile organic compounds (VOCs). In this work, we focused on places where we spend a great part of our time every day.

Human breath contains more than 1000 different VOCs [1], and some of them can be used as biomarkers for several diseases like diabetes [2], several types of cancer [3], and fungal infections [4] among others. In this work we will focus on the understanding of the background VOC profile in breath of healthy volunteers; and how their exposure to environmental compounds could modify this profile.

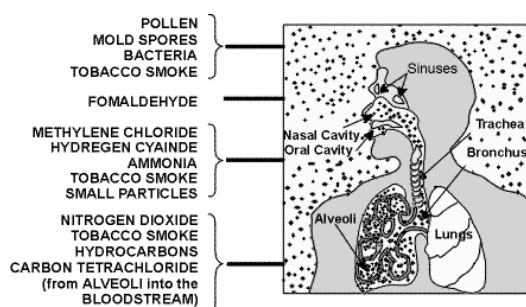


Fig.1: Sources of VOCs indoors.

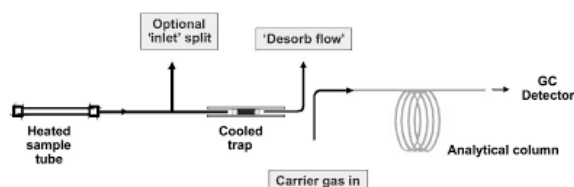


Fig.2: TD/GC-MS configuration

Air samples were taken from the selected places, to benchmark the background compounds. Samples were collected using thermal desorption (TD) tubes and purged into a gas chromatography with mass spectrometer (GC-MS). Then, breath samples from participants were collected before starting their daily work, and at the end of the workday. Breath sampling was obtained using a self-made plastic bag collection system. Optimization of system parameters was performed to get good compound separation and identification.

