Investigation of volatile mixture emit by human tissues degradation

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Human rescue dog unit are the more efficient tool to locate cadaver or people trap after a natural disaster. However, the dog training process is long and expensive. Dog trainers are always looking for a better understanding of the dog olfaction matching to improve their training methods (1). During these training sessions, dogs are usually trained to locate body pieces due to the difficulty to obtain a full cadaver. Moreover, some training aid solution are available but their compositions and their efficiencies are not worldwide recognized (2).

To answer these questions, this project is monitoring the headspace human organs during the decomposition process. Five different organs are used: heart, lung, liver, kidney and blood. Every organs are sampled in triplicates and let to decompose in glass jar. Regularly, the headspace of the jar is sample by dynamic pumping to sorbent tubes that will further be injected on comprehensive two-dimensional gas chromatography system (GC×GC). GC×GC is a powerful analytical tool that allows the complete resolution of "the smell of death", i.e. the decomposition odor (3-4).

The compounds identified in the organs headspace can be compared with the one coming from decomposition studies on full bodies to establish a biomarkers list that will further be used for dog training solution elaboration.

References

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