Study of the odours emitted by decaying pig's carcasses (*Sus domesticus* L.) and postmortem colonisation by necrophagous insects*

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Context : a corpse is a particular ecosystem comprising many trophic relations. The postmortem colonisation is essentially carried out by insects, in particular necrophagous insects = forensic entomology. The « chemistry of death » is poorly studied and information regarding the volatile organic compounds (VOCs) released after death is limited. Nevertheless, these VOCs may attract a wide range of insects.

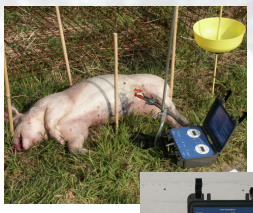
This study was conducted in Spring 2007 (March 29 –May 11) in 3 experimental sites: a forestry biotope (F), a agricultural zone (A) and an urban site (U).

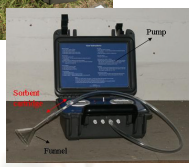
Volatile collection from dead pigs ⇔ Simultaneously ⇔ Collection of the necrophagous insects

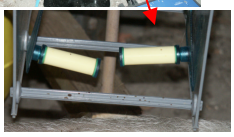
- **Methods**: 2 techniques were used

Passive sampling: Carbograph 4 + Radiello ®

Dynamic sampling: SuperQ® + pump





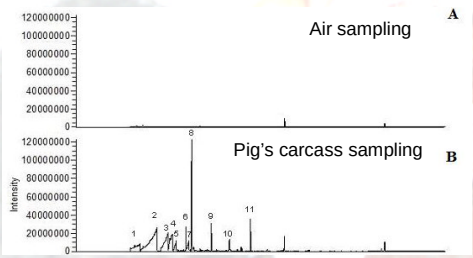


- **Results**

-143 COVs identified by (TDS)GC-MS , <u>but no detection of putrescine and cadaverine</u>

- The pattern of the released volatile compounds depends on the stage of decomposition and the biotope

- Main products: SO_2, DMDS, DMTS, phenol, p-cresol, 1-butanol, 3-methyl-1-butanol, trimethylamin, butanoic acid, 2-methylbutanoic acid, 3-methylbutanoic acid, indole, butanal, hexanal, heptanal, nonanal



- **Methods**: insects traps → pitfall traps, nets, yellow traps, manual collections

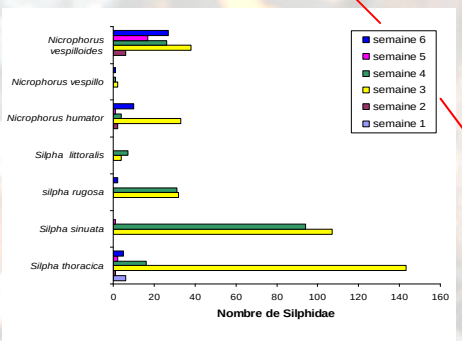
- **Results**: 2 main insect orders

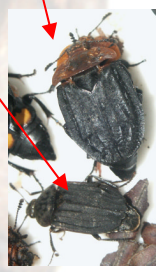
- Diptera (Calliphoridae) Coleoptera (Silphidae)

- Differences between experimental sites & stage of decomposition

few insects in urban site → only Calliphoridae

Silphidae in "natural" sites → *S. sinuata* (A), *S. thoracica* (F)





Perspectives: the necrophagous insects (e.g. Silphidae) and VOCs released by dead bodies may be used as "bio"indicators. Further studies based on the relationships that may exist between VOCs and necrophagous insects are currently conducted at the Department of Functional and Evolutionary Entomology (FUSAGx).

* Dekeirsschieter J. (2007) Etude des odeurs émises par des carcasses de porc (*Sus domesticus* L.) en décomposition et suivi de la colonisation postmortem par les insectes nécrophages. FUSAGx, mémoire de fin d'études.