E61   Identification of Decomposition Odors That Elicit a Response From Trained Cadaver Dogs

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After attending this presentation, attendees will better understand current cadaver dog training practices in the United Kingdom, how trained cadaver dogs react to individual odors associated with decomposition, and how results indicated varying quality and reliability of such dogs.

This presentation will impact the forensic science community by providing results from a controlled experiment in an area with no known previous research. This presentation will add to current research, linking the Volatile Organic Compounds (VOCs) detected from the decomposition process to the responses from trained cadaver dogs.

It is currently not known which chemicals elicit a trained response (indication/alert) from a Victim Recovery (VR) dog; however, numerous studies have identified a wide array of chemicals associated with the decomposition process.[1-3] From these, a number have been identified and characterized by multiple studies using differing methodologies. All these studies broadly confirm that different chemicals are present at specific times/states of decomposition while other chemicals are detected throughout the decomposition process.[4,5]

Results from recent questionnaires initiated by this research and anecdotal evidence from a number of United Kingdom VR dog handlers, indicate that VR dogs will often find human remains in states of decomposition that differ from those with which they have been trained (personal observation). For example, despite VR dogs in the United Kingdom being mostly trained on pork meat in various states of decomposition, they are still capable of successfully locating human remains operationally. This suggests that the chemicals they are indicating on are likely present in both species, or dogs cannot differentiate between pig and human remains and the chemicals they are indicating on are present throughout the decomposition process.

Based on this and a review of the literature, a number of chemicals were identified as being "core" chemicals of decomposition, and possibly those that VR dogs are detecting and that are causing them to give a trained response.[6,7]

It is not currently known if VR dogs indicate on individual, a few, or the whole spectrum of chemicals that give rise to the scent of decomposition.[1] Therefore, to investigate this, an experiment was designed using a number of individual "core" chemicals presented to the dogs in a scent lineup.

Experiments were designed to be comparable to early research that was conducted to determine the chemicals that elicit a response from explosives detection dogs.[8] This was due to ease of set-up and the similarity in the research goals (i.e., determining if individual compounds cause a dog to indicate). It was decided this should be accomplished by presenting a number of individual chemicals detected and identified from the decomposition process in separate vials to a sample of trained VR dogs.

Test chemicals included: ethylbenzene, p-xylene, o-xylene, styrene, nonanal, decanal, carbon disulphide, undecane, dimethyl disulphide, toluene, hexane, trimethylamine, butyric acid, cadaverine, and putrescine. Positive controls (United Kingdom cadaver dog training materials: human bone, pork tissue) and negative controls (chemicals not associated with pig or human decomposition: geranyl acetone, clove oil) were also included in the lineup in addition to blanks.

This research concluded no single chemical achieved the same high response associated with the positive controls within the lineup. Further investigation is required.

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Cadaver Dog, Decomposition, VOC

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