**A method for controlled odor delivery in canine olfactory testing**

Kelvin Frank\*, Alison G Simon, Kimberly Peranich, Howard Holness, Kenneth Furton, Lauryn DeGreeff

There is no current widely-accepted, systematic method for measuring odor availability during canine olfactory research or operational testing. This study aimed to address this recognized limitation by using the existing technology, controlled odor mimic permeation systems (COMPS). COMPS provide a reproducible, field-appropriate odor delivery method that can be analytically validated and quantified. COMPS were created for twelve compounds across a range of carbon chain lengths and functional groups, producing similar permeation rates for all compounds, as determined through gravimetric analysis. Odor availability above the COMPS was confirmed over time through further laboratory experiments to quantify headspace concentrations. These experiments were supplemented using a canine trial to test the efficacy of the method. Additionally, lifetime usage and storage protocols were considered. An efficient method for producing and measuring reliable odor availabilities across various chemical functional groups was developed, addressing a noted gap in existing literature that will advance canine research testing.

Keywords: Olfactory testing, COMPS, Odor delivery, Odor availability

Type: Standard research poster session