

Hand odor volatiles and drug abuse: A pilot study using a chemical-dependent target group- Silas Kemboi- Texas Tech University, USA

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Abstract

Different types of drugs are routinely sampled, separated, and identified in urine, sweat, blood, hair, and other biological materials from the human body. However, little or no information has ever been available on the physiognomies of drug excretion and detection in human hand odor under any controlled or designed drug admission. The main purpose of odor sampling in this study was to obtain a chemical odor profile from a known chemical dependent target population. This pilot study was designed to “chemically fingerprint” different hand odor samples by human subjects undergoing court-ordered drug treatment programs at the Lubbock County Community Corrections Facility/ Court Residential Treatment Center (CRTC). The method used for extraction was Head space solid phase micro-extraction (HS-SPME); this is a passive extraction from a contact surface source, the mass flow from the cotton gauze flows into the headspace through volatilization of odor to achieve equilibrium distribution. HS-SPME employed to extract compounds from the subjects’ hands and analyzed via Gas chromatography-mass spectrometry (GC-MS). A total of 7 male individuals receiving drug abuse treatment at the CRTC were sampled upon arrival at the center. They were then monitored on a bi-weekly basis to obtain the chemical odor profile as a function of rehabilitation time. Detailed histories and subjective reports of chemical dependency of the individuals’ substance use patterns was gathered for comparison with collected samples. The results from the adsorbed HS-SPME with divinylbenzene/ carbonex/ polydimethylsiloxane (DVB/ CAR/ PDMS) fiber, of 50/30 μm film thickness and 2 cm length, gave an exponential odor profile as the subjects continue with drug rehabilitation at the (CRTC).