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PhD Dissertation Defense

Entitled

DEVELOPMENT OF INNOVATIVE MULTI-DRUG APPROACHES TO COUNTERACT ILLICIT DRUG ABUSE IN THE UAE POPULATION

by

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Abstract

Illicit drug use, including the non-medical use of prescription drugs, is growing in the UAE. The UAE Government is losing about Dh 5.5 billion annually to rehabilitating drug addicts. Blood and urine, along with hair testing procedures, allows a cumulative reflection of occasional or long-term drug abuse. With a focus on the prohibited substance list in the UAE, our main objective of this study was to devise an innovative analysis solution for the detection and quantification of prohibited substances, especially prescription and over-the-counter drugs of abuse in the UAE. We developed a rapid, sensitive and robust LC-MS/MS method and validated it for the targeted analysis of 42 widely used drugs of abuse in blood, urine and hair matrices of UAE population. The monitored compounds included 8 combined acid drugs (CAD), 17 benzodiazepines (BENZO), and 17 opioid drugs (OPI). The developed method was used for analysis of 1300 suspects samples received from different police departments in the UAE. Here 208 samples were found positive in hair and 300 samples were found positive in blood and urine matrices. All the samples were positive for either one or upto 5 different drugs of abuse per sample. About 26 different drugs were confirmed in total in all three matrices. Our results show that hair testing should be used as a complementary test along with blood and urine tests to tackle the growing drug problem in the UAE. These innovative, sensitive and robust methods will go a long way to equip Forensic labs to counteract the increasing drug use in the UAE. Based on the results shown in this PhD thesis, we urge the UAE authorities to introduce hair testing in the forensic labs as a complementary test along with blood/urine etc., and we also encourage authorities to accept hair testing as reliable evidence in the court of law in the UAE.

Keywords: Blood analysis, urine analysis, hair analysis, illicit drugs, drugs of abuse, LC-MS/MS, opioids, benzodiazepines, combined acid drugs.