

Microextraction Techniques for Drugs of Abuse in the Forensic Perspective: A Review [†]

Deepika Yadav ¹, Risha Jasmine Nathan ^{1,*}

¹ Division of Forensic Science, Department of Biosciences, School of Basic and Applied Sciences, Galgotias University, Greater Noida, Uttar Pradesh, India;

* Correspondence: risha.nathan@galgotiasuniversity.edu.in (R.J.N.);

[†] International Conference on Advanced Materials for Next Generation Applications, 29th – 30th September, 2021 (AMNGA-2021)

Received: 10.09.2021; Revised: 20.09.2021; Accepted: 21.09.2021; Published: 29.09.2021

Abstract: Drug abuse is a worldwide issue that has led to many health issues, and in severe cases, death owing to overdose and misuse for the purpose of suicides and homicides. The abuse of drugs has also led to various long-term physical and psychological health complications. The abuse of drugs, especially for recreational purposes, has been on the rise, and the profile of drug abuse worldwide has been found to increase in different population groups such as teenagers and adolescents. In this review, a few of the relevant forensic drug cases in the past decade are discussed. Biological sample testing has become a critical component in the detection and treatment of drug abuse and in medico-legal analyses of post-mortem samples. Additionally, non-biological samples such as pharmaceuticals are also screened routinely in forensic laboratories. Therefore, from the forensic perspective, it becomes important to review the various analytical techniques that can be used to isolate these drugs from samples collected from the crime scene. Microextraction techniques for the isolation of various groups of drugs are gaining popularity because of their many advantages over traditional techniques such as solvent extraction and solid-phase extraction. In the present work, such microextraction techniques for isolating four main categories of drugs of abuse, namely, stimulants, narcotics, tranquilizers, and hallucinogens from biological and non-biological samples matrices have been reviewed.

Keywords: drug of abuse; microextraction techniques; viscera; pharmaceuticals; forensic cases.

© 2021 by the authors. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Funding

This research received no external funding.

Acknowledgments

I acknowledge my supervisor Dr. Risha Jasmine Nathan and my faculty members.

Conflicts of Interest

The authors declare no conflict of interest.