

**Selected Articles on the Analysis of Drugs of Abuse in Seized Materials**  
**(January - June 2021)**

High-field and benchtop NMR spectroscopy for the characterization of new psychoactive substances, T. Castaing-Cordier, V. Ladroue, F. Besacier, A. Bulete, D. Jacquemin, P. Giraudeau, J. Farjon, *Forensic Science International*, **2021**, 321, 110718. <https://doi.org/10.1016/j.forsciint.2021.110718>

Report on a new opioid NPS: Chemical and *in vitro* functional characterization of a structural isomer of the MT-45 derivative Diphenpipenol, A. Canaert, F. Hulpia, M. Risseeuw, K. Van Uytfanghe, E. Deconinck, S. Van Calenbergh, P. Blanckaert, C. Stove, *Journal of Analytical Toxicology*, **2021**, 45, 134–40. <https://doi.org/10.1093/jat/bkaa066>

Identification and structure characterization of five synthetic opioids: 3,4-Methylenedioxy-U-47700, *o*-Methyl-acetylfentanyl, 2-Thiophenefentanyl, Benzoylfentanyl and Benzoylbenzoylfentanyl, M. Popławska, E. Bednarek, B. Naumczuk, L. Kozerski, A. Błażewicz, *Forensic Toxicology*, **2021**, 39, 45–58. <https://doi.org/10.1007/s11419-020-00539-6>

Etazene (*N,N*-Diethyl-2-[[4-ethoxyphenyl]methyl]-1*H*-benzimidazol-1-yl)-ethan-1-amine (dihydrochloride)): A novel benzimidazole opioid NPS identified in seized material: Crystal structure and spectroscopic characterization, M. Siczek, M. Zawadzki, M. Siczek, A. Chłopaś-Konowalek, P. Szpot, *Forensic Toxicology*, **2021**, 39, 146–55. <https://doi.org/10.1007/s11419-020-00552-9>

Cumyl-CBMICA: A new synthetic cannabinoid receptor agonist containing a Cyclobutyl methyl side chain, S. Halter, B. Pulver, M. Wilde, B. Haschimi, F. Westphal, J. Riedel, M. Pütz, *Drug Testing and Analysis*, **2021**, 13, 208–16. <https://doi.org/10.1002/dta.2942>

Shape matters: The application of activity-based *in vitro* bioassays and chiral profiling to the pharmacological evaluation of synthetic cannabinoid receptor agonists in drug-infused papers seized in prisons, L.H. Antonides, A. Canaert, C. Norman, N. NicDáeid, O.B. Sutcliffe, C.P. Stove, C. McKenzie, *Drug Testing and Analysis*, **2021**, 13, 628–43. <https://doi.org/10.1002/dta.2965>

Large-scale evaluation of ion mobility spectrometry for the rapid detection of synthetic cannabinoid receptor agonists in infused papers in prisons, C. Norman, B. McKirdy, G. Walker, P. Dugard, N. NicDaéid, C. McKenzie, *Drug Testing and Analysis*, **2021**, 13, 644–63. <https://doi.org/10.1002/dta.2945>

Comprehensive analytical characteristics of *N*-(adamantan-1-yl)-1-(cyclohexylmethyl)-1*H*-indazole-3-carboxamide (ACHMINACA), M.P. Dybowski, P. Holowinski, R. Typek, A.L. Dawidowicz, *Forensic Toxicology*, **2021**, 39, 230–39. <https://doi.org/10.1007/s11419-020-00547-6>

Identification of six tryptamine derivatives as designer drugs in illegal products, R. Tanaka, M. Kawamura, T. Hakamatsuka, R. Kikura-Hanajiri, *Forensic Toxicology*, **2021**, 39, 248–58. <https://doi.org/10.1007/s11419-020-00556-5>

Development and validation of a color spot test method for the presumptive detection of 25-NBOMe compounds, L. Clancy, M. Philp, R. Shimmon, S. Fu, *Drug Testing and Analysis*, **2021**, 13, 929–43. <https://doi.org/10.1002/dta.2905>

Chemical and statistical analyses of blotter paper matrix drugs seized in the state of Rio de Janeiro, V.L. Meira, A.S. de Oliveira, L.S.A. Cohen, C. de A. Bhering, K.M. de Oliveira, D.S. de Siqueira, M.A.M. de Oliveira, F.R. de Aquino Neto, G. Vanini, *Forensic Science International*, **2021**, 318, 110588. <https://doi.org/10.1016/j.forsciint.2020.110588>

Investigating the chemical impurity profiles of fentanyl preparations and precursors to identify chemical attribution signatures for synthetic method attribution, S.P.B. Ovenden, L.J. McDowall, H.E. McKeown, N.W. McGill, O.A.H. Jones, J.R. Pearson, M. Petricevic, M.L. Rogers, T.J. Rook, J. Williams, R.L. Webster, S.D. Zanatta, *Forensic Science International*, **2021**, 321, 110742.

<https://doi.org/10.1016/j.forsciint.2021.110742>

Challenges for cocaine detection in smuggling samples, J. Eliaerts, N. Meert, F. Van Durme, P. Dardenne, S. Charles, K. De Wael, N. Samyn, *Forensic Science International*, **2021**, 319, 110534.

<https://doi.org/10.1016/j.forsciint.2020.110534>

Validation of the 4-Aminophenol color test for the differentiation of Marijuana-type and Hemp-type Cannabis, K. Lewis, R. Wagner, S.E. Rodriguez-Cruz, M.J. Weaver, J.C. Dumke, *Journal of Forensic Sciences*, **2021**, 66, 285–94. <https://doi.org/10.1111/1556-4029.14562>

Color determination method and evaluation of methods for the detection of cannabinoids by thin-layer chromatography (TLC), B.J. Mano-Sousa, G.A.S. Maia, P.L. Lima, V.A. Campos, G. Negri, F.M.D. Chequer, J.M. Duarte-Almeida, *Journal of Forensic Sciences*, **2021**, 66, 854–65.

<https://doi.org/10.1111/1556-4029.14659>

Stability of psilocybin and its four analogs in the biomass of the psychotropic mushroom *Psilocybe cubensis*, K. Gotvaldová, K. Hájková, J. Borovička, R. Jurok, P. Cihlářová, M. Kuchař, *Drug Testing and Analysis*, **2021**, 13, 439–446. <https://doi.org/10.1002/dta.2950>

Stereoselective analysis of ephedrine and its stereoisomers as impurities and/or by-products in seized methamphetamine by supercritical fluid chromatography/tandem mass spectrometry, H. Segawa, Y. Okada, T. Yamamuro, K. Kuwayama, K. Tsujikawa, T. Kanamori, Y.T. Iwata, *Forensic Science International*, **2021**, 318, 110591. <https://doi.org/10.1016/j.forsciint.2020.110591>

Rapid orthogonal screening of forensic drugs using a compact UHPLC-PDA/SQD; a complement to GC-MS, L. Li, X. Quintero, *Forensic Science International*, **2021**, 318, 110565.

<https://doi.org/10.1016/j.forsciint.2020.110565>

**Selected Articles on the Analysis of Drugs of Abuse in Biological Specimens  
(January - June 2021)**

A comprehensive analytical process, from NPS threat identification to systematic screening: Method validation and one-year prevalence study, B. Garneau, B. Desharnais, J. Laquerre, C. Côté, M.-P. Taillon, P.-Y. Martin, G. Daigneault, P. Mireault, A. Lajeunesse, *Forensic Science International*, **2021**, 318, 110595. <https://doi.org/10.1016/j.forsciint.2020.110595>

Two cyclopropyl fentanyl case studies in Los Angeles, C. Castellino, D. Van Cleve, R. Cabrera, *Journal of Analytical Toxicology*, **2021**, 45,105–9. <https://doi.org/10.1093/jat/bkaa037>

Brorphine—Investigation and quantitation of a new potent synthetic opioid in forensic toxicology casework using liquid chromatography-mass spectrometry, A.J. Krotulski, D.M. Papsun, C. Noble, S.L. Kacinko, B.K. Logan, *Journal of Forensic Sciences*, **2021**, 66, 664–76. <https://doi.org/10.1111/1556-4029.14623>

Isotonitazene: Fatal intoxication in three cases involving this unreported novel psychoactive substance in Switzerland, F. Mueller, C. Bogdal, B. Pfeiffer, L. Andrello, A. Ceschi, A. Thomas, E. Grata, *Forensic Science International*, **2021**, 320, 110686. <https://doi.org/10.1016/j.forsciint.2021.110686>

Detection of 30 Fentanyl analogs by commercial immunoassay kits, R.E. Wharton, J. Casbohm, R. Hoffmaster, B.N. Brewer, M.G. Finn, R.C. Johnson, *Journal of Analytical Toxicology*, **2021**, 45, 111–16. <https://doi.org/10.1093/jat/bkaa181>

Stability of synthetic cathinones in clinical and forensic toxicological analysis—Where are we now? A.A. Abdulaziz, E. Castrignanò, S.Elliott; V. Abbate, *Drug Testing and Analysis*, **2021**, 13, 44–68. <https://doi.org/10.1002/dta.2990>

Analytical detection of novel stimulants by immunoassay and liquid chromatography–high resolution mass spectrometry: Case studies on Ethylphenidate and Mephedrone, S.L. Belsey, R.J. Flanagan, *Journal of Analytical Toxicology*, **2021**, 45, 521–28. <https://doi.org/10.1093/jat/bkaa102>

Fatal intoxication involving 4-Methylpentadone (4-MPD) in a context of chemsex, N. Cartiser, A. Sahy, A.-S. Advenier, A. Franchi, K. Revelut, C. Bottinelli, F. Bévalot, L. Fanton, *Forensic Science International*, **2021**, 319, 110659. <https://doi.org/10.1016/j.forsciint.2020.110659>

*Alpha*-pyrrolidinopentiothiophenone ( $\alpha$ -PVT): A forensic case study including plasma concentrations, L.D. Paul, J. Welter-Luedeke, S. Penzel, A. Zangl, M. Graw, *Forensic Science International*, **2021**, 321, 110721. <https://doi.org/10.1016/j.forsciint.2021.110721>

The next generation of synthetic cannabinoids: Detection, activity, and potential toxicity of pent-4en and but-3en analogues including MDMB-4en-PINACA, A.J. Krotulski, A. Cannart, C. Stove, B.K. Logan, *Drug Testing and Analysis*, **2021**, 13, 427–38. <https://doi.org/10.1002/dta.2935>

Determination of synthetic cannabinoids in randomly urine samples collected from probationers in Turkey, A. Atasoy, N. Daglioglu, İ.E. Gören, A. Girisbay, R. Aslan, S.A. Akgur, *Forensic Science International*, **2021**, 322, 110752. <https://doi.org/10.1016/j.forsciint.2021.110752>

The novel psychoactive substance Cumyl-CH-MEGACLONE: Human phase-I metabolism, basic pharmacological characterization and comparison to other synthetic cannabinoid receptor agonists with a  $\gamma$ -carboline-1-one core, B. Haschimi, A. Giorgetti, L. Mogler, T.Z. Nagy, S. Kramer, S. Halter, S. Boros, A. Dobos, E. Hidvégi, V. Auwärter, *Journal of Analytical Toxicology*, **2021**, 45, 277–90. <https://doi.org/10.1093/jat/bkaa065>

Quantification of 5F-CUMYL-P7AICA in blood and urine from an authentic fatality associated with its consumption by UHPLC–MS/MS, M. Zawadzki, A. Chłopaś-Konowalek, K. Nowak, O. Wachełko, P. Szpot, *Forensic Toxicology*, **2021**, 39, 240–47. <https://doi.org/10.1007/s11419-020-00555-6>

Two fatalities involving Mebroqualone, K.M. Woods, *Journal of Analytical Toxicology*, **2021**, 45, 308–11. <https://doi.org/10.1093/jat/bkaa077>

Simultaneous determination of 10 new psychoactive piperazine derivatives in urine using ultrasound-assisted low-density solvent dispersive liquid-liquid microextraction combined with gas chromatography-tandem mass spectrometry, B. Zhu, L. Meng, J. Cao, W. Yang, X.A. Conlan, *Journal of Forensic Sciences*, **2021**, 66, 748–57. <https://doi.org/10.1111/1556-4029.14624>

Quantification of 54 benzodiazepines and Z-drugs, including 20 designer ones, in plasma, M. Degreef, L. Vits, E.M. Berry, K.E.K. Maudens, A.L.N. van Nuijs, *Journal of Analytical Toxicology*, **2021**, 45, 141–53. <https://doi.org/10.1093/jat/bkaa059>

The development and validation of a novel designer benzodiazepines panel by LC–MS–MS, R.A. Mastrovito, D.M. Papsun, B.K Logan, *Journal of Analytical Toxicology*, **2021**, 45, 423–28. <https://doi.org/10.1093/jat/bkab013>

Flualprazolam blood concentrations in 197 forensic investigation cases, D.M. Papsun, A.J. Krotulski, J. Homan, K.D.H. Temporal, B.K. Logan, *Journal of Analytical Toxicology*, **2021**, 45, 226–32. <https://doi.org/10.1093/jat/bkaa070>

Use of injection-port derivatization for the analysis of cocaine and its metabolites in urine by gas chromatography–tandem mass spectrometry, K.F. da Cunha, R. Lanaro, A.F. Martins, K.D. Oliveira, J.L. Costa, *Forensic Toxicology*, **2021**, 39, 222–29. <https://doi.org/10.1007/s11419-020-00545-8>

Validation of two methods for the quantitative analysis of Cocaine and Opioids in biological matrices using LCMSMS, R. Wagner, L. Moses, *Journal of Forensic Sciences*, **2021**, 66, 1124–35. <https://doi.org/10.1111/1556-4029.14647>

Measurement uncertainty in quantifying *delta*-9-Tetrahydrocannabinol (THC) in blood using SPE and LC/MS/MS, J.K. Klu, J.A. Officer, A. Park, R. Mudie, N. NicDaeid, *Forensic Science International*, **2021**, 322, 110744. <https://doi.org/10.1016/j.forsciint.2021.110744>

Quantification of methadone and its metabolites: EDDP and EMDP determined in autopsy cases using LC-MS/MS, K. Nowak, P. Szpot, T. Jurek, M. Zawadzki, *Journal of Forensic Sciences*, **2021**, 66, 1003–12. <https://doi.org/10.1111/1556-4029.14674>

High throughput detection of 327 drugs in blood by LC–MS–MS with automated data processing, M. Di Rago, S. Pantatan, M. Hargreaves, K. Wong, D. Mantinieks, A. Kotsos, L. Glowacki, O.H. Drummer, D. Gerostamoulos, *Journal of Analytical Toxicology*, **2021**, 45, 154–83. <https://doi.org/10.1093/jat/bkaa057>