

## Analytical Toxicology Literature Survey

Prepared by: Rodger L. Foltz

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Articles are ordered by book and journal title

1. "On-site Drug Testing", book edited by A.J. Jenkins and B.A. Goldberger, Humana Press, Totowa, NJ, 2002, 276 pages.
2. "A critical appraisal of capillary electrochromatography", K.K. Unger, M. Huber, K. Walhagen, T.P. Hennessy and M.T.W. Hearn, **Anal. Chem.**, 2002, **74**, 200A-7A.
3. "Liquid-phase microextraction combined with hollow fiber as a sample preparation technique prior to gas chromatography/mass spectrometry", L.M. Zhao and M.K. Lee, **Anal. Chem.**, 2002, **74**, 2486-92.
4. "Quantitation of amphetamine, methamphetamine, and their methylenedioxy derivatives in urine by solid-phase microextraction coupled with electrospray ionization-high-field asymmetric waveform ion mobility spectrometry-mass spectrometry", M.A. McCooeye, Z. Mester, B. Ells, D.A. Barnett, R.W. Purves and R. Guevremont, **Anal. Chem.**, 2002, **74**, 3071-5.
5. "On-fiber derivatization for direct immersion solid-phase microextraction. Part II. Acylation of amphetamine with pentafluorobenzyl chloride for urine analysis", E.H.M. Koster, C.H.P. Bruins and G.J. deJong, **Analyst**, 2002, **127**, 598-602.
6. "Isotopic characterisation of 3,4-methylenedioxymethamphetamine and 3,4-methylenedioxymethylamphetamine (Ecstasy)", J.F. Carter, E.L. Titterton, M. Murray and R. Sleeman, **Analyst**, 2002, **127**, 830-3.
7. "Current developments in LC/MS for pharmaceutical analysis", C.K. Lim, **Biol. Pharm. Bulletin**, 2002, **25**, 547-57.
8. "Modern GC/MS technology in the forensic laboratory", B. Aebi and W. Bernhard, **Chimia**, 2002, **56**, 48-52.
9. "The application of LC/MS in forensic toxicology", F.E. Dussy, C.H. Staubli and T.A. Briellmann, **Chimia**, 2002, **56**, 53-8.
10. "Hair analysis: a powerful tool for the screening of drugs of abuse", C. Girod and C. Staub, **Chimia**, 2002, **56**, 66-70.
11. "Determination of ethanol in blood: analytical aspects, quality control, and theoretical calculations for forensic applications", K. Sutter, **Chimia**, 2002, **56**, 59-62.
12. "Advances in MS-based approaches for drug and metabolism studies", J. Castro-Perez, J. Hoyes, H. Major and S. Preece, **Chromatographia**, 2002, **55**, S59-S63.
13. "Some experiences with a mass spectrometry data system validation", D. Browne, T. Thompson, D. Mole and R.D. McDowall, **Chromatographia**, 2002, **55**, S75-S78.
14. "Matrix effects and selectivity issues in LC/MS/MS", J. Smeraglia, S.F. Baldrey and D. Watson, **Chromatographia**, 2002, **55**, S95-S99.
15. "LC/MS/MS experiences with internal standards", J. Wieling, **Chromatographia**, 2002, **55**, S107-S113.
16. "A rapid GC/MS method for the determination of dihydrocodeine, codeine, norcodeine, morphine, normorphine and 6-MAM in urine", C. Meadway, S. George and R. Braithwaite, **Forensic Sci. Int.**, 2002, **127**, 136-41.
17. "Detection of antidepressant and antipsychotic drugs in human hair", M. Shen, P. Xiang, H. Wu, B. Shen and Z. Huang, **Forensic Sci. Int.**, 2002, **126**, 153-61.
18. "Determination of blood cyanide by HPLC-MS", A. Tracqui, J.S. Raul, A. Geraut, L. Berthelon and B. Ludes, **J. Anal. Toxicol.**, 2002, **26**, 144-8.
19. "Advances in the use of mass spectral libraries for forensic toxicology", B. Aebi and W. Bernhard, **J. Anal.**

- Toxicol.**, 2002, **26**, 149-56.
20. "Determination of MDMA and its metabolites in blood and urine by GC/MS and analysis of enantiomers by capillary electrophoresis", N. Pizarro, J. Ortuno, M. Farre, J. Segura and e. al., **J. Anal. Toxicol.**, 2002, **26**, 157-65.
21. "The simultaneous determination of codeine, morphine, hydrocodone, hydromorphone, 6-acetylmorphine, and oxycodone in hair and oral fluid", J. Jones, K. Tomlinson and C. Moore, **J. Anal. Toxicol.**, 2002, **26**, 171-5.
22. "Immunoassay screening of lysergic acid diethylamide (LSD) and its confirmation by HPLC and fluorescence detection following LSD ImmunElute extraction", T. Grobosch and U. Lemm-Ahlers, **J. Anal. Toxicol.**, 2002, **26**, 181-6.
23. "LC/MS analysis of human urine specimens for 2-oxo-3-hydroxy LSD: Method validation for potential interferants, and stability study of 2-oxo-3-hydroxy LSD under various storage conditions", K.L. Klette, C.K. Horn, P.R. Stout and C.J. Anderson, **J. Anal. Toxicol.**, 2002, **26**, 193-200.
24. "Detection of flunitrazepam and 7-aminoflunitrazepam in oral fluid after controlled administration of Rohypnol (R)", N. Samyn, G. DeBoeck, V. Cirimele, A. Verstraete and P. Kintz, **J. Anal. Toxicol.**, 2002, **26**, 211-15.
25. "Identification of 4-methylthioamphetamine and some of its metabolites in mouse urine by GC/MS after acute administration", H. Carmo, D. deBoer, F. Remiao, F. Carvalho, L.A. dosReys and M.D. Bastos, **J. Anal. Toxicol.**, 2002, **26**, 228-32.
26. "Comparison of urinary excretion characteristics of ethanol and ethyl glucuronide", H. Dahl, N. Stephanson, O. Beck and A. Helander, **J. Anal. Toxicol.**, 2002, **26**, 201-4.
27. "Determination of glycols in biological specimens by GC/MS", V. Gembus, J.-P. Gouille and C. Lacroix, **J. Anal. Toxicol.**, 2002, **26**, 280-5.
28. "Application of the CEDIA 6-MAM assay to routine drugs-of-abuse screening", C. George, S. George and S. Parmar, **J. Anal. Toxicol.**, 2002, **26**, 233-5.
29. "Excretion profiles of ethyl glucuronide in human urine after internal dilution", M. Gkoll, G. Schmitt, B. Ganssmann and R.E. Aderjan, **J. Anal. Toxicol.**, 2002, **26**, 262-6.
30. "Multiplex assay of amphetamine, methamphetamine, and ecstasy drug using CEDIA technology", R. Loor, C. Lingenfelter, P.P. Wason, K. Tang and D. Davoudzadeh, **J. Anal. Toxicol.**, 2002, **26**, 267-73.
31. "Simultaneous determination of viloxazine, venlafaxine, imipramine, desipramine, sertraline, and amoxapine in whole blood: Comparison of two extraction/cleanup procedures for capillary gas chromatography with nitrogen-phosphorus detection", M.A. Martinez, C.S. de la Torre and E. Almarza, **J. Anal. Toxicol.**, 2002, **26**, 296-302.
32. "Application of EMIT d.a.u. for the semiquantitative screening of methamphetamine incorporated in hair", A. Miki, M. Katagi and H. Tsuchihashi, **J. Anal. Toxicol.**, 2002, **26**, 274-9.
33. "Rapid simultaneous determination of amphetamine, methamphetamine, 3,4-methylenedioxymethamphetamine, 3,4-methylenedioxymethamphetamine, and 3,4-methylenedioxymethylamphetamine in urine by solid-phase extraction and GC/MS" A method optimized for high-volume laboratories", P.R. Stout, C.K. Horn and K.L. Klette, **J. Anal. Toxicol.**, 2002, **26**, 253-61.
34. "LC/MS/MS analysis of the neuroleptics clozapine, flupentixol, haloperidol, penfluridol, thioridazine, and zuclopenthixol in hair obtained from psychiatric patients", W. Weinmann, C. Muller, S. Vogt and A. Frei, **J. Anal. Toxicol.**, 2002, **26**, 303-7.
35. "Development and validation of a HPLC method for the determination of cocaine, its metabolites and ketamine", H.Z. Rofael and M.S. Abdel-Rahman, **J. Applied Toxicology**, 2002, **22**, 123-8.
36. "Monolithic silica columns for high-efficiency separations by high-performance liquid chromatography", A.M. Almeida, M.M. Castel-Branco and A.C. Falcao, **J. Chromatogr. A**, 2002, **960**, 85-96.
37. "Retention of ionizable compounds in high-performance liquid chromatography - 14. Acid-base pK values in

- acetonitrile-water mobile phases", S. Espinosa, E. Bosch and M. Roses, **J. Chromatogr. A**, 2002, **964**, 55-66.
38. "Recovery, enrichment and selectivity in liquid-phase microextraction - Comparison with conventional liquid-liquid extraction", T.S. Ho, S. Pedersen-Bjergaard and K.E. Rasmussen, **J. Chromatogr. A**, 2002, **963**, 3-17.
39. "Automated headspace solid-phase dynamic extraction for the determination of amphetamines and synthetic designer drugs in hair samples", F. Musshoff, D.W. Lachenmeier, L. Kroener and B. Madea, **J. Chromatogr. A**, 2002, **958**, 231-8.
40. "Comparison of conventional microparticulate and a monolithic reversed-phase column for high-efficiency fast liquid chromatography of basic compounds", D.V. McCalley, **J. Chromatogr. A**, 2002, **965**, 51-64.
41. "Monolithic silica columns for high-efficiency chromatographic separations [review article]", N. Tanaka, H. Kobayashi, N. Ishizuka, H. Minakuchi, K. Nakanishi, K. Hosoya and T. Ikegami, **J. Chromatogr. A**, 2002, **965**, 35-49.
42. "Ion suppression effects in liquid chromatography-electrospray-ionization transport-region collision induced dissociation mass spectrometry with different serum extraction methods for systematic toxicological analysis with mass spectra libraries", C. Muller, P. Schafer, M. Stortzel, S. Vogt and W. Weinmann, **J. Chromatogr. B**, 2002, **773**, 47-52.
43. "Studies on the metabolism and toxicological detection of the new designer drug 4'-methyl- - pyrrolidinopropiophenone in urine using GC/MS", D. Springer, F.T. Peters, G. Fritschi and H.H. Maurer, **J. Chromatogr. B**, 2002, **773**, 25-33.
44. "Studies on the metabolism and toxicological detection of the new designer drug N-benzylpiperazine in urine using GC/MS", R.F. Staack, G. Fritschi and H.H. Maurer, **J. Chromatogr. B**, 2002, **773**, 35-46.
45. "Confirmation of cocaine exposure by GC/MS of urine extracts after methylation of benzoylecgonine", M. Yonamine and O.A. Silva, **J. Chromatogr. B**, 2002, **773**, 83-7.
46. "Determination of ketoconazole in human plasma by high-performance liquid chromatography-tandem mass spectrometry", Y.-L. Chen, L. Felder, X. Jiang and W. Naidong, **J. Chromatogr. B**, 2002, **774**, 67-78.
47. "A sensitive gas chromatographic/mass spectrometric method for the resolution and quantification of ethosuximide enantiomers in biological fluids", L. Sghendo, J. Mifsud, R. EllulMicallef, J. Portelli and J.S. Millership, **J. Chromatogr. B**, 2002, **772**, 307-15.
48. "Validation and application of a sensitive assay for butorphanol in human plasma by high-performance liquid chromatography with tandem mass spectrometry detection", D.W. Boulton, G.F. Duncan and N.N. Vachharajani, **J. Chromatogr. B**, 2002, **775**, 57-62.
49. "Optimization of the separation of lysergic acid diethylamide in urine by a sweeping technique using micellar electrokinetic chromatography", C. Fang, J.-T. Liu and C.-H. Lin, **J. Chromatogr. B**, 2002, **775**, 37-47.
50. "Validation of the determination of oxymetholone in human plasma analysis using gas chromatography-mass spectrometry - Application to pharmacokinetic studies", C. Rodrigues Cardoso, M.A. Spoli Marques, R. Carvalho Caminha, M.C. Maioli and F.R. Aquino Neto, **J. Chromatogr. B**, 2002, **775**, 1-8.
51. "Determination of clenbuterol in human urine by GC/MS/MS/MS: confirmation analysis in antidoping control", L. Amendola, C. Colamonici, F. Rossi and F. Botre, **J. Chromatogr. B**, 2002, **773**, 7-16.
52. "Simultaneous determination of in total 17 opium alkaloids and opioids in blood and urine by fast liquid chromatography-diode-array detection-fluorescence detection, after solid-phase extraction", R. Dams, T. Benijts, W.E. Lambert and A.P. DeLeenheer, **J. Chromatogr. B**, 2002, **773**, 53-61.
53. "Screening, library-assisted identification and validated quantification of oral antidiabetics of the sulfonylurea-type in plasma by atmospheric pressure chemical ionization liquid chromatography-mass spectrometry", H.H. Maurer, C. Kratzsch, T. Kraemer, F.T. Peters and A.A. Weber, **J. Chromatogr. B**, 2002, **773**, 63-73.

54. "GC/MS determination of pyrolysis products from diacetylmorphine and adulterants of street heroin samples", R. Brenneisen and F. Hasler, **J. Forensic Sci.**, 2002, **47**, 885-8.
55. "Analogs as internal standards for quantitative GC/MS analysis - molecular abundance and retention time difference as interference factors", W.-T. Chang, J. Smith and R.H. Liu, **J. Forensic Sci.**, 2002, **47**, 873-81.
56. "Quantitative gas chromatographic/mass spectrometric analysis of morphine glucuronides in human plasma by negative ion chemical ionization mass spectrometry", H.J. Leis, G. Fauler, G. Raspotnig and W. Windischhofer, **J. Mass Spectrometry**, 2002, **37**, 395-400.
57. "Effects of liquid chromatography mobile phase buffer contents on the ionization and fragmentation of analytes in liquid chromatographic/ionspray tandem mass spectrometric determination", J.J. Zhao, A.Y. Yang and J.D. Rogers, **J. Mass Spectrometry**, 2002, **37**, 421-33.
58. "Identification of anhydroecgonine methyl ester N-oxide, a new metabolite of anhydroecgonine methyl ester, using electrospray mass spectrometry", A.S. Fandino, M. Karas, S.W. Toennes and G. Kauert, **J. Mass Spectrometry**, 2002, **37**, 525-32.
59. "Development of validated stability-indicating assay methods - critical review", M. Bakshi and S. Singh, **J. Pharmaceut. Biomed. Anal.**, 2002, **28**, 1011-40.
60. "Simultaneous development of six LC/MS/MS methods for the determination of multiple analytes in human plasma", N.D. Weng, H.Z. Bu, Y.L. Chen, W.Z. Shou, X.Y. Jiang and T.D.J. Halls, **J. Pharmaceut. Biomed. Anal.**, 2002, **28**, 1115-26.
61. "Simultaneous analysis of flunitrazepam and its major metabolites in human plasma by HPLC tandem mass spectrometry", M. Kollroser and C. Schober, **J. Pharmaceut. Biomed. Anal.**, 2002, **28**, 1173-82.
62. "An efficient approach to column selection in HPLC method development", C.S. Young and R.J. Weigand, **LC-GC**, 2002, **20**, 464-73.
63. "Tandem mass spectrometry and newborn screening: Pilot data and review", J.J. Filiano, S.G. Bellimer and P.L. Kunz, **Pediat. Neurol.**, 2002, **26**, 201-4.
64. "Gas chromatography/negative ion chemical ionization mass spectrometry for the quantitative analysis of morphine in human plasma using pentafluorobenzyl carbonate derivatives", H.J. Leis, W. Windischhofer and G. Fauler, **Rapid Commun. Mass Spectrom.**, 2002, **16**, 646-9.
65. "Endogenous nandrolone metabolites in human urines: preliminary results to discriminate between endogenous and exogenous origin", B. Le Bizec, F. Bryand, I. Gaudin, F. Monteau, F. Poulaing and F. Andre, **Steroids**, 2002, **67**, 105-10.
66. "Role of chiral chromatography in therapeutic drug monitoring and in clinical and forensic toxicology", M.L. Williams and I.W. Wainer, **Therapeutic Drug Monitoring**, 2002, **24**, 290-6.
67. "Forensic toxicology: web resources", B.A. Goldberger and A. Polettini, **Toxicology**, 2002, **173**, 97-102.

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**Prepared by:** Rodger L. Foltz

**Period Surveyed:** August 1, 2002 to October 31, 2002

Articles are ordered by journal/book

1. "Selective detection of biogenic amines using capillary electrochromatography with an on-column derivatization technique", S. Oguri, Y. Yoneya, M. Mizunuma, Y. Fujiki, K. Otsuka and S. Terabe, **Anal. Chem.**, 2002, **74**, 3463-9.
2. "Retention of ionizable compounds on HPLC. 12. The properties of liquid chromatography buffers in acetonitrile-water mobile phases that influence HPLC retention", S. Espinosa, E. Bosch and M. Roses, **Anal. Chem.**, 2002, **74**, 3809-18.
3. "Detection limit of isotope dilution mass spectrometry", L.L. Yu, J.D. Fassett and W.F. Guthrie, **Anal. Chem.**, 2002, **74**, 3887-91.
4. "Heating or cooling LC columns", T. Greibrokk, **Anal. Chem.**, 2002, **74**, 374A-9A.
5. "Quantitation of amphetamine, methamphetamine and their methylenedioxy derivatives in urine by solid-phase microextraction coupled with electrospray ionization-high-field asymmetric waveform ion mobility spectrometry-mass spectrometry", M.A. McCooeye, Z. Mester, B. Ells, D.A. Barnett, R.W. Purves and R. Guevremont, **Anal. Chem.**, 2002, **74**, 3071-5.
6. "Sonic spray ionization technology: Performance study and application to LC/MS analysis on a monolithic silica column for heroin impurity profiling", R. Dams, T. Benijts, W. Gunther, W. Lambert and A. De Leenheer, **Anal. Chem.**, 2002, **74**, 3206-12.
7. "High-speed liquid chromatography by simultaneous optimization of temperature and eluent composition", J.D. Thompson and P.W. Carr, **Anal. Chem.**, 2002, **74**, 4150-9.
8. "Potential application of gas chromatography/tandem mass spectrometry in the measurement of coeluting isomers", E.Y. Zeng, C.C. Chou and C. Yu, **Anal. Chem.**, 2002, **74**, 4513-8.
9. "Simultaneous determination of fentanyl and midazolam in plasma using direct solid-phase microextraction before gas chromatography-mass spectrometry analysis", C. Dufresne, P. Favetta, R. Gonin, J. Bureau and J. Guitton, **Anal. Lett.**, 2002, **35**, 1575-90.
10. "One step and highly sensitive headspace solid-phase microextraction sample preparation approach for the analysis of methamphetamine and amphetamine in human urine", M.K. Huang, C.R. Liu and S.D. Huang, **Analyst**, 2002, **127**, 1203-6.
11. "Automated liner exchange - A novel approach in direct thermal desorption - gas chromatography", J.A. deKoning, P. Blokker, P. Jungel, G. Alkema and U.A.T. Brinkman, **Chromatographia**, 2002, **56**, 185-90.
12. "Validation of a high-throughput liquid chromatography-tandem mass spectrometry method for urinary cortisol and cortisone", R.L. Taylor, D. Machacek and R.J. Singh, **Clin. Chem.**, 2002, **48**, 1511-9.
13. "Short-term stability of lysergic acid diethylamide (LSD), N-desmethyl-LSD, and 2-oxo-3-hydroxy-LSD in urine, assessed by liquid chromatography-tandem mass spectrometry", G. Skopp, L. Potsch, R. Mattern and R. Aderjan, **Clin. Chem.**, 2002, **48**, 1615-8.
14. "Drug testing in blood: Validated negative-ion chemical ionization gas chromatographic-mass

spectrometric assay for determination of amphetamine and methamphetamine enantiomers and its application to toxicology cases”, F.T. Peters, T. Kraemer and H.H. Maurer, **Clin. Chem.**, 2002, **48**, 1472-85.

15. “Simultaneous analysis of nicotine, nicotine metabolites, and tobacco alkaloids in serum or urine by tandem mass spectrometry, with clinically relevant metabolic profiles”, T.P. Moyer, J.R. Charlson, R.J. Enger, L.C. Dale, J.O. Ebbert, D.R. Schroeder and R.D. Hurt, **Clin. Chem.**, 2002, **48**, 1460-71.
16. “Validation of the phenylalanine/tyrosine ratio determined by tandem mass spectrometry: Sensitive newborn screening for phenylketonuria”, U. Ceglarek, P. Muller, B. Stach, P. Buhrdel, J. Thiery and W. Kiess, **Clin. Chem. Lab. Med.**, 2002, **40**, 693-7.
17. “Application of tandem mass spectrometry to biochemical genetics and newborn screening”, K.H. Carpenter and V. Wiley, **Clin. Chim. Acta**, 2002, **322**, 1-10.
18. “The validity of drug use self-reports among hard core drug users in a household survey in Puerto Rico: comparison of survey responses of cocaine and heroin use with hair tests”, H.M. Colon, R.R. Robles and H. Sahai, **Drug Alcohol Dependence**, 2002, **67**, 269-79.
19. “One-step liquid-liquid extraction of cocaine from urine samples for gas chromatographic analysis”, M. Farina, M. Yonamine and O.A. Silva, **Forensic Sci. Int.**, 2002, **127**, 204-7.
20. “Determination of endogenous gamma-hydroxybutyric acid (GHB) levels in antemortem urine and blood”, A.A. Elian, **Forensic Sci. Int.**, 2002, **128**, 120-2.
21. “Analysis of dimethylamphetamine and its metabolites in human urine by liquid chromatography-electrospray ionization-mass spectrometry with direct sample injection”, M. Sato, M. Hida and H. Nagase, **Forensic Sci. Int.**, 2002, **128**, 146-54.
22. “Quantitation using GC-TOF-MS: example of bromazepam”, B. Aebi, R. Sturny-Jungo, W. Bernhard, R. Blanke and R. Hirsch, **Forensic Sci. Int.**, 2002, **128**, 84-9.
23. “Hair analysis for Δ9-THC, Δ9-THC-COOH, CBN and CBD, by GC/EI-MS Comparison with GC/MS-NCI for Δ9-THC-COOH”, M.J. Baptista, P.V. Monsanto, E.G. Marques, et al., **Forensic Sci. Int.**, 2002, **128**, 66-78.
24. “Determination of ethyl glucuronide in human hair by SPE and LC/MS/MS”, I. Janda, W. Weinmann, T. Kuehnle, M. Lahode and A. Alt, **Forensic Sci. Int.**, 2002, **128**, 59-65.
25. “Hair analysis for opiates, cocaine and metabolites - Evaluation of a method by interlaboratory comparison”, M. Montagna, A. Polettini, C. Stramesi, A. Groppi and C. Vignali, **Forensic Sci. Int.**, 2002, **128**, 79-83.
26. “Plasma, oral fluid and sweat wipe ecstasy concentrations in controlled and real life conditions”, N. Samyn, G. De Boeck, M. Wood, C.T.J. Lamers, D. De Waard, K.A. Brookhuis, A.G. Verstraete and W.J. Riedel, **Forensic Sci. Int.**, 2002, **128**, 90-7.
27. “Validated assay for quantification of oxcarbazepine and its active dihydro metabolite 10-hydroxycarbazepine in plasma by atmospheric pressure chemical ionization liquid chromatography/mass spectrometry”, H.H. Maurer, C. Kratzsch, A.A. Weber, F.T. Peters and T. Kraemer, **J. Mass Spectrometry**, 2002, **37**, 687-692.
28. “LC-MS determination of oxydemeton-methyl and its main metabolite demeton-S-methylsulfone in biological specimens - Application to a forensic case”, J. Beike, C. Ortmann, T. Meiners, B. Brinkmann

and H. Kohler, **J. Anal. Toxicol.**, 2002, **26**, 308-12.

29. "Extraction of amphetamine and methamphetamine from urine specimens with Cerex Polycrom Clin II solid-phase extraction columns and the Speedisk 48 pressure processor", M. Churley, P.V. Robandt, J.A. Kuhnle, T.P. Lyons and M.R. Bruins, **J. Anal. Toxicol.**, 2002, **26**, 347-54.
30. "Application of LC/MS analysis to a colchicine fatality", G.R. Jones, P.P. Singer and B. Bannach, **J. Anal. Toxicol.**, 2002, **26**, 365-9.
31. "Simultaneous determination of nitrate and nitrite in human plasma by GC/MS", S. Kage, K. Kudo and N. Ikeda, **J. Anal. Toxicol.**, 2002, **26**, 320-4.
32. "Intra- and interindividual variations in urinary concentrations of endogenous gamma-hydroxybutyrate", M.Z. LeBeau, R.H. Christenson, B. Levine, W.D. Darwin and M.A. Huestis, **J. Anal. Toxicol.**, 2002, **26**, 340-6.
33. "Determination of capsaicin, nonivamide, and dihydrocapsaicin in blood and tissue by liquid chromatography/tandem mass spectrometry", C.A. Reilly, D.J. Crouch, G.S. Yost and A.A. Fatah, **J. Anal. Toxicol.**, 2002, **26**, 313-9.
34. "A general screening method for acidic, neutral, and basic drugs in whole blood using the Oasis MCX column", J. Yawney, S. Treacy, K.W. Hindmarsh and F.J. Burczynski, **J. Anal. Toxicol.**, 2002, **26**, 325-32.
35. "Preparation of immunoaffinity columns for direct enantiomeric separation of amphetamine and/or methamphetamine", A.C. Lua and T.Y. Chou, **J. Chromatogr. A**, 2002, **967**, 191-9.
36. "Bio-compatible in-tube solid-phase microextraction capillary for the direct extraction and high-performance liquid chromatographic determination of drugs in human serum", W.M. Mullett, K. Levsen, D. Lubda and J. Pawliszyn, **J. Chromatogr. A**, 2002, **963**, 325-34.
37. "A mass spectral library based on chemical ionization and collision-induced dissociation", P.G.M. Kienhuis and R.B. Geerdink, **J. Chromatogr. A**, 2002, **974**, 161-8.
38. "Use of a novel cation-exchange restricted-access material for automated sample clean-up prior to the determination of basic drugs in plasma by liquid chromatography", P. Chiap, O. Rbeida, B. Christiaens, P. Hubert, D. Lubda, K.-S. Boos and J. Crommen, **J. Chromatogr. A**, 2002, **975**, 145-55.
39. "Rapid diagnosis of phenylketonuria and other aminoacidemias by quantitative analysis of amino acids in neonatal blood spots by gas chromatography-mass spectrometry", C.H. Deng, C.Q. Shang, Y.M. Hu and X.M. Zhang, **J. Chromatogr. B**, 2002, **775**, 115-20.
40. "Simple method for determination of paraquat in plasma and serum of human patients by high-performance liquid chromatography", P. Paixao, P. Costa, T. Bugalho, C. Fidalgo and L.M. Pereira, **J. Chromatogr. B**, 2002, **775**, 109-13.
41. "Simultaneous, quantitative determination of opiates, amphetamines, cocaine and benzoylecgonine in oral fluid by liquid chromatography quadrupole-time-of-flight mass spectrometry", K.A. Mortier, K.E. Maudens, W.E. Lambert, K.M. Clauwaert, J.F. Van Boclaer, D.L. Deforce, C.H. Van Peteghem and A.P. De Leenheer, **J. Chromatogr. B**, 2002, **779**, 321-30.
42. "Direct extract derivatization for determination of amino acids in human urine by gas chromatography and mass spectrometry", A. Namera, M. Yashiki, M. Nishida and T. Kojima, **J. Chromatogr. B**, 2002, **776**, 49-55.

43. "Application of gas chromatography-surface ionization organic mass spectrometry to forensic toxicology", A. Ishii, K. Watanabe-Suzuki, H. Seno, O. Suzuki and Y. Katsumata, **J. Chromatogr. B**, 2002, **776**, 3-14.
44. "Rapid and sensitive method for prenatal diagnosis of propionic acidemia using stable isotope dilution gas chromatography-mass spectrometry and urease pretreatment", Y. Inoue and T. Kuhara, **J. Chromatogr. B**, 2002, **776**, 71-7.
45. "Liquid chromatographic-mass spectrometric determination of haloperidol and its metabolites in human plasma and urine", T. Arinobu, H. Hattori, M. Iwai, A. Ishii, T. Kumazawa, O. Suzuki and H. Seno, **J. Chromatogr. B**, 2002, **776**, 107-13.
46. "Simple and sensitive method for the determination of chlorpheniramine maleate in human plasma using liquid chromatography-mass spectrometry", T. Takagaki, M. Matsuda, Y. Mizuki and Y. Terauchi, **J. Chromatogr. B**, 2002, **776**, 169-76.
47. "Simultaneous detection of amphetamine-like drugs with headspace solid-phase microextraction and GC/MS", S. Gentili, A. Torresi, R. Marsili, M. Chiarotti and T. Macchia, **J. Chromatogr. B**, 2002, **780**, 183-92.
48. "Determination of methylnaltrexone in clinical samples by solid-phase extraction and HPLC for pharmacokinetic study", J. Osinski, A. Wang, J.A. Wu, J.F. Foss and C.-S. Yuan, **J. Chromatogr. B**, 2002, **780**, 251-9.
49. "Validation of liquid chromatographic method for the determination of ibuprofen in human plasma", H. Farrar, L. Letzig and M. Gill, **J. Chromatogr. B**, 2002, **780**, 341-8.
50. "Direct injection micellar liquid chromatographic determination of benzodiazepines in serum", M.-E. Capella-Peiro, D. Bose, A. Martinavarro-Domnguez, M. Gil-Agust and J. Esteve-Romero, **J. Chromatogr. B**, 2002, **780**, 241-9.
51. "Fully automated determination of amphetamines and synthetic designer drugs in hair samples using headspace solid-phase microextraction and gas chromatography-mass spectrometry", F. Musshoff, H.P. Junker, D.W. Lachenmeier, L. Kroener and B. Madea, **J. Chromatogr. Sci.**, 2002, **40**, 359-64.
52. "The diagnosis of congenital adrenal hyperplasia in the newborn by gas chromatography/ mass spectrometry analysis of random urine specimens", M.P. Caulfield, T. Lynn, M.E. Gottschalk, K.L. Jones, N.F. Taylor, E.M. Malunowicz, C.H.L. Shackleton, R.E. Reitz and D.A. Fisher, **J. Clin. Endocrinol. Metab.**, 2002, **87**, 3682-90.
53. "Liquid chromatography/mass spectrometry in anabolic steroid analysis-optimization and comparison of three ionization techniques: electrospray ionization, atmospheric pressure chemical ionization and atmospheric pressure photoionization", A. Leinonen, T. Kuuranne and R. Kostiainen, **J. Mass Spectrometry**, 2002, **37**, 693-8.
54. "Development and validation of a reversed-phase liquid chromatographic method for the assay of lidocaine in aqueous humour samples", L. Manna, P. Bertocchi, L. Valvo and A. Bardocci, **J. Pharmaceut. Biomed. Anal.**, 2002, **29**, 1121-6.
55. "Determination of amphetamines in human whole blood by capillary electrophoresis with photodiode array detection", G. Boatto, M.V. Faedda, A. Pau, B. Asproni, S. Menconi and R. Cerri, **J. Pharmaceut. Biomed. Anal.**, 2002, **29**, 1073-80.

56. "Simultaneous determination of seven tricyclic antidepressant drugs in human plasma by direct-injection HPLC-APCI-MS-MS with an ion trap detector", M. Kollroser and C. Schober, **Ther. Drug Monit.**, 2002, **24**, 537-44.

57. "Urinary excretion of selegiline N-oxide, a new indicator for selegiline administration in man", M. Katagi, M. Tatsuno, H. Tsutsumi, A. Miki, T. Kamata, H. Nishioka, K. Nakajima, M. Nishikawa and H. Tsuchihashi, **Xenobiotica**, 2002, **32**, 823-31.

## Analytical Toxicology Literature Survey

**Prepared by:** Rodger L. Foltz

**Period Surveyed:** November 1, 2002 to January 31, 2003      Articles are ordered by journal/book

1. "Bioanalytical method validation and its implications for forensic and clinical toxicology - A review", F.T. Peters and H.H. Maurer, **Accreditation and Quality Assurance**, 2002, **7**, 441-9.

2. "Isotopically labeled analogues for drug quantitation", R.H. Liu, D.-L. Lin, W.-T. Chang, C.R. Liu, et al., **Anal. Chem.**, 2002, **74**, 618A-26A.

3. "Internal standard signal suppression by co-eluting analyte in isotope dilution LC-ESI-MS", L.E. Sojo, G. Lum and P. Chee, **Analyst**, 2003, **128**, 51-4.

4. "Solid-phase extraction in clinical biochemistry", V. Walker and G.A. Mills, **Ann. Clin. Biochem.**, 2002, **39**, 464-77.

5. "The application of tandem mass spectrometry to neonatal screening for inherited disorders of intermediary metabolism", D.H. Chace, T.A. Kalas and E.W. Naylor, **Ann. Rev. Genomic Hum. Genet.**, 2002, **3**, 17-45.

6. "Simultaneous HPLC determination of 5-fluorouracil and its metabolites in plasma of cancer patients", F. Casale, R. Canaparo, E. Muntoni, L. Serpe, G.P. Zara, C.D. Pepa, E. Berno, M. Costa and M. Eandi, **Biomed. Chromatogr.**, 2002, **16**, 446-52.

7. "Testing for nandrolone metabolites in urine samples of professional athletes and sedentary subjects by GC/MS/MS analysis", C. Gambelunghe, M. Sommavilla and R. Rossi, **Biomed. Chromatogr.**, 2002, **16**, 508-12.

8. "Screening for 18 diuretics and probenecid in doping analysis by liquid chromatography-tandem mass spectrometry", K. Deventer, F.T. Delbeke, K. Roels and P. Van Eenoo, **Biomed. Chromatogr.**, 2002, **16**, 529-35.

9. "Enantiomeric separation of amphetamine and related compounds by liquid chromatography using precolumn derivatization with o-phthaldialdehyde", R. Herraez-Hernandez, P. Campins-Falco and J. Verdu-Andres, **Chromatographia**, 2002, **56**, 559-65.

10. "Use of on-site testing for drugs of abuse", S. George and R.A. Braithwaite, **Clin. Chem.**, 2002, **48**, 1639-46.

11. "Duration of detectable methamphetamine and amphetamine excretion in urine after controlled oral administration of methamphetamine to humans", J.M. Oyler, E.J. Cone, R.E. Joseph, E.T. Moolchan and M.A. Huestis, **Clin. Chem.**, 2002, **48**, 1703-14.

12. "Candida albicans in urine can produce testosterone: Impact on the testosterone/epitestosterone sports drug test", A.T. Kicman, J.K. Fallon, D.A. Cowan, C. Walker, S. Easmon and D. Mackintosh, **Clin. Chem.**, 2002, **48**, 1799-801.

13. "The changing face of newborn screening: diagnosis of inborn errors of metabolism by tandem mass spectrometry", P.M. Jones and M.J. Bennett, **Clin. Chim Acta**, 2002, **324**, 121-8.
14. "Drug and chemical metabolites in clinical toxicology investigations: The importance of ethylene glycol, methanol and cannabinoid metabolite analyses", A.D. Fraser, L. Coffin and D. Worth, **Clin. Biochem.**, 2002, **35**, 501-11.
15. "Comprehensive screening of urine samples for inborn errors of metabolism by electrospray tandem mass spectrometry", J.J. Pitt, M. Egginton and S.G. Kahler, **Clin. Chem.**, 2002, **48**, 1970-80.
16. "Excretion and detection of cathinone, cathine, and phenylpropanolamine in urine after kath chewing", S.W. Toennes and G.F. Kauert, **Clin. Chem.**, 2002, **48**, 1715-9.
17. "Recent advances in the cannabinoids", J. Adam and P. Cowley, **Expert Opin. Ther. Patents**, 2002, **12**, 1475-89.
18. "Quantitative analysis of tropane alkaloids in biological materials by GC/MS", A. Namera., M. Yashiki, Y. Hirose, S. Yamaji, et al., **Forensic Sci. Int.**, 2002, **130**, 34-43.
19. "Collision-induced dissociations of trimethylsilylated lysergic acid diethylamide (LSD) in ion trap multiple stage mass spectrometry", D. Libong and S. Bouchonnet, **Int. J. Mass Spectrom.**, 2002, **219**, 615-24.
20. "Clinical assay of nicotine and its metabolite, cotinine, in body fluids by HPLC following solid-phase extraction", I.N. Papadoyannis, V.F. Samanidou and P.G. Stefanidou, **J. Liq. Chromatogr. Relat. Techno.**, 2002, **25**, 2315-35.
21. "Simple generic SPE assay for HPLC analysis of morphine and its glucuronides in serum samples", E. Brandsteterova, E. Blahova and J. Netriova, **J. Liq. Chromatogr. Relat. Techno.**, 2002, **25**, 2521-34.
22. "Application of very short monolithic columns for separation of low and high molecular mass substances", A. Podgornik, M. Barut, S. Jaksa, J. Jancar and A. Strancar, **J. Liq. Chromatogr. Relat. Techno.**, 2002, **25**, 3099-116.
23. "Simultaneous determination of amphetamine and one of its metabolites by HPLC with electrochemical detection", N.A. Santagati, G. Ferrara, A. Marrazzo and G. Ronsisvalle, **J. Pharmaceut. Biomed. Anal.**, 2002, **30**, 247-55.
24. "A sensitive LC/MS/MS assay for the determination of dextromethorphan and metabolites in human urine - application for drug interaction studies assessing potential CYP3A and CYP2D6 inhibition", S.S. Vengurlekar, J. Heitkamp, F. McCush, P.R. Velagaleti, J.H. Brisson and S.L. Bramer, **J. Pharmaceut. Biomed. Anal.**, 2002, **30**, 113-24.
25. "Evaluation of an improved general unknown screening procedure using liquid-

- chromatography-electrospray-mass spectrometry by comparison with gas chromatography and high-performance liquid-chromatography-diode array detection”, F. Saint-Marcoux, G. Lachatre and P. Marquet, **J. Amer. Soc. Mass Spectrom.**, 2003, **14**, 14-22.
26. “Quantitative analysis of selegiline and three metabolites (N-desmethylselegiline, methamphetamine, and amphetamine) in human plasma by high-performance liquid chromatography-atmospheric pressure chemical ionization-tandem mass spectrometry”, M.H. Slawson, J.L. Taccogno, R.L. Foltz and D.E. Moody, **J. Anal. Toxicol.**, 2002, **26**, 430-7.
27. “Evaluation of a solid-phase extraction method for benzoylecgonine urine analysis in a high-throughput forensic urine drug-testing laboratory”, P.R. Stout, J.M. Gehlhausen, C.K. Horn and K.L. Klette, **J. Anal. Toxicol.**, 2002, **26**, 401-5.
28. “Improved screen and confirmation test of 7-aminoflunitrazepam in urine specimens for monitoring flunitrazepam (Rohypnol) exposure”, P.H. Wang, C.R. Liu, W.I. Tsay, J.H. Li, et al., **J. Anal. Toxicol.**, 2002, **26**, 411-8.
29. “Deposition of 7-aminoclonazepam and clonazepam in hair following a single dose of Klonopin”, A. Negrusz, A.M. Bowen, C.M. Moore, S.M. Dowd, M.J. Strong and P.G. Janicak, **J. Anal. Toxicol.**, 2002, **26**, 471-8.
30. “Segmental ion spray LC/MS/MS analysis of benzodiazepines in hair of psychiatric patients”, R. Kronstrand, I. Nystrom, M. Josefsson and S. Hodgins, **J. Anal. Toxicol.**, 2002, **26**, 479-84.
31. “An evaluation of two wash procedures for the differentiation of external contamination versus ingestion in the analysis of human hair samples for cocaine”, M.I. Schaffer, W.L. Wang and J. Irving, **J. Anal. Toxicol.**, 2002, **26**, 485-8.
32. “Detection of cocaine analytes and opiates in nails from postmortem cases”, D.A. Engelhart and A.J. Jenkins, **J. Anal. Toxicol.**, 2002, **26**, 489-92.
33. “A field evaluation of five on-site drug-testing devices”, D.J. Crouch, R.K. Hersch, R.F. Cook, J.F. Frank and J.M. Walsh, **J. Anal. Toxicol.**, 2002, **26**, 493-9.
34. “An evaluation of the OnTrak Testcup (R)-er on-site urine drug-testing device for drugs commonly encountered from emergency departments”, M.R. Peace, J.L. Poklis, L.D. Tarnai and A. Poklis, **J. Anal. Toxicol.**, 2002, **26**, 500-3.
35. “Choice of an ELISA assay for screening postmortem blood for amphetamine and/or methamphetamine”, T. Kupiec, L. DeCicco, V. Spiehler, G. Snead and P. Kemp, **J. Anal. Toxicol.**, 2002, **26**, 513-8.
36. “Comparison of EMIT (R) II, CEDIA (R), and DPC (R) RIA assays for the detection of lysergic acid diethylamide in forensic urine samples”, R.F. Wiegand, K.L. Klette, P.R. Stout and J.M. Gehlhausen, **J. Anal. Toxicol.**, 2002, **26**, 519-23.

37. "Differentiation of the 2,3-methylenedioxy regiosomer of 3,4-MDMA (Ecstasy) by gas chromatography-mass spectrometry", J.T. Cody and S. Valtier, **J. Anal. Toxicol.**, 2002, **26**, 537-9.
38. "Simultaneous quantitation of opioids in blood by GC/EI-MS analysis following deproteination, detautomerization of keto analytes, solid-phase extraction, and trimethylsilyl derivatization", J.D. Ropero-Miller, M.K. Lambing and R.E. Winecker, **J. Anal. Toxicol.**, 2002, **26**, 524-8.
39. "Effects of oxidizing adulterants on detection of 11-nor-delta(9)-THC-9-carboxylic acid in urine", B.D. Paul and A. Jacobs, **J. Anal. Toxicol.**, 2002, **26**, 460-3.
40. "Oral fluid testing for drugs of abuse: Positive prevalence rates by Intercept (TM) immunoassay screening and GC-MS-MS confirmation and suggested cutoff concentrations", E.J. Cone, L. Presley, M. Lehrer, W. Seiter, M. Smith, K.W. Kardos, D. Fritch, S. Salamone and R.S. Niedbala, **J. Anal. Toxicol.**, 2002, **26**, 541-6.
41. "Fully automated determination of cannabinoids in hair samples using headspace solid-phase microextraction and gas chromatography-mass spectrometry", F. Musshoff, H.P. Junker, D.W. Lachenmeier, L. Kroener and B. Madea, **J. Anal. Toxicol.**, 2002, **26**, 554-60.
42. "Acetylcodeine as a urinary marker to differentiate the use of street heroin and pharmaceutical heroin", R. Brenneisen, F. Hasler and D. Wursch, **J. Anal. Toxicol.**, 2002, **26**, 561-6.
43. "Studies on in vitro degradation of anhydroecgonine methyl ester (Methylecgonidine) in human plasma", A.S. Fandino, S.W. Toennes and G.F. Kauert, **J. Anal. Toxicol.**, 2002, **26**, 567-70.
44. "Determination of delta(9)-THC in whole blood using gas chromatography-mass spectrometry", M.H.C. Chu and O.H. Drummer, **J. Anal. Toxicol.**, 2002, **26**, 575-81.
45. "LC/MS analysis of serotonergic drugs", K. Goeringer, I.M. McIntyre and O.H. Drummer, **J. Anal. Toxicol.**, 2003, **27**, 30-5.
46. "A selective and sensitive method for quantitation of lysergic acid diethylamide (LSD) in whole blood by gas chromatography-ion trap tandem mass spectrometry", D. Libong, S. Bouchonnet and I. Ricodel, **J. Anal. Toxicol.**, 2003, **27**, 24-9.
47. "Direct screening of urine for MDMA and MDA by liquid chromatography-tandem mass spectrometry", H.K. Nordgren and O. Beck, **J. Anal. Toxicol.**, 2003, **27**, 15-9.
48. "Interindividual dose/concentration relationship for methadone in hair", S. Paterson, R. Cordero, M. McPhillips and S. Carman, **J. Anal. Toxicol.**, 2003, **27**, 20-3.
49. "Urinary concentrations of morphine and codeine after consumption of poppy seeds", M. Thevis, G. Opfermann and W. Schanzer, **J. Anal. Toxicol.**, 2003, **27**, 53-6.

50. "A general unknown screening procedure for drugs and toxic compounds in serum using liquid chromatography-electrospray-single quadrupole mass spectrometry", N. Venisse, R. Marquet, E. Duchoslav, J.L. Dupuy and G. Lachatre, **J. Anal. Toxicol.**, 2003, **27**, 7-14.
51. "A study of urinary endogenous gamma-hydroxybutyrate (GHB) levels", D.T. Yeatman and K. Reid, **J. Anal. Toxicol.**, 2003, **27**, 40-2.
52. "In vitro production of gamma-hydroxybutyrate in antemortem urine samples", S. Kerrigan, **J. Anal. Toxicol.**, 2002, **26**, 571-4.
53. "Disposition of cocaine in skin, interstitial fluid, sebum, and stratum corneum", L. Lester, N. Uemura, J. Ademola, M.R. Harkey, R.P. Nath, S.J. Kim, E. Jerschow, G.L. Henderson, J. Mendelson and R.T. Jones, **J. Anal. Toxicol.**, 2002, **26**, 547-53.
54. "Influence of mobile phase acid-base equilibria on the chromatographic behaviour of protolytic compounds [review article]", M. Roses and E. Bosch, **J. Chromatogr. A**, 2002, **982**, 1-30.
55. "Characterisation of reversed-phase liquid chromatographic columns by chromatographic tests. Evaluation of 36 test parameters: repeatability, reproducibility and correlation", D. Visky, Y. Vander Heyden, T. Ivanyi, P. Baten, et al., **J. Chromatogr. A**, 2002, **977**, 39-58.
56. "Simultaneous determination of nicotine and eight nicotine metabolites in urine of smokers using liquid chromatography-tandem mass spectrometry", M. Meger, I. Meger-Kossien, A. Schuler-Metz, D. Janket and G. Scherer, **J. Chromatogr. B**, 2002, **778**, 251-61.
57. "Diagnosis and monitoring of inborn errors of metabolism using urease-pretreatment of urine, isotope dilution and GC/NMS (review article)", T. Kuhara, **J. Chromatogr. B**, 2002, **781**, 497-517.
58. "High-throughput selected reaction monitoring liquid chromatography-mass spectrometry determination of methylphenidate and its major metabolite, ritalinic acid, in rat plasma employing monolithic columns", N. Barbarin, D.B. Mawhinney, R. Black and J. Henion, **J. Chromatogr. B**, 2002, **783**, 73-83.
59. "Determination of midazolam and 1'-hydroxymidazolam by liquid chromatography-mass spectrometry in plasma of patients undergoing methadone maintenance treatment", M.R. Shiran, A. Gregory, A. Rostami-Hodjegan, G.T. Tucker and M.S. Lennard, **J. Chromatogr. B**, 2002, **783**, 303-7.
60. "Direct injection micellar liquid chromatographic determination of benzodiazepines in serum", M.E. CapellaPeiro, D. Bose, A. MartinavarroDominguez, M. GilAgusti and J. EsteveRomero, **J. Chromatogr. B**, 2002, **780**, 241-9.
61. "Validation of a simple gas chromatographic-mass spectrometric method for the determination of gamma-butyrolactone in human plasma", Y. Fukui, E. Matsusima, K.

- Muramoto, N. Nagai, K. Ohama and K. Yamashita, **J. Chromatogr. B**, 2003, **785**, 73-80.
62. "Quantification of the O- and N-demethylated metabolites of hydrocodone and oxycodone in human liver microsomes using liquid chromatography with ultraviolet absorbance detection", A. Menelaou, M.R. Hutchinson, I. Quinn, A. Christensen and A.A. Somogyi, **J. Chromatogr. B**, 2003, **7851**, 81-8.
63. "Analysis of biological samples by gas chromatography-mass spectrometry without a reference standard: measurement of urinary 18-hydroxytetrahydro-11-dehydrocorticosterone excretion rate in human subjects", L.A. Shakerdi, J.M.C. Connell, R. Fraser and A.M. Wallace, **J. Chromatogr. B**, 2003, **784**, 367-73.
64. "Determination of dextromethorphan and its metabolite dextrorphan in human urine by capillary gas chromatography without derivatization", Y.J. Wu, Y.Y. Cheng, S. Zeng and M.M. Ma, **J. Chromatogr. B**, 2003, **784**, 219-24.
65. "Chromatographic methods for the determination of markers of chronic and acute alcohol consumption", F. Musshoff, **J. Chromatogr. B**, 2002, **781**, 457-80.
66. "Optimum methamphetamine profiling with sample preparation by solid-phase microextraction", C.J. Koester, B.D. Andresen and P.M. Grant, **J. Forensic Sci.**, 2002, **47**, 1002-7.
67. "The use of oral fluid and sweat wipes for the detection of drugs of abuse in drivers", N. Samyn, G. de Boeck and A.G. Verstraete, **J. Forensic Sci.**, 2002, **47**, 1380-7.
68. "Testing for GHB in hair by GC/MS/MS after a single exposure application to document sexual assault", P. Kintz, V. Cirimele, C. Jamey and B. Ludes, **J. Forensic Sci.**, 2003, **48**, 195-200.
69. "Rapid determination of selected drugs of abuse in human plasma using a monolithic silica HPLC column and solid phase extraction", W.V. Caufield and J.T. Stewart, **J. Liq. Chromatogr. Relat. Techno.**, 2002, **25**, 2977-98.
70. "Fast screening of anabolic steroids and other banned doping substances in human urine by gas chromatography/tandem mass spectrometry", J. Marcos, J.A. Pascual, X. de la Torre and J. Segura, **J. Mass Spectrometry**, 2002, **37**, 1059-73.
71. "Analysis of beta-lactam antibiotics by high performance liquid chromatography-atmospheric pressure chemical ionization mass spectrometry using bromoform", S. Horimoto, T. Mayumi, K. Aoe, N. Nishimura and T. Sato, **J. Pharmaceut. Biomed. Anal.**, 2002, **30**, 1093-102.
72. "Cost-benefit analysis of universal tandem mass spectrometry for newborn screening", E.J. Schoen, J.C. Baker, C.J. Colby and T.T. To, **Pediatrics**, 2002, **110**, 781-6.
73. "Comparison of smoked marijuana and oral delta(9)-tetrahydrocannabinol in humans", C.L.

Hart, A.S. Ward, M. Haney, S.D. Comer, R.W. Foltin and M.W. Fischman,  
**Psychopharmacology**, 2002, **164**, 407-15.

74. "Determination of 11-deoxycortisol (Reichstein's compound S) in human plasma by clinical isotope dilution mass spectrometry using benchtop gas chromatography-mass selective detection", S.A. Wudy, M. Hartmann and J. Homoki, **Steroids**, 2002, **67**, 851-857.

75. "Direct quantification of ethyl glucuronide in clinical urine samples by liquid chromatography-mass spectrometry", N. Stephanson, H. Dahl, A. Helander and O. Beck, **Ther. Drug Monit.**, 2002, **24**, 645-51.

76. "Monitoring urinary excretion of cannabinoids by fluorescence-polarization immunoassay: A cannabinoid-to-creatinine ratio study", A.D. Fraser and D. Worth, **Ther. Drug Monit.**, 2002, **24**, 746-50.

## Analytical Toxicology Literature Survey

**Prepared by:** Rodger L. Foltz

**Period Surveyed:** February 1, 2001 to May 1, 2003   Articles are ordered by journal/book

1. "Ethyl glucuronide on the time course of excretion in urine during detoxification", F.M. Wurst, S. Seidl, D. Ladewig, F. Mueller-Spahn and A. Alt, **Addiction Biology**, 2002, **7**, 427-34.
2. "LC-atmospheric pressure chemical ionization-MS/MS analysis of multiple illicit drugs, methadone, and their metabolites in oral fluid following protein precipitation", R. Dams, C.M. Murphy, R.E. Choo, W.E. Lambert, A. De Leenheer and M.A. Huestis, **Anal. Chem.**, 2003, **75**, 798-804.
3. "Direct plasma analysis of drug compounds using monolithic column liquid chromatography and tandem mass spectrometry", Y. Hsieh, G. Wang, Y. Wang, S. Chackalamannil and W.A. Korfomacher, **Anal. Chem.**, 2003, **15**, 1812-8.
4. "Effects of marijuana on human performance and assessment of driving impairment" S.J. Heishman in **Biology of Marijuana**, edited by E.S. Onaivi, Taylor & Francis Ltd., London, UK, 2002, pp. 110-24.
5. "Solid-phase extraction - Thermal desorption - Gas chromatography with mass selective detection for the determination of drugs in urine", M.W.J. van Hout, R.A. de Zeeuw, J.P. Franke and G.J. de Jong, **Chromatographia**, 2003, **57**, 221-225.
6. "Capillary liquid chromatography/electrospray mass spectrometry for analysis of steroid sulfates in biological samples", S. Liu, W.J. Griffiths and J. Sjovall, **Clin. Chem.**, 2003, **75**, 791-7.
7. "Plasma and oral fluid pharmacokinetics and pharmacodynamics after oral codeine administration", I. Kim, A.J. Barnes, J.M. Oyler, R.J.F. Schepers, R.E. Joseph, E.J. Cone, D. Lafko, E.T. Moolchan and M.A. Huestis, **Clin. Chem.**, 2002, **48**, 1486-96.
8. "Liquid chromatography-tandem mass spectrometry - Application in the clinical laboratory", M. Vogeser, **Clin. Chem. Lab. Med.**, 2003, **41**, 117-26.
9. "A general unknown screening procedure for drugs and toxic compounds in serum using liquid chromatography-electrospray-single quadrupole mass spectrometry", N. Venisse, P. Marquet, E. Duchoslav, J.L. Dupuy and G. Lachatre, **J Anal Toxicol**, 2003, **27**, 7-14.
10. "Generic solid phase extraction-liquid chromatography-tandem mass spectrometry method for fast determination of drugs in biological fluids", A. Schellen, B. Ooms, D. van de Lagemaat, R. Vreeken and W.D. van Dongen, **J. Chromatogr. B**, 2003, **788**, 251-9.
11. "Direct screening of urine for MDMA and MDA by liquid chromatography-tandem mass spectrometry", H.K. Nordgren and O. Beck, **J. Anal. Toxicol.**, 2003, **27**, 15-9.
12. "Interindividual dose/concentration relationship for methadone in hair", S. Paterson, R. Cordero, M. McPhillips and S. Carman, **J. Anal. Toxicol.**, 2003, **27**, 20-3.
13. "A selective and sensitive method for quantitation of lysergic acid diethylamide (LSD) in whole blood by gas chromatography-ion trap tandem mass spectrometry", D. Libong, S. Bouchonnet and I. Ricodel, **J. Anal. Toxicol.**, 2003, **27**, 24-9.
14. "LC/MS analysis of serotonergic drugs", K. Goeringer, I.M. McIntyre and O.H. Drummer, **J. Anal. Toxicol.**, 2003, **27**, 30-5.
15. "Urinary concentrations of morphine and codeine after consumption of poppy seeds", M. Thevis, G. Opfermann and W. Schanzer, **J. Anal. Toxicol.**, 2003, **27**, 53-6.
16. "Quantitation of 11-nor- $\Delta$ 9-tetrahydrocannabinol-9-carboxylic acid with GC/MS in urine collected for doping analysis", K.J.S. De Cock, F.T. Delbeke, D. De Boer, P. Van Eenoo and K. Roels, **J. Anal. Toxicol.**, 2003, **27**, 106-9.
17. "Development of a rapid and sensitive method for the quantitation of amphetamines in human plasma and oral fluid by LC/MS/MS", M. Wood, G. De Boeck, N. Samyn, M. Morris, D.P. Cooper, R.A.A. Maes and E.A. de Bruijn, **J. Anal. Toxicol.**, 2003, **27**, 78-87.
18. "HPLC/MS for the determination of sildenafil citrate (Viagra) in biological fluids. Application to the salivary excretion of sildenafil after oral intake", A. Tracqui and B. Ludes, **J. Anal. Toxicol.**, 2003, **27**, 88-94.
19. "Enzyme immunoassay validation for the detection of buprenorphine in urine", V. Cirimele, P. Kintz, S. Lohner and B. Ludes, **J. Anal. Toxicol.**, 2003, **27**, 103-5.
20. "Determination of methamphetamine and its metabolites incorporated in hair by column-switching liquid chromatography/mass spectrometry", A. Miki, M. Katagi and H. Tsuchihashi, **J. Anal. Toxicol.**, 2003, **27**, 95-102.
21. "False-positive RIA for methamphetamine following ingestion of an ephedra-derived herbal product", J.A. Levisky, S.B. Karch, D.L.

- Bowerman, W.W. Jenkins, D.G. Johnson and D. Davies, **J. Anal. Toxicol.**, 2003, **27**, 123-4.
22. "The importance of stereoselective determination of drugs in the clinical laboratory", K.M. Rentsch, **J. Biochem. Biophys. Meth.**, 2002, **54**, 1-9.
23. "Analysis of enantiomers of chiral phenethylamine drugs by capillary gas chromatography/mass spectrometry/flame-ionization detection and pre-column chiral derivatization", Q.F. Tao and S. Zeng, **J. Biochem. Biophys. Meth.**, 2002, **54**, 103-13.
24. "Enantiomeric composition of abused amine drugs: chromatographic methods of analysis and data interpretation", J.T. Liu and R.H. Liu, **J. Biochem. Biophys. Meth.**, 2002, **54**, 115-46.
25. "Strategies for the enantiomeric determination of amphetamine and related compounds by liquid chromatography", R. HerraezHernandez, P. CampinsFalco and J. VerduAndres, **J. Biochem. Biophys. Meth.**, 2002, **54**, 147-67.
26. "Improvement in steroid screening for doping control with special emphasis on stanozolol", A. Huenerbein, M.A.S. Marques, A.D. Pereira and F.R.D. Neto, **J. Chromatogr. A**, 2003, **985**, 375-86.
27. "Ammonium hydrogencarbonate, an excellent buffer for the analysis of basic drugs by liquid chromatography-mass spectrometry at high pH", A. Espada and A. RiveraSagredo, **J. Chromatogr. A**, 2003, **987**, 211-20.
28. "Rapid identification and quantitation of compounds with forensic interest using fast liquid chromatography-ion trap mass spectrometry and library searching", K. Pihlainen, E. Sippola and R. Kostianinen, **J. Chromatogr. A**, 2003, **994**, 93-102.
29. "Validation of a simple gas chromatographic-mass spectrometric method for the determination of gamma-butyrolactone in human plasma", Y. Fukui, E. Matsusima, K. Muramoto, N. Nagai, K. Ohama and K. Yamashita, **J. Chromatogr. B**, 2003, **785**, 73-80.
30. "Quantification of the O- and N-demethylated metabolites of hydrocodone and oxycodone in human liver microsomes using liquid chromatography with ultraviolet absorbance detection", A. Menelaou, M.R. Hutchinson, I. Quinn, A. Christensen and A.A. Somogyi, **J. Chromatogr. B**, 2003, **7851**, 81-8.
31. "Sensitive and rapid liquid chromatography-tandem mass spectrometry method for the determination of meloxicam in human plasma", J.L. Wiesner, A.D.d. Jager, F.C.W. Sutherland, H.K.L. Hundt, K.J. Swart, A.F. Hundt and J. Els, **J. Chromatogr. B**, 2003, **785**, 115-21.
32. "Use of large particles support for fast analysis of methadone and its primary metabolite in human plasma by LC/MS", S. Souverain, S. Rudaz, D. Ortelli, E. Varesio and J.-L. Veuthey, **J. Chromatogr. B**, 2003, **784**, 117-23.
33. "Simultaneous determination of nine antiretroviral compounds in human plasma using liquid chromatography", M.L. Turner, K. ReedWalker, J.R. King and E.P. Acosta, **J. Chromatogr. B**, 2003, **784**, 331-41.
34. "Determination of cortisol in human saliva using liquid chromatography-electrospray tandem mass spectrometry", B.A.G. Jonsson, B. Malmberg, A. Amilon, A.H. Garde and P. Orbaek, **J. Chromatogr. B**, 2003, **784**, 63-8.
35. "Optimization of protein precipitation based upon effectiveness of protein removal and ionization effect in liquid chromatography-tandem mass spectrometry", C. Polson, P. Sarkar, B. Incledon, V. Raguvanan and R. Grant, **J. Chromatogr. B**, 2003, **785**, 263-75.
36. "Rapid and simple method to determine morphine and its metabolites in rat plasma by liquid chromatography-mass spectrometry", D. Projean, T. Minh Tu and J. Ducharme, **J. Chromatogr. B**, 2003, **787**, 243-53.
37. "Automated solid-phase extraction and liquid chromatography-electrospray ionization-mass spectrometry for the determination of flunitrazepam and its metabolites in human urine and plasma samples", N. Jourdin, J. Bessard, F. Vincent, H. Eysseric and G. Bessard, **J. Chromatogr. B**, 2003, **788**, 207-19.
38. "Precise gas chromatography with retention time locking in comprehensive toxicological screening for drugs in blood", I. Rasanen, I. Kontinen, J. Nokua, I. Ojanpera and E. Vuori, **J. Chromatogr. B**, 2003, **788**, 243-50.
39. "Hair analysis for opiates: evaluation of washing and incubation", M.A. Balkova and V. Habrdova, **J. Chromatogr. B.**, 2003, **789**, 93-100.
40. "Screening procedure for eight quaternary nitrogen muscle relaxants in blood by high-performance liquid chromatography-electrospray ionization mass spectrometry", V. Cirimele, M. Villain, G. Pepin, B. Ludes and P. Kintz, **J. Chromatogr. B.**, 2003, **789**, 107-13.
41. "Suitability testing of commercial solid-phase extraction sorbents for sample clean-up in systematic toxicological analysis using liquid chromatography-(tandem) mass spectrometry", T.N. Decaestecker, E.M. Coopman, C.H. Van Peteghem and J.F. Van Boecklaer, **J. Chromatogr. B.**, 2003, **789**, 19-25.

42. "Evaluation of electrospray ionisation liquid chromatography-tandem mass spectrometry for rational determination of a number of neuroleptics and their major metabolites in human body fluids and tissues", M. Josefsson, R. Kronstrand, J. Andersson and M. Roman, **J. Chromatogr. B.**, 2003, **789**, 151-67.
43. "Comparison of a preliminary procedure for the general unknown screening of drugs and toxic compounds using a quadrupole-linear ion-trap mass spectrometer with a liquid chromatography-mass spectrometry reference technique", P. Marquet, F. Saint-Marcoux, T.N. Gamble and J.C.Y. Leblanc, **J. Chromatogr. B.**, 2003, **789**, 9-18.
44. "Routine analysis of amphetamine and methamphetamine in biological materials by gas chromatography-mass spectrometry and on-column derivatization", M. Nishida, A. Namura, M. Yashiki and T. Kojima, **J. Chromatogr. B.**, 2003, **789**, 65-71.
45. "Determination of amphetamines in human urine by headspace solid-phase microextraction and gas chromatography", N. Raikos, K. Christopoulou, G. Theodoridis, H. Tsoukali and D. Psaroulis, **J. Chromatogr. B.**, 2003, **789**, 59-63.
46. "New designer drug p-methoxymethamphetamine: studies on its metabolism and toxicological detection in urine using gas chromatography-mass spectrometry", R.F. Staack, J. Fehn and H.H. Maurer, **J. Chromatogr. B.**, 2003, **789**, 27-41.
47. "Systematic toxicological analysis: computer-assisted identification of poisons in biological materials", T. Stimpfl, W. Demuth, K. Varmuza and W. Vycudilik, **J. Chromatogr. B.**, 2003, **789**, 3-7.
48. "Solid-phase micro-extraction-gas chromatography-mass spectrometry and headspace-gas chromatography of tetrahydrocannabinol, amphetamine, methamphetamine, cocaine and ethanol in saliva samples", M. Yonamine, N. Tawil, R.L. Moreau and O. Alves Silva, **J. Chromatogr. B.**, 2003, **789**, 73-8.
49. "The use of oral fluid and sweat wipes for the detection of drugs of abuse in drivers", N. Samyn, G. de Boeck and A.G. Verstraete, **J. Forensic Sci.**, 2002, **47**, 1380-7.
50. "Rapid determination of selected drugs of abuse in human plasma using a monolithic silica HPLC column and solid phase extraction", W.V. Caufield and J.T. Stewart, **J. Liq. Chrom. & Rel. Technol.**, 2002, **25**, 2977-98.
51. "Determination of hypnotic benzodiazepines (alprazolam, estazolam, and midazolam) and their metabolites in rat hair and plasma by reversed-phase liquid-chromatography with electrospray ionization mass spectrometry", T. Toyooka, Y. Kumaki, M. Kanbori, M. Kato and Y. Nakahara, **J. Pharmaceut. Biomed. Anal.**, 2003, **30**, 1773-87.
52. "Validation of bioanalytical methods - Highlights of FDA's guidance", M. Swartz and I. Krull, **LC-GC**, 2003, **21**, 136-42.
53. "The basics of mass spectrometry in the twenty-first century", G.L. Glish and R.W. Vachet, **Nat Rev Drug Discov**, 2003, **2**, 140-150.
54. "Derivatization procedures for the detection of estrogenic chemicals by GC/MS", W.-H. Ding and C.-C. Chiang, **Rapid Commun. Mass Spectrom.**, 2003, **17**, 56-63.
55. "Application of tandem mass spectrometry combined with gas chromatography and headspace solid-phase dynamic extraction for the determination of drugs of abuse in hair samples", D.W. Lachenmeier, L. Kroener, F. Musshoff and B. Madea, **Rapid Commun. Mass Spectrom.**, 2003, **17**, 472-8.
56. "Stereochemical analysis of 3,4-methylenedioxymethamphetamine and its main metabolites by GC/MS", N. Pizarro, A. Liebaria, S. Cano, J. Joglar, M. Farre, J. Segura and R. de la Torre, **Rapid Commun. Mass Spectrom.**, 2003, **17**, 330-6.
57. "Simple and sensitive liquid chromatography/tandem mass spectrometry method for the determination of diazepam and its major metabolites in rat cerebrospinal fluid", J. Wang, X. Shen, J. Fenyk-Melody, J.V. Pivnichny and X. Tong, **Rapid Commun. Mass Spectrom.**, 2003, **17**, 519-25.
58. "Enantioselective trace analysis of amphetamine in human plasma by gas chromatography/negative ion chemical ionization mass spectrometry", H.-J. Leis, G.N. Rechberger, G. Fauler and W. Windischhofer, **Rapid Commun. Mass Spectrom.**, 2003, **17**, 569-75.
59. "Evaluation of protocols for reproducible electrospray in-source collisionally induced dissociation of various liquid chromatography/mass spectrometry instruments and the development of spectral libraries", A.W.T. Bristow, W.F. Nichols, K.S. Webb and B. Conway, **Rapid Commun. Mass Spectrom.**, 2002, **16**, 2374-86.
60. "Optimizing the hydrolysis of codeine and morphine glucuronides in urine", L.P. Hackett, L.J. Dusci, K.F. Illett and G.M. Chiswell, **Ther. Drug Monit.**, 2002, **24**, 652-7.
61. "New trends in sample preparation for clinical and pharmaceutical analysis", H. Kataoka and K. Hiroyuki, **Trends in Anal. Chem.**, 2003, **22**, 232-44.

**ANALYTICAL TOXICOLOGY LITERATURE SURVEY**

**Prepared by:** Rodger L. Foltz

**Period Surveyed:** June 1, 2005 to August 31, 2005

Articles are ordered by journal/book

1. "Development and validation of a liquid chromatography-tandem mass spectrometry assay for the quantification of Docetaxel and Paclitaxel in human plasma and oral fluid", K. A. Mortier, V. Renard, A. G. Verstraete, A. Van Gussem, S. Van Belle and W. E. Lambert, *Anal. Chem.*, 2005, **77**, 4677-83.
2. "A parallel micro turbulent flow chromatography-tandem mass spectrometry method for the analysis of a pharmaceutical compound in plasma", C. Chassaing, H. Stafford, J. Luckwell, A. Wright and A. Edgington, *Chromatographia*, 2005, **62**, 17-24.
3. "A rapid HPLC-mass spectrometry cyclosporin method suitable for current monitoring practices", P. Salm, P. J. Taylor, S. V. Lynch, C. R. Warnholtz and P. I. Pillans, *Clin. Biochem.*, 2005, **38**, 667-73.
4. "Testosterone measurement by isotope-dilution liquid chromatography-tandem mass spectrometry: Validation of a method for routine clinical practice", M. L. Cawood, H. P. Field, C. G. Ford, S. Gillingwater, A. Kicman, D. Cowan and J. H. Barth, *Clin. Chem.*, 2005, **51**, 1472-9.
5. "Review: The physiology of saliva and transfer of drugs into saliva", J. K. M. Aps and L. C. Martens, *Forensic Sci. Int.*, 2005, **150**, 119-31.
6. "Review: Pharmacokinetics of illicit drugs in oral fluid", O. H. Drummer, *Forensic Sci. Int.*, 2005, **150**, 133-42.
7. "Oral fluid testing for driving under the influence of drugs: history, recent progress and remaining challenges", A. G. Verstraete, *Forensic Sci. Int.*, 2005, **150**, 143-50.
8. "Proficiency testing (external quality assessment) of drug detection in oral fluid", J. Clarke and J. F. Wilson, *Forensic Sci. Int.*, 2005, **150**, 161-4.
9. "Oral fluid collection: The neglected variable in oral fluid testing", D. J. Crouch, *Forensic Sci. Int.*, 2005, **150**, 165-73.
10. "Oral fluid drug tests: Effects of adulterants and foodstuffs", R. C. Wong, M. Tran and J. K. Tung, *Forensic Sci. Int.*, 2005, **150**, 175-80.
11. "Drugs in oral fluid", F. M. Wylie, H. Torrance, R. A. Anderson and J. S. Oliver, *Forensic Sci. Int.*, 2005, **150**, 191-8.
12. "Analysis of Δ9-tetrahydrocannabinol in oral fluid samples using solid-phase extraction and HPLC-electrospray ionization mass spectrometry", H. Teixeira, P. Proenca, A. G. Verstraete, F. Corte-Real and D. N. Vieira, *Forensic Sci. Int.*, 2005, **150**, 205-11.
13. "Screening and confirmatory method for benzodiazepines and hypnotics in oral fluid by LC-MS/MS", P. Kintz, M. Villain, M. Concheiro and V. Cirimele, *Forensic Sci. Int.*, 2005, **150**, 213-20.
14. "Quantitative analysis of multiple illicit drugs in preserved oral fluid by solid-phase extraction and liquid chromatography-tandem mass spectrometry", M. Wood, M. Laloup, M. Fernandez, K. M. Jenkins, et al., *Forensic Sci. Int.*, 2005, **150**, 227-38.
15. "Quantitation of ibogaine and 12-hydroxyibogamine in human plasma by liquid chromatography with fluorimetric detection", V. Kontrimaviciute, M. Larroque, V. Briedis, D. Margout and F. Bressolle, *J. Chromatogr. B*, 2005, **822**, 285-93.
16. "A highly sensitive LC-MS-MS assay for analysis of midazolam and its major metabolite in human plasma: Applications to drug metabolism", V. A. P. Jabor, E. B. Coelho, N. A. G. dosSantos, P. S. Bonato and V. L. Lanchote, *J. Chromatogr. B*, 2005, **822**, 27-32.
17. "High-performance liquid chromatography of nalbuphine, butorphanol and morphine in blood and brain microdialysate samples: Application to pharmacokinetic/pharmacodynamic studies in rats", D. Groenendaal, M. C. M. BlomRoosemalen, M. Danhof and E. C. M. deLange, *J. Chromatogr. B*, 2005, **822**, 230-7.
18. "Determination of midazolam and its major metabolite by HPLC-electrospray mass spectrometry in plasma from children", S. N. Muchohi, S. A. Ward, L. Preston, C. Newton, G. Edwards and G. O. Kokwaro, *J. Chromatogr. B*, 2005, **821**, 1-7.
19. "Studies on the metabolism and toxicological detection of the designer drug 4-methylthioamphetamine (4-MTA) in human urine using gas chromatography-mass spectrometry", A. H. Ewald, F. T. Peters, M. Weise and H. H. Maurer, *J. Chromatogr. B.*, 2005, **824**, 123-31.
20. "Sensitive MS/MS-liquid chromatography assay for simultaneous determination of tegafur, 5-fluorouracil and 5-fluorodihydrouracil in plasma", G. Remaud, M. Boisdron-Celle, A. Morel and A. Gamelin, *J. Chromatogr. B.*, 2005, **824**, 153-60.
21. "Recent studies on the electrospray ionization mass spectrometric behavior of selected nitrogen-containing drug molecules and its application to drug analysis using liquid chromatography-electrospray ionization mass spectrometry (review article)", W. F. Smyth, *J. Chromatogr. B.*, 2005, **824**, 1-20.
22. "The quantitative analysis of heroin, methadone and their metabolites and the simultaneous detection of cocaine, acetylcodeine and their metabolites in human plasma by high-performance liquid chromatography coupled with tandem mass spectrometry", E. J. Rook, M. J. X. Hillebrand, H. Rosing, J. M. van Ree and J. H. Beijnen, *J. Chromatogr. B.*, 2005, **824**, 213-21.
23. "Determination of metformin in human plasma by high-performance liquid chromatography", H. Amini, A. Ahmadiani and P. Gazerani, *J. Chromatogr. B.*, 2005, **824**, 319-22.

24. "Determination of lorazepam in plasma from children by high-performance liquid chromatography with UV detection", S. N. Muchohi, K. Obiero, G. O. Kokwaro, B. R. Ongutu, I. M. Githiga, G. Edwards and C. R. J. C. Newton, **J. Chromatogr. B.**, 2005, **824**, 333-40.
25. "Identification of 11-nor- $\Delta$ 9-tetrahydrocannabinol-9-carboxylic acid in urine by ion trap GC-MS/MS in the context of doping analysis", G. M. Caballero, C. P. D'Angelo, M. S. Fraguio and O. T. Centurion, **J. Chromatogr. Sci.**, 2004, **42**, 540-4.
26. "Application of a novel ultra-low elution volume 96-well solid-phase extraction method to the LC/MS/MS determination of simvastatin and simvastatin acid in human plasma", A. Y. Yang, L. Sun, D. B. Musson and J. J. Zhao, **J. Pharmaceut. Biomed. Anal.**, 2005, **38**, 521-7.
27. "Direct determination of the ethanol metabolites ethyl glucuronide and ethyl sulfate in urine by LC/MS/MS", L. Politi, L. Morini, A. Groppi, V. Poloni et al., **Rapid Commun. Mass Spectrom.**, 2005, **19**, 1321-31.
28. "Rapid screening of drugs of abuse and their metabolites by gas chromatography/mass spectrometry: application to urinalysis", S. Strano-Rossi, F. Molaioni, F. Rossi and F. Botre, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 1529-35.
29. "Hair testing for  $\Delta$ 9-THC-COOH by gas chromatography/tandem mass spectrometry in negative chemical ionization mode", R. Marsili, S. Martello, M. Felli, S. Fiorina and M. Chiarotti, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 1566-8.
30. "Screening procedure for detection of diuretics and uricosurics and/or their metabolites in human urine using gas chromatography-mass spectrometry after extractive methylation", J. Beyer, A. Bierl, F. T. Peters and H. H. Maurer, **Ther. Drug Monit.**, 2005, **27**, 509-20.
31. "Buprenorphine and norbuprenorphine concentrations in human breast milk samples determined by liquid chromatography-tandem mass spectrometry", D. Grimm, E. Pauly, J. Poschl, O. Linderkamp and G. Skopp, **Ther. Drug Monit.**, 2005, **27**, 526-30.

## Analytical Toxicology Literature Survey

**Prepared by:** Rodger L. Foltz

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Articles are ordered by journal/book

1. **Hallucinogens: A Forensic Drug Handbook**, R.R. Laing, Elsevier Science Ltd., London, UK, 2003.
2. "Detecting crack and other cocaine use with fastpatches", H.J. Liberty, B.D. Johnson, N. Fortner and D. Randolph, **Addict. Biol.**, 2003, **8**, 191-200.
3. "High-performance liquid chromatography-atmospheric pressure photoionization/tandem mass spectrometric analysis for small molecules in plasma", Y.S. Hsieh, K. Merkle, G.F. Wang, J.M. Brisson and W.A. Korfomacher, **Anal. Chem.**, 2003, **75**, 3122-7.
4. "A fully automated LC/MS method development and quantification protocol targeting 52 carbamates, thiocarbamates, and phenylureas", K. Yu, J. Krol, M. Balogh and I. Monks, **Anal. Chem.**, 2003, **75**, 4103-112.
5. "HPLC determination of cocaine and benzoylecgonine by direct injection of human blood plasma sample into an alkyl-diol-silica precolumn", R. Brunetto, L. Gutierrez, Y. Delgado, M. Gallignani, J.L. Burguera and M. Burguera, **Anal. Bioanal. Chem.**, 2003, **375**, 534-8.
6. "Detection and time course of cocaine N-oxide and other cocaine metabolites in human plasma by liquid chromatography-tandem mass spectrometry", S.-N. Lin, S.L. Walsh, D.E. Moody and R.L. Foltz, **Anal. Chem.**, 2003, **75**, 4335-40.
7. "Determination of carbamazepine and its metabolites in aqueous samples using liquid chromatography-electrospray tandem mass spectrometry", X.S. Miao and C.D. Metcalfe, **Anal. Chem.**, 2003, **75**, 3731-8.
8. "Comparison of isotope dilution mass spectrometry methods for the determination of total homocysteine in plasma and serum", M.B. Satterfield, L.T. Sniegoski, M.J. Welch, B.C. Nelson and C.M. Pfeiffer, **Anal. Chem.**, 2003, **75**, 4631-8.
9. "Criteria for the identification of compounds by liquid chromatography/mass spectrometry and liquid chromatography/multiple mass spectrometry in forensic toxicology and doping analysis", L. Rivier, **Anal. Chimica Acta**, 2003, **492**, 69-82.
10. "Bioanalytical considerations for compounds containing free sulphydryl groups", N.R. Srinivas and R.N.V.S. Mamidi, **Biomed. Chromatogr.**, 2003, **17**, 285-91.
11. "Derivatization on solid supports: An alternative method for solution derivatization of amines in several matrices", C.M. Legua, P.C. Falco and S.M. Lloret, **Chromatographia**, 2003, **58**, 15-27.
12. "Testosterone measured by 10 immunoassays and by isotope-dilution gas chromatography-

- mass spectrometry in sera from 116 men, women, and children”, J. Taieb, B. Mathian, F. Millot, M.C. Patricot, E. Mathieu, N. Queyrel, I. Lacroix, C. SommaDelpero and P. Boudou, **Clin. Chem.**, 2003, **49**, 1381-95.
13. “Tandem mass spectrometry in the clinical chemistry laboratory”, K.C. Dooley, **Clin. Biochem.**, 2003, **36**, 471-81.
14. “Determination of itraconazole and hydroxyitraconazole in plasma by use of liquid chromatography-tandem mass spectrometry with on-line solid-phase extraction”, M. Vogeser, U. Spohrer and X. Schiel, **Clin. Chem. Lab Med.**, 2003, **41**, 915-20.
15. “Determination of tramadol in hair using solid-phase extraction and GC/MS”, K.A. Hadidi, J.K. Almasad, T. Al-Nsour and S. Abu-Ragheib, **Forensic Sci. Int.**, 2003, **135**, 129-36.
16. “Simultaneous detection of some drugs of abuse in saliva samples by SPME technique”, N. Fucci, N. De Giovanni and M. Chiarotti, **Forensic Sci. Int.**, 2003, **134**, 40-5.
17. “The use of cyclohexanone as a "derivatizing" reagent for the GC/MS detection of amphetamines and ephedrines in seizures and the urine”, B.M. El-Haj, A.M. Al-Amri, M.H. Hassan, H.S. Ali and R.K. Bin Khadem, **Forensic Sci. Int.**, 2003, **135**, 16-26.
18. “HPLC/MS findings in a fatality involving sustained-release verapamil”, A. Tracqui, C. Tournoud, P. Kintz, M. Villain, C. Kummerlen, P. Sauder and B. Ludes, **Hum. Exp. Toxicol.**, 2003, **22**, 515-21.
19. “Comparison and evaluation of DRI(R) methamphetamine, DRI Ecstasy, Abuscreen(R) ONLINE amphetamine, and a modified Abuscreen ONLINE amphetamine screening immunoassays for the detection of amphetamine (AMP), methamphetamine (MTH), 3,4-methylenedioxymphetamine (MDA), and 3,4-methylenedioxymethamphetamine (MDMA) in human urine”, P.R. Stout, K.L. Klette and R. Wiegand, **J. Anal. Toxicol.**, 2003, **27**, 265-9.
20. “Tentative identification of novel oxycodone metabolites in human urine”, K.A. Moore, V. Ramcharitar, B. Levine and D. Fowler, **J. Anal. Toxicol.**, 2003, **27**, 346-52.
21. “The analysis and distribution of mescaline in postmortem tissues”, J.L. Henry, J. Epley and T.P. Rohrig, **J. Anal. Toxicol.**, 2003, **27**, 381-2.
22. “Prediction of impairment from urine benzoylecgonine concentrations”, K.A. Moore, B. Levine and D.R. Fowler, **J. Anal. Toxicol.**, 2003, **27**, 383-4.
23. “Sensitive determination of buprenorphine and its N-dealkylated metabolite norbuprenorphine in human plasma by liquid chromatography coupled to tandem mass spectrometry”, A. Ceccato, R. Klinkenberg, P. Hubert and B. Streel, **J. Pharmaceut. Biomed. Anal.**, 2003, **32**, 619-31.
24. “The development and application of a gas chromatography-mass spectrometric (GC/MS) assay to determine the presence of 2-oxo-3-hydroxy-LSD in urine”, B.T. Burnley and S. George,

**J. Anal. Toxicol.**, 2003, **27**, 249-52.

25. "Selectivity of substance identification by HPLC-DAD in toxicological analysis using a UV spectra library of 2682 compounds", M. Herzler, S. Herre and F. Pragst, **J. Anal. Toxicol.**, 2003, **27**, 233-42.
26. "Quantitation of 11-nor-Δ9-tetrahydrocannabinol-9-carboxylic acid with GC/MS in urine collected for doping analysis", K.J.S. De Cock, F.T. Delbeke, D. De Boer, P. Van Eenoo and K. Roels, **J. Anal. Toxicol.**, 2003, **27**, 106-9.
27. "Methadone and metabolite urine concentrations in patients maintained on methadone", K.L. Preston, D.H. Epstein, D. Davoudzadeh and M.A. Huestis, **J. Anal. Toxicol.**, 2003, **27**, 332-41.
28. "An enzyme-linked immunosorbent assay (ELISA) for methylphenidate (Ritalin) in urine", M.G. Lewis, J.G. Lewis and P.A. Elder, **J. Anal. Toxicol.**, 2003, **27**, 342-5.
29. "Comparison and evaluation of DRI methamphetamine, DRI ecstasy, Abuscreen ONLINE amphetamine, and a modified Abuscreen ONLINE amphetamine screening immunoassays for the detection of amphetamine, methamphetamine, MDA, and MDMA in human urine", P.R. Stout, K.L. Klette and R.F. Wiegand, **J. Anal. Toxicol.**, 2003, **27**, 265-9.
30. "Quantitation of cocaine and its major metabolites in human saliva using gas chromatography-positive chemical ionization-mass spectrometry", P. Campora, A.M. Bermejo, M.J. Tabernero and P. Fernandez, **J. Anal. Toxicol.**, 2003, **27**, 270-4.
31. "Usefulness of sweat testing for the detection of MDMA after a single-dose administration", S. Pichini, M. Navarro, R. Pacifici, P. Zuccaro et al., **J. Anal. Toxicol.**, 2003, **27**, 294-303.
32. "Direct analysis of plasticizers in aqueous samples by atmospheric pressure chemical ionization-tandem mass spectrometry", B.A. Kimball, T.M. Primus and J.J. Johnston, **J. Anal. Toxicol.**, 2003, **27**, 309-12.
33. "Foxy, a designer tryptamine hallucinogen", R. Meatherall and P. Sharma, **J. Anal. Toxicol.**, 2003, **27**, 313-7.
34. "A comparative solid-phase extraction study for the simultaneous determination of fluoxetine, amitriptyline, nortriptyline, trimipramine, maprotiline, clomipramine, and trazodone in whole blood by capillary gas-liquid chromatography with nitrogen-phosphorus detection", M.A. Martinez, C.S. dela Torre and E. Almarza, **J. Anal. Toxicol.**, 2003, **27**, 353-8.
35. "Urine testing for cocaine abuse: Metabolic and excretion patterns following different routes of administration and methods for detection of false-negative results", E.J. Cone, A. Sampson-Cone, W.D. Darwin, M.A. Huestis and J.M. Oyler, **J. Anal. Toxicol.**, 2003, **27**, 386-401.
36. "Sensitivity, specificity, and efficiency in detecting opiate use in oral fluid with the Cozart® Opiate Microplate EIA and GC/MS following controlled codeine administration", A.J. Barnes, I. Kim, R.J.F. Schepers, E.T. Moolchan, L. Wilson, G. Cooper, C. Reid, C. Hand and M.A.

Huestis, **J. Anal. Toxicol.**, 2003, **27**, 402-6.

37. "Cozart® RapiScan oral fluid drug testing system: An evaluation and sensitivity, specificity, and efficiency for cocaine detection compared with ELISA and GC/MS following controlled cocaine administration", E.A. Kolbrich, I. Kim, A.J. Barnes, E.T. Moolchan, L. Wilson, G.A. Cooper, C. Reid, D. Baldwin, C.W. Hand and M.A. Huestis, **J. Anal. Toxicol.**, 2003, **27**, 407-11.
38. "Opiate recidivism in a drug-treatment program: Comparison of hair and urine data", B.K. Charles, J.E. Day, D.E. Rollins and D.G. Wilkins, **J. Anal. Toxicol.**, 2003, **27**, 412-28.
39. "An evaluation of rapid point-of-collection oral fluid drug-testing devices", J.M. Walsh, R. Flegel, D.J. Crouch, L. Congianelli and J. Baudys, **J. Anal. Toxicol.**, 2003, **27**, 429-39.
40. "A liquid chromatography-tandem mass spectrometric method for the analysis of serotonin and related indoles in human whole blood", J.P. Danaceau, G.M. Anderson, W.M. McMahon and D.J. Crouch, **J. Anal. Toxicol.**, 2003, **27**, 440-4.
41. "Stability of plasma gamma-hydroxybutyrate determined by gas chromatography-positive ion chemical ionization mass spectrometry", M. Chen, D.M. Andrenyak, D.E. Moody and R.L. Foltz, **J. Anal. Toxicol.**, 2003, **27**, 445-8.
42. "The determination of morphine in urine and oral fluid following ingestion of poppy seeds", C. Moore and T.P. Rohrig, **J. Anal. Toxicol.**, 2003, **27**, 449-52.
43. "LC/MS analysis of 2-oxo-3-hydroxy LSD from urine using a Speedisk positive pressure processor with Cerex PolyChrom CLIN II columns", C.K. Horn, K.L. Klette and P.R. Stout, **J. Anal. Toxicol.**, 2003, **27**, 459-63.
44. "Analysis of buprenorphine, norbuprenorphine, and their glucuronides in urine by liquid chromatography-mass spectrometry", R. Kronstrand, T. Selden and M. Josefsson, **J. Anal. Toxicol.**, 2003, **27**, 464-70.
45. "Metabolic profile of amphetamine and methamphetamine following administration of the drug Famprofazine", B. Greenhill, S. Valtier and J.T. Cody, **J. Anal. Toxicol.**, 2003, **27**, 479-84.
46. "Amphetamine enantiomer excretion profile following administration of Adderal", J.T. Cody, S. Valtier and S.L. Nelson, **J. Anal. Toxicol.**, 2003, **27**, 485-92.
47. "Analysis of fentanyl and norfentanyl in human plasma by LC/MS/MS using electrospray ionization", J.E. Day, M. Slawson, R.A. Lugo and D.G. Wilkins, **J. Anal. Toxicol.**, 2003, **27**, 513-6.
48. "Performance characteristics of selected immunoassays for preliminary test of 3,4-methylenedioxymethamphetamine, methamphetamine, and related drugs in urine specimens", J. Hsu, C. Liu, C.P. Hsu, W.I. Tsay, J.H. Li, D.L. Lin and R.H. Liu, **J. Anal. Toxicol.**, 2003, **27**, 471-8.

49. "Determination of nicotine and cotinine in rat plasma by LC/MS/MS", A.M. Stolker, W. Niesing, E.A. Hogendoorn, A.B. Rambali and W. Vleeming, **J. Chromatogr. A**, 2003, **1020**, 35-43.
50. "On-line turbulent-flow chromatography-LC/MS for fast sample preparation and quantitation", L. Ynddal and S.H. Hansen, **J. Chromatogr. A**, 2003, **1020**, 59-67.
51. "Simultaneous screening for 238 drugs in blood by liquid chromatography-ionspray tandem mass spectrometry with multiple-reaction monitoring", M. Gergov, I. Ojanpera and E. Vuori, **J. Chromatogr. B**, 2003, **795**, 41-53.
52. "Stability studies of selected doping agents in urine: caffeine", R. Ventura, C. Jimenez, N. Closas, J. Segura and R. De la Torre, **J. Chromatogr. B**, 2003, **795**, 167-77.
53. "Simultaneous determination of four antipsychotic drugs in plasma by HPLC - Application to management of acute intoxications", L.G. Garcia, I. Forfar-Bares, F. Pehourcq and C. Jarry, **J. Chromatogr. B**, 2003, **795**, 257-64.
54. "Ultra-fast quantitative bioanalysis of a pharmaceutical compound using liquid chromatography-tandem mass spectrometry", K. Heinig and F. Bucheli, **J. Chromatogr. B**, 2003, **795**, 337-46.
55. "Determination of morphine and morphine glucuronides in human plasma by 96-well plate solid-phase and liquid chromatography-electrospray ionization mass spectrometry", D. Whittington and E.D. Kharasch, **J. Chromatogr. B**, 2003, **796**, 95-103.
56. "Bioanalytical liquid chromatography tandem mass spectrometry methods on underivatized silica columns with aqueous/organic mobile phases", W. Naidong, **J. Chromatogr. B**, 2003, **796**, 209-24.
57. "Artifact production in the assay of anhydroecgonine methyl ester in serum using gas chromatography-mass spectrometry", S.W. Toennes, A.S. Fandino, F.J. Hesse and G.F. Kauert, **J. Chromatogr. B**, 2003, **792**, 345-51.
58. "Confirmation of amphetamine, methamphetamine, MDA and MDMA in urine samples using disk solid-phase extraction and gas chromatography-mass spectrometry after immunoassay screening", Z.P. Huang and S.Y. Zhang, **J. Chromatogr. B**, 2003, **792**, 241-7.
59. "Liquid chromatography-tandem mass spectrometry assay for human serum testosterone and trideuterated testosterone", B. Starcevic, E. Distefano, C. Wang and D.H. Catlin, **J. Chromatogr. B**, 2003, **792**, 197-204.
60. "Development and validation of a liquid chromatography-mass spectrometry assay for the determination of opiates and cocaine in meconium", S. Pichini, R. Pacifici, M. Pellegrini, E. Marchei, E. Perez-Alarcon, C. Puig, O. Vall and O. Garcia-Algar, **J. Chromatogr. B**, 2003, **794**, 281-92.

61. "Application of high-performance liquid chromatography-mass spectrometry to detection of diuretics in human urine", Y. Qin, X.B. Wang, C. Wang, M. Zhao, M.T. Wu, Y.X. Xu and S.Q. Peng, **J. Chromatogr. B**, 2003, **794**, 193-203.
62. "Determination of dextropropoxyphene and nordextropropoxyphene in urine by liquid chromatography-electrospray ionization mass spectrometry", H.A. Lakso and A. Norstrom, **J. Chromatogr. B**, 2003, **794**, 57-65.
63. "Quantitative trace analysis of estriol in human plasma by negative ion chemical ionization gas chromatography-mass spectrometry using a deuterated internal standard", H.J. Leis, G. Fauler, G.N. Rechberger and W. Windischhofer, **J. Chromatogr. B**, 2003, **794**, 205-13.
64. "Development and validation of a liquid chromatography mass spectrometry assay for the determination of opiates and cocaine in meconium", S. Pichini, R. Pacifici, M. Pellegrini, E. Marchei, E. PerezAlarcon, C. Puig, O. Vall and O. GarciaAlgar, **J. Chromatogr. B**, 2003, **794**, 281-92.
65. "Simultaneous determination of clofibrate and its active metabolite clofibric acid in human plasma liquid chromatography with by reversed-phase high-performance ultraviolet absorbance detection", L.H. Du, Y. Xu and D.G. Musson, **J. Chromatogr. B**, 2003, **794**, 343-51.
66. "Quantitative determination of the enantiomers of methadone and its metabolite (EDDP) in human saliva by enantioselective liquid chromatography with mass spectrometric detection", M.E.R. Rosas, K.L. Preston, D.H. Epstein, E.T. Moolchan and I.W. Wainer, **J. Chromatogr. B**, 2003, **796**, 355-70.
67. "Enantioselective determination of ibuprofen in plasma by HPLC-electrospray mass spectrometry", P.S. Bonato, M.P.F.M. Del Lama and R. de Carvalho, **J. Chromatogr. B**, 2003, **796**, 413-20.
68. "Simultaneous screening for 238 drugs in blood by liquid chromatography/ionspray tandem mass spectrometry with multiple-reaction monitoring", M. Gergov, I. Ojanpera and E. Vuori, **J. Chromatogr. B**, 2003, **795**, 41-53.
69. "Use of high performance liquid chromatography for the determination of cocaine and benzoylecgonine in human hair", P. Fernandez, M. Leon, A.M. Bouzas, A.M. Bermejo and M.J. Tabernero, **J. Liq. Chromatogr. Relat. Techno.**, 2003, **26**, 2003-12.
70. "Determination of opiates in biological samples through the analysis of heptafluorobutyric derivatives by gas chromatography/negative ion chemical ionization mass spectrometry", A. Acampora, E.D. Casa, G. Martone and N. Miraglia, **J. Mass Spectrometry**, 2003, **38**, 1007-11.
71. "Determination of estrogens and progestogens by mass spectrometric techniques (GC/MS, LC/MS and LC/MS/MS)", M.S. DiazCruz, M.J.L. deAlda, R. Lopez and D. Barcelo, **J. Mass Spectrometry**, 2003, **38**, 917-23.
72. "Therapeutic and toxic blood concentratons of more than 800 drugs and other xenobiotics",

- M. Schulz and A. Schmoldt, **Pharmazie**, 2003, **58**, 447-74.
73. "Demystifying mass spectrometry", A. Constans, **Scientist**, 2003, **17**, 20.
74. "High-performance liquid chromatographic method with diode array detection for identification and quantification of the eight new antidepressants and five of their active metabolites in plasma after overdose", K. Titier, N. Castaing, E. ScottoGomez, F. Pehourcq, N. Moore and M. Molimard, **Ther. Drug Monit.**, 2003, **25**, 581-7.
75. "Interpretation of the presence of 6-monoacetylmorphine in the absence of morphine-3-glucuronide in urine samples: Evidence of heroin abuse", M. vonEuler, T. Villen, J.O. Svensson and L. Stahle, **Ther. Drug Monit.**, 2003, **25**, 645-8.

## Analytical Toxicology Literature Survey

**Prepared by:** Rodger L. Foltz

**Period Surveyed:** November 1, 2003 to January 31, 2004      Articles are ordered by journal/book

1. "Two new standard reference materials for the determination of drugs of abuse in human hair", M.J. Welch, L.T. Sniegoski and S. Tai, **Anal. Bioanal. Chem.**, 2003, **376**, 1205-11.
2. "Simultaneous analysis of amino and nonamino organic acids as methyl chloroformate derivatives using gas chromatography-mass spectrometry", S.G. VillasBoas, D.G. Delicado, M. Akesson and J. Nielsen, **Anal. Biochem.**, 2003, **322**, 134-8.
3. "Quantitation of endogenous analytes in biofluid without a true blank", W. Li and L.H. Cohen, **Anal. Chem.**, 2003, **75**, 5854-9.
4. "Toxicological screening with formula-based metabolite identification by liquid chromatography/time-of-flight mass spectrometry", A. Pelander, I. Ojanpera, S. Laks, L. Rasanen and E. Vuori, **Anal. Chem.**, 2003, **75**, 5710-8.
5. "Electron ionization for LC/MS", A. Cappiello, G. Famiglini and P. Palma, **Anal. Chem.**, 2003, **75**, 497A-503A.
6. "Simple method for the determination of benzodiazepines in human body fluids by LC/MS", X.-P. Lee, T. Kumazawa, J. Sato, Y. Shoji, C. Hasegawa, C. Karibe, T. Arinobu, H. Seno and K. Sato, **Analytica Chimica Acta**, 2003, **492**, 223-31.
7. "Improved screening capabilities in forensic toxicology by application of liquid chromatography-tandem mass spectrometry", D. Thieme and H. Sachs, **Analytica Chimica Acta**, 2003, **492**, 171-86.
8. "Identification of anabolic steroids in serum, urine, sweat and hair. Comparison of metabolic patterns", D. Thieme, P. Anielski, J. Grosse, H. Sachs and R.K. Mueller, **Analytical Chimica Acta**, 2003, **483**, 299-306.
9. "Benchtop mass spectrometry in clinical biochemistry", J.W. Honour, **Ann. Clin. Biochem.**, 2003, **40**, 628-638.
10. "Determination of methamphetamine and amphetamine in abusers' plasma and hair samples with HPLC-FL", K. Nakashima, A. Kaddoumi, Y. Ishida, T. Itoh and K. Taki, **Biomed. Chromatogr.**, 2003, **17**, 471-6.
11. "Simple analysis of amphetamines in human whole blood and urine by headspace capillary gas chromatography with large volume injection", K. Watanabe, N. Okamoto, I. Yamagishi, H. Nozawa, A. Ishii and O. Suzuki, **Chromatographia**, 2003, **58**, 455-8.
12. "Use of tandem mass spectrometry for multianalyte screening of dried blood specimens from newborns", D.H. Chace, T.A. Kalas and E.W. Naylor, **Clin Chem**, 2003, **49**, 1797-817.

13. "Duration of detectable methamphetamine and amphetamine excretion in urine after controlled oral administration of methamphetamine to humans", J.M. Oyler, E.J. Cone, R.E. Joseph, E.T. Moolchan and M.A. Huestis, **Clin. Chem.**, 2003, **48**, 1703-14.
14. "Therapeutic drug monitoring of 13 antidepressant and five neuroleptic drugs in serum with liquid chromatography-electrospray ionization mass spectrometry", U. Gutteck and K.M. Rentsch, **Clin. Chem. Lab. Med.**, 2003, **41**, 1571-9.
15. "Determination of nicotine and its major metabolite cotinine in plasma or serum by gas chromatography-mass spectrometry using ion-trap detection", E. Cognard and C. Staub, **Clin. Chem. Lab. Med.**, 2003, **41**, 1599-607.
16. "The pharmacology of cocaethylene in humans following cocaine and ethanol administration", D.S. Harris, E.T. Everhart, J. Mendelson and R.T. Jones, **Drug Alcohol Dependence**, 2003, **72**, 169-82.
17. "Capillary electrophoresis - mass spectrometry: 15 years of developments and applications", P. Schmitt-Kopplin and M. Frommberger, **Electrophoresis**, 2004, **24**, 3837-67.
18. "Optimized conditions for simultaneous determination of opiates, cocaine and benzoylecgonine in hair samples by GC/MS", F.S. Romolo, M.C. Rotolo, I. Palmi, R. Pacifici and A. Lopez, **Forensic Sci. Int.**, 2003, **138**, 17-26.
19. "Performance of immunoassays in screening for opiates, cannabinoids and amphetamine in post-mortem blood", Y. Hino, I. Ojanpera, I. Rasanen and E. Vuori, **Forensic Sci. Int.**, 2003, **131**, 148-55.
20. "Determination of drugs of abuse in hair: evaluation of external heroin contamination and risk of false positives", G. Romano, N. Barbera, G. Spadaro and V. Valenti, **Forensic Sci. Int.**, 2003, **131**, 98-102.
21. "Electrospray tandem mass spectrometric investigations of morphinans", K. Raith, R. Neubert, C. Poeaknapo et al., **J. Am. Soc. Mass Spectrom.**, 2003, **14**, 1262-69.
22. "Matrix effect in bio-analyis of illicit drugs with LC/MS/MS: Influence of ionization type, sample preparation, and biofluid", R. Dams, M.A. Huestis, W.E. Lambert and C.M. Murphy, **J. Am. Soc. Mass Spectrom.**, 2003, **14**, 1290-4.
23. "The development and application of a gas chromatography-mass spectrometric assay to determine the presence of 2-oxo-3-hydroxy-LSD in urine", B.T. Burnley and S. George, **J. Anal. Toxicol.**, 2003, **27**, 249-52.
24. "Mechanisms underlying postmortem redistribution of drugs: A review", A.-L. Pelissier-Alicot, J.-M. Gaulier, P. Champsaur and P. Marquent, **J. Anal. Toxicol.**, 2003, **27**, 533-44.
25. "The effect of hair color on the incorporation of codeine into human hair", D.E. Rollins, D.G.

Wilkins, G.G. Krueger, M.P. Augsburger, A. Mizuno, C. O'Neal, C.R. Borges and M.H. Slawson, **J. Anal. Toxicol.**, 2003, **27**, 545-51.

26. "Concentrations and ratios of amphetamine, methamphetamine, MDA, MDMA, and MDEA enantiomers determined in plasma samples from clinical toxicology and driving under the influence of drugs cases by GC-NICI-MS", F.T. Peters, N. Samyn, M. Wahl, T. Kraemer, G. De Boeck and H.H. Maurer, **J. Anal. Toxicol.**, 2003, **27**, 552-9.
27. "Determination of endogenous levels of GHB in human hair. Are the possibilities for the identification of GHB administration through hair analysis in cases of drug-facilitated sexual abuse?" J.P. Gouille, M. Cheze and G. Pepin, **J. Anal. Toxicol.**, 2003, **27**, 574-80.
28. "Validation of the Cozart microplate ELISA for detection of opiates in hair", G. Cooper, L. Wilson, C. Reid, D. Baldwin, C. Hand and V. Spiehler, **J. Anal. Toxicol.**, 2003, **27**, 581-6.
29. "Performance of a microtiter plate ELISA for screening of postmortem blood for cocaine and metabolites", V. Spiehler, D.S. Isenschmid, P. Matthews, P. Kemp and T. Kupiec, **J. Anal. Toxicol.**, 2003, **27**, 587-91.
30. "The analysis and distribution of mescaline in postmortem tissues", J.L. Henry, J. Epley and T.P. Rohrig, **J. Anal. Toxicol.**, 2003, **27**, 381-2.
31. "Tentative identification of novel oxycodone metabolites in human urine", K.A. Moore, V. Ramcharitar, B. Levine and D. Fowler, **J. Anal. Toxicol.**, 2003, **27**, 346-52.
32. "Prediction of impairment from urine benzoylecgonine concentrations", K.A. Moore, B. Levine and D. Fowler, **J. Anal. Toxicol.**, 2003, **27**, 383-4.
33. "Methadone and metabolite urine concentrations in patients maintained on methadone", K.L. Preston, D.H. Epstein, D. Davoudzadeh and M.A. Huestis, **J. Anal. Toxicol.**, 2003, **27**, 332-41.
34. "Ephedrines in over-the-counter cold medicines and urine specimens collected during sport competitions", Y.L. Tseng, H.-R. Hsu, F.-H. Kuo, M.-H. Shieh and C.-F. Chang, **J. Anal. Toxicol.**, 2003, **27**, 359-65.
35. "Further evidence for the presence of GHB in postmortem biological fluid: Implications for the interpretation of findings", S.P. Elliott, **J. Anal. Toxicol.**, 2004, **28**, 20-6.
36. "Mixed-mode solid-phase extraction procedures for the determination of MDMA and metabolites in urine using LC/MS, LC/UV, or GC/NPD", K.M. Jenkins, M.S. Young, C.R. Mallet and A.A. Elian, **J. Anal. Toxicol.**, 2004, **28**, 50-8.
37. "A rapid procedure for the monitoring of amiodarone and N-desethylamiodarone by HPLC/UV detection", J.M. Juenke, P.I. Brown, G.A. McMillin and F.M. Urry, **J. Anal. Toxicol.**, 2004, **28**, 63-6.
38. "An investigation of the stability of free and glucuronidated 11-nor- $\Delta$ 9-

- tetrahydrocannabinol-9-carboxylic acid in authentic urine samples”, G. Skopp and L. Potsch, **J. Anal. Toxicol.**, 2004, **28**, 35-40.
39. “Bioanalytical liquid chromatography tandem mass spectrometry methods on underivatized silica columns with aqueous/organic mobile phases”, N.D. Weng, **J. Chromatogr. B**, 2003, **796**, 209-24.
40. “Simultaneous solid-phase extraction of acidic, neutral and basic pharmaceuticals from aqueous samples at ambient (neutral) pH and their determination by gas chromatography-mass spectrometry”, S. Weigel, R. Kallenborn and H. Huhnerfuss, **J. Chromatogr. A**, 2003, **1023**, 183-95.
41. “High-performance liquid chromatography-tandem mass spectrometry with a new quadrupole/linear ion trap instrument”, J.W. Hager and J.C.Y. LeBlanc, **J. Chromatogr. A**, 2003, **1020**, 3-9.
42. “Determination of nicotine and cotinine in rat plasma by liquid chromatography-tandem mass spectrometry”, A.A.M. Stolker, W. Niesing, E.A. Hogendoorn, A.B. Rambali and W. Vleeming, **J. Chromatogr. A**, 2003, **1020**, 35-43.
43. “Monitoring drugs and metabolites in whole blood by restricted-access solid-phase microextraction coupled to liquid chromatography-mass spectrometry”, M. Walles, W.M. Mullett and J. Pawliszyn, **J. Chromatogr. A**, 2003, **1025**, 85-92.
44. “Simultaneous solid-phase extraction of acidic, neutral and basic pharmaceuticals from aqueous samples at ambient (Neutral) pH and their determination by gas chromatography-mass spectrometry”, S. Weigel, R. Kallenborn and H. Huhnerfuss, **J. Chromatogr. A**, 2004, **1023**, 183-95.
45. “Ultra-rapid procedure to test for gamma-hydroxybutyric acid in blood and urine by gas chromatography-mass spectrometry”, M. Villain, V. Cirimele, B. Ludes and P. Kintz, **J. Chromatogr. B**, 2003, **792**, 83-7.
46. “Validated method for the simultaneous determination of Δ9-tetrahydrocannabinol (THC), 11-hydroxy-THC and 11-nor-9-carboxy-THC in human plasma using solid phase extraction and gas chromatography-mass spectrometry with positive chemical ionization”, R.A. Gustafson, E.T. Moolchan, A. Barnes, B. Levine and M.A. Huestis, **J. Chromatogr. B**, 2003, **798**, 145-54.
47. “Highly sensitive gas chromatographic determination of ethanol in human urine samples”, M. Zilly, P. Langmann, U. Lenker, V. Satzinger, D. Schirmer and H. Klinker, **J. Chromatogr. B**, 2003, **798**, 179-86.
48. “Development and validation of a gas chromatography-mass spectrometry assay for hair analysis of amphetamine, methamphetamine and methylenedioxymethamphetamine derivatives”, M. Pujadas, S. Pichini, S. Poudevila, E. Menoyo, P. Zuccaro, M. Farre and R. de la Torre, **J. Chromatogr. B**, 2003, **798**, 249-55.

49. "Determination of cocaine, benzoylecgonine and cocaethylene in human hair by solid-phase microextraction and gas chromatography mass spectrometry", F.C.P. de Toledo, M. Yonamine, R.L. de Moraes Moreau and O.A. Silva, **J. Chromatogr. B**, 2003, **798**, 361-5.
50. "Optimized glucuronide hydrolysis for the detection of psilocin in human urine samples", T. Kamata, M. Nishikawa, M. Katagi and H. Tsuchihashi, **J. Chromatogr. B**, 2003, **796**, 421-7.
51. "Rapid and sensitive static headspace gas chromatography-mass spectrometry method for the analysis of ethanol and abused inhalants in blood", I.A. Wasfi, A.H. AlAwadhi, Z.N. AlHatali, F.J. AlRayami and N.A. AlKatheeri, **J. Chromatogr. B**, 2004, **799**, 331-6.
52. "Toxicological detection of the new designer drug 1-(4-methoxyphenyl)piperazine and its metabolites in urine and differentiation from an intake of structurally related medicaments using gas chromatography-mass spectrometry", R.F. Staack and H.H. Maurer, **J. Chromatogr. B**, 2003, **798**, 333-42.
53. "New developments in SPME, part 1: The use of vapor-phase deprotonation and on-fiber derivatization with alkylchloroformates in the analysis of preparations containing amphetamines", H. Brown, K.P. Kirkbride, P.E. Pigou and G.S. Walker, **J. Forensic Sci.**, 2003, **48**, 1231-8.
54. "Screening for and validated quantification of amphetamines and of amphetamine- and piperazine-derived designer drugs in human blood plasma by GC/MS", F.T. Peters, S. Schaefer, R.F. Staack, T. Kraemer and H.H. Maurer, **J. Mass Spectrom.**, 2003, **38**, 659-76.
55. "Exact mass measurement on an electrospray ionization time-of-flight mass spectrometer: error distribution and selective averaging", J.J. Wu and H. McAllister, **J. Mass Spectrometry**, 2003, **38**, 1043-53.
56. "A software filter to remove interference ions from drug metabolites in accurate mass liquid chromatography/mass spectrometric analyses", H.Y. Zhang, D.L. Zhang and K. Ray, **J. Mass Spectrometry**, 2003, **38**, 1110-2.
57. "Simultaneous fast HPLC-MS/MS analysis of drug candidates and hydroxyl metabolites in plasma", Y.S. Hsieh, J.M. Brisson, G.F. Wang, K. Ng and W.A. Korfmacher, **J. Pharmaceut. Biomed. Anal.**, 2003, **33**, 251-61.
58. "Experiences with monolithic LC phases in quantitative bioanalysis", N.C. vandeMerbel and H. Poelman, **J. Pharmaceut. Biomed. Anal.**, 2003, **33**, 495-504.
59. "Suspected pediatric ingestions: Effectiveness of immunoassay screens vs. gas chromatography/mass spectroscopy in the detection of drugs and chemicals", P.B. Kyle, J.L. Spencer, C.M. Purser, K.C. Eddleman and A.S. Hume, **J. Toxicol. Clin. Toxicol.**, 2003, **41**, 919-25.
60. "Assessing the potential of a "color effect" for hair analysis of 11-nor-9-carboxy- $\Delta$ 9-tetrahydrocannabinol: analysis of a large sample of hair specimens", T. Mieczkowski, **Life**

**Sciences**, 2003, **74**, 463-9.

61. "Validation of a screening method for corticosteroids in doping analysis by LC/MS/MS", K. Deventer and F.T. Delbeke, **Rapid Commun. Mass Spectrom.**, 2003, **17**, 2107-14.
62. "Impact of lowering the screening and confirmation cutoff values for urine drug testing based on dilution indicators", A.D. Fraser and J. Zamecnik, **Ther. Drug Monit.**, 2003, **25**, 723-7.

## Analytical Toxicology Literature Survey

**Prepared by:** Rodger L. Foltz

**Period Surveyed:** February 1, 2004 to May 31, 2004

Articles are ordered by journal/book

1. **Handbook of Drug Interactions: A Clinical and Forensic Guide**, A. Mozayani and L.P. Raymon, Humana Press, Totowa, N.J., 2004.
2. "Enzymatic tissue digestion as an alternative sample preparation approach for quantitative analysis using liquid chromatography-tandem mass spectrometry", C. Yu, L.D. Penn, J. Hollembaek, W.L. Li and L.H. Cohen, **Anal. Chem.**, 2004, **76**, 1761-7.
3. "Development and evaluation of a candidate reference method for the determination of total cortisol in human serum using isotope dilution liquid chromatography/mass spectrometry and liquid chromatography/tandem mass spectrometry", S.S.C. Tai and M.J. Welch, **Anal. Chem.**, 2004, **76**, 1008-14.
4. "What mass spectrometry can reveal about protein function", Y. Wu and J.R. Engen, **Analyst**, 2004, **129**, 290-6.
5. "Solid-phase microextraction and liquid chromatography/mass spectrometry in drug analysis", T. Kumazawa, X.-P. Lee, K. Sato and O. Suzuki, **Analytica Chimica Acta**, 2003, **492**, 49-67.
6. "Determination of cannabinoids in human hair by GC/M", J.L. Villamor, A.M. Bermejo, M.J. Tabernero and P. Fernandez, **Analytical Letters**, 2004, **37**, 517-28.
7. "Simultaneous determination of amphetamine derivatives in human urine after SPE extraction and HPLC-UV analysis", M.E. Soares, M. Carvalho, H. Carmo, F. Remiao, F. Carvalho and M.L. Bastos, **Biomed. Chromatogr.**, 2004, **18**, 125-31.
8. "Urinary screening for methylphenidate (Ritalin) abuse: a comparison of liquid chromatography-tandem mass spectrometry, gas chromatography-mass spectrometry, and immunoassay methods", J. Eichhorst, M. Etter, J. Lepage and D.C. Lehotay, **Clin. Biochem.**, 2004, **37**, 175-83.
9. "In vitro contamination of hair by marijuana smoke", J. Thorspecken, G. Skopp and L. Potsch, **Clin. Chem.**, 2004, **50**, 596-602.
10. "Total plasma homocysteine measured by liquid chromatography-tandem mass spectrometry with use of 96-well plates", T. Arndt, B. Guessregen, A. Hohl and B. Heicke, **Clin. Chem.**, 2004, **50**, 755-7.
11. "Liquid chromatography-tandem mass spectrometry assay for simultaneous measurement of estradiol and estrone in human plasma", R.E. Nelson, S.K. Grebe, D.J. OKane and R.J. Singh, **Clin. Chem.**, 2004, **50**, 373-84.
12. "Advances in analytical mass spectrometry to improve screening for inherited metabolic diseases", W. Roschinger, B. Olgemoller, R. Fingerhut, B. Liebl and A.A. Roscher, **Eur. J. Pediat.**, 2003, **162**, S67-S76.
13. "Derivatization in mass spectrometry. 3. Alkylation (arylation)", J.M. Haiket and V.G. Zaikin, **Eur. J. Mass Spectrom.**, 2004, **10**, 1-19.
14. "Application of liquid chromatography-tandem mass spectrometry to the analysis of benzodiazepines in blood", H.M. Rivera, G.S. Walker, D.N. Sims and P.C. Stockham, **Eur. J. Mass Spectrom.**, 2003, **9**, 599-607.

15. "Urinary excretion profiles of 11-nor-9-carboxy- $\Delta$ 9-tetrahydrocannabinol study III." A.D. Fraser and D. Worth, **Forensic Sci. Int.**, 2003, **137**, 196-202.
16. "Simultaneous determination of thirteen  $\beta$ -blockers and one metabolite by gradient high-performance liquid chromatography with photodiode-array UV detection", M. Delamoye, C. Duvemeuil, F. Paraire, P. Mazancourt and J.-C. Alvarez, **Forensic Sci. Int.**, 2004, **141**, 23-3'.
17. "Performance characteristics of the Cozart(R) RapiScan Oral Fluid Drug Testing System for opiates in comparison to ELISA and GC/MS following controlled codeine administration", S.L. Kacinko, A.J. Barnes, I. Kim, E.T. Moolchan, L. Wilson, G.A. Cooper, C. Reid, D. Baldwin, C.W. Hand and M.A. Huestis, **Forensic Sci. Int.**, 2004, **141**, 41-8.
18. "The GC/MS detection and characterization of reticuline as a marker of opium use", A.M. Al-Amri, R.M. Smith, B.M. El-Haj and M.H. Juma'a, **Forensic Sci. Int.**, 2004, **142**, 61-9.
19. "Screening of newborns for metabolic disorders with mass spectrometry", B. Wilcken, **J. Am. Med. Assn.**, 2004, **291**, 1444.
20. "Confirmatory analysis of ethylglucuronide in urine by liquid-chromatography/ electrospray ionization/tandem mass spectrometry according to forensic guidelines", W. Weinmann, S. Schaefer, A. Thierauf, A. Schreiber and F.-M. Wurst, **J. Am. Soc. Mass Spectrom.**, 2004, **15**, 188-93.
21. "The determination of morphine in urine and oral fluid following ingestion of poppy seeds", T.P. Rohrig and C. Moore, **J. Anal. Toxicol.**, 2003, **27**, 449-52.
22. "Simultaneous determination of eight underivatized amphetamines in hair by HPLC-APCI-MS", R. Stanaszek and W. Piekoszewski, **J. Anal. Toxicol.**, 2004, **28**, 77-85.
23. "Comparative analysis of sweat patches for cocaine (and metabolites) by radioimmunoassay and gas chromatography-positive ion chemical ionization-mass spectrometry", D.E. Moody, A.C. Spanbauer, J.L. Taccogno and E.K. Smith, **J. Anal. Toxicol.**, 2004, **28**, 86-93.
24. "Simultaneous detection and quantitation of morphine, 6-acetylmorphine, and cocaine in toenails: Comparison with hair analysis", M. Cingolani, S. Scavella, R. Mencarelli, D. Mirtella, R. Froldi and D. Rodriguez, **J. Anal. Toxicol.**, 2004, **28**, 128-31.
25. "Urinary pharmacokinetics of 11-nor-9-carboxy-Delta(9)-tetrahydrocannabinol after controlled oral Delta(9)-tetrahydrocannabinol administration", R.A. Gustafson, I. Kim, P.R. Stout, K.L. Klette, M.P. George, E.T. Moolchan, B. Levine and M.A. Huestis, **J. Anal. Toxicol.**, 2004, **28**, 160-7.
26. "Quantification of risperidone and 9-hydroxyrisperidone in plasma and saliva from adult and pediatric patients by liquid chromatography-mass spectrometry", J. Flarakos, W. Luo, M. Aman, D. Svinarov, N. Gerber and P. Vouros, **J. Chromatogr. A**, 2004, **1026**, 175-83.
27. "Optimisation technique for stepwise gradient elution in reversed-phase liquid chromatography", P. Nikitas, A. PappaLouisi and K. Papachristos, **J. Chromatogr. A**, 2004, **1033**, 283-9.
28. "Determination of picogram levels of midazolam, and 1- and 4-hydroxymidazolam in human plasma by gas chromatography-negative ion chemical ionization-mass spectrometry", C.B. Eap, G. Bouchoux, K.P. Golay and P. Baumann, **J. Chromatogr. B**, 2004, **802**, 339-45.
29. "Liquid chromatographic-mass spectrometric quantitation of  $\Delta$ 9-tetrahydrocannabinol and two metabolites in pharmacokinetic study plasma samples", S. Valiveti and A.L. Stinchcomb, **J. Chromatogr.**

**B**, 2004, **803**, 243-8.

30. "Rapid method for evaluating reversed-phase high-performance liquid chromatography column stability", C.H. Collins, **J. Chromatogr. A**, 2004, **1030**, 149-55.
31. "Rapid screening procedure based on headspace solid-phase microextraction and gas chromatography-mass spectrometry for the detection of many recreational drugs in hair", S. Gentili, M. Cornetta and T. Macchia, **J. Chromatogr. B**, 2004, **801**, 289-96.
32. "Highly sensitive gas chromatographic-mass spectrometric screening method for the determination of picogram levels of fentanyl, sufentanil and alfentanil and their major metabolites in urine of opioid exposed workers", N.F.J. Van Nimmen, K.L.C. Poels and H.A.F. Veulemans, **J. Chromatogr. B**, 2004, **804**, 375-87.
33. "Development and validation of a liquid chromatography mass spectrometry assay for the determination of opiates and cocaine in meconium", S. Pichini, R. Pacifici, M. Pellegrini, E. Marchei, E. PerezAlarcon, C. Puig, O. Vall and O. GarciaAlgar, **J. Chromatogr. B**, 2003, **794**, 281-92.
34. "Sensitive and simple gas chromatographic-mass spectrometric determination for amphetamine in microdialysate and ultrafiltrate samples", S. Xie, J. Aspromonte, A. Balla, H. Sershen, D.C. Javitt and T.B. Cooper, **J. Chromatogr. B**, 2004, **805**, 27-31.
35. "Determination of cocaine, its metabolites, pyrolysis products, and ethanol adducts in postmortem fluids and tissues using Zymark(R) automated solid-phase extraction and gas chromatography-mass spectrometry", R.J. Lewis, R.D. Johnson, M.K. Angier and R.M. Ritter, **J. Chromatogr. B**, 2004, **806**, 141-50.
36. "Development of a liquid chromatography-tandem mass spectrometric method for the determination of methamphetamine and amphetamine using small volumes of rat serum", H.P. Hendrickson, A. Milesi-Hale, E.M. Laurenzana and S.M. Owens, **J. Chromatogr. B**, 2004, **806**, 81-7.
37. "Method development and validation for quantitative determination of methadone enantiomers in human plasma by liquid chromatography-tandem mass spectrometry", H.R. Liang, R.L. Foltz, M. Meng and P. Bennett, **J. Chromatogr. B**, 2004, **806**, 191-8.
38. "Validated semiquantitative/quantitative screening of 51 drugs in whole blood as silylated derivatives by gas chromatography-selected ion monitoring mass spectrometry and gas chromatography electron capture detection", T. Gunnar, S. Mykkanen, K. Ariniemi and P. Lillsunde, **J. Chromatogr. B**, 2004, **806**, 205-19.
39. "Determination of midazolam in human plasma by liquid chromatography with mass-spectrometric detection [rapid communication]", E.R. Lepper, J.K. Hicks, J. Verweij, S. Zhai, W.D. Figg and A. Sparreboom, **J. Chromatogr. B**, 2004, **806**, 305-10.
40. "Measurement of total serum testosterone in adult men: Comparison of current laboratory methods versus liquid chromatography-tandem mass spectrometry", C. Wang, D.H. Catlin, L.M. Demers, B. Starcevic and R.S. Swerdlow, **J. Clin. Endocrinol. Metab.**, 2004, **89**, 534-43.
41. "Evaluation of ephedrine, pseudoephedrine and phenylpropanolamine concentrations in human urine samples and a comparison of the specificity of DRI amphetamines and Abuscreen online (KIMS) amphetamines screening immunoassays", P.R. Stout, K.L. Klette and C.K. Horn, **J. Forensic Sci.**, 2004, **49**, 160-4.
42. "Validation of HPLC instrumentation", L.N. Papadoyannis and V.F. Samanidou, **J. Liq. Chromatogr.**

**Relat. Techno.**, 2004, **27**, 753-83.

43. "New designer drug 1-(3,4-methylenedioxybenzyl) piperazine (MDBP): studies on its metabolism and toxicological detection in rat urine using gas chromatography/mass spectrometry", R.F. Staack and H.H. Maurer, **J. Mass Spectrometry**, 2004, **39**, 255-61.
44. "Solid-phase microextraction: a powerful sample preparation tool prior to mass spectrometric analysis", G. Vas and K. Vekey, **J. Mass Spectrom.**, 2004, **39**, 233-54.
45. "Influence of mobile phase composition on the high-performance liquid chromatographic/ electrospray ionization mass spectrometric analysis of 11-nor-9-carboxy-Delta(9)-tetrahydrocannabinol (THC-COOH) and its glucuronide in urine", R. Franski, A. Tezyk, R. Wachowiak and G. Schroeder, **J. Mass Spectrometry**, 2004, **39**, 458-60.
46. "Simultaneous extraction and quantitation of fentanyl and norfentanyl from primate plasma with LC/MS detection", D.E. Koch, R. Isaza, J.W. Carpenter and R.P. Hunter, **J. Pharmaceut. Biomed. Anal.**, 2004, **34**, 577-84.
47. "Measuring tobacco smoke exposure: quantifying nicotine/cotinine concentration in biological samples by colorimetry, chromatography and immunoassay", P. Dhar, **J. Pharm. Biomed. Anal.**, 2004, **34**, 155-68.
48. "A sensitive HPLC-MS-MS assay for quantitative determination of midazolam in dog plasma", S.R. Harris, J.I. Gedge, A.N.R. Nedderman, S.J. Roffey and M. Savage, **J. Pharm. Biomed. Anal.**, 2004, **35**, 127-34.
49. "Determination of naltrexone and 6- $\beta$ -naltrexol in human plasma following implantation of naltrexone pellets using gas chromatography-mass spectrometry", S.W. Toennes, G.F. Kauert, S.M. Grusser, W. Jakel and G. Partecke, **J. Pharm. Biomed. Anal.**, 2004, **35**, 169-76.
50. "Stir bar sorptive extraction-thermal desorption-capillary GC-MS for profiling and target component analysis of pharmaceutical drugs in urine", B. Tienpont, F. David, T. Benijts and P. Sandra, **J. Pharmaceut. Biomed. Anal.**, 2003, **32**, 569-79.
51. "Detection and analysis of drugs of forensic interest, 1992 - 2001; a literature review", R.F.X. Klein and P.A. Hays, **Microgram Journal**, 2003, **1**, 55-153.
52. "Screening of free 17-alkyl-substituted anabolic steroids in human urine by liquid chromatography-electrospray ionization mass spectrometry", A. Leinonen, T. Kuuranne, T. Kotiaho and R. Kostainen, **Steroids**, 2004, **69**, 101-9.
53. "Interpretation of the presence of 6-monoacetylmorphine in the absence of morphine-3-glucuronide in urine samples: Evidence of heroin abuse", M. von Euler, T. Villen, J.-O. Svensson and L. Stahle, **Therapeutic Drug Monitoring**, 2003, **25**, 645-8.

**ANALYTICAL TOXICOLOGY LITERATURE SURVEY**

**Prepared by:** Rodger L. Foltz

**Period Surveyed:** June 1, 2004 to August 31, 2004

Articles are ordered by journal/book

1. **Advances in Forensic Applications of Mass Spectrometry**, J. Yinon, CRC Press LLC, Boca Raton, FL, 2004.
2. "Buffer loading for counteracting metal salt-induced signal suppression in electrospray ionization", A.T. Lavarone, O.A. Udekuw and E.R. Williams, **Anal. Chem.**, 2004, **76**, 3944-50.
3. "Simultaneous quantification of opiates, cocaine and metabolites in hair by LC-APCI-MS/MS", K.B. Scheidweiler and M.A. Huestis, **Anal. Chem.**, 2004, **76**, 4358-63.
4. "Toxicological screening with formula-based metabolite identification by liquid chromatography/time-of-flight mass spectrometry", A. Pelander, I. Ojanpera, S. Laks, L. Rasanen and E. Vuori, **Anal. Chem.**, 2004, **75**, 5710-8.
5. "Quantitation of endogenous analytes in bioluid without a true blank matrix", W. Li and L.H. Cohen, **Anal. Chem.**, 2004, **75**, 5854-9.
6. "Old reliable benchtop GC/MS", R. Mukhopadhyay, **Anal. Chem.**, 2004, **76**, 213A-216A.
7. "Determination of amines as pentafluoropropionic acid anhydride derivatives in biological samples using liquid chromatography and tandem mass spectrometry", A. Marand, D. Karlsson, M. Dalene and G. Skarping, **Analyst**, 2004, **129**, 522-8.
8. "Analysis of corticosteroids by high performance liquid chromatography-electrospray mass spectrometry", A. Panusa, M. Ottaviani, M. Picardo, E. Camera, L. Gagliardi, P. Chimenti, A. Granese and D. Tonelli, **Analyst**, 2004, **129**, 719-23.
9. "Simultaneous determination of chlorpheniramine and pseudoephedrine in human plasma by liquid chromatography-tandem mass spectrometry", X.Y. Chen, Y. Zhang and D.F. Zhong, **Biomed. Chromatogr**, 2004, **18**, 248-53.
10. "Cortisol and cortisone analysis in serum and plasma by atmospheric pressure photoionization tandem mass spectrometry", M.M. Kushnir, R. Neilson, W.L. Roberts and A.L. Rockwood, **Clin. Biochem.**, 2004, **37**, 357-62.
11. "Mass spectrometric identification of ethyl sulfate as an ethanol metabolite in humans", A. Helander and O. Beck, **Clin. Chem.**, 2004, **50**, 936-7.
12. "Amphetamines and 3,4-methylendioxymethamphetamine MDMA: evaluation of KIMS (Kinetic interaction of microparticles in solution) assay at two cut-off levels", L. Marchioro, F. Bassetto, G. DallOlio, L. Tedeschi, F. Castagna and M. Plebani, **Clin. Chem Lab Med.**, 2004, **42**, 543-8.
13. "Analytical performance of immunoassays for drugs of abuse below established cutoff values", V.I. Luzzi, A.N. Saunders, J.W. Koenig, J. Turk, S.F. Lo, U.C. Garg and D.J. Dietzen, **Clin. Chem.**, 2004, **50**, 717-22.
14. "A critical evaluation of high performance liquid chromatography-electrospray ionization-mass spectrometry and capillary electrophoresis-electrospray-mass spectrometry for the detection and determination of small molecules of significance in clinical and forensic science", W.F. Smyth and P. Brooks, **Electrophoresis**, 2004, **25**, 1413-46.
15. "Evaluation of the One-Step® ELISA kit for the detection of buprenorphine in urine, blood, and hair specimens", V. Cinimele, S. Etienne, M. Villain, B. Ludes and P. Kintz, **Forensic Sci. Int.**, 2004, **143**, 153-6.
16. "Urinary excretion profiles of 11-nor-9-carboxy-Δ9-tetrahydrocannabinol and 11-hydroxy-Δ9-THC: cannabinoid metabolites to creatinine ratio study", A.D. Fraser and D. Worth, **Forensic Sci. Int.**, 2004, **143**, 147-52.
17. "Miniaturized sample preparation method for determination of amphetamines in urine", M. Nishida, A. Namera, M. Yashiki and K. Kimura, **Forensic Sci. Int.**, 2004, **143**, 163-7.
18. "Comprehensive two-dimensional gas chromatography with time-of-flight mass spectrometry for drug screening and confirmation", S.M. Song, P. Marriott, O.H. Kotsos, O.H. Drummer and P. Wynne, **Forensic Sci. Int.**, 2004, **143**, 87-101.
19. "The development and application of a rapid gas chromatography-mass spectrometry method to monitor buprenorphine withdrawal protocols", S. George, C. George and M. Chauhan, **Forensic Sci. Int.**, 2004, **143**, 121-5.
20. "Poppy seed consumption and toxicological analysis of blood and urine samples", M.R. Moeller, K. Hammer and O. Engel, **Forensic Sci. Int.**, 2004, **143**, 183-6.
21. "Postmortem distribution of the novel antipsychotic drug quetiapine", J. Hopenwasser, A. Mozayani, T.J. Danielson, J. Harbin, H.S. Narula, et al., **J. Anal. Toxicol.**, 2004, **28**, 264-8.
22. "Postmortem distribution of heroin metabolites in femoral blood, liver, cerebrospinal fluid, and vitreous humor", J. Wyman and S. Bultman, **J. Anal. Toxicol.**, 2004, **28**, 260-3.
23. "Oxycodone involvement in drug abuse deaths. II. Evidence for toxic multiple drug-drug interactions", E.J. Cone, R.V. Fant, J.M. Rohay, Y.H. Caplan, M. Ballina, R.F. Reder and J.D. Haddox, **J. Anal. Toxicol.**, 2004, **28**, 217-25.
24. "Cocaine levels in sweat collection patches vary by location of sweat patch placement and decline over time", N. Uemura, R.P. Nath, M.R. Harkey, G.L. Henderson, J. Mendelson and R.T. Jones, **J. Anal. Toxicol.**, 2004, **28**, 253-9.
25. "Analysis of anabolic steroids by partial filling micellar electrokinetic capillary chromatography and electrospray mass spectrometry", L.K. Amundsen, J.T. Kokkonen, S. Rovio and H. Siren, **J. Chromatogr. A**, 2004, **1040**, 123-31.
26. "Simultaneous determination of dexamethasone and 6β-hydroxdexamethasone in urine using solid-phase extraction and liquid

- chromatography: applications to in vivo measurement of cytochrome P450 3A4 activity", K. Zurbansen, F. Bressolle, I. Solassol, P.J. Aragon, S. Culiné and F. Pinguet, **J. Chromatogr. B**, 2004, **804**, 421-9.
27. "Highly sensitive gas chromatographic-mass spectrometric screening method for the determination of picogram levels of fentanyl, sufentanil and alfentanil and their major metabolites in urine of opioid exposed workers", N.F.J. Van Nimmen, K.L.C. Poels and H.A.F. Veulemans, **J. Chromatogr. B**, 2004, **804**, 375-87.
28. "New trend in sample preparation on-line microextraction in packed syringe for liquid and gas chromatography applications. I. Determination of local anaesthetics in human plasma samples using GC/MS", M. Abdel-Rehim, **J. Chromatogr. B**, 2004, **801**, 317-21.
29. "Determination of human plasma levels of levo-alpha-acetylmethadol and its metabolites by gas chromatography-mass spectrometry", C.B. Eap, G. Bouchoux, N. Scherbaum, M. Gastpar, K.P. Golay and P. Baumann, **J. Chromatogr. B**, 2004, **805**, 141-6.
30. "Simultaneous determination of four immunosuppressants by means of high speed and robust on-line solid phase extraction-high performance liquid chromatography-tandem mass spectrometry", T. Koal, M. Deters, B. Casetta and V. Kaever, **J. Chromatogr. B**, 2004, **805**, 215-22.
31. "Development and validation of a gas chromatography-mass spectrometry method for the simultaneous determination of buprenorphine, flunitrazepam and their metabolites in rat plasma: application to the pharmacokinetic study", S. Pirnay, S. Bouchonnet, F. Hervé, D. Libong, N. Milan, P. d'Athis, F. Baud and I. Ricordel, **J. Chromatogr. B**, 2004, **807**, 335-42.
32. "Liquid chromatographic-mass spectrometric determination of endogenous gamma-hydroxybutyrate concentrations in rat brain regions and plasma", H.L. Fung, E. Haas, J. Raybon, J. Xu and S.M. Fung, **J. Chromatogr. B**, 2004, **807**, 287-91.
33. "Mass selective detection of amphetamine, methamphetamine, and related compounds in urine", J. Furesz, G. Kocsis, A. Gachalyi, G. Karvaly and O. Boldis, **J. Chromatogr. Sci.**, 2004, **42**, 259-62.
34. "Gas chromatographic optimization studies on the side chain and ring regioisomers of methylenedioxymethamphetamine", L. Aalberg, J. DeRuiter, E. Sippola and C.R. Clark, **J. Chromatogr. Sci.**, 2004, **42**, 293-8.
35. "Simultaneous determination of Delta(9)-tetrahydrocannabinol, 11-hydroxy-Delta(9)-tetrahydrocannabinol and 11-nor-9-carboxy-Delta(9)-tetrahydrocannabinol in human plasma by high-performance liquid chromatography/tandem mass spectrometry", B. Maralikova and W. Weinmann, **J. Mass Spectrometry**, 2004, **39**, 526-31.
36. "Rapid analysis of benzodiazepines in whole blood by high-performance liquid chromatography: use of a monolithic column", A. Bugey and C. Staub, **J. Pharmaceut. Biomed. Anal.**, 2004, **35**, 555-62.
37. "Determination of morphine, morphine-3-glucuronide and morphine-6-glucuronide in monkey and dog plasma by HPLC-electrospray ionization mass spectrometry", M. Mabuchi, S. Takatsuka, M. Matsuoka and K. Tagawa, **J. Pharmaceut. Biomed. Anal.**, 2004, **35**, 563-74.
38. "Bioanalytical method validation: a risk-based approach?" C.A. James, M. Breda and E. Frigerio, **J. Pharmaceut. Biomed. Anal.**, 2004, **35**, 887-93.
39. "Analysis of illicit drugs with chromatographic methods" M.J. Bogusz in **Separation Techniques in Clinical Chemistry**, edited by H.Y. Aboul-Enein, Marcel Dekker, Inc., New York, NY, 2003, pp. 221-88.
40. "The role of metabolism in 3,4-(±)-methylenedioxymethamphetamine and 3,4-(±)-methylenedioxymethamphetamine (Ecstasy) toxicity", T.J. Monks, D.C. Jones, F.J. Bai and S.S. Lau, **Ther. Drug Monit.**, 2004, **26**, 132-6.
41. "Detection times of drugs of abuse in blood, urine, and oral fluid", A.G. Verstraete, **Ther. Drug Monit.**, 2004, **26**, 200-5.
42. "Chemistry, pharmacology, toxicology, and hepatic metabolism of designer drugs of the amphetamine (Ecstasy), piperazine, and pyrrolidinophenone types - A synopsis", H.H. Maurer, T. Kraemer, D. Springer and R.F. Staack, **Ther. Drug Monit.**, 2004, **26**, 127-31.
43. "Human pharmacology of MDMA - Pharmacokinetics, metabolism, and disposition", R. de la Torre, M. Farre, P.N. Roset, N. Pizarro, S. Abanades, M. Segura, J. Segura and J. Cami, **Ther. Drug Monit.**, 2004, **26**, 137-44.
44. "Column-switching procedures for the fast analysis of drugs in biologic samples", J.L. Veuthey, S. Souverain and S. Rudaz, **Ther. Drug Monit.**, 2004, **26**, 161-6.
45. "Testing for the undetectable in drug-facilitated sexual assault using hair analyzed by tandem mass spectrometry as evidence", P. Kintz, M. Villain and B. Ludes, **Ther. Drug Monit.**, 2004, **26**, 211-4.
46. "Therapeutic drug monitoring of immunosuppressant drugs by high-performance liquid chromatography-mass spectrometry", P.J. Taylor, **Ther. Drug Monit.**, 2004, **26**, 215-9.

**ANALYTICAL TOXICOLOGY LITERATURE SURVEY**

**Prepared by:** Rodger L. Foltz

**Period Surveyed:** September 1, 2004 to February 28, 2005

Articles are ordered by journal/book

1. "Modern extraction techniques", D. E. Raynie, **Anal. Chem.**, 2004, **76**, 4659-64.
2. "Quantitation of lysergic acid diethylamide in urine using atmospheric pressure matrix-assisted laser desorption/ionization ion trap mass spectrometry", C. Meng, M. A. McCooeye, C. Fraser and Z. Mester, **Anal. Chem.**, 2004, **76**, 7143-8.
3. "Application of solid-phase microextraction combined with derivatization to the determination of amphetamines by liquid chromatography", C. Chafer-Pericas, P. Campins-Falco and R. Herraez-Hernandez, **Anal. Biochem.**, 2004, **333**, 328-35.
4. "Information-dependent acquisition-mediated LC-MS/MS screening procedure with semiquantitative potential", T. N. Decaestecker, S. R. V. Casteele, P. E. Wallemacq, C. H. Van Peteghem, D. L. Defore and J. F. Van Bocxlaer, **Anal. Chem.**, 2004, **76**, 6365-73.
5. "Analysis of street drugs in seized material without primary reference standards", S. Laks, A. Pelander, E. Vuori, et al., **Anal. Chem.**, 2004, **76**, 7375-9.
6. "Comprehensive two-dimensional gas chromatography - a powerful and versatile technique", J. Beens and U. A. T. Brinkman, **Analyst**, 2005, **130**, 123-7.
7. "Development and validation of a high-sensitivity liquid chromatography/tandem mass spectrometry (LC/MS/MS) method with chemical derivatization for the determination of ethinyl estradiol in human plasma", W. Z. Shou, X. Y. Jiang and N. D. Weng, **Biomed. Chromatogr.**, 2004, **18**, 414-21.
8. "Hair analysis of nicotine and cotinine for evaluating tobacco smoke exposure by liquid chromatography-mass spectrometry", T. Chetiyankornkul, A. Toriba, R. Kizu, K. Kimura and K. Hayakawa, **Biomed. Chromatogr.**, 2004, **18**, 655-61.
9. "Alternative method for forensic determination of lysergic acid diethylamide and related compounds in body fluids by liquid-liquid extraction and HPLC with fluorescence detection", J. Pietsch, K. Schulz, B. Korner, H. Trauer, J. Dressler and M. Gey, **Chromatographia**, 2004, **60**, 89-92.
10. "Simultaneous determination of nalbuphine and opiates in human hair by gas chromatography-mass spectrometry", J. Y. Kim, M. K. In, K. J. Paeng and B. C. Chung, **Chromatographia**, 2004, **59**, 219-26.
11. "Determination of dextromethorphan and its metabolite dextrorphan in human hair by gas chromatography-mass spectrometry", J. Y. Kim, S. I. Suh, K. J. Paeng and M. K. In, **Chromatographia**, 2004, **60**, 703-7.
12. "Toward broader inclusion of liquid chromatography-mass spectrometry in the clinical laboratory", M. Kinter, **Clin. Chem.**, 2004, **50**, 1500-2.
13. "Simultaneous and sensitive measurement of anabasine, nicotine, and nicotine metabolites in human urine by liquid chromatography-tandem mass spectrometry", X. Xu, M. M. Iba and C. P. Weisel, **Clin. Chem.**, 2004, **50**, 2323-30.
14. "Position of chromatographic techniques in screening for detection of drugs or poisons in clinical and forensic toxicology and/or doping control", H. H. Maurer, **Clin. Chem. Lab Med.**, 2004, **42**, 1310-24.
15. "Systematic toxicological analysis by high-performance liquid chromatography with diode array detection (HPLC-DAD)", F. Pragst, M. Herzler and B. T. Erxleben, **Clin. Chem. Lab Med.**, 2004, **42**, 1325-40.
16. "Hair analysis in toxicology", M. Villain, V. Cirimele and P. Kintz, **Clin. Chem. Lab Med.**, 2004, **42**, 1265-72.
17. "Determination of creatinine in urine by tandem mass spectrometry", R. Huskova, P. Chrastina, T. Adam and P. Schneiderka, **Clin. Chim. Acta**, 2004, **350**, 99-106.
18. "Rapid analysis of total plasma homocysteine by tandem mass spectrometry", K. Tuschl, O. A. Bodamer, W. Erwa and A. Muhl, **Clin. Chim. Acta**, 2005, **351**, 139-41.
19. "Validated gas chromatographic-negative ion chemical ionization mass spectrometric method for Delta(9)-tetrahydrocannabinol in sweat patches", T. Saito, A. Wtsadik, K. B. Scheidweiler, N. Fortner, S. Takeichi and M. A. Huestis, **Clin. Chem.**, 2004, **50**, 2083-90.
20. "Review: Derivatization in mass spectrometry - 4. Formation of cyclic derivatives", V. G. Zaikin, **Eur. J. Mass Spectrom.**, 2004, **10**, 555-68.
21. "Low pressure chemical ionization in ion trap mass spectrometry", S. Bouchonnet, D. Libong and M. Sablier, **Eur. J. Mass Spectrom.**, 2004, **10**, 509-21.
22. "Diagnosis of chronic alcohol consumption - Hair analysis for ethyl-glucuronide", C. Jurado, T. Soriano, M. P. Gimenez and M. Menendez, **Forensic Sci. Int.**, 2004, **145**, 161-6.
23. "Screening for drugs of abuse in hair with ion spray LC/MS/MS", R. Kronstrand, I. Nystrom, J. Strandberg and H. Druid, **Forensic Sci. Int.**, 2004, **145**, 183-90.
24. "Cannabinoids in hair: strategy to prove marijuana/hashish consumption", M. Uhl and H. Sachs, **Forensic Sci. Int.**, 2004, **145**, 143-7.
25. "Postmortem toxicology of drugs of abuse", O. H. Drummer, **Forensic Sci. Int.**, 2004, **142**, 101-13.
26. "Removing and identifying drug contamination in the analysis of human hair", T. Cairns, V. Hill, M. Schaffer and W. Thistle,

**Forensic Sci. Int.**, 2004, **145**, 97-108.

27. "MALDI mass spectrometry in the solution of some forensic problems", R. Seraglia, A. Teatino and P. Traldi, **Forensic Sci. Int.**, 2004, **146**, S83-S85.
28. "Cannabis and driving: the use of LC-MS to detect  $\Delta 9$ -tetrahydrocannabinol ( $\Delta 9$ -THC) in oral fluid samples", H. Teixeira, P. Proenca, A. Castanheira, S. Santos, et al., **Forensic Sci. Int.**, 2004, **146**, 561-3.
29. "Determination of cannabinoids in cannabis products using liquid chromatography-ion trap mass spectrometry", A. A. M. Stolk, J. vanSchoonhoven, A. J. deVries, I. BobeldijkPastorova, W. H. J. Vaes and R. vandenBerg, **J. Chromatogr. A**, 2004, **1058**, 143-51.
30. "Validated assay for the determination of markers of illicit heroin in urine samples for the control of patients in a heroin prescription program", F. Musshoff, J. Trafkowski and B. Madea, **J. Chromatogr. B**, 2004, **811**, 47-52.
31. "Development and validation of a liquid chromatography-mass spectrometry method for the quantitation of naltrexone and 6 beta-naltrexol in guinea pig plasma", S. Valiveti, B. N. Nalluri, D. C. Hammell, K. S. Paudel and A. L. Stinchcomb, **J. Chromatogr. B**, 2004, **810**, 259-67.
32. "Simultaneous quantification of alprazolam, 4- and alpha-hydroxyalprazolam in plasma samples using liquid chromatography mass spectrometry", A. Allqvist, A. Wennerholm, J. O. Svensson and R. A. Mirghani, **J. Chromatogr. B**, 2005, **814**, 127-31.
33. "Determination of amphetamine-derived designer drugs in human urine by SPE extraction and capillary electrophoresis with mass spectrometry detection", G. Boatto, M. Nieddu, A. Carta, A. Pau, M. Palomba, B. Asproni and R. Cerri, **J. Chromatogr. B**, 2005, **814**, 93-8.
34. "High-performance liquid chromatography/tandem mass spectrometric assay for the simultaneous measurement of dopamine, norepinephrine, 5-hydroxytryptamine and cocaine in biological samples", M. E. P. Hows, L. Lacroix, C. Heidbreder, A. J. Organ and A. J. Shah, **J. Neurosci. Meth.**, 2004, **138**, 123-32.
35. "A rapid and simple procedure for the determination of cannabinoids in hemp food products by gas chromatography-mass spectrometry", M. Pellegrini, E. Marchei, R. Pacifici and S. Pichini, **J. Pharmaceut. Biomed. Anal.**, 2005, **36**, 939-46.
36. "Elimination of autosampler carryover in a bioanalytical HPLC-MS/MS method: a case study", P. T. Vallano, S. B. Shugarts, E. J. Woolf and B. K. Matuszewski, **J. Pharmaceut. Biomed. Anal.**, 2005, **36**, 1073-8.
37. "Forensic confirmatory analysis of ethyl sulfate - a new marker for alcohol consumption - by liquid-chromatography/electrospray ionization tandem mass spectrometry", S. Dresen, W. Weinmann and F. M. Wurst, **J. Amer. Soc. Mass Spectrom.**, 2004, **15**, 1644-8.
38. "Applications in liquid chromatography-mass spectrometry in doping control", L. Politi, A. Groppi and A. Polettini, **J. Anal. Toxicol.**, 2005, **29**, 1-14.
39. "Deposition characteristics of methamphetamine and amphetamine in fingernail clippings and hair sections", D.-L. Lin, R.-M. Yin, H.-C. Liu, C.-Y. Wang and R. H. Liu, **J. Anal. Toxicol.**, 2004, **28**, 411-7.
40. "A liquid chromatographic-electrospray-tandem mass spectrometric method for quantitation of quetiapine in human plasma and liver microsomes: Application to a study of *in vitro* metabolism", S. N. Lin, Y. C. Chang, D. E. Moody and R. L. Foltz, **J. Anal. Toxicol.**, 2004, **28**, 443-8.
41. "A high-performance liquid chromatographic-atmospheric pressure chemical ionization-tandem mass spectrometric method for determination of risperidone and 9-hydroxyrisperidone in human plasma", D. E. Moody, J. D. Laycock, W. Huang and R. L. Foltz, **J. Anal. Toxicol.**, 2004, **28**, 494-7.
42. "Enantiomeric separation and quantitation of ( $\pm$ )-amphetamine, ( $\pm$ )-methamphetamine, ( $\pm$ )-MDA, ( $\pm$ )-MDMA and ( $\pm$ )-MDEA in urine specimens by GC/EI-MS after derivatization with (R)-(-) or (S)-(+)  $\alpha$ -methoxy- $\alpha$ -(trifluoromethyl)phenylacetyl chloride (MTPA)", B. D. Paul, J. Jemionek, D. Lesser, A. Jacobs and D. A. Searles, **J. Anal. Toxicol.**, 2004, **28**, 449-55.
43. "A general screening and confirmation approach to the analysis of designer tryptamines and phenethylamines in blood and urine using GC-EI-MS and HPLC-electrospray-MS", S. P. Vorce and J. H. Sklerov, **J. Anal. Toxicol.**, 2004, **28**, 407-10.
44. "Passive cannabis smoke exposure and oral fluid testing", S. Niedbala, K. Kardos, S. Salamone, D. Fritch, M. Bronsgeest and E. J. Cone, **J. Anal. Toxicol.**, 2004, **28**, 546-52.
45. "Evaluation of Roche Diagnostic ONLINE® DAT II, a new generation of assays for the detection of drugs of abuse", M. Feldman, D. Kuntz, K. Botelho, D. C. Ananias, M. Gnezda, D. K. Hoch, S. L. Jordan, S. Rashid and Y. Zhao, **J. Anal. Toxicol.**, 2004, **28**, 593-8.
46. "The detection of oxycodone in meconium specimens", N. L. Le, A. Reiter, K. Tomlinson, J. Jones and C. Moore, **J. Anal. Toxicol.**, 2005, **29**, 54-7.
47. "Distribution of 11-nor-9-carboxy- $\Delta 9$ -tetrahydrocannabinol in traffic fatality cases", D.-L. Lin and R.-L. Lin, **J. Anal. Toxicol.**, 2005, **29**, 58-61.
48. "Application of accurate mass measurement to urine drug screening", I. Ojanpera, A. Pelander, S. Laks, M. Gergov, E. Vuori and M. Witt, **J. Anal. Toxicol.**, 2005, **29**, 34-40.
49. "Relationship of  $\Delta 9$ -tetrahydrocannabinol concentrations in oral fluid and plasma after controlled administration of smoked cannabis", M. A. Huestis and E. J. Cone, **J. Anal. Toxicol.**, 2004, **28**, 394-9.
50. "Screening for drugs of abuse in oral fluids - Correlation of analysis results with serum in forensic cases", S. W. Toennes, S. Steinmeyer, H.-J. Maurer, M. R. Moeller and G. Kauert, **J. Anal. Toxicol.**, 2005, **29**, 22-7.

51. "Effect of temperature in reversed phase liquid chromatography", D. Guillarme, S. Heinisch and J. L. Rocca, **J. Chromatogr. A**, 2004, **1052**, 39-51.
52. "Simultaneous analysis of gamma-hydroxybutyric acid and its precursors in urine using liquid chromatography-tandem mass spectrometry", M. Wood, M. Laloup, N. Samyn, M. R. Moris, E. A. de Bruijn, R. A. Maes, M. S. Young, V. Maes and G. De Boeck, **J. Chromatogr. A**, 2004, **1056**, 83-90.
53. "Comprehensive two-dimensional gas chromatography-quadrupole mass spectrometric analysis of drugs", S. M. Song, P. Marriott and P. Wynne, **J. Chromatogr. A**, 2004, **1058**, 223-32.
54. "Single-step procedure for gas chromatography-mass spectrometry screening and quantitative determination of amphetamine-type stimulants and related drugs in blood, serum, oral fluid and urine samples", A. Kankaanpaa, T. Gunnar, K. Ariniemi, P. Lillsunde, S. Mykkanen and T. Seppala, **J. Chromatogr. B**, 2004, **810**, 57-68.
55. "Determination of Δ9-tetrahydrocannabinol from rabbit plasma by gas chromatography-mass spectrometry using two ionization techniques", J. Mannila, M. Lehtonen, T. Jarvinen and P. Jarho, **J. Chromatogr. B**, 2004, **810**, 283-90.
56. "Development and validation of a method for the quantitation of Δ9-tetrahydrocannabinol in oral fluid by liquid chromatography electrospray-mass-spectrometry [rapid communication]", M. Concheiro, A. D. Castro, O. Quintela, A. Cruz and M. Lopez-Rivadulla, **J. Chromatogr. B**, 2004, **810**, 319-24.
57. "Investigation of the silylation of ephedrines using N-methyl-N-trimethylsilyl-trifluoroacetamide", G. Forsdahl and G. Gmeiner, **J. Chromatogr. B**, 2004, **811**, 201-8.
58. "Screening and semi-quantitative analysis of post-mortem blood for basic drugs using gas chromatography/ion trap mass spectrometry", S. Paterson, R. Cordero and S. Burlinson, **J. Chromatogr. B**, 2004, **813**, 323-30.
59. "Simultaneous determination of formate and acetate in whole blood and urine from humans using gas chromatography-mass spectrometry", S. Kage, H. Kudo, H. Ikeda and N. Ikeda, **J. Chromatogr. B**, 2004, **805**, 113-7.
60. "Ghost peaks in reversed-phase gradient HPLC: a review and update", S. Williams, **J. Chromatogr. A**, 2004, **1052**, 1-11.
61. "Detection of cocaine and cocaethylene in sweat by solid-phase microextraction and gas chromatography/mass spectrometry", M. J. D. Follador, M. Yonamine, R. L. D. Moreau and O. A. Silva, **J. Chromatogr. B**, 2004, **811**, 37-40.
62. "Substance identification: the weak link in analytical toxicology", R. A. de Zeeuw, **J. Chromatogr. B**, 2004, **811**, 3-12.
63. "Determination of MDMA, MDEA and MDA in urine by high performance liquid chromatography with fluorescence detection", J. L. da Costa and A. A. Chasin, **J. Chromatogr. B**, 2004, **811**, 41-5.
64. "Confirmatory analysis for drugs of abuse in plasma and urine by high-performance liquid chromatography-tandem mass spectrometry with respect to criteria for compound identification", B. Maralikova and W. Weinmann, **J. Chromatogr. B**, 2004, **811**, 21-30.
65. "Quantitative analysis of 33 benzodiazepines, metabolites and benzodiazepine-like substances in whole blood by liquid chromatography-tandem mass spectrometry", B. E. Smink, J. E. Brandsma, A. Dijkhuizen, K. J. Lusthof and J. J. Gier, **J. Chromatogr. B**, 2004, **811**, 13-20.
66. "Determination of dextromethorphan and its metabolite dextrorphan in human urine using high performance liquid chromatography with atmospheric pressure chemical ionization tandem mass spectrometry: a study of selectivity of a tandem mass spectrometric assay", M. L. Constanzer, C. M. Chavez-Eng, I. Fu, E. J. Woolf and B. K. Matuszewski, **J. Chromatogr. B**, 2005, **816**, 297-308.
67. "Simultaneous determination of amphetamine and methamphetamine enantiomers in urine by simultaneous liquid-liquid extraction and diastereomeric derivatization followed by gas chromatographic isotope dilution mass spectrometry", S.-M. Wang, T.-C. Wang and Y.-S. Giang, **J. Chromatogr. B**, 2005, **816**, 131-43.
68. "Determination of methadone, 2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine, 2-ethyl-5-methyl-3,3-diphenylpyraline and methadol in meconium by liquid chromatography atmospheric pressure chemical ionization tandem mass spectrometry", R. E. Choo, C. M. Murphy, H. E. Jones and M. A. Huestis, **J. Chromatogr. B**, 2005, **814**, 369-73.
69. "Simultaneous determination of morphine, oxycodone, morphine-3-glucuronide, and noroxycodone concentrations in rat serum by high performance liquid chromatography-electrospray ionization-tandem mass spectrometry", S. R. Edwards and M. T. Smith, **J. Chromatogr. B**, 2005, **814**, 241-9.
70. "Solid-phase extraction of methadone enantiomers and benzodiazepines in biological fluids by two polymeric cartridges for liquid chromatographic analysis [rapid communication]", H. He, C. Sun, X.-R. Wang, C. Pham-Huy and e. al., **J. Chromatogr. B**, 2005, **814**, 385-91.
71. "Chiral analysis of methadone and its major metabolites (EDDP and EMDP) by liquid chromatography-mass spectrometry", T. Kelly, P. Doble and M. Dawson, **J. Chromatogr. B**, 2005, **814**, 315-23.
72. "Simultaneous determination of nicotine, cotinine, norcotinine, and trans-3'-hydroxycotinine in human oral fluid using solid phase extraction and gas chromatography-mass spectrometry", I. Kim, W. D. Darwin and M. A. Huestis, **J. Chromatogr. B**, 2005, **814**, 233-40.
73. "A capillary liquid chromatographic/tandem mass spectrometric method for the quantification of gamma-aminobutyric acid in human plasma and cerebrospinal fluid", Y. Song, M. Shenwu, D. M. Dhossche and Y.-M. Liu, **J. Chromatogr. B**, 2005, **814**, 295-302.

74. "Triple quadrupole linear ion trap mass spectrometer for the analysis of small molecules and macromolecules", G. Hopfgartner, E. Varesio, V. Tshappat, C. Grivet, E. Bourgogne and L. A. Leuthold, **J. Mass Spectrom.**, 2004, **39**, 845-55.
75. "Screening, library-assisted identification and validated quantification of 23 benzodiazepines, flumazenil, zaleplone, zolpidem and zopiclone in plasma by liquid chromatography/mass spectrometry with atmospheric pressure chemical ionization", C. Kratzsch, O. Tenberken, F. T. Peters, A. A. Weber, T. Kraemer and H. H. Maurer, **J. Mass Spectrom.**, 2004, **39**, 856-72.
76. "Determination of paraquat and diquat in human body fluids by HPLC/tandem mass spectrometry", X.-P. Lee, T. Kumazawa, M. Fujishiro, C. Hasegawa, et al., **J. Mass Spectrom.**, 2004, **39**, 1147-52.
77. "Practical tips on preparing plasma samples for drug analysis using solid-phase microextraction", R. E. Majors, **LC-GC**, 2004, **22**, 970-80.
78. "Methods for the analysis of cannabinoids in biological materials review", T. J. Raharjo and R. Verpoorte, **Phytochem. Anal.**, 2004, **15**, 79-94.
79. "Reproducible product-ion tandem mass spectra on various liquid chromatography/mass spectrometry instruments for the development of spectral libraries", A. W. T. Bristow, K. S. Webb, A. T. Lubben and J. Halket, **Rapid Commun. Mass Spectrom.**, 2004, **18**, 1447-54.
80. "A simple, rapid and sensitive method for determination of aldehydes in human blood by gas chromatography/mass spectrometry and solid-phase microextraction with on-fiber derivatization", C. Deng and X. Zhang, **Rapid Commun. Mass Spectrom.**, 2004, **18**, 1718-20.
81. "Determination of amphetamine in rat brain by *in vivo* microdialysis and ion-pairing liquid chromatography with electrospray tandem mass spectrometry", M.-R. Fuh, C.-H. Huang, T. Y. Wu, S.-L. Lin and W. H. T. Pan, **Rapid Commun. Mass Spectrom.**, 2004, **18**, 1711-4.
82. "Comparison of product ion spectra obtained by liquid chromatography/triple-quadrupole mass spectrometry for library search", M. Gergov, W. Weinmann, J. Meriluoto, J. Uusitalo and I. Ojanpera, **Rapid Commun. Mass Spectrom.**, 2004, **18**, 1039-46.
83. "A sensitive, rapid and specific determination of midazolam in human plasma and saliva by LC/ESI-MS", O. Quintela, A. Cruz, M. Concheiro, A. de Castro and M. Lopez-Rivadulla, **Rapid Commun. Mass Spectrom.**, 2004, **18**, 2976-82.
84. "Rapid newborn screening by mass spectrometry", H. Dell, **Scientist**, 2004, **18**, 44.
85. "The measurement of nicotine in human plasma by high-performance liquid chromatography-electrospray-tandem mass spectrometry", P. J. Taylor, K. K. Forrest, P. G. Landsberg, C. Mitchell and P. I. Pillans, **Ther. Drug Monit.**, 2004, **26**, 563-8.

**ANALYTICAL TOXICOLOGY LITERATURE SURVEY**

**Period Surveyed:** March 1, 2005 to May 31, 2005

Articles are ordered by journal/book

1. "GC-MS determination of amphetamines in human urine", J. L. Villamor, A. M. Bermejo, P. Fernandez and M. J. Tabernero, **Anal. Lett.**, 2005, **38**, 781-90.
2. "Advances in analytical toxicology: the current role of liquid chromatography-mass spectrometry in drug quantification in blood and oral fluid", H. H. Maurer, **Analytical and Bioanal. Chem.**, 2005, **381**, 110-18.
3. "Prednisolone measurement in human serum using liquid chromatography tandem mass spectrometry", L. J. Owen, S. Gillingwater and B. G. Keevil, **Ann. Clin. Biochem.**, 2005, **42**, 105-11.
4. "Matrix effects: The Achilles heel of quantitative high-performance liquid chromatography-electrospray-tandem mass spectrometry", P. J. Taylor, **Clin. Biochem.**, 2005, **38**, 328-34.
5. "LC-MS/MS systematic toxicological analysis: Comparison of MS/MS spectra obtained with different instruments and settings", R. Jansen, G. Lachatre and P. Marquet, **Clin. Biochem.**, 2005, **38**, 362-72.
6. "Contemporary clinical usage of LC/MS: Analysis of biologically important carboxylic acids", D. W. Johnson, **Clin. Biochem.**, 2005, **38**, 351-61.
7. "A biochemical perspective on the use of tandem mass spectrometry for newborn screening and clinical testing", D. H. Chace and T. A. Kalas, **Clin. Biochem.**, 2005, **38**, 296-309.
8. "Assessing analytical specificity in quantitative analysis using tandem mass spectrometry", M. M. Kushnir, A. L. Rockwood, G. J. Nelson, B. F. Yue and F. M. Urry, **Clin. Biochem.**, 2005, **38**, 319-27.
9. "Development of miniaturized competitive immunoassays on a protein chip as a screening tool for drugs", H. Du, M. Wu, W. Yang, G. Yuan, et al., **Clin. Chem.**, 2005, **51**, 368-75.
10. "Multi-analyte procedures for screening for and quantification of drugs in blood, plasma, or serum by liquid chromatography-single stage or tandem mass spectrometry relevant to clinical and forensic toxicology", H. H. Maurer, **Clinical Biochemistry**, 2005, **38**, 310-8.
11. "Oral fluid as a diagnostic tool", R. E. Choo and M. A. Huestis, **Clinical Chemistry and Laboratory Medicine**, 2004, **42**, 1273-87.
12. "Multi-residue determination of anti-inflammatory analgesics in sera by LC/MS", I. R. Miksa, M. R. Cummings and R. H. Poppenga, **J. Anal. Toxicol.**, 2005, **29**, 95-104.
13. "A new GC/MS method for the determination of five amphetamines in human hair", J. L. Villamor, A. M. Bermejo, P. Fernandez and M. J. Tabernero, **J. Anal. Toxicol.**, 2005, **29**, 135-9.
14. "Determination of Nalmefene by high-performance liquid chromatography-electrospray ionization-tandem mass spectrometry", W. B. Fang, D. M. Andrenyak, D. E. Moody and E. S. Nuwayser, **J. Anal. Toxicol.**, 2005, **29**, 169-74.
15. "Determination of phenanthrene and hydroxyphenanthrenes in various biological matrices at trace levels using gas chromatography coupled to mass spectrometry", N. Grova, F. Monteau, B. Le Bizec, C. Feidt, F. Andre and G. Rychen, **J. Anal. Toxicol.**, 2005, **29**, 175-81.
16. "Urine benzodiazepine screening using Roche Online KIMS immunoassay with  $\beta$ -glucuronidase hydrolysis and confirmation by gas chromatography-mass spectrometry", K. L. Klette, R. F. Wiegand, C. K. Horn, P. R. Stout and J. Magluilo, **J. Anal. Toxicol.**, 2005, **29**, 193-200.
17. "Simultaneous determination of buprenorphine and norbuprenorphine in serum by high-performance liquid chromatography-electrospray ionization-mass spectrometry", M. Scisłowski, W. Piekoszewski, A. Kamenczak and E. Florek, **J. Anal. Toxicol.**, 2005, **29**, 249-53.
18. "An evaluation of selected oral fluid point-of-collection drug-testing devices", D. J. Crouch, J. M. Walsh, R. Fegel, L. Cangianelli, J. Baudys and R. Atkins, **J. Anal. Toxicol.**, 2005, **29**, 244-8.
19. "Application of solid-phase microextraction to antidoping analysis: Determination of stimulants, narcotics, and other classes of substances excreted free in urine", S. Strano-Rossi, F. Molaioni and F. Botre, **J. Anal. Toxicol.**, 2005, **29**, 217-22.
20. "Application of direct urine LC/MS/MS analysis for screening of novel substances in drug abusers", H. K. Nordgren, P. Holmgren, P. Liljeberg, N. Eriksson and O. Beck, **J. Anal. Toxicol.**, 2005, **29**, 234-9.
21. "Structure elucidation of phase II metabolites by tandem mass spectrometry: an overview", K. Levsen, H. M. Schiebel, B. Behnke, R. Dotzer, W. Dreher and M. Elend, **J. Chromatogr. A**, 2005, **1067**, 55-72.
22. "New approach to linear gradient elution used for optimisation in reversed-phase liquid chromatography", P. Nikitas and A. Pappa-Louisi, **J. Chromatogr. A**, 2005, **1068**, 279-87.
23. "Liquid-phase microextraction based on carrier mediated transport combined with liquid chromatography-mass spectrometry - New concept for the determination of polar drugs in a single drop of human plasma", T. S. Ho, J. L. E. Reubaet, H. S. Anthonsen, S. Pedersen-Bjergaard and K. E. Rasmussen, **J. Chromatogr. A**, 2005, **1072**, 29-36.
24. "High speed gradient elution reversed-phase liquid chromatography", A. P. Schellinger, D. R. Stoll and P. W. Carr, **J. Chromatogr. A**, 2005, **1064**, 143-56.

25. "Determination of 14 benzodiazepines and hydroxy metabolites, zaleplon and zolpidem as tert-butyldimethylsilyl derivatives compared with other common silylating reagents in whole blood by gas chromatography-mass spectrometry", T. Gunnar, K. Ariniemi and P. Lillsunde, **J. Chromatogr. B**, 2005, **818**, 175-89.
26. "Chiral liquid chromatography-tandem mass spectrometric methods for stereoisomeric pharmaceutical determinations [review article]", J. Chen, W. A. Korfmacher and Y. Hsieh, **J. Chromatogr. B**, 2005, **820**, 1-8.
27. "Development of simultaneous gas chromatography-mass spectrometric and liquid chromatography-electrospray ionization mass spectrometric determination method for the new designer drugs, N-benzylpiperazine (BZP), 1-(3-trifluoromethylphenyl)piperazine (TFMPP) and their main metabolites in urine", H. Tsutsumi, M. Katagi, A. Miki, N. Shima, T. Kamata, M. Nishikawa, K. Nakajima and H. Tsuchihashi, **J. Chromatogr. B**, 2005, **819**, 315-22.
28. "Examples of doping control analysis by liquid chromatography-tandem mass spectrometry: Ephedrines, beta-receptor blocking agents, diuretics, sympathomimetics, and cross-linked hemoglobins", M. Thevis and W. Schanzer, **J. Chromatogr. Sci.**, 2005, **43**, 22-31.
29. "Pharmaceutical applications of liquid chromatography coupled with mass spectrometry (LC/MS)", H. Lee, **J. Liq. Chromatogr.**, 2005, **28**, 1161-1202.
30. "Measurement of caffeine and five of the major metabolites in urine by high-performance liquid chromatography/tandem mass spectrometry", A. Weimann, M. Sabroe and H. E. Poulsen, **J. Mass Spectrom.**, 2005, **40**, 307-16.
31. "Control of matrix effects in bioanalytical MS/MS using on-line multidimensional solid-phase extraction", K. Georgi and K.-S. Boos, **LC/GC**, 2005, **23**, 396-402.
32. "The forensic control of cannabis", A. Allan, **Medicinal Uses of Cannabis and Cannabinoids**, edited by G. Guy, B. A. Whittle and P. J. Robson, Pharmaceutical Press, London, UK, 2004, pp. 301-28.
33. "Determination of amphetamine, methamphetamine, 3,4-methylenedioxymethamphetamine, 3,4-methylenedioxymethamphetamine, and 3,4-methylenedioxymethamphetamine in urine by online solid-phase extraction and ion-pairing liquid chromatography with detection by electrospray tandem mass spectrometry", T.-Y. Wu and M.-R. Fuh, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 775-80.
34. "A rapid method to determine plasma homocysteine concentration and enrichment by gas chromatography/mass spectrometry", A. Valerio, G. Baldo and P. Tessari, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 561-7.
35. "Stable isotopically labeled internal standards in quantitative bioanalysis using liquid chromatography/mass spectrometry: necessity or not?" E. Stokvis, H. Rosing and J. H. Beijnen, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 401-7.
36. "Gas chromatography/mass spectrometry determination of amphetamine-related drugs and ephedrines in plasma, urine and hair samples after derivatization with 2,2,2-trichloroethyl chloroformate", G. Frison, L. Tedeschi, D. Favretto, A. Reheman and S. Davide, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 919-27.
37. "Derivatization of carboxylic acid groups in pharmaceuticals for enhanced detection using liquid chromatography with electrospray ionization tandem mass spectrometry", A. J. Cartwright, P. Jones, J.-C. Wolff and E. H. Evans, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 1058-62.
38. "Screening procedure for detection of stimulant laxatives and/or their metabolites in human urine using gas chromatography-mass spectrometry after enzymatic cleavage of conjugates and extractive methylation", J. Beyer, F. T. Peters and H. H. Maurer, **Ther. Drug Monit.**, 2005, **27**, 151-7.

**ANALYTICAL TOXICOLOGY LITERATURE SURVEY**

**Prepared by:** Rodger L. Foltz

**Period Surveyed:** June 1, 2005 to August 31, 2005

Articles are ordered by journal/book

1. "Development and validation of a liquid chromatography-tandem mass spectrometry assay for the quantification of Docetaxel and Paclitaxel in human plasma and oral fluid", K. A. Mortier, V. Renard, A. G. Verstraete, A. Van Gussem, S. Van Belle and W. E. Lambert, *Anal. Chem.*, 2005, **77**, 4677-83.
2. "A parallel micro turbulent flow chromatography-tandem mass spectrometry method for the analysis of a pharmaceutical compound in plasma", C. Chassaing, H. Stafford, J. Luckwell, A. Wright and A. Edgington, *Chromatographia*, 2005, **62**, 17-24.
3. "A rapid HPLC-mass spectrometry cyclosporin method suitable for current monitoring practices", P. Salm, P. J. Taylor, S. V. Lynch, C. R. Warnholtz and P. I. Pillans, *Clin. Biochem.*, 2005, **38**, 667-73.
4. "Testosterone measurement by isotope-dilution liquid chromatography-tandem mass spectrometry: Validation of a method for routine clinical practice", M. L. Cawood, H. P. Field, C. G. Ford, S. Gillingwater, A. Kicman, D. Cowan and J. H. Barth, *Clin. Chem.*, 2005, **51**, 1472-9.
5. "Review: The physiology of saliva and transfer of drugs into saliva", J. K. M. Aps and L. C. Martens, *Forensic Sci. Int.*, 2005, **150**, 119-31.
6. "Review: Pharmacokinetics of illicit drugs in oral fluid", O. H. Drummer, *Forensic Sci. Int.*, 2005, **150**, 133-42.
7. "Oral fluid testing for driving under the influence of drugs: history, recent progress and remaining challenges", A. G. Verstraete, *Forensic Sci. Int.*, 2005, **150**, 143-50.
8. "Proficiency testing (external quality assessment) of drug detection in oral fluid", J. Clarke and J. F. Wilson, *Forensic Sci. Int.*, 2005, **150**, 161-4.
9. "Oral fluid collection: The neglected variable in oral fluid testing", D. J. Crouch, *Forensic Sci. Int.*, 2005, **150**, 165-73.
10. "Oral fluid drug tests: Effects of adulterants and foodstuffs", R. C. Wong, M. Tran and J. K. Tung, *Forensic Sci. Int.*, 2005, **150**, 175-80.
11. "Drugs in oral fluid", F. M. Wylie, H. Torrance, R. A. Anderson and J. S. Oliver, *Forensic Sci. Int.*, 2005, **150**, 191-8.
12. "Analysis of Δ9-tetrahydrocannabinol in oral fluid samples using solid-phase extraction and HPLC-electrospray ionization mass spectrometry", H. Teixeira, P. Proenca, A. G. Verstraete, F. Corte-Real and D. N. Vieira, *Forensic Sci. Int.*, 2005, **150**, 205-11.
13. "Screening and confirmatory method for benzodiazepines and hypnotics in oral fluid by LC-MS/MS", P. Kintz, M. Villain, M. Concheiro and V. Cirimele, *Forensic Sci. Int.*, 2005, **150**, 213-20.
14. "Quantitative analysis of multiple illicit drugs in preserved oral fluid by solid-phase extraction and liquid chromatography-tandem mass spectrometry", M. Wood, M. Laloup, M. Fernandez, K. M. Jenkins, et al., *Forensic Sci. Int.*, 2005, **150**, 227-38.
15. "Quantitation of ibogaine and 12-hydroxyibogamine in human plasma by liquid chromatography with fluorimetric detection", V. Kontrimaviciute, M. Larroque, V. Briedis, D. Margout and F. Bressolle, *J. Chromatogr. B*, 2005, **822**, 285-93.
16. "A highly sensitive LC-MS-MS assay for analysis of midazolam and its major metabolite in human plasma: Applications to drug metabolism", V. A. P. Jabor, E. B. Coelho, N. A. G. dosSantos, P. S. Bonato and V. L. Lanchote, *J. Chromatogr. B*, 2005, **822**, 27-32.
17. "High-performance liquid chromatography of nalbuphine, butorphanol and morphine in blood and brain microdialysate samples: Application to pharmacokinetic/pharmacodynamic studies in rats", D. Groenendaal, M. C. M. BlomRoosemalen, M. Danhof and E. C. M. deLange, *J. Chromatogr. B*, 2005, **822**, 230-7.
18. "Determination of midazolam and its major metabolite by HPLC-electrospray mass spectrometry in plasma from children", S. N. Muchohi, S. A. Ward, L. Preston, C. Newton, G. Edwards and G. O. Kokwaro, *J. Chromatogr. B*, 2005, **821**, 1-7.
19. "Studies on the metabolism and toxicological detection of the designer drug 4-methylthioamphetamine (4-MTA) in human urine using gas chromatography-mass spectrometry", A. H. Ewald, F. T. Peters, M. Weise and H. H. Maurer, *J. Chromatogr. B.*, 2005, **824**, 123-31.
20. "Sensitive MS/MS-liquid chromatography assay for simultaneous determination of tegafur, 5-fluorouracil and 5-fluorodihydrouracil in plasma", G. Remaud, M. Boisdron-Celle, A. Morel and A. Gamelin, *J. Chromatogr. B.*, 2005, **824**, 153-60.
21. "Recent studies on the electrospray ionization mass spectrometric behavior of selected nitrogen-containing drug molecules and its application to drug analysis using liquid chromatography-electrospray ionization mass spectrometry (review article)", W. F. Smyth, *J. Chromatogr. B.*, 2005, **824**, 1-20.
22. "The quantitative analysis of heroin, methadone and their metabolites and the simultaneous detection of cocaine, acetylcodeine and their metabolites in human plasma by high-performance liquid chromatography coupled with tandem mass spectrometry", E. J. Rook, M. J. X. Hillebrand, H. Rosing, J. M. van Ree and J. H. Beijnen, *J. Chromatogr. B.*, 2005, **824**, 213-21.
23. "Determination of metformin in human plasma by high-performance liquid chromatography", H. Amini, A. Ahmadiani and P. Gazerani, *J. Chromatogr. B.*, 2005, **824**, 319-22.

24. "Determination of lorazepam in plasma from children by high-performance liquid chromatography with UV detection", S. N. Muchohi, K. Obiero, G. O. Kokwaro, B. R. Ongutu, I. M. Githiga, G. Edwards and C. R. J. C. Newton, **J. Chromatogr. B.**, 2005, **824**, 333-40.
25. "Identification of 11-nor- $\Delta$ 9-tetrahydrocannabinol-9-carboxylic acid in urine by ion trap GC-MS/MS in the context of doping analysis", G. M. Caballero, C. P. D'Angelo, M. S. Fraguio and O. T. Centurion, **J. Chromatogr. Sci.**, 2004, **42**, 540-4.
26. "Application of a novel ultra-low elution volume 96-well solid-phase extraction method to the LC/MS/MS determination of simvastatin and simvastatin acid in human plasma", A. Y. Yang, L. Sun, D. B. Musson and J. J. Zhao, **J. Pharmaceut. Biomed. Anal.**, 2005, **38**, 521-7.
27. "Direct determination of the ethanol metabolites ethyl glucuronide and ethyl sulfate in urine by LC/MS/MS", L. Politi, L. Morini, A. Groppi, V. Poloni et al., **Rapid Commun. Mass Spectrom.**, 2005, **19**, 1321-31.
28. "Rapid screening of drugs of abuse and their metabolites by gas chromatography/mass spectrometry: application to urinalysis", S. Strano-Rossi, F. Molaioni, F. Rossi and F. Botre, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 1529-35.
29. "Hair testing for  $\Delta$ 9-THC-COOH by gas chromatography/tandem mass spectrometry in negative chemical ionization mode", R. Marsili, S. Martello, M. Felli, S. Fiorina and M. Chiarotti, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 1566-8.
30. "Screening procedure for detection of diuretics and uricosurics and/or their metabolites in human urine using gas chromatography-mass spectrometry after extractive methylation", J. Beyer, A. Bierl, F. T. Peters and H. H. Maurer, **Ther. Drug Monit.**, 2005, **27**, 509-20.
31. "Buprenorphine and norbuprenorphine concentrations in human breast milk samples determined by liquid chromatography-tandem mass spectrometry", D. Grimm, E. Pauly, J. Poschl, O. Linderkamp and G. Skopp, **Ther. Drug Monit.**, 2005, **27**, 526-30.

## Analytical Toxicology Literature Survey

**Prepared by:** Rodger L. Foltz

**Period Surveyed:** September 2005 to January 2006

Articles are ordered by journal/book

"Mass spectrometry in forensic science", J. R. Almirall, T. Trejos, A. Hobbs, J. Perr and K. G. Furton, **Adv. Mass Spectrom.**, 2004, **16**, 167-87.

"Rapid LC/MS/MS method development for drug discovery", X. Xu, J. Lan and W. A. Korfmacher, **Anal. Chem.**, 2005, **77**, 389A-94A.

"Simultaneous determination of cannabidiol, cannabinol, and Delta(9)-tetrahydrocannabinol in human hair by gas chromatography-mass spectrometry", J. Y. Kim, S. I. Suh, M. K. In, K. J. Paeng and B. C. Chung, **Arch. Pharm. Research.**, 2005, **28**, 1086-91.

"Concentration profiles of cocaine, pyrolytic methyl ecgonidine and thirteen metabolites in human blood and urine: determination by gas chromatography-mass spectrometry", B. D. Paul, S. Lalani, T. Bosy, A. J. Jacobs and M. A. Huestis, **Biomed. Chromatogr.**, 2005, **19**, 677-88.

"Enantioselective analysis of amphetamine-related designer drugs in body fluids using liquid chromatography and solid-phase derivatization", J. Verdu-Andres, P. Campins-Falco and R. Herraez-Hernandez, **Chromatographia**, 2004, **60**, 537-44.

"Urinary tract infection: A risk factor for false-negative urinary ethyl glucuronide but not ethyl sulfate in the detection of recent alcohol consumption", A. Helander and H. Dahl, **Clin. Chem.**, 2005, **51**, 1728-1730.

"Drug testing in blood: Validated negative-ion chemical ionization gas chromatographic-mass spectrometric assay for enantioselective measurement of the designer drugs MDEA, MDMA, and MDA and its application to samples from a controlled study with MDMA", F. T. Peters, N. Samyn, C. T. J. Lamers, W. J. Riedel, T. Kraemer, G. DeBoeck and H. H. Maurer, **Clin. Chem.**, 2005, **51**, 1811-18.

"Disposition of cocaine and its metabolites in human sweat after controlled cocaine administration", S. L. Kacinko, A. J. Barnes, E. W. Schwilke, E. J. Cone, E. T. Moolchan and M. A. Huestis, **Clin. Chem.**, 2005, **51**, 2085-94.

"Autosampler programming for improved sample throughput in liquid chromatography/mass spectrometry", Y. W. Wang, D. F. Zhong, J. P. Fawcett and J. K. Gu, **Clin. Chem.**, 2005, **51**, 2216-18.

"Estimating the time of last cannabis use from plasma Delta(9)-tetrahydrocannabinol and II-nor-9-carboxy-Delta(9)-tetrahydrocannabinol concentrations", M. A. Huestis, A. Barnes and M. L. Smith, **Clin. Chem.**, 2005, **51**, 2289-95.

"Metabolism of designer drugs of abuse", R. F. Staack and H. H. Maurer, **Current Drug Metabolism**, 2005, **6**, 259-74.

"Mass spectrometry in doping control analysis", M. Thevis and W. Schaenzer, **Current Org. Chem.**, 2005, **9**, 825-48.

"Results of hair analyses for drugs of abuse and comparison with self-reports and urine tests", F. Musshoff, F. Driever, K. Lachenmeier, D. W. Lachenmeier, M. Banger and B. Madea, **Forensic Sci. Int.**, 2006, **156**, 118-23.

"Solid-phase microextraction for the determination of cocaine and cocaethylene in human hair by gas chromatography-mass spectrometry [review article]", A. M. Bermejo, P. Lopez, I. Alvarez, M. J. Tabernero and P. Fernandez, **Forensic Sci. Int.**, 2006, **156**, 2-8.

"Simultaneous analyses of cocaine, cocaethylene, and their possible metabolic and pyrolytic products", P. S. Cardona, A. K. Chaturvedi, J. W. Soper and D. V. Canfield, **Forensic Sci. Int.**, 2006, **157**, 46-56.

"Forensic applications of isotope ratio mass spectrometry - A review", S. Benson, C. Lennard, P. Maynard and C. Roux, **Forensic Sci. Int.**, 2006, **157**, 1-22.

"Simultaneous analysis of the Delta(9)-THC metabolites 11-nor-9-carboxy-Delta(9)-THC and 11-hydroxy-Delta(9)-THC in meconium by GC-MS", R. Coles, T. T. Clements, G. J. Nelson, G. A. McMillin and F. M. Urry, **J. Anal.**

**Toxicol.**, 2005, **29**, 522-7.

"Potential marker for smoked methamphetamine hydrochloride based on a gas chromatography-mass spectrometry quantification method for trans-phenylpropene", D. M. Shakleya, S. G. Tarr, J. C. Kraner, D. J. Clay and P. S. Callery, **J. Anal. Toxicol.**, 2005, **29**, 552-5.

"Papain: A novel urine adulterant", D. L. Burrows, A. Nicolaides, P. J. Rice, M. Dufford, D. A. Johnson and K. E. Ferslew, **J. Anal. Toxicol.**, 2005, **29**, 275-95.

"Hair analysis: The requirement for effective wash procedures and effects of drug concentration and hair porosity in contamination and decontamination", M. Schaffer, V. Hill and T. Cairns, **J. Anal. Toxicol.**, 2005, **29**, 319-26.

"GC-MS quantitation of codeine, morphine, 6-acetylmorphine, hydrocodone, hydromorphone, oxycodone, and oxymorphone in blood", R. Meatherall, **J. Anal. Toxicol.**, 2005, **29**, 301-8.

"Gas chromatography-high resolution mass spectrometric method for determination of methamphetamine and its major metabolite amphetamine in human hair", J. Y. Kim, S. I. Suh, M. K. In and B. C. Chung, **J. Anal. Toxicol.**, 2005, **29**, 370-5.

"Ethyl sulfate: A metabolite of ethanol in humans and a potential biomarker of acute alcohol intake", A. Helander and O. Beck, **J. Anal. Toxicol.**, 2005, **29**, 270-4.

"Determination of strychnine in human blood using solid-phase extraction and GC-EI-MS", M. Barroso, E. Gallardo, C. Margalho, E. Marques, D. N. Vieira and M. Lopez-Rivadulla, **J. Anal. Toxicol.**, 2005, **29**, 383-6.

"Comparison of the sensitivity and specificity of six immunoassays for the detection of amphetamines in urine", A. G. Verstraete and F. Vander Heyden, **J. Anal. Toxicol.**, 2005, **29**, 359-64.

"Rapid simultaneous determination of amphetamine, methamphetamine, 3,4-methylenedioxymethamphetamine, and 3,4-methylenedioxymethamphetamine in urine by fast gas chromatography-mass spectrometry", K. L. Klette, M. H. Jamerson, C. L. MorrisKukoski, A. R. Kettle and J. J. Snyder, **J. Anal. Toxicol.**, 2005, **29**, 669-74.

"Rapid quantification of urinary 11-nor-Delta(9)-tetrahydrocannabinol-9-carboxylic acid using fast gas chromatography-mass spectrometry", M. H. Jamerson, R. M. Welton, C. L. MorrisKukoski and K. L. Klette, **J. Anal. Toxicol.**, 2005, **29**, 664-8.

"Direct analysis of opiates in urine by liquid chromatography-tandem mass spectrometry", L. E. Edinboro, R. C. Backer and A. Poklis, **J. Anal. Toxicol.**, 2005, **29**, 704-10.

"Simultaneous and sensitive analysis of THC, 11-OH-THC, THC-COOH, CBD, and CBN by GC-MS in plasma after oral application of small doses of THC and cannabis extract", T. Nadulski, F. Sporkert, M. Schnelle, A. M. Stadelmann, P. Roser, T. Schefter and F. Pragst, **J. Anal. Toxicol.**, 2005, **29**, 782-9.

"Opiate concentrations in hair from subjects in a controlled heroin-maintenance program and from opiate-associated fatalities", F. Musshoff, K. Lachenmeier, H. Wollersen, D. Lichtermann and B. Madea, **J. Anal. Toxicol.**, 2005, **29**, 345-52.

"Hair analysis by GC/MS/MS to verify abuse of drugs", C. Gambelunghe, R. Rossi, C. Ferranti, R. Rossi and M. Bacci, **J. Applied Toxicol.**, 2005, **25**, 205-11.

"Analysis of opiates, cocaine and metabolites in urine by high-performance liquid chromatography with diode array detection", P. Fernandez, C. Vazquez, L. Morales and A. M. Bermejo, **J. Applied Toxicol.**, 2005, **25**, 200-4.

"Surfactant enhanced liquid-phase microextraction of basic drugs of abuse in hair combined with high performance liquid chromatography", A. S. Yazdi and Z. Eshagh, **J. Chromatogr. A**, 2005, **1094**, 1-8.

"Prenatal diagnosis for organic acid disorders using two mass spectrometric methods, gas chromatography mass spectrometry and tandem mass spectrometry", Y. Hasegawa, M. Iga, M. Kimura, Y. Shigematsu and S. Yamaguchi, **J. Chromatogr. B**, 2005, **823**, 13-7.

"Enantiomeric determination of ephedrines and norephedrines by chiral derivatization gas chromatography-mass spectrometry approaches", S. M. Wang, R. J. Lewis, D. Canfield, T. L. Li, C. Y. Chen and R. H. Liu, **J. Chromatogr. B**, 2005, **825**, 88-95.

"Liquid chromatography-tandem mass spectrometry determination of LSD, Iso-LSD and the main metabolite 2-oxo-3-hydroxy-LSD in forensic samples and application in a forensic case", S. S. Johansen and J. L. Jensen, **J. Chromatog. B**, 2005, **825**, 21-8.

"Simultaneous enantioselective determination of amphetamine and congeners in hair specimens by negative chemical ionization gas chromatography-mass spectrometry", L. Martins, M. Yegles, H. Chung and R. Wennig, **J. Chromatog. B**, 2005, **825**, 57-62.

"Liquid chromatography-electrospray ionization mass spectrometry for the determination of nine selected benzodiazepines in human plasma and oral fluid", O. Quintela, A. Cruz, A. de Castro, M. Concheiro and M. Lopez-Rivadulla, **J. Chromatog. B**, 2005, **825**, 63-71.

"Screening method for benzodiazepines and hypnotics in hair at pg/mg level by liquid chromatography-mass spectrometry/mass spectrometry", M. Villain, M. Concheiro, V. Cirimele and P. Kintz, **J. Chromatog. B**, 2005, **825**, 72-8.

"Development of a solid phase extraction for 13 'new' generation antidepressants and their active metabolites for gas chromatographic-mass spectrometric analysis", S. M. R. Wille, K. E. Maudens, C. H. VanPeteghem and W. E. E. Lambert, **J. Chromatogr. A**, 2005, **1098**, 19-29.

"Studies on the metabolism and toxicological detection of the new designer drug 4'-methyl-alpha-pyrrolidinobutyrophenone (MPBP) in rat urine using gas chromatography-mass spectrometry", F. T. Peters, M. R. Meyer, G. Fritschi and H. H. Maurer, **J. Chromatogr. B**, 2005, **824**, 81-91.

"Analysis of omeprazole, midazolam and hydroxy-metabolites in plasma using liquid chromatography coupled to tandem mass spectrometry", V. A. Frerichs, C. Zaranek and C. E. Haas, **J. Chromatogr. B**, 2005, **824**, 71-80.

"Analysis of cocaine and three of its metabolites in hair by gas chromatography-mass spectrometry using ion-trap detection for CI/MS/MS", E. Cognard, S. Rudaz, S. Bouchonnet and C. Staub, **J. Chromatogr. B**, 2005, **826**, 17-25.

"Verapamil quantification in human plasma by liquid chromatography coupled to tandem mass spectrometry - An application for bioequivalence study", N. C. D. Borges, G. D. Mendes, R. E. BarrientosAstigarraga, P. Galvinas, C. H. Oliveira and G. DeNucci, **J. Chromatogr. B**, 2005, **827**, 165-72.

"Metabolic fingerprinting of rat urine by LC/MS Part 2. Data pretreatment methods for handling of complex data", H. Idborg, L. Zamani, P. O. Edlund, I. SchuppeKoistinen and S. P. Jacobsson, **J. Chromatogr. B**, 2005, **828**, 14-20.

"Metabolic fingerprinting of rat urine by LC/MS Part 1. Analysis by hydrophilic interaction liquid chromatography-electrospray ionization mass spectrometry", H. Idborg, L. Zamani, P. O. Edlund, I. SchuppeKoistinen and S. P. Jacobsson, **J. Chromatogr. B**, 2005, **828**, 9-13.

"Comparison of GC/MS and EIA results for the analysis of methadone in oral fluid", G. Cooper, L. Wilson, C. Reid, D. Baldwin, C. Hand and V. Spiehler, **J. Forensic Sci.**, 2005, **50**, 928-32.

"New designer drug 2,5-dimethoxy-4-ethylthio-beta-phenethylamine (2C-T-2): studies on its metabolism and toxicological detection in rat urine using gas chromatography/mass spectrometry", D. S. Theobald, R. F. Staack, M. Puetz and H. H. Maurer, **J. Mass Spectrometry**, 2005, **40**, 1157-1172.

"Validated toxicological determination of 30 drugs of abuse as optimized derivatives in oral fluid by long column fast gas chromatography/electron impact mass spectrometry", T. Gunnar, K. Ariniemi and P. Lillsunde, **J. Mass Spectrom.**, 2005, **40**, 739-53.

"Screening for and validated quantification of phenethylamine-type designer drugs and mescaline in human blood plasma by gas chromatography/mass spectrometry", V. Habrdova, F. T. Peters, D. S. Theobald and H. H. Maurer, **J. Mass Spectrom.**, 2005, **40**, 785-95.

"LC-ESI-MS/MS analysis for the quantification of morphine, codeine, morphine-3-beta-D-glucuronide, morphine-6-beta-D-glucuronide, and codeine-6-beta-D-glucuronide in human urine", C. M. Murphy and M. A. Huestis, **J. Mass Spectrometry**, 2005, **40**, 1412-6.

"Liquid chromatography-mass spectrometry for the quantitative bioanalysis of anticancer drugs", E. Stokvis, H. Rosing and J. H. Beijnen, **Mass Spectrom. Review**, 2004, **24**, 887-917.

"Mass spectrometry in metabolome analysis", S. Villas-Boas, S. Mas, M. Akesson, J. Smedsgaard and J. Nielsen, **Mass Spectrom. Review**, 2004, **24**, 613-46.

"On-line desalting and determination of morphine, morphine-3-glucuronide and morphine-6-glucuronide in microdialysis and plasma samples using column switching and liquid chromatography/tandem mass spectrometry", J. Bengtsson, B. Jansson and M. Hammarlund-Udenaes, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 2116-122.

"High-throughput biological analysis using on-line turbulent flow extraction combined with monolithic column liquid chromatography/tandem mass spectrometry", S. Zhou, H. Zhou, M. Larson, D. L. Miller, D. Mao, X. Jiang and W. Naidong, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 2144-50.

"Optimizing an ultrafast generic high-performance liquid chromatography/ tandem mass spectrometry method for faster discovery pharmacokinetic sample throughput", K. W. Dunn-Meynell, S. Wainhaus and W. A. Korfmacher, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 2905-10.

"Tandem mass spectrometry with online high-flow reversed-phase extraction and normal-phase chromatography on silica columns with aqueous-organic mobile phase for quantitation of polar compounds in biological fluids", Y. Deng, H. Zhang, J.-T. Wu and T. V. Olah, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 2929-34.

"High-performance liquid chromatography-mass spectrometry in the clinical laboratory", P. J. Taylor, **Ther. Drug Monit.**, 2005, **27**, 689-93.

"Toward high-throughput drug screening using mass spectrometry", H. H. Maurer and F. T. Peters, **Ther. Drug Monit.**, 2005, **27**, 686-8.

"Recent trends in analytical procedures in forensic toxicology", J. F. Van Bocxlaer, **Ther. Drug Monit.**, 2005, **27**, 752-5.

"METLIN - A metabolite mass spectral database", C. A. Smith, G. Omaille, E. J. Want, C. Qin, S. A. Trauger, T. R. Brandon, D. E. Custodio, R. Abagyan and G. Siuzdak, **Ther. Drug Monit.**, 2005, **27**, 747-51.

"Multicomponent screening for drugs of abuse: Direct analysis of urine by LC/MS/MS", H. K. Nordgren and B. Olof, **Ther. Drug Monit.**, 2004, **26**, 90-7.

"Developing an analytical toxicology service: principles and guidance", R. J. Flanagan, **Toxicol. Reviews**, 2004, **23**, 251-63.

## Analytical Toxicology Literature Survey

**Prepared by:** Rodger L. Foltz

**Period Surveyed:** February 2006 to June 2006

Articles are ordered by journal/book

"Doping control analysis of intact rapid-acting insulin analogues in human urine by liquid chromatography-tandem mass spectrometry", M. Thevis, A. Thomas, P. Delahaut, A. Bosseloir and W. Schanzer, **Anal. Chem.**, 2006, **78**, 1897-903.

"Method for internal standard introduction for quantitative analysis using on-line solid-phase extraction LC-MS/MS", Y. Alnouti, M. Li, O. Kavetskaia, H. Bi, C. E. C. A. Hop and A. I. Gusev, **Anal. Chem.**, 2006, **78**, 1331-6.

"Urine testing for designer steroids by liquid chromatography with androgen bioassay detection and electrospray quadrupole time-of-flight mass spectrometry identification", M. W. F. Nielen, T. F. H. Bovee, M. C. van Engelen, P. Rutgers, A. R. M. Hamers, I. H. A. van Rhijn and L. R. A. P. Hoogenboom, **Anal. Chem.**, 2006, **78**, 424-31.

"Electrospray ionization suppression, a physical or a chemical phenomenon?" F. Beaudry and P. Vachon, **Biomed. Chromatogr.**, 2006, **20**, 200-5.

"A simple and sensitive assay for the quantitative analysis of paclitaxel and metabolites in human plasma using liquid chromatography/tandem mass spectrometry", L. D. Vainchtein, B. Thijssen, E. Stokvis, H. Rosing, J. H. M. Schellens and J. H. Beijnen, **Biomed. Chromatogr.**, 2006, **20**, 139-148.

"Determination of free and protein-bound methadone and its major metabolite EDDP: Enantiomeric separation and quantitation by LC/MS/MS", M. L. Etter, S. George, K. Graybiel, J. Eichhorst and D. C. Lehotay, **Clin. Biochem.**, 2005, **38**, 1095-102.

"Performance characteristics of a novel tandem mass spectrometry assay for serum testosterone", M. M. Kushnir, **Clin. Chem.**, 2006, **52**, 120-8.

"Recent advances in the applications of CE to forensic sciences (2001-2004)", F. Tagliaro and F. Bortolotti, **Electrophoresis**, 2006, **27**, 231-43.

"Derivatization in mass spectrometry - 7. On-line derivatization/degradation", J. M. Halket, **Eur. J. Mass Spectrom.**, 2006, **12**, 1-14.

"Determination of benzodiazepines in human urine using solid-phase extraction and high-performance liquid chromatography-electrospray ionization tandem mass spectrometry", S. Hegstad, E. L. Oiestad, U. Johansen and A. S. Christophersen, **J. Anal. Toxicol.**, 2006, **30**, 31-7.

"The application of inductively coupled plasma mass spectrometry in pharmaceutical and biomedical analysis", J. Q. Huang, X. Hu, J. R. Zhang, K. X. Li, Y. Yan and X. B. Xu, **J Pharmaceut. Biomed. Anal.**, 2006, **40**, 227-34.

"Application of two-dimensional gas chromatography with electron capture chemical ionization mass spectrometry to the detection of 11-nor-delta(9)-tetrahydrocannabinol-9-carboxylic acid (THC-COOH) in hair", C. Moore, S. Rana, C. Coulter, F. Feyerherm and H. Prest, **J. Anal. Toxicol.**, 2006, **30**, 171-7.

"The detection of  $\Delta 9$ -tetrahydrocannabinol (THC) and 11-nor-9-carboxy- $\Delta 9$ -tetrahydro-cannabinol (THCA) in whole blood using two-dimensional gas chromatography and EI-mass spectrometry", R. D. Scurlock, G. B. Ohlson and D. K. Worthen, **J. Anal. Toxicol.**, 2006, **30**, 262-6.

"Quantitative analysis of buprenorphine and norbuprenorphine in urine using liquid chromatography tandem mass spectrometry", E. J. Fox, V. A. Tetlow and K. R. Allen, **J. Anal. Toxicol.**, 2006, **30**, 238-44.

- "High-performance liquid chromatographic-mass spectrometric determination of methamphetamine and amphetamine enantiomers, desmethylselegiline and selegiline, in hair samples of long-term methamphetamine abusers or selegiline users", K. Nishida, S. Itoh, N. Inoue, K. Kudo and N. Ikeda, **J. Anal. Toxicol.**, 2006, **30**, 232-7.
- "LC/MS/MS analysis of THC and its metabolites", T. A. Sasaki and D. Boehme, **J. Anal. Toxicol.**, 2006, **30**, 163.
- "A comprehensive study on the variations in urinary concentrations of endogenous gamma-hydroxybutyrate (GHB)", M. A. LeBeau, M. A. Montgomery, C. Morris-Kukoski, J. E. Schaff, A. Deakin and B. Levine, **J. Anal. Toxicol.**, 2006, **30**, 98-105.
- "Pharmacogenomics for the forensic toxicologist", T. C. Kupiec, V. Raj and N. Vu, **J. Anal. Toxicol.**, 2006, **30**, 65-72.
- "Hydrolysis of conjugated metabolites of buprenorphine II. The quantitative enzymatic hydrolysis of norbuprenorphine-3-β-D-glucuronide in human urine", M. A. ElSohly, W. Gul, S. Feng and T. P. Murphy, **J. Anal. Toxicol.**, 2005, **29**, 570-3.
- "Simultaneous analysis of the Δ9-THC metabolites 11-nor-9-carboxy-Δ9-THC and 11-hydroxy-Δ9-THC in meconium by GC/MS", G. J. Nelson, G. A. McMillin and F. M. Urry, **J. Anal. Toxicol.**, 2005, **29**, 522-8.
- "Distribution of GHB in tissues and fluids following a fatal overdose", S. Mazarr-Proo and S. Kerrigan, **J. Anal. Toxicol.**, 2005, **29**, 398-400.
- "Investigation of an LC/MS/MS (QTrap) method for the rapid screening and identification of drugs in postmortem toxicology whole blood samples", G. L. Herrin, H. H. McCurdy and W. H. Wall, **J. Anal. Toxicol.**, 2005, **29**, 599-606.
- "Paradoxical results in urine drug testing for 6-acetylmorphine and total opiates: Implications for best analytical strategy", O. Beck and M. Bottcher, **J. Anal. Toxicol.**, 2006, **30**, 73-9.
- "Chiral separation of amines by high-performance liquid chromatography using polysaccharide stationary phases and acidic additives", R. W. Stringham and Y. K. Ye, **J. Chromatogr. A**, 2006, **1101**, 86-93.
- "Simple and sensitive determination of free and total morphine in human liver and kidney using gas chromatography-mass spectrometry", K. Kudo, T. Ishida, N. Nishida, N. Yoshioka, H. Inoue, A. Tsuji and N. Ikeda, **J. Chromatogr. B**, 2006, **830**, 359-63.
- "Screening approach for chiral separation of pharmaceuticals", N. Matthijs, M. Maftouh and Y. V. Heyden, **J. Chromatog. A**, 2006, **1111**, 48-61.
- "A fast LC-APCI/MS method for analyzing benzodiazepines in whole blood using monolithic support", A. Bugey, S. Rudaz and C. Staub, **J. Chromatog. B**, 2006, **832**, 249-55.
- "Determination of drugs of abuse and their metabolites in human plasma by liquid chromatograph-mass spectrometry", M. Concheiro, A. D. Castro, O. Quintela, M. Lopez-Rivadulla and A. Cruz, **J. Chromatog. B**, 2006, **832**, 81-9.
- "Neurochemical analysis of amino acids, polyamines and carboxylic acids: GC-MS quantitation of tBDMs derivatives using ammonia positive chemical ionization", P. L. Wood, M. A. Khan and J. R. Moskal, **J. Chromatog. B**, 2006, **831**, 313-9.
- "Method for the quantification of underivatized amino acids on dry blood spots from newborn screening by HPLC-ESI/MS/MS", M. Zoppa, L. Gallo, F. Zacchello and G. Giordano, **J. Chromatogr. B**, 2006, **831**, 267-73.

"Determination of methadone, 2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine and alprazolam in human plasma by liquid chromatography-electrospray ionization mass spectrometry", O. Quintela, P. Lopez, A. M. Bermejo and M. Lopez-Rivadulla, **J. Chromatogr. B**, 2006, **834**, 188-94.

"Simultaneous quantification of methamphetamine, cocaine, codeine, and metabolites in skin by positive chemical ionization gas chromatography-mass spectrometry", W. Yang, A. J. Barnes, M. G. Ripple, D. R. Fowler, E. J. Cone, E. T. Moolchan, H. Chung and M. A. Huestis, **J. Chromatogr. B**, 2006, **833**, 210-8.

"Development and validation of a rapid HPLC method for the determination of methadone and its main metabolite EDDP in biological fluids, following SPE", V. F. Samanidou, K. Anastasiadou and I. N. Papadoyannis, **J. Liq. Chromatogr. Relat. Techno.**, 2006, **29**, 889-902.

"A validation positive chemical ionization GC/MS method for the identification and quantification of amphetamine, opiates, cocaine, and metabolites in human postmortem brain", R. H. Lowe, A. J. Barnes, E. Lehrmann, W. J. Freed, J. E. Kleinman, T. M. Hyde, M. M. Herman and M. A. Huestis, **J. Mass Spectrom.**, 2005, **41**, 175-84.

"Surface-activated chemical ionization ion trap mass spectrometry in the analysis of drugs in dilute urine samples. Part II: Analysis of morphine and other street drugs", S. Cristoni, M. Canu, L. R. Bernardi, P. Gerthoux, P. Mocarelli, M. Brambilla, E. Gonella and F. Guidugli, **J. Mass Spectrom.**, 2005, **40**, 1609-17.

"Determination of ethyl glucuronide in hair samples by liquid chromatography/electrospray tandem mass spectrometry", L. Morini, L. Politi, A. Groppi, C. Stramesi and A. Polettini, **J. Mass Spectrom.**, 2005, **41**, 34-42.

"Ambient mass spectrometry using desorption electrospray ionization (DESI): instrumentation, mechanisms and applications in forensic, chemistry, and biology", Z. Takats, J. M. Wiseman and R. G. Cooks, **J. Mass Spectrom.**, 2005, **40**, 1261-75.

"Determination of ethyl glucuronide in hair samples by liquid chromatography/electrospray tandem mass spectrometry", L. Morini, L. Politi, A. Groppi, C. Stramesi and A. Polettini, **J. Mass Spectrometry**, 2006, **41**, 34-42.

"Application of solid-phase microextraction combined with derivatization to the enantiomeric determination of amphetamines", C. Chafer-Pericas, P. Campins-Falco and R. Herraez-Hernandez, **J. Pharm. Biomed. Anal.**, 2006, **40**, 1209-17.

"A monolithic-phase based on-line extraction approach for determination of pharmaceutical components in human plasma by HPLC-MS/MS and comparison with liquid-liquid extraction", R. N. Xu, L. Fan, G. E. Kim and T. A. El-Shourbagy, **J. Pharm. Biomed. Anal.**, 2006, **40**, 728-36.

"Evaluation of volatile ion-pair reagents for the liquid chromatography-mass spectrometry analysis of polar compounds and its application to the determination of methadone in human plasma", S. Gao, S. Bhoopathy, Z.-P. Zhang, D. S. Wright, R. Jenkins and H. T. Barnes, **J. Pharm. Biomed. Anal.**, 2006, **40**, 679-88.

"Liquid separation techniques coupled with mass spectrometry for chiral analysis of pharmaceutical compounds and their metabolites in biological fluids", G. L. Erny and A. Cifuentes, **J. Pharmaceut. Biomed. Anal.**, 2006, **40**, 509-15.

"Evaluation of volatile ion-pair reagents for the liquid chromatography-mass spectrometry analysis of polar compounds and its application to the determination of methadone in human plasma", S. M. Gao, S. Bhoopathy, Z. P. Zang, D. S. Wright, R. Jenkins and H. T. Karnes, **J. Pharmaceut. Biomed. Anal.**, 2006, **40**, 679-88.

"Development and validation of a gas chromatography-mass spectrometry assay for opiates and cocaine

in human teeth", M. Pellegrini, A. Casa, E. Marchei, R. Pacifici, R. Mayne, V. Barbero, O. GarciaAlgar and S. Pichini, **J. Pharmaceut. Biomed. Anal.**, 2006, **40**, 662-8.

"Quantitative assay of lorazepam and its metabolite glucuronide by reverse-phase liquid chromatography-tandem mass spectrometry in human plasma and urine samples", O. Papini, C. Bertucci, S. P. daCunha, N. A. G. dosSantos and V. L. Lanchote, **J. Pharmaceut. Biomed. Anal.**, 2006, **40**, 389-96.

"Ultra-performance liquid chromatography coupled to linear ion trap mass spectrometry for the identification of drug metabolites in biological samples", G. J. Dear, A. D. James and S. Sarda, **Rapid Commun. Mass Spect.**, 2006, **20**, 1351-60.

"Screening for amphetamine and amphetamine-type drugs in doping analysis by liquid chromatography/mass spectrometry", K. Deventer, P. Van Eenoo and F. T. Delbeke, **Rapid Commun. Mass Spect.**, 2006, **20**, 877-82.

"A new approach for evaluating carryover and its influence on quantitation in high-performance liquid chromatography and tandem mass spectrometry assay", W. Zeng, D. G. Musson, A. L. Fisher and A. Q. Wang, **Rapid Commun. Mass Spect.**, 2006, **20**, 635-40.

"Fast gas chromatography/mass spectrometry assay for the validated quantitative determination of methadone and the primary metabolite EDDP in whole blood", T. Gunnar, T. Eskola and P. Lillsunde, **Rapid Commun. Mass Spect.**, 2006, **20**, 673-9.

"Use of gas chromatography/mass spectrometry with positive chemical ionization for the determination of opiates in human oral fluid", P. Campora, A. M. Bermejo, M. J. Tabernero and P. Fernandez, **Rapid Commun. Mass Spect.**, 2006, **20**, 1288-92.

"A novel on-line solid-phase extraction approach integrated with a monolithic column and tandem mass spectrometry for direct plasma analysis of multiple drugs and metabolites", X. Zang, R. Luo, N. Song, T. K. Chen and H. Bozigian, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 3259-68.

"Rapid accurate mass desorption electrospray ionisation tandem mass spectrometry of pharmaceutical samples", J. P. Williams and J. H. Scrivens, **Rapid Commun. Mass Spectrom.**, 2005, **19**, 3643-50.

"The in vivo glucuronidation of buprenorphine and norbuprenorphine determined by liquid chromatography-electrospray ionization-tandem mass spectrometry", W. Huang, D. E. Moody and E. F. McCanceKatz, **Ther. Drug Monit.**, 2006, **28**, 245-51.

"Determination of docetaxel and paclitaxel in human plasma by high-performance liquid chromatography - Validation and application to clinical pharmacokinetic studies", L. Z. Lopez, A. A. Pastor, J. M. A. Beitia, J. A. Velilla and J. G. Deiro, **Ther. Drug Monit.**, 2006, **28**, 199-205.

"A fully automated turbulent-flow liquid chromatography-tandem mass spectrometry technique for monitoring antidepressants in human serum", F. L. Sauvage, J. M. Gaulier, G. Lachatre and P. Marquet, **Ther. Drug Monit.**, 2006, **28**, 123-30.

## Analytical Toxicology Literature Survey

**Prepared by:** Rodger L. Foltz

**Period Surveyed:** July 1960 to October 1960

Articles are ordered by journal/book

"Automated sampling and imaging of analytes separated on thin-layer chromatography plates using desorption electrospray ionization mass spectrometry", G. J. VanBerkel and V. Kertesz, **Anal. Chem.**, 2006, **78**, 4938-44.

"Validated method for the determination of the ethanol consumption markers ethyl glucuronide, ethyl phosphate, and ethyl sulfate in human urine by reversed-phase/weak anion exchange liquid chromatography-tandem mass spectrometry", W. Bicker, M. Lammerhofer, T. Keller, R. Schuhmacher, R. Krska and W. Lindner, **Anal. Chem.**, 2006, **78**, 5884-92.

"Determination of cocaine and heroin with their respective metabolites in human hair using gas chromatography-mass spectrometry", P. Lopez, A. M. Bermejo, M. J. Tabernero, P. Fernandez and I. Alvarez, **Anal. Letters**, 2006, **39**, 2307-16.

"Simultaneous determination of methadone, heroin, cocaine and their metabolites in urine by GC/MS", I. Alvarez, F. Palos, A. M. Bermejo, F. P. and M. J. Tabernero, **Anal. Letters**, 2006, **39**, 1393-99.

"Screening for anabolic steroids in doping analysis by liquid chromatography/electrospray ion trap mass spectrometer", K. Deventer, P. Van Eenoo and F.T. Delbeke, **Biomed. Chrom.**, 2006, **20**, 429-33.

"Comprehensive multi-dimensional liquid chromatographic separation in biomedical and pharmaceutical analysis: a review", S. P. Dixon, I. D. Pitfield and D. Perrett, **Biomed. Chromatogr.**, 2006, **20**, 508-29.

"Evolution of an open-access quantitative bioanalytical mass spectrometry service in a drug discovery environment", P. Wright, C. Chassaing, N. Cussans, D. Gibson, C. Green, M. Gleave, R. Jones, P. Macrae and K. Saunders, **Biomed. Chromatogr.**, 2006, **20**, 585-96.

"Quantification of MDMA and MDA in abusers' hair samples by semi-micro column HPLC with fluorescence detection", S. Nakamura, M. Tomita, M. Wada, H. S. Chung, N. Kuroda and K. Nakashima, **Biomed. Chromatogr.**, 2006, **20**, 622-7.

"Liquid chromatography-electrospray mass spectrometry determination of ibogaine and 12-hydroxy-ibogamine in human urine", V. Kontrimaviciute, H. Breton, F. Barnay, J.C. MathieuDaude and F.M.M. Bressolle, **Chromatographia**, 2006, **63**, 533-41.

"Screening of drugs and toxic compounds with liquid chromatography-linear ion trap tandem mass spectrometry", F. L. Sauvage, F. SaintMarcoux, B. Duretz, D. Deporte, G. Lachatre and P. Marquet, **Clin. Chem.**, 2006, **52**, 1735-42.

"Sensitive gas chromatography-mass spectrometry method for simultaneous measurement of MDEA, MDMA, and metabolites HMA, MDA, and HMMA in human urine", S.O. Pirnay, T.T.

## Analytical Toxicology Literature Survey

Prepared by: Rodger L. Foltz

Period Surveyed: November 2006 to February 2007

Articles are ordered by journal/book

"Specific detection of anabasine, nicotine, and nicotine metabolites in urine by liquid chromatography-tandem mass spectrometry", A. N. Hoofnagle, T. J. Laha, P. M. Rainey and S. M. H. Sadrzadeh, **Amer. J. Clin. Pathol.**, 2006, **126**, 880-7.

"Quantitative profiling of endocannabinoids and related compounds in rat brain using liquid chromatography-tandem electrospray ionization mass spectrometry", D. Richardson, C. A. Ortori, V. Chapman, D. A. Kendall and D. A. Barrett, **Anal. Biochem.**, 2007, **360**, 216-26.

"Identification and measurement of illicit drugs and their metabolites in urban wastewater by liquid chromatography-tandem mass spectrometry", S. Castiglioni, E. Zuccato, E. Crisci, C. Chiabrando, R. Fanelli and R. Bagnati, **Anal. Chem.**, 2006, **78**, 8421-9.

"Determination of phenolic metabolites of polycyclic aromatic hydrocarbons in human urine as their pentafluorobenzyl ether derivatives using liquid chromatography-tandem mass spectrometry", P. Jacob, M. Wilson and N. L. Benowitz, **Anal. Chem.**, 2007, **79**, 587-98.

"Simultaneous quantitation of homocysteine, cysteine and methionine in plasma and urine by liquid chromatography-tandem mass spectrometry", G. Weaving, B. F. Rocks, S. A. Iversen and M. A. Titheradge, **Ann. Clin. Biochem.**, 2006, **43**, 474-80.

"Determination of cocaine and cocaethylene in urine by solid-phase microextraction and gas chromatography-mass spectrometry", M. Yonamine and A. M. Saviano, **Biomed. Chromatogr.**, 2006, **20**, 1071-5.

"Electrospray-ionization MS/MS library of drugs as database for method development and drug identification", S. Dresen, J. Kempf and W. Weinmann, **Forensic Sci. Int.**, 2006, **161**, 86-91.

"Cyanide and thiocyanate in human saliva by gas chromatography-mass spectrometry", B. D. Paul and M. L. Smith, **J. Anal. Toxicol.**, 2006, **30**, 511-5.

"Distribution of methylenedioxymethamphetamine (MDMA) and methylenedioxyamphetamine (MDA) in postmortem and antemortem specimens", R. H. Liu, H. C. Liu and D. L. Lin, **J. Anal. Toxicol.**, 2006, **30**, 545-50.

"Liquid chromatography-tandem mass spectrometry for the determination of colchicine in postmortem body fluids. Case report of two fatalities and review of the literature", M. Cheze, M. Deveaux and G. Pepin, **J. Anal. Toxicol.**, 2006, **30**, 593-8.

"Rapid analysis of benzoylecgonine in urine by fast gas chromatography-mass spectrometry", R. W. Romberg, M. H. Jamerson and K. L. Klette, **J. Anal. Toxicol.**, 2006, **30**, 554-8.

"Selection and optimization of hydrolysis conditions for the quantification of urinary metabolites of MDMA", S. O. Pirnay, T. T. Abraham, R. H. Lowe and M. A. Huestis, **J. Anal. Toxicol.**, 2006, **30**, 563-9.

"Major and minor metabolites of cocaine in human plasma following controlled subcutaneous cocaine administration", E. A. Kolbrich, A. J. Barnes, D. A. Gorelick, S. J. Boyd, E. J. Cone and M. A. Huestis, **J. Anal. Toxicol.**, 2006, **30**, 501-10.

"Detection of THCA in oral fluid by GC-MS-MS", D. Day, D. J. Kuntz, M. Feldman and L. Presley, **J. Anal. Toxicol.**, 2006, **30**, 645-50.

"Single drop liquid-liquid-liquid microextraction of methamphetamine and amphetamine in urine", Y. He and Y. J. Kang, **J. Chromatogr. A**, 2006, **1133**, 35-40.

"Multiresidue analytical method using dispersive solid-phase extraction and gas chromatography/ion trap mass spectrometry to determine pharmaceuticals in whole blood", F. Plossl, M. Giera and F. Bracher, **J. Chromatogr. A**, 2006, **1135**, 19-26.

"A sensitive and selective method for the detection of diazepam and its main metabolites in urine by gas chromatography-tandem mass spectrometry", S. Kinani, S. Bouchonnet, N. Milan and I. Ricordel, **J. Chromatogr. A**, 2007, **1141**, 131-7.

"Rapid GC-MS analysis of methamphetamine and its metabolites in urine-application of a short narrow-bore capillary column to GC-MS", H. Fujii, K. Hara, S. Kashimura, M. Kageura, M. Kashiwagi, A. Miyoshi and S. Ikeda, **J. Chromatogr. B**, 2006, **842**, 116-20.

"Sensitive, rapid and validated gas chromatography/negative ion chemical ionization-mass spectrometry assay including derivatization with a novel chiral agent for the enantioselective quantification of amphetamine-type stimulants in hair", L. F. Martins, M. Yegles, H. Chung and R. Wennig, **J. Chromatogr. B**, 2006, **842**, 98-105.

"Single hair analysis of methamphetamine and amphetamine by solid phase microextraction coupled with in matrix derivatization", M. Nishida, M. Yashiki, A. Namera and K. Kimura, **J. Chromatogr. B**, 2006, **842**, 106-10.

"Chiral separation and quantification of R/S-amphetamine, R/S-methamphetamine, R/S-MDA, R/S-MDMA, and R/S-MDEA in whole blood by GC-EI-MS", L. B. Rasmussen, K. H. Olsen and S. S. Johansen, **J. Chromatogr. B**, 2006, **842**, 136-41.

"Short-term stability of testosterone and epitestosterone conjugates in urine samples: Quantification by liquid chromatography-linear ion trap mass spectrometry", C. Saudan, J. M. Entenza, N. Baume, P. Mangin and M. Saugy, **J. Chromatogr. B**, 2006, **844**, 168-74.

"Determination of cocaine and cocaethylene in plasma by solid-phase microextraction and gas chromatography-mass spectrometry", I. Alvarez, A. M. Bermejo, M. J. Taberner, P. Fernandez and P. Lopez, **J. Chromatogr. B**, 2007, **845**, 90-4.

"Simultaneous determination of methamphetamine and its metabolite, amphetamine, in urine using a high performance liquid chromatography column-switching method", M. Kumihashi, K. Ameno, T. Shibayama, K. Suga, H. Miyauchi, M. Jamal, W. H. Wang, I. Uekita and I. Ijiri, **J. Chromatogr. B**, 2007, **845**, 180-3.

"A generic stepwise optimization strategy for liquid chromatography electrospray ionization tandem mass spectrometry methods", M. Moberg, J. Bergquist and D. Bylund, **J. Mass Spectrom.**, 2006, **41**, 1334-45.

"Detecting and characterizing reactive metabolites by liquid chromatography/tandem mass spectrometry", S. Ma and R. Subramanian, **J. Mass Spectrom.**, 2006, **41**, 1121-39.

"Hyphenated mass spectrometric techniques - indispensable tools in clinical and forensic toxicology and in doping control", H. H. Maurer, **J. Mass Spectrom.**, 2006, **41**, 1399-413.

"A generic stepwise optimization strategy for liquid chromatography electrospray ionization tandem mass spectrometry methods", M. Moberg, J. Bergquist and D. Bylund, **J. Mass Spectrom.**, 2006, **41**, 1334-45.

"Hyphenated mass spectrometric techniques - indispensable tools in clinical and forensic toxicology and in doping control", H. H. Maurer, **J. Mass Spectrom.**, 2006, **41**, 1399-413.

"Rapid simultaneous determination of ephedrines, amphetamines, cocaine, cocaine metabolites, and opiates in human urine by GC-MS", T. Saito, H. Mase, S. Takeichi and S. Inokuchi, **J. Pharmaceut. Biomed. Anal.**, 2007, **43**, 358-63.

"Testing for drugs in hair - a review of chromatographic procedures", K. Srogi, **Microchimica Acta**, 2006, **154**, 191-212.

"Characterization of typical chemical background interferences in atmospheric pressure ionization liquid chromatography-mass spectrometry", X. Guo, A. P. Bruins and T. R. Covey, **Rapid Commun. Mass Spect.**, 2006, **20**, 3145-50.

"Determination of ketamine and norketamine in hair by gas chromatography/mass spectrometry using two-step derivatization", J. Y. Kim, M. K. In and J.-H. Kim, **Rapid Commun. Mass Spect.**, 2006, **20**, 3159-62.

"Product ion mass spectra of amphetamine-type substances, designer analogues, and ketamine using ultra-performance liquid chromatography/tandem mass spectrometry", L. G. Apollonio, I. R. Whittall, D. J. Pianca, J. M. Kyd and W. A. Maher, **Rapid Commun. Mass Spect.**, 2006, **20**, 2259-64.

"Novel applications of highly sensitive LC/MS/MS for the direct detection of ultra-trace levels of contaminants in water", W. Seitz, W. Schulz and W. H. Weber, **Rapid Commun. Mass Spect.**, 2006, **20**, 2281-5.

"Liquid chromatography/tandem mass spectrometry method for simultaneous determination of riperidone and its active metabolite 9-hydroxyrisperidone in human plasma", J. Bhatt, G. Subbaiah and S. Singh, **Rapid Commun. Mass Spect.**, 2006, **20**, 2109-14.

"Measurement of paclitaxel and its metabolites in human plasma using liquid chromatography/ ion trap mass spectrometry with a sonic spray ionization interface", H. Green, K. Vretenbrant, B. Norlander and C. Peterson, **Rapid Commun. Mass Spect.**, 2006, **20**, 2183-9.

"Increased productivity in quantitative bioanalysis using a monolithic column coupled with high-flow direct-injection liquid chromatography/tandem mass spectrometry", M.-Q. Huang, Y. Mao, M. Jemal and M. Arnold, **Rapid Commun. Mass Spect.**, 2006, **20**, 1709-14.

"Simultaneous determination of amphetamines and ketamines in urine by gas chromatography/ mass spectrometry", H. R. Lin and A. C. Lua, **Rapid Commun. Mass Spect.**, 2006, **20**, 1724-30.

"An improved method for cyanide determination in blood using solid-phase microextraction and gas chromatography/mass spectrometry", G. Frison, F. Zancanaro, D. Favretto and S. D. Ferrara, **Rapid Commun. Mass Spect.**, 2006, **20**, 2932-8.

"A simplified protein precipitation/mixed-mode cation-exchange solid-phase extraction, followed by high-speed liquid chromatography/mass spectrometry, for the determination of a basic drug in human plasma", Y.-J. Xue, J. B. Akinsanya, J. Liu and S. E. Unger, **Rapid Commun. Mass Spect.**, 2006, **20**, 2660-8.

"Quantification of Delta(9)-tetrahydrocannabinol and its major metabolites in meconium by gas chromatographic-mass spectrometric assay: Assay validation and preliminary results of the "meconium project""", E. Marchei, M. Pellegrini, R. Pacifici, I. Palmi, J. Lozano, O. Garcia-Algar and S. Pichini, **Ther. Drug Monit.**, 2006, **28**, 700-6.

Abraham and M.A. Huestis, **Clin. Chem.**, 2006, **52**, 1728-34.

"Validation of a method to detect cocaine and its metabolites in nails by gas chromatography-mass spectrometry", S. Valente-Campos, M. Yonamine, R. L. Moreau and O.A. Silva, **Forensic Sci. Int.**, 2006, **159**, 218-22.

"Determination of opiates and cocaine in hair using automated enzyme immunoassay screening methodologies followed by gas chromatographic-mass spectrometric confirmation", K. Lachenmeier, F. Musshoff and B. Madea, **Forensic Sci. Int.**, 2006, **159**, 189-99.

"Hair analysis of ketamine and its metabolites", P. Siang, M. Shen and X. Zhuo, **Forensic Sci. Int.**, 2006, **162**, 131-4.

"Determination of cannabinoids in biological samples using a new solid phase micro-extraction membrane and liquid chromatography-mass spectrometry", R. Yang and W. Xie, **Forensic Sci. Int.**, 2006, **162**, 135-9.

"Effect of repeated cocaine administration on detection times in oral fluid and urine", R. Jufer, S.L. Walsh, E. J. Cone and A.S. Cone, **J. Anal. Toxicol.**, 2006, **30**, 458-462.

"Assay of delta(9)-tetrahydrocannabinol (THC) in oral fluid-evaluation of the OraSure Oral Specimen Collection Device", G.F. Kauert, S. IwersenBergmann and S.W. Toennes, **J. Anal. Toxicol.**, 2006, **30**, 274-7.

"GHB urine concentrations after single-dose administration in humans", C. Haller, D. Thai, P. Jacob and J E. Dyer, **J. Anal. Toxicol.**, 2006, **30**, 360-4.

"Disposition of hydrocodone in hair", C. Moore, M. Feldman, E. Harrison, S. Rana, C. Coulter, D. Kuntz, A. Agrawal, M. Vincent and J. Soares, **J. Anal. Toxicol.**, 2006, **30**, 353-9.

"GC-MS-MS determination of gamma-hydroxybutyrate in blood and urine", R. Paul, L. Tsanaclis, R. Kingston, A. Berry and A. Guwy, **J. Anal. Toxicol.**, 2006, **30**, 375-9.

"Acetylcodeine as a marker of illicit heroin abuse in oral fluid samples", S. G. Phillips and K. R. Allen, **J. Anal. Toxicol.**, 2006, **30**, 370-4.

"Detection of benzodiazepines in hair using ELISA and LC-ESI-MS-MS", E.I. Miller, F.M. Wylie and J.S. Oliver, **J. Anal. Toxicol.**, 2006, **30**, 441-8.

"Rapid screening for and simultaneous semiquantitative analysis of thirty abused drugs in human urine samples using gas chromatography-mass spectrometry", T. Ishida, K. Kudo, H. Inoue, A. Tsuji, T. Kojima and N. Ikeda, **J. Anal. Toxicol.**, 2006, **30**, 468-47.

"Recent applications of liquid chromatography-mass spectrometry in forensic science", M. Wood, M. Laloup, N. Samyn, M. Fernandez, E. A. Bruijn and R. A. Maes, **J. Chromatog. A**, 2006, **1130**, 2-15.

"Validation study on 660 pesticide residues in animal tissues by gel permeation chromatography cleanup/gas chromatography-mass spectrometry and liquid chromatography-tandem mass

spectrometry", G.F. Pang, Y.Z. Cao, J.J. Zhang, C.L. Fan, Y.M. Liu, X.M. Li, G.Q. Jia, Z.Y. Li, Y.Q. Shi, Y.P. Wu and T.T. Guo, **J. Chromatogr. A**, 2006, **1125**, 1-30.

"Can the theory of gradient liquid chromatography be useful in solving practical problems?" P. Jandera, **J. Chromatogr. A**, 2006, **1126**, 195-218.

"A validated gas chromatographic-electron impact ionization mass spectrometric method for methylenedioxymethamphetamine (MDMA), methamphetamine and metabolites in oral fluid", K.B. Scheidweiler and M.A. Huestis, **J. Chromatogr. B**, 2006, **835**, 90-9.

"Validation of high-performance liquid chromatographic-mass spectrometric method for the analysis of lidocaine in human plasma", Z. Chik, T.D. Lee, D.W. Holt, A. Johnston and A.T. Tucker, **J. Chromatogr. Sci.**, 2006, **44**, 262-5.

"Rapid quantitation of digoxin in human plasma and urine using isotope dilution liquid chromatography-tandem mass spectrometry", A. Salvador, C. Sagan and J. Denouel, **J. Liq. Chromatogr. Relat. Techno.**, 2006, **29**, 1917-32.

"Designer drugs 2,5-dimethoxy-4-bromo-amphetamine (DOB) and 2,5-dimethoxy-4-bromo-methamphetamine (MDOB): studies on their metabolism and toxicological detection in rat urine using gas chromatographic/mass spectrometric techniques", A.H. Ewald, G. Fritschi, W.R. Bork and H.H. Maurer, **J. Mass Spectrometry**, 2006, **41**, 487-98.

"An automated and fully validated LC-MS/MS procedure for the simultaneous determination of 11 opioids used in palliative care, with 5 of their metabolites", F. Musshoff, J. Trafkowski, U. Kuepper and B. Madea, **J. Mass Spectrometry**, 2006, **41**, 633-640.

"Fast gas chromatography-negative-ion chemical ionization mass spectrometry with microscale volume sample preparation for the determination of benzodiazepines and alpha-hydroxy metabolites, zaleplon and zopiclone in whole blood", T. Gunnar, K. Ariniemi and P. Lillsunde, **J. Mass Spectrometry**, 2006, **41**, 741-54.

"A validated method for the determination of nicotine, cotinine, trans-3'-hydroxycotinine, and norcotinine in human plasma using solid-phase extraction and liquid chromatography-atmospheric pressure chemical ionization-mass spectrometry", I. Kim and M.A. Huestis, **J. Mass Spectrometry**, 2006, **41**, 815-21.

"Proteome research based on modern liquid chromatography - tandem mass spectrometry: separation, identification and quantification", T. Frohlich and G.J. Arnold, **J. Neural. Transm.**, 2006, **113**, 973-94.

"Application of LC-ESI-MS/MS for detection of synthetic adulterants in herbal remedies", M.J. Bogusz, H. Hassan, E. Al-Enazi, Z. Ibrahim and M. Al-Tufail, **J. Pharm. Biomed. Anal.**, 2006, **41**, 554-64.

"Validation of gas chromatography-ion trap tandem mass spectrometry for simultaneous analyse of cocaine and its metabolites in saliva", E. Cognard, S. Bouchonnet and C. Staub, **J. Pharm. Biomed. Anal.**, 2006, **41**, 925-34.

"Development and validation of a method for the quantitation of  $\Delta 9$ -tetrahydrocannabinol in human plasma by HPLC after solid-phase extraction", C. Abbara, R. Galy, A. Benyamina, M. Reynaud and L. Bonhomme-Faivre, **J. Pharm. Biomed. Anal.**, 2006, **41**, 1011-6.

"Liquid chromatographic-electrospray ionization mass spectrometric quantitative analysis of buprenorphine, nordiazepam and oxazepam in rat plasma", S. Pirnay, F. Herve, S. Bouchonnet, B. Perrin, F.J. Baud and I. Ricordel, **J. Pharm. Biomed. Anal.**, 2006, **41**, 1135-45.

"Validated HPLC-MS/MS method for simultaneous determination of simvastatin and simvastatin hydroxy acid in human plasma", B. Barrett, J. Huclova, V. Borek-Dohalsky, B. Nemec and I. Jelinek, **J. Pharm. Biomed. Anal.**, 2006, **41**, 517-26.

"HPLC determination of morphine, morphine-3-glucuronide and morphine-6-glucuronide in human serum of oncological patients after administration of morphine drugs", J. Netriova, E. Blahova, Z. Johanesova, E. Brandsteterova, J. Lehotay, K. Serdt and J. Mocak, **Pharmazie**, 2006, **61**, 528-534.

"Characterization of chemically modified steroids for doping control purposes by electrospray ionization tandem mass spectrometry", M. Thevis, U. Bommerich, G. Opfermann and W. Schanzer, **Rapid Commun. Mass Spectrom.**, 2005, **40**, 494-502.

"Delta(9)-Tetrahydrocannabinol, 11-hydroxy-Delta(9)-tetrahydrocannabinol and 11-nor-9-carboxy-Delta(9)-tetrahydrocannabinol in human plasma after controlled oral administration of cannabinoids", R.S. Goodvin, R.A. Gustafson, A. Barnes, W. Nebro, E.T. Moolchan and M.A. Huestis, **Ther. Drug Monit.**, 2006, **28**, 545-551.

"Estimating time of last oral ingestion of cannabis from plasma THC and THCCOOH concentrations", M.A. Huestis, M. ElSohly, W. Nebro, A. Barnes, R.A. Gustafson and M.L. Smith, **Ther. Drug Monit.**, 2006, **28**, 540-544.

"Stereoselective quantification of methadone and a d(6)-labeled isotopomer using high performance liquid chromatography-atmospheric pressure chemical ionization mass-spectrometry: Application to a pharmacokinetic study in a methadone maintained subject", D.J.R. Foster, E.B. Morton, G. Heinkele, T.E. Murdter and A.A. Somogyi, **Ther. Drug Monit.**, 2006, **28**, 559-567.

"Hair analysis for drug detection", P. Kintz, M. Villain and V. Cirimele, **Ther. Drug Monit.**, 2006, **28**, 442-6.

## Analytical Toxicology Literature Survey

Prepared by: Rodger L. Foltz

Period Surveyed: February to July 2007

Articles are ordered by journal/book

"Quantification of free amino acids and dipeptides using isotope dilution liquid chromatography and electrospray ionization tandem mass spectrometry", A. N. Fonteh, R. J. Harrington and M. G. Harrington, **Amino Acids**, 2007, **32**, 203-12.

"A general screening method for doping agents in human urine by solid phase extraction and liquid chromatography/time-of-flight mass spectrometry", M. Kolmonen, A. Leinonen, A. Pelander and I. Ojanperae, **Analytica Chimica Acta**, 2007, **585**, 94-102.

"Simultaneous determination of androstenedione and testosterone in human serum by liquid chromatography-tandem mass spectrometry", L. M. Gallagher, L. J. Owen and B. G. Keevil, **Ann. Clin. Biochem.**, 2007, **44**, 48-56.

"Drug screening of preserved oral fluid by liquid chromatography-tandem mass spectrometry", E. L. Oiestad, U. Johansen and A. S. Christophersen, **Clin. Chem.**, 2007, **53**, 300-9.

"Ethyl glucuronide and ethyl sulphate determination in serum by liquid chromatography-electrospray tandem mass spectrometry", L. Morini, L. Politi, A. Zucchella and A. Polettini, **Clin. Chim. Acta**, 2007, **376**, 213-9.

"A rapid and convenient LC/MS method for routine identification of methamphetamine/ dimethylamphetamine and their metabolites in urine", W.-C. Cheng, V. K. Mok, K.-K. Chan and A. F. Li, **Forensic Sci. Int.**, 2007, **166**, 1-7.

"Detection of conjugated 11-nor-delta(9)-tetrahydrocannabinol-9-carboxylic acid in oral fluid", C. Moore, S. Rana, C. Coulter, D. Day, M. Vincent and J. Soares, **J. Anal. Toxicol.**, 2007, **31**, 187-94.

"Simultaneous determination of codeine, morphine, hydrocodone, hydromorphone, oxycodone, and 6-acetylmorphine in urine, serum, plasma, whole blood, and meconium by LC-MS-MS", R. Coles, M.M. Kushnir, G.J. Nelson, G.A. McMillin and F.M. Urry, **J. Anal. Toxicol.**, 2007, **31**, 1-14.

"Rapid screening for and simultaneous semiquantitative analysis of thirty abused drugs in human urine samples using gas chromatography-mass spectrometry (Vol 30, pg 468, 2006)", T. Ishida, K. Kudo, H. Inoue, A. Tsuji, T. Kojima and N. Ikeda, **J. Anal. Toxicol.**, 2007, **31**, 66-8.

"Determination of amphetamine, methamphetamine, and hydroxyamphetamine derivatives in urine by gas chromatography-mass spectrometry and its relation to CYP2D6 phenotype of drug users", E. Miranda, M. Sordo, A.M. Salazar, C. Contreras, L. Bautista, A. E. R. Garcia and P. Ostrosky-Wegman, **J. Anal. Toxicol.**, 2007, **31**, 31-6.

"Validation of a procedure for the gas chromatography-mass spectrometry analysis of cocaine and metabolites in pericardial fluid", M. T. Contreras, M. Gonzalez, S. Gonzalez, R. Ventura, J. L. Valverde, A. F. Hernandez, A. Pla, A. Vingut, J. Segura and R. de la Torre, **J. Anal. Toxicol.**, 2007, **31**, 75-80.

"Validation of meconin as a marker for illicit opiate use", S. R. Morley, A. R. W. Forrest and J. H. Galloway, **J. Anal. Toxicol.**, 2007, **31**, 105-8.

"Electrospray LC/MS method with solid-phase extraction for accurate determination of morphine-, codeine-, and ethyl morphine-glucuronides and 6-acetylmorphine in urine", J. O. Svensson, M. Andersson, E. Gustavsson and O. Beck, **J. Anal. Toxicol.**, 2007, **31**, 81-6.

"A validated method for the detection of  $\Delta$ 9-tetrahydrocannabinol and 11-nor-9-carboxy- $\Delta$ 9-tetrahydrocannabinol in oral fluid samples by liquid chromatography coupled with quadrupole-time-of-flight mass spectrometry", O. Quintela, D. M. Andrenyak, A. M. Hoggan and D. J. Crouch, **J. Anal. Toxicol.**, 2007, **31**, 157-64.

"Rapid quantification of buprenorphine-glucuronide and norbuprenorphine-glucuronide in human urine by LC/MS/MS", S. Hegstad, H. Z. Khiabani, E. L. Oiestad, T. Berg and A. S. Christophersen, **J. Anal. Toxicol.**, 2007, **31**, 214.

"Lowering the concentration limits of detection by on-line solid-phase extraction-capillary electrophoresis-electrospray mass spectrometry", F. Benavente, M. Vescina, E. Hernandez, V. SanzNebot, J. Barbosa and N. A. Guzman, **J.**

**Chromatogr. A**, 2007, **1140**, 205-12.

"Quantitative analysis of cocaine and its metabolites in whole blood and urine by high-performance liquid chromatography coupled with tandem mass spectrometry", S. S. Johansen and H. M. Bhatia, **J. Chromatog. B**, 2007, **852**, 338-44.

"Development and validation of a disk solid phase extraction and gas chromatography-mass spectrometry method for MDMA, MDA, HMMA, HMA, MDEA, methamphetamine and amphetamine in sweat", B. S. De Martinis, A. J. Barnes, K. B. Scheidweiler and M. A. Huestis, **J. Chromatog. B**, 2007, **852**, 450-8.

"Simultaneous identification of 2-carboxy-tetrahydrocannabinol, tetrahydrocannabinol, cannabinol and cannabidiol in oral fluid", C. Moore, S. Rana and C. Coulter, **J. Chromatog. B**, 2007, **852**, 459-64.

"Determination of lidocaine and its two N-desethylated metabolites in dog and horse plasma by high-performance liquid chromatography combined with electrospray ionization tandem mass spectrometry", A. Maes, L. Weiland, C. Sandersen, F. Gasthuys, P. De Backer and S. Croubels, **J. Chromatog. B**, 2007, **852**, 180-7.

"Determination of riperidone and enantiomers of 9-hydroxyrisperidone", B. Cabovska, S. L. Cox and A. A. Vinks, **J. Chromatog. B**, 2007, **852**, 497-504.

"Ionization of anabolic steroids by adduct formation in liquid chromatography electrospray mass spectrometry", O. J. Pozo, P. VanEenoo, K. Deventer and F. T. Delbeke, **J. Mass Spectrometry**, 2007, **42**, 497-516.

"Improvement of recovery and repeatability in liquid chromatography-mass spectrometry analysis of peptides", P. M. van Midwoud, L. Rieux, R. Bischoff, E. Verpoorte and H. A. G. Niederlander, **J. Proteome Res.**, 2007, **6**, 781-91.

"Mass spectrometry in sports drug testing: structure characterization and analytical assays", M. Ttevis and W. Schaenzer, **Mass Spectrom. Review**, 2007, **26**, 79-107.

"A contemporary view of MDMA", R. De La Garza and K. A. Mizeck, **Psychopharmacology**, 2007, **189**, 403-5.

"Determination of 11-nor- $\Delta$ 9-tetrahydrocannabinol-9-carboxylic acid in hair using gas chromatography/tandem mass spectrometry in negative ion chemical ionization mode", J. Y. Kim and M. K. In, **Rapid Commun. Mass Spect.**, 2007, **21**, 1339-42.

"Determination of midazolam and its hydroxy metabolites in human plasma and oral fluid by liquid chromatography/electrospray ionization ion trap tandem mass spectrometry", B. Link, M. Haschke, M. Wenk and S. Krahenbuhl, **Rapid Commun. Mass Spect.**, 2007, **21**, 1531-40.

"Comparison of urinary on-site immunoassay screening and gas chromatography-mass spectrometry results of 111 patients with suspected poisoning presenting at an emergency department", M. A. von Mach, C. Weber, M. R. Meyer, L. S. Weilemann, H. H. Maurer and F. T. Peters, **Ther. Drug Monit.**, 2007, **29**, 27-39.

## Analytical Toxicology Literature Survey

**Prepared by:** Rodger L. Foltz

**Period Surveyed:** July to December 2007

Articles are ordered by journal

"Quantitative profiling of endocannabinoids and related compounds in rat brain using liquid chromatography-tandem electrospray ionization mass spectrometry", D. Richardson, C.A. Ortori, V. Chapman, D.A. Kendall and D.A. Barrett, **Anal. Biochem.**, 2007, **360**, 216-26.

"Determination of phenolic metabolites of polycyclic aromatic hydrocarbons in human urine as their pentafluorobenzyl ether derivatives using liquid chromatography-tandem mass spectrometry", P. Jacob, M. Wilson and N.L. Benowitz, **Anal. Chem.**, 2007, **79**, 587-98.

"Advanced liquid chromatography-mass spectrometry interface based on electron ionization", A. Cappiello, G. Famiglini, E. Pierini, P. Palma and H. Trufelli, **Anal. Chem.**, 2007, **79**, 5364-72.

"Rapid analysis of metabolites and drugs of abuse from urine samples by desorption electrospray ionization-mass spectrometry", T.J. Kauppila, N. Talaty, T. Kuuranne, T. Kotiaho, R. Kostainen and R.G. Cooks, **Analyst**, 2007, **132**, 868-75.

"Simultaneous determination of midazolam and 1'-hydroxymidazolam in human plasma by liquid chromatography with tandem mass spectrometry", W.K. Li, S.Y. Luo, H.T. Smith and F.L.S. Tse, **Biomed. Chromatogr.**, 2007, **21**, 841-51.

"Quantitative gas chromatography/time-of-flight mass spectrometry: a review", L.N. Williamson and M.G. Bartlett, **Biomed. Chromatogr.**, 2007, **21**, 664-9.

"Quantitative liquid chromatography/time-of-flight mass spectrometry", L.N. Williamson and M.G. Bartlett, **Biomed. Chromatogr.**, 2007, **21**, 567-76.

"Validated method for the simultaneous determination of Δ9-THC and Δ9-THC-COOH in oral fluid, urine and whole blood using solid-phase extraction and liquid chromatography-mass spectrometry with electrospray ionization", H. Teixeira, A. Verstraete, P. Proenca, et al., **Forensic Sci. Int.**, 2007, **170**, 148-55.

"Simultaneous analysis of six amphetamines and analogues in hair, blood, and urine by LC-ESI-MS/MS", M. Cheze, M. Deveaux, C. Martin, et al., **Forensic Sci. Int.**, 2007, **170**, 100-4.

"Quantification of tricyclic antidepressants and monoamine oxidase inhibitors by high-performance liquid chromatography-tandem mass spectrometry in whole blood", K. Titier, N. Castaing, M. Le-Deodic, et al., **J. Anal. Toxicol.**, 2007, **31**, 200-7.

"A validated liquid chromatography-atmospheric pressure chemical ionization-tandem mass spectrometric method for the quantification of methadone, 2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine (EDDP), and 2-ethyl-5-methyl-3,3-diphenylpyroline (EMDP) in human breast milk", R.E. Choo, L.M. Jansson, K.B. Scheidweiler and M.A. Huestis, **J. Anal. Toxicol.**, 2007, **31**, 265-9.

"Pharmacokinetic properties of Δ9-tetrahydrocannabinol in serum and oral fluid", G.F. Kauert, J.G. Ramaekers, E. Schneider, M.R. Moeller and S.W. Toennes, **J. Anal. Toxicol.**, 2007, **31**, 288-93.

"Simultaneous Determination of multiple drugs of abuse and relevant metabolites in urine by LC-MS-MS", J. Feng, L. Wang, I. Dai, T. Harmon and J.T. Bernert, **J. Anal. Toxicol.**, 2007, **31**, 359-68.

"Simultaneous analysis of 14 benzodiazepines in oral fluid by solid-phase extraction and LC-MS-MS", G. Ngwa, D. Fritch, B.K. and G. Newland, **J. Anal. Toxicol.**, 2007, **31**, 369-76.

"Method for quantification of opioids and their metabolites in autopsy blood by liquid chromatography-tandem mass spectrometry", A.I. Al-Asmari and R.A. Anderson, **J. Anal. Toxicol.**, 2007, **31**, 394-408.

"Simultaneous GC-EI-MS determination of Δ9-tetrahydrocannabinol, 11-hydroxy-Δ9-tetrahydrocannabinol, and 11-nor-9-carboxy-Δ9-tetrahydrocannabinol in human urine following tandem enzyme-alkaline hydrolysis", T.T. Abraham, R.H. Lowe, S.O. Pirnay, W.D. Darwin and M.A. Huestis, **J. Anal. Toxicol.**, 2007, **31**, 477-85.

"Prevalence and disposition of drugs of abuse and opioid treatment drugs in oral fluid", E.J. Cone, J. Clark and L. Tsanaclis, **J. Anal. Toxicol.**, 2007, **31**, 424-33.

"Modern instrumental methods in forensic toxicology", M.L. Smith, S.P. Vorce, J.M. Holler, E. Shimomura, et al., **J. Anal. Toxicol.**, 2007, **31**, 237-53.

"Analysis of MDMA and its metabolites in urine and plasma following a neurotoxic dose of MDMA", S. Valtier, C.F. Phelix and J.T. Cody, **J. Anal. Toxicol.**, 2007, **31**, 138-43.

"Quantitative analysis of naltrexone and 6β-naltrexol in human, rat and rabbit plasma by liquid chromatography-electrospray ionization tandem mass spectrometry with application to the pharmacokinetics of Depotrex® in rabbits", M.H. Slawson, M. Chen, D.E. Moody, S.D. Comer, et al., **J. Anal. Toxicol.**, 2007, **31**, 453-61.

"Rapid quantification of urinary oxycodone and oxymorphone using fast gas chromatography-mass spectrometry", S.G. McKinley, J.J. Snyder, E. Welsh, C.M. Kazarian, et al., **J. Anal. Toxicol.**, 2007, **31**, 434-41.

"Simultaneous quantification of opiates, amphetamines, cocaine and metabolites and diazepam and metabolite in a single hair sample using GC/MS", R. Cordero and S. Paterson, **J. Chromatog. B**, 2007, **850**, 423-31.

"Simple and sensitive determinaton of Δ9-tetrahydrocannabinol, cannabidiol and cannabinol in hair by combining silylation, headspace solid phase microextraction and gas chromatography-mass spectrometry", T. Nadulski and F. Pragst, **J. Chromatog. B**, 2007, **846**, 78-85.

"Direct determination of glucuronide and sulfate of 4-hydroxy-3-methoxy-methamphetamine, the main metabolite of MDMA, in human urine", N. Shima, H. Kamata, M. Katagi, et al,

**J. Chromatog. B**, 2007, **857**, 123-9.

"Development of a LC/MS/MS method for the analysis of cannabinoids in human EDTA-plasma and urine after small doses of Cannabis-sativa extracts", S. B. Grauwiler, A. Scholer and J. Drewe, **J. Chromatog. B**, 2007, **850**, 515-22.

"Simultaneous determination of 13 amphetamine related drugs in human whole blood using an enhanced polymer column and gas chromatography-mass spectrometry", K. Kudo, T. Ishida, K. Hara, S. Kashimura, et al, **J. Chromatog. B**, 2007, **855**, 115-20.

"A sensitive and selective method for the detection of diazepam and its main metabolites in urine by gas chromatography-tandem mass spectrometry", S. Kinani, S. Bouchonnet, N. Milan and I. Ricordel, **J. Chromatogr. A**, 2007, **1141**, 131-7.

"Hair analysis for illicit drugs by using capillary zone electrophoresis-electrospray ionization-ion trap mass spectrometry", R. Gottardo, F. Bortolotti, G. DePaoli, J.P. Pascali, et al., **J. Chromatogr. A**, 2007, **1159**, 185-9.

"Lowering the concentration limits of detection by on-line solid-phase extraction-capillary electrophoresis-electrospray mass spectrometry", F. Benavente, M. Vescina, E. Hernandez, V. SanzNebot, et al., **J. Chromatogr. A**, 2007, **1140**, 205-12.

"Simultaneous determination of various pharmaceutical compounds in water by solid-phase extraction-liquid chromatography-tandem mass spectrometry", Z.L. Zhang and J.L. Zhou, **J. Chromatogr. A**, 2007, **1154**, 205-13.

"Determination of cocaine and cocaethylene in plasma by solid-phase microextraction and gas chromatography-mass spectrometry", I. Alvarez, A.M. Bermejo, M.J. Tabernero, P. Fernandez and P. Lopez, **J. Chromatogr. B**, 2007, **845**, 90-4.

"Simultaneous determination of methamphetamine and its metabolite, amphetamine, in urine using a high performance liquid chromatography column-switching method", M. Kumihashi, K. Ameno, T. Shibayama, et al., **J. Chromatogr. B**, 2007, **845**, 180-3.

"Development and validation of a liquid chromatography/tandem mass spectrometry assay for the simultaneous determination of D-amphetamine and diphenhydramine in beagle dog plasma and its application to a pharmacokinetic study", C. Wang, G.R. Fan, M. Lin, Y. Chen, et al., **J. Chromatogr. B**, 2007, **854**, 48-56.

"Simultaneous identification of 2-carboxy-tetrahydrocannabinol, tetrahydrocannabinol, cannabinol and cannabidiol in oral fluid", C. Moore, S. Rana and C. Coulter, **J. Chromatogr. B**, 2007, **852**, 459-64.

"Simple and rapid method determination for metformin in human plasma using high performance liquid chromatography tandem mass spectrometry: Application to pharmacokinetic studies", M.A.S. Marques, A.D. Soares, O.W. Pinto, P.T.W. Barroso, et al., **J. Chromatogr. B**, 2007, **852**, 308-16.

"Quantitative analysis of cocaine and its metabolites in whole blood and urine by high-performance liquid chromatography coupled with tandem mass spectrometry", S.S. Johansen and H.M. Bhatia, **J. Chromatogr. B**, 2007, **852**, 338-44.

"Systematic and comprehensive strategy for reducing matrix effects in LC/MS/MS analyses", E. Chambers, D.M. Wagrowski-Diehl, Z.L. Lu and J.R. Mazzeo, **J. Chromatogr. B**, 2007, **852**, 22-34.

"Recent advances in high-throughput quantitative bioanalysis by LC-MS/MS", R.N. Xu, L. Fan, M.J. Rieser and T.A. El-Shourbagy, **J. Pharm. Biomed. Anal.**, 2007, **44**, 342-55.

"A simple and reliable procedure for the determination of psychoactive drugs in oral fluid by gas chromatography-mass spectrometry", M. Pujadas, S. Pichini, E. Civit, E. Santamarina, et al., **J. Pharm. Biomed. Anal.**, 2007, **44**, 594-601.

"Rapid simultaneous determination of ephedrines, amphetamines, cocaine, cocaine metabolites, and opiates in human urine by GC-MS", T. Saito, H. Mase, S. Takeichi and S. Inokuchi, **J. Pharmaceut. Biomed. Anal.**, 2007, **43**, 358-63.

"A study of the performance characteristics of immunoaffinity solid phase microextraction probes for extraction of a range of benzodiazepines", H.L. Lord, M. Rajabi, S. Safari and J. Pawliszyn, **J. Pharmaceut. Biomed. Anal.**, 2007, **44**, 506-19.

"Simultaneous determination of methamphetamine and amphetamine in human urine using pipette tip solid-phase extraction and gas chromatography-mass spectrometry", T. Kumazawa, C. Hasegawa, X.P. Lee, K. Hara, et al., **J. Pharmaceut. Biomed. Anal.**, 2007, **44**, 602-7.

"Determination of 11-nor- $\Delta$ 9-tetrahydrocannabinol-9-carboxylic acid in hair using gas chromatography/tandem mass spectrometry in negative ion chemical ionization mode", J.Y. Kim, and M.K. In, **Rapid Commun. Mass Spect.**, 2007, **21**, 1339-42.

"Development of a qualitative liquid chromatography/tandem mass spectrometric method for the detection of narcotics in urine relevant to doping analysis", K. Deventer, O.J. Pozo, P. Van Eenoo and F.T. Delbeke, **Rapid Commun. Mass Spect.**, 2007, **21**, 3015-23.

"A generic fast solid-phase extraction high-performance liquid chromatography/mass spectrometry method for high-throughput drug discovery", L. Gao, X. Cheng, J.J. Zhang and D.J. Burns, **Rapid Commun. Mass Spect.**, 2007, **21**, 3497-504.