

Entwicklung: neue Methode

Was ist neu?

Library gibt es schon,

	neu	Gibt es
		Library
	Extraction (on-line)	Off-line (SPE oder LLE)
	MS Technik	MRM und dann 2.inj.MSMS
	Enhanced (Ion) Trap Mode Enhanced Product Ion Scan Spread CE (on the flight)	Scan mit Quad (PIS) Less sensitivity / slow scan (double injection)
	Mode of Acquisition (Cycle times, dwell times, Spread CE and single CE (35eV) 1 to up to three signals simultaneously monitored Positive mode Negative mode (which compounds at which concentrations)	Dito...
	LC-speed up (short column, column selection for polar (e.g. GHB, morphine) and non polar (such as Benzos, Amiodarone, Cannabinoide etc.)	
	Special columns (Perfluorinated propyl...): high K'-Values (for polar drugs).	
	Validation, sensitivity, Extraction, Precipitation etc.	

Application:

Clinical toxicology.....

- a) intoxication
- b) medication (check for compliance of patients – especially elderly or mentally retarded)
- c) medication (forensic issues: self administration ...”internet pharmacy”)
- d) medication / diagnostics (interferences of drugs – compliance...)
- e) forensic: drugs of abuse (pharmaceuticals: pain relief drugs/opioides: tramadol/opiates(IA), buprenorphin (IA), certain benzodiazepines (IA), tricyclic antidepressants (IA), other psychopharmaceuticals: SSRI, neuroleptics, zolpidem, zopiclon, many others...

- f) drugs of abuse: - drug facilitated sexual assault (list of the AAFS, see: www.soft-tox.org) approx. 70 drugs, which have been used for DFSA.
Drugs and polar metabolites (Zolpidemic Acid – metabolite of zolpidem)

Glucuronides...normally: cleavage and detection (metabolites of drugs...oxidation/glucuronidated...benzos, opiates.

Sensitivity, Speed...

(Remedi System (HPLC/BioRad)... not available anymore).

Quantitation:

Deuterated standards, internal calibration (Response factors). Test of Stability of the system!

Recalibration necessary... reference standards (of analytes necessary).

Application to drugs, which have not been detectable until now in routine GCMS screening...

Second year:

Int. Biomedical Science (IMBS)...Master study programm for Argentinian Students organized by Faculty of Medicine at Freiburg
Courses in Pharmacology...assistant professor job, ... - in English.

ESI-TOF:

Screening auf alle Substanzen zur gleichen Zeit – gute Trennung notwendig (auch keine Matrix...).

Advantage: non-target analysis

Problem: Lack in separation of endogenous and other compounds...shift of mass of analyte possible – not regularly, but can be dramatic – in addition to suppression! –

MS/MS usually not used for non-target analysis (broad general unknown screening).

No structural information – only molecular mass (exact mass, e.g. with sigma fit – isotope inclusion).