

1. Laboratory of Clinical and Forensic Toxicology, CHU Liege, Belgium
2. Intensive Care Unit, Vivalia, South Luxembourg Clinic, Arlon, Belgium
3. Laboratory of Clinical Biology, Vivalia, South Luxembourg Clinic, Arlon, Belgium

Background

Case 1: 31-year-old drug addict

Day 0: injection of unknown compound

Tachycardia
Palpitations
Mydriasis
Dyspnea
Dizziness
Headache
Nausea



Left against medical advice



Day+1: aggressiveness, agitation

Day +1 month: sleeping disorders, hallucinations, anxiety
⇒ 21st detoxification cure

Case 2: 27-year-old man with no previous history

Day 0: wandered in the night

Confessed the snorting of n-ethylpentedrone

Severe agitation
Delusion of persecution
Tachycardia
Mydriasis
Fever
Renal failure (Creatinine 2.73 mg/dL)
Rhabdomyolysis (CPK > 30000 U/L)
Metabolic acidosis (Lac. ac. 0.9 mM)
Intensive Care Unit
Coma – intubation, dialysis



D+3: extubation, stop dialysis

D+5: symptoms resolution - discharge from ICU

Method



Liquid
Liquid

Extraction



UHPLC-TOF-MS (Sciex)

Eksigent LC 100 XL + TripleTOF 4600
Column: Kinetex 2.6 C18, 100 Å, 50 x 3.00 mm (Phenomenex)
Mobile Phase A: 10 mM NH₄ formate
Mobile Phase B: ACN/MeOH (50/50)
Gradient mode: 15.5 min runtime

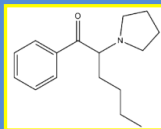


HPLC-DAD (Waters)

Alliance 2695 + PDA 2996
Column: Symmetry C8, 5 μm, 250 X 4.6 mm (Waters)
Mobile Phase A: 43.5 mM PO₄ buffer pH 3.8
Mobile Phase B: Acetonitrile
Gradient mode: 45 min runtime

Results and discussion

Case 1: α-pyrrolidinohexiophenone (α-PHP)



- ❖ Detected during first & second admission only
- ❖ Still waiting for the reference standard since August → No quantification
- ❖ + cocaine, cannabis, opiates (heroin, methadone) benzodiazepines (clonazepam, diazepam, bromazepam)

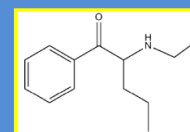


→ Interpretation?

Stability of cathinones in biological samples [3-4]

- ❖ Tertiary amines more stable than secondary
- ❖ Depending on the temperature, some cathinones are highly **unstable**

Case 2: n-ethylpentedrone (α-ethylaminopentiophenone - α-EAPP)



Long T_{1/2}

2234 ng/ml

2804 ng/ml

Admission → +17 hours

- ❖ Nordazepam (1299 ng/ml) and oxazepam (94 ng/ml)
- ❖ Subcontracting: time to transfer de samples
- ❖ Literature

Ref	Lethal concentration
1	3100 ng/ml
2	932 ng/ml

Conclusion Cathinones are presents on the Belgian illicit drug market, with various routes of administration and clinical consequences.



Agitation, tachycardia, mydriasis, ...

Left without treatment

Intensive care or death



References

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2. Pieprzyka E. et al. J Anal Toxicol 2021;00,1-7
3. Glicksberg L. et al. J Anal Toxicol, 2017;41:711-719
4. Adamowicz P. et al., forensic Sci Int 295 (2019) 36-45