Synthetic cathinones in Belgium: 2 case reports with different issues observed in the emergency room

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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)

**Intensive Care Unit**

- Coma – intubation, dialysis
- D+3: extubation, stop dialysis
- D+5: symptoms resolution - discharge from ICU

Method

**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 PO, 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: α-ethylpentedrone (α-ethylaminopentiophenone - α-EAPP)**

- 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

<table>
<thead>
<tr>
<th>Ref</th>
<th>Lethal concentration</th>
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<tbody>
<tr>
<td>1</td>
<td>3100 ng/ml</td>
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<tr>
<td>2</td>
<td>932 ng/ml</td>
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**Conclusion**

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

References