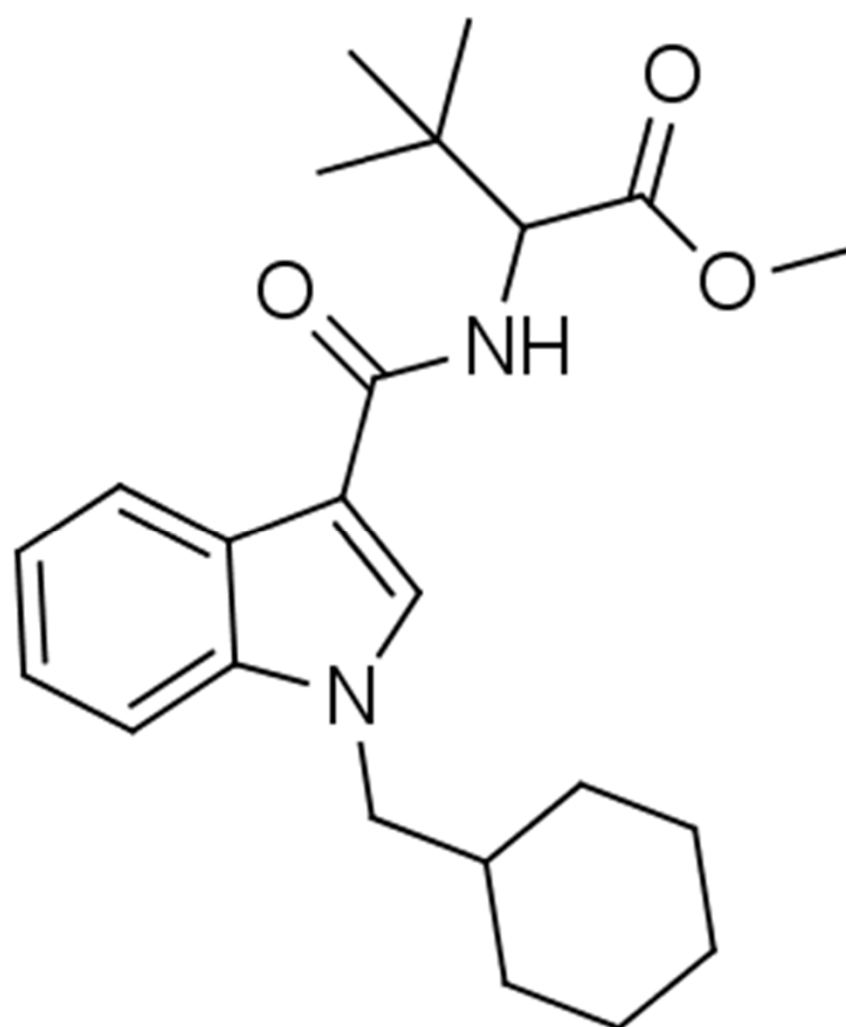


Synthetic cannabinoids contribute to the cause of death:  
two case reports  
involving **MDMB-CHMICA** and **AB-CHMINACA**

Susanne Vogt, Verena Angerer, Miriam Klima, Dorothee Geisenberger, Rebecca Pircher, Volker Auwärter  
Institute of Forensic Medicine, Forensic Toxicology, Medical Center – University of Freiburg, Germany

Case 1 – MDMB-CHMICA

A 31 year-old man (82-kg / 178 cm) was found dead at a riverbank besides his camping gear and a water-pipe. Autopsy findings included an emphysema aquosum and Paltauf-bleedings.



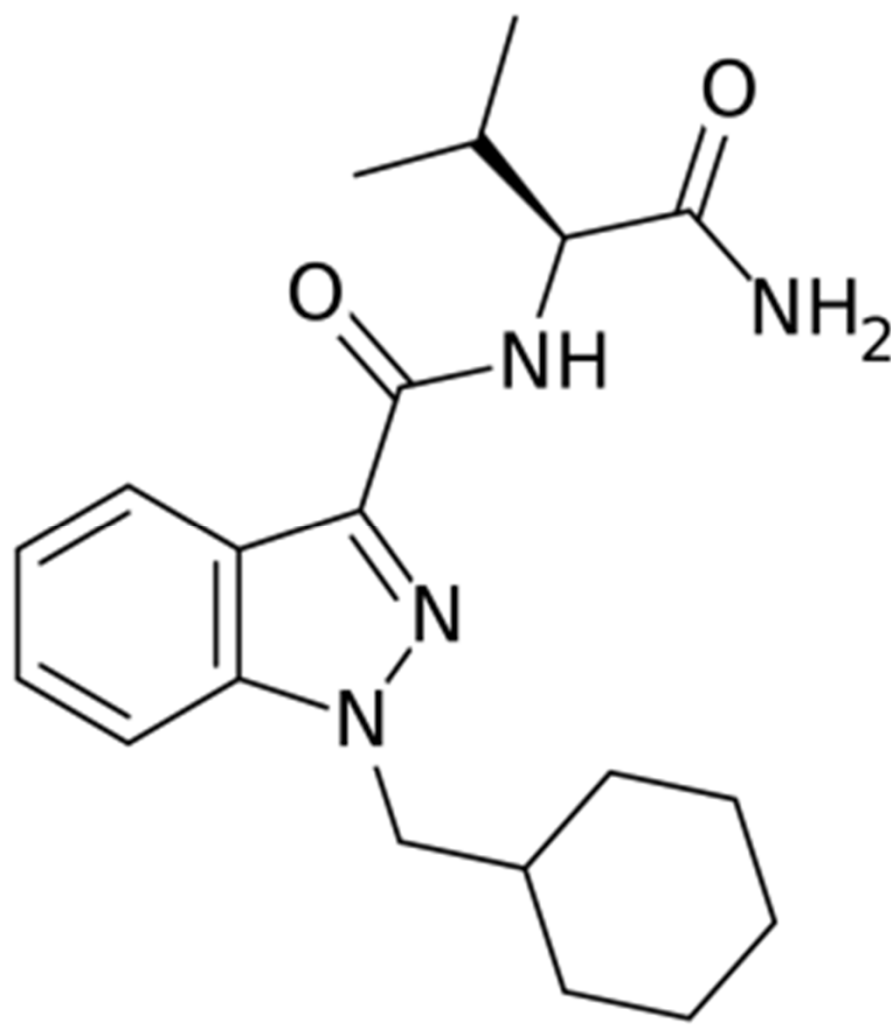
EC<sub>50</sub>: 0,142 nM  
(cAMP assay) [1]

Results

Heart serum: 0.28 g/kg alcohol;  
76 ng/mLmirtazapine. Hair was positive for several synthetic cannabinoids, with highest concentrations for MDMB-CHMICA and 5F-PB-22 (160 pg/mg). The ash residue in the water-pipe tested positive for MDMB-CHMICA and nicotine.

Case 2 – AB-CHMINACA

A 38 year-old man (94 kg / 177 cm) was found unconscious on the stairs of an apartment house and died in hospital five hours later. No drug utensils were found at the scene. Autopsy revealed several recent vascular punctures and the inhalation of chyme.



EC<sub>50</sub>: 0,278 nM  
(cAMP assay) [1]

Results

Clinic serum sample was taken two hours after finding the patient:  
210 ng/ml methadone  
5,800 ng/ml pregabalin  
It is not sure whether the deceased took methadone on a regular basis.

MDMB-CHMICA

positive	tobacco ash
8.4 ng/g	lung
32 ng/g	muscle
3.2 ng/ml	bile
38 pg/mg	tooth (root dentin)
160 pg/mg	pubic hair

1.1 ng/ml
1.8 ng/ml
-
metabolites
< 0.01 ng/ml
140 ng/g
4.9 ng/g
23 ng/g
0 ng/ml
21 pg/mg

AB-CHMINACA

heart serum	13 ng/ml
femoral serum	13 ng/ml
serum, clinic	2.0 ng/ml
urine	metabolites
vitreous humor	1.6 ng/ml
liver	60 ng/g
kidney	150 ng/g
brain	100 ng/g
stomach content	7.3 ng/ml
scalp hair	950 pg/mg

Discussion

Discrepancy between post mortem and clinic serum could be due to distribution during the post-mortem interval and/or cardiopulmonary re-suscitation.

Discussion

Although scalp hair shows a rather low concentration, the almost 8-fold higher concentration in pubic hair suggests a rather frequent use of these substances. Mutual amplification of the CNS depressant effects of the detected substances probably led to unconsciousness which finally resulted in drowning.

The clinic sample was drawn approx. 2 hours after finding the man; approx. 5 hours later he was declared dead; autopsy was performed 2 days later. Scalp hair analysis suggests a frequent consumption of AB-CHMINACA. Nevertheless, besides methadone and pregabalin, AB-CHMINACA may have contributed to the CNS and respiratory depression resulting in hypoxia and death.