5F-cumyl-PINACA in ‘e-liquids’ for electronic cigarettes – A new type of synthetic cannabinoid in a trendy product

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Introduction:
In recent years, e-liquids used in electronic cigarettes have become an increasingly attractive alternative to smoking tobacco. Especially among young people e-cigarettes are becoming more and more popular [1]. A new trend is the use of e-liquids containing synthetic cannabinoids instead of nicotine as active ingredients. In the frame of the EU-Projects ‘SPICE’, ‘SPICE II Plus’ and ‘SPICE Profiling’, which comprise a systematic monitoring of the online market of ‘legal highs’, e-liquids were bought from online retailers who also sell herbal blends.

Product monitoring

Method

in vivo (human):
- cumyl-PINACA
(0.6 mg oral intake)

in vitro:
- 5F-cumyl-PINACA
- cumyl-PINACA

Metabolism

Method

serum & urine

LC-MS/MS analysis

Results

47 % of the e-liquids contained only nicotine as active ingredient. The other liquids contained one or more synthetic cannabinoids, e.g. 5F-APINACA, AB-PINACA or 5F-PB-22. Three of the liquids sold as ‘c-liquids’ (all from one retailer) contained 5F-cumyl-PINACA (Fig. 1).

Results

To assess the relative potency of this new substance class – carrying a cumyl-moiety - a set of synthetic cannabinoids (AB-CHMINACA, AB-FUBINACA, AB-PINACA, AM-2201, cumyl-PINACA, EG-018, JWH-018, MDMB-CHMICA, THJ-2201) were characterised using the cAMP Biosensor Assay with CB1 as target (DiscoveRx, Fremont, USA). The results of the Biosensor Assay are listed in Table 1.

Main metabolites of cumyl-PINACA

Fig. 3: main metabolites of cumyl-PINACA in urine after 0.6 mg (oral)

Main metabolites of 5F-cumyl-PINACA (in vitro only)

Fig. 2: Serum concentration of cumyl-PINACA after 0.6 mg (oral)

Conclusion

The increasing popularity of e-liquids particularly among young people and the extreme potency of the added synthetic cannabinoids pose a serious threat to public health. There is a high risk of unintended poisoning, and in the long term prevalence of these drugs could rise in the younger population due to introduction of trendy products.

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References: