Sobolevsky T, Prasolov I, Rodchenkov G

Newcomers to the synthetic cannabinoid family: adamantyl substituted indole carboxamides APICA and its fluorinated analog

Antidoping Centre, Moscow, Moscow, Russia

Abstract

Synthetic cannabinoids represent the class of research chemicals which is constantly growing in response to the belated legislation bans in various countries. Currently, substituted alkyl indoles seem to be displaced from the market by the indole or indazole carboxamides, of which the compounds bearing the adamantyl moiety are the important and wide-spread examples.

We have bought via the Internet in Russia the smoking mixtures which were found to contain two novel cannabinoids, *N*-(1-adamantyl)-1-pentyl-1*H*-indole-3-carboxamide (aka APICA) and *N*-(adamantan-1-yl)-1-(5-fluoropentyl)-1*H*-indole-3-carboxamide (aka STS-135). Both compounds were formally legal at the moment of purchase. The active components were isolated using preparative liquid chromatography and subjected to the *in vitro* metabolic reactions to identify the potential analytical targets. We have also had a chance to analyze the urine samples, which were provided to us by a local drug enforcement body, to compare the *in vitro* and *in vivo* data. Applying liquid chromatography – electrospray mass spectrometry it was found that both cannabinoids undergo extensive metabolism including the loss of the *N*-alkyl chain and hydroxylation at the indole or adamantyl moieties. Both cannabinoids have common metabolite which is *N*-despentyl / *N*-desfluoropentyl hydroxyadamantyl indole carboxamide and the specific hydroxylated metabolites. Interestingly, for the detection of APICA abuse di- and trihydroxy metabolites are preferred, while in case of STS-135 better detectability is provided by mono- and dihydroxy compounds.

The details on this study will be published elsewhere.

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