Concurrent Appearance of Vanoxerine, mCPP and ‘Wormazine’ on the Belgian Market: A Case Study

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AIMS: Vanoxerine (GBR-12909) is a high-affinity dopamine reuptake inhibitor and is currently undergoing clinical trials as a possible medication for the treatment of cocaine addiction. To the best of our knowledge, vanoxerine has not yet been encountered on the Belgian market in co-appearance with illicit drugs. In contrast, mCPP or meta-chlorophenylpiperazine is increasingly seen in powders and tablets that are being sold as ecstasy. The effects of mCPP are quite variable, but most users describe an ecstasy-like effect. Several side effects are also reported, among which nausea, dizziness, hallucinations and headache. In addition, a serotonin-like intoxication syndrome has been described, linking mCPP to one of the hepatic metabolites of the antidepressant trazodone (Desyrel®). We present here a case study that describes the concurrent appearance of vanoxerine, mCPP and ‘wormazine’ in seized powders and tablets on the Belgian market.

METHODS: In this case study, GC-MS and NMR techniques were used to determine the identity of the active component(s) of seized powders and tablets. Mass spectrometric analyses were conducted with an Agilent 6890N GC coupled to an Agilent 5973N MSD operating in EI-mode (70 eV). Chromatographic separation was achieved via a Varian VF5-MS factorFour capillary column (30 m x 0.25 mm x 0.25 µm) with He as carrier gas (1 mL min⁻¹) and applying a multiple-step linear temperature program: 50°C (hold 1 min), ramp to 100°C at 35°C min⁻¹ (hold 0 min), increase to 310°C at 10°C min⁻¹ (hold 30 min).

RESULTS AND CONCLUSIONS: Both methods confirmed the first illegal appearance of vanoxerine in Belgium. The co-appearance of vanoxerine with mCPP and the anthelminthic ‘wormazine’ attracted our attention. ‘Wormazine’ is nothing else than the hydrochloride salt of piperazine and can be viewed not only as a precursor for the synthesis of vanoxerine and mCPP, but also other piperazine derivatives with psychotropic activity linked to recreational drugs like 1-benzylpiperazine (BZP), 1-(3-trifluoromethylphenyl)-piperazine (TFMPP) and 1-(4-methoxyphenyl)-piperazine (MeOPP). Hence, the appearance of piperazine may be suggestive of a possible surreptitious synthesis pathway.

Keywords: Vanoxerine, m-Chlorophenylpiperazine, Wormazine