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Case Report

Microdosing: The Impact of Quantifying LSD Tabs after Being Seized at a UK Festival

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Abstract

A male was arrested with 23 MDMA tablets and 146 Lysergic acid diethylamide (LSD) stamps in his possession, upon entering a four day festival. The male was adamant that the drugs were for his personal use and had no intention to supply. An expert for the prosecution advised that the amount seized for MDMA could be accounted for as personal use, yet the LSD stamps, with the use of literature and expertise, cannot be suggested as personal use of one person over a four day period.

The expert team was then asked to quantify the LSD tablets and provide an expert opinion as to how much LSD would have to be taken for it to have any effect. The unknown tabs were identified and quantified to determine the concentration of LSD. It was concluded that the level of LSD was approximately 1 µg and therefore largely under-dosed to produce any recreative effect in humans.

Because of this, charges of intent to supply were reduced to possession, resulting in a sentence of a 12-month community order including 186 hours of unpaid work and a £150 fine.

Keywords: *LSD; Drug Testing; Festival Drugs; Microdosing; Quantify of LSD; Forensic Drug; Toxicology*

Background and Case Report

A young male was stopped by security guards at Boomtown festival, after being signalled by a drug detection dog, where he had 23 MDMA tablets and 146 LSD stamps in his possession.

Upon interview with the police, the male stated that all the drugs in his possession were for his use only and not with the intent to supply. With this, the prosecution instructed an expert in the field of drug trafficking, to provide an expert opinion on whether the amount of substances was for own consumption or whether the total amount is more likely seen in those who intend to supply.

The expert's conclusion suggested that the 23 MDMA tablets could be considered as personal use for one individual over the course of the four day festival. However, for the LSD tablets, it was concluded that this is not consistent with personal use for one person. It was suggested that this level of tablets would produce an average of 730 hours, which is roughly enough for 30 days of use.

The conclusion for the LSD tablets and dosage by the prosecution expert was partly based on the findings in publications and previous cases, where it was stated to suggest that the content of a single dose of LSD, whether this is via a card, microdot or sugar cube can vary between 20 and 80 micrograms, with the average being approximately 50 micrograms. Therefore, 146 tablets in four days would 'not allow for the normal bodily functions that are necessary, like eating, drinking and sleeping'.

Because of this, DNA Legal received a request from the defence team to test the alleged LSD tabs and for an independent expert to provide a report detailing the purity of the LSD, if possible to comment on tolerance levels and if possible (and if low purity) how much LSD would have to be taken for it to have any effect.

Lysergic acid diethylamide (LSD) - Background

LSD is a semisynthetic product of lysergic acid, which was synthesised by Albert Hofmann, a natural products chemist, in 1938, while searching for derivatives of lysergic acid that have pharmacologically active properties [1]. LSD was the only derivative of lysergic acid to have psychological effects, and therefore in 1950, was used in the medical community and by the 1960's was used for recreational use [2].

There are many scientific studies relating to the dose of LSD and what level of an effect each dose will cause. Hoffer has reported that the minimal recognisable dose of LSD in humans is about 25 µg [3]. This is also agreed in the paper by Stoll in 1947 [4]. A moderate dose of LSD is recommended to be between 70 - 150 µg, which will alter the state of consciousness significantly [5], with the 'optimum ' dosage being in an estimated range of 100 - 200 µg for a typical fully unfolded LSD reaction (Hoffer, Clin Pharmacol Ther, 1965). Table 1 shows the average doses reported. The acute psychological effects of LSD can last between 6 and 10 hours depending on the dose taken.

LSD Oral Dosages	
Threshold	10 - 20 µg
Light	20 - 75 µg
Common	50 - 150 µg
Strong	150 - 400 µg
Heavy	400 + µg

Table 1: *Reported doses of LSD.*

LSD has a half-life of 175 minutes in humans [6]. After repeated daily consumption of a moderate dose of LSD over a few days, the user can build up a tolerance to the autonomic and psychological effects [7] and therefore, more LSD may be required to provide the 'normal high'.

There have been no documented human deaths due to an overdose of LSD. Reported cases have shown that high levels of LSD consumed, normally where individuals have been mislead, have ended up in a comatose state, but have all survived with hospital treatment and without residual effects [8].

Results and Discussion

Two randomly selected tabs of the suspected LSD stamps were tested from the seized sample. The methods that was used to test for LSD was fully validated by the lab. The two selected stamps were found to contain 1.04 µg and 1.22 µg of LSD per stamp (stamp 1 and stamp 2 respectively).

By looking at table 1 and taking the scientific literature into consideration, one would need to consume approximately 20 of these LSD stamps in one time, to reach the minimal recognisable dose of LSD of 25 µg.

Because of this, the toxicologist concluded that 'As a consequence, the concentrations measured in the material provided for analysis (about 1 µg per dose) seem largely under-dosed to produce any recreative effect in humans.' Microdosing is a practice to use sub-threshold doses of the psychedelic drug in an attempt to improve creativity. It is usually noticed in LSD and Psilocybin (Magic Mushrooms). Microdosing is usually performed with doses around one-tenth or less of recreational doses. Yet, despite the low dosages microdosing is still thought to produce a possible milder reaction. Using the quantified stamps, the participant is most likely to have been exposing himself to repeated doses of microdosing to improve mood, cognition, and creativity. In certain scenarios, it is often used counteract anxiety and depression symptoms. Creating a build-up of doses over a longer period of time to reach the recreational dosage can also be achieved.

Conclusion

From the analysis of the stamps and interpretation of the results, it was advised through a detailed expert report that the detected dosages were below the recreational concentration. This report was shared with the prosecution and the male's charges of possession with intent to supply were dropped and he was sentenced to 12 month community order and a £150 fine.

It is important to consider other explanations such as the purity of the drug and the number of stamps present in conjunction rather than the only focusing on the number of stamps present, enables a more reliable approach when suggesting whether the number of drugs seized is more likely due to personal use or due to the intent to supply. This will decrease the number of false prosecutions related to drug possession and supply.

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Authors Contribution

S. E. Breidi conceived and designed the study. S. E. Breidi and C. Meacham wrote the draft paper and interpreted the results and edited the paper.

Disclosure of Interest

The authors report no conflict of interest.

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