Technical Note

Potency of Cannabis Seized in Central Florida During June 2002

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ABSTRACT: The potency of cannabis seized in central Florida during the month of June, 2002, is reported. Δ^9-Tetrahydrocannabinol (Δ^9–THC) was extracted from cannabis seizures with a mixed methanol chloroform solution, and then analyzed with gas chromatography using an external standard. The average Δ^9–THC concentration was found to be 6.20%.

KEYWORDS: Δ^9-Tetrahydrocannabinol, Δ^9–THC, Marijuana, Cannabis, Gas Chromatography

Introduction

Cannabis remains one of the most frequently submitted substances for analysis to the Florida Department of Law Enforcement's Orlando Regional Crime Laboratory. Δ^9-Tetrahydrocannabinol (Δ^9–THC) is the substance responsible for most of the psychopharmacological effects that cannabis has on humans. According to the University of Mississippi's Potency Monitoring Project, the non-normalized average potency of cannabis seizures has steadily increased since measurement began in the 1970's. The average Δ^9–THC potencies were 0.90% in 1977, 2.93% in 1987, 4.53% in 1997, and 6.19% in 2002 (1). In this study, samples were collected from seizures made in central Florida and submitted for laboratory analysis during June 2002, and their respective Δ^9–THC contents determined by gas chromatography (GC) using an external standard.

Experimental

Instruments and Materials

A Hewlett Packard 5890 Gas Chromatograph (GC) with a flame ionization detector was used for all analyses. The GC was equipped with an Alltech (AT-1) fused silica 10-meter capillary column with an internal diameter of 0.25 mm and having a film thickness of 0.20 µm of methyl silicone. A Mettler AE260 DeltaRange electronic analytical balance was used for weighing the samples. The external Δ^9–THC standard employed was from Alltech (Lot Number 281). Methanol and chloroform (both Fisher Scientific) were used as received. A total of 36 cannabis samples obtained from 36 separate cases submitted to the laboratory in June 2002 were examined in this study. All samples were dry.

Analytical Protocol

After removing seeds and large stem pieces, the samples (roughly 200 mg) were weighed on an analytical balance (see Table 1, page 39, for exact dry weights), then covered and soaked overnight in 5 mL of methanol/chloroform 9:1 to exhaustively extract the Δ^9–THC from the plant material (2). Because of the small size of the autosampler vials used on the GC, a 1.5 mL aliquot of the extract of each sample was evaporated to dryness in an autosampler

vial, and another 1.5 mL aliquot of extract was added and the vials were sealed; this doubled the concentration of the extract. The Δ^9–THC external standard was prepared to a final concentration of 1.0 mg/mL.

The GC was operated at a split ratio of 50:1. The helium flow rate was 1 mL/minute. The temperature program started at 100˚C and was increased at a rate of 50˚C/minute to 325˚C, with a final hold for 2.25 minutes. The samples were bracketed between two standards in groups of ten. Each sample was injected in triplicate with a volume of 1 µL per injection, and the average of the three peak areas for each sample was used for quantitation. Five already extracted samples were chosen randomly and the extraction and analysis procedures were repeated on them to ensure that all of the samples had been exhaustively extracted (which they were).

Results and Discussion

The amount of Δ^9–THC found in the samples ranged from 1.41% to 12.62% by dry weight (see Table 1, next page). The average Δ^9–THC content was 6.20%, which is almost identical to the 2002 value reported by the University of Mississippi's Potency Monitoring Project. Since there have been no other known studies of this type for cannabis seizures in central Florida, these values cannot be compared with local data to show a trend in cannabis potency. However, the results clearly suggest that local cannabis potencies are closely tracking national averages.

Acknowledgments

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References

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Table 1. Amount of Δ^9-THC found in Central Florida Cannabis Samples

Sample #	Sample Weight (grams)	Percent THC by Dry Weight
1	0.2095	6.59
2	0.2254	9.83
3	0.2154	3.79
4	0.2188	11.46
5	0.1609	6.64
6	0.1770	5.24
7	0.1447	6.02
8	0.1928	1.41
9	0.2079	2.20
10	0.1413	4.61
11	0.1549	4.46
12	0.2231	6.87
13	0.2185	8.59
14	0.2056	5.32
15	0.1585	4.74
16	0.2259	9.12
17	0.1230	3.57
18	0.1560	6.88
19	0.2315	3.94
20	0.1975	4.42
21	0.2168	7.81
22	0.1568	10.92
23	0.1685	9.82
24	0.1874	6.16
25	0.2202	6.77
26	0.1438	2.59
27	0.2159	8.69
28	0.2175	3.23
29	0.2219	12.62
30	0.1828	4.05
31	0.1990	8.56
32	0.1805	6.08
33	0.2217	5.86
34	0.2161	5.67
35	0.2226	2.23
36	0.1686	6.58
Mean THC Content (by Dry Weight) :		**6.20%**