Evolution of the composition of cannabis in Spain

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Introduction

In the cannabis plant (Cannabis sativa, marijuana) more than 400 substances of which about 60 are derived cannabinoids. Of these the most important are the delta-9-tetrahydrocannabinol (THC), which is primarily responsible for the psychoactive effects, cannabinol which is much less psychoactive active and cannabidiol (CBD) which is not psychoactive and has anxiolytic and sedative actions. Psychoactive effects depends on the amount of THC containing. Marijuana may contain 5 - 15% of THC and between 1 - 5% of CBD (1).
In the recent years there have been several studies about the content of cannabinoids in cannabis samples in various countries (2). These studies describe the evolution of the composition of cannabis with emphasis on the THC content. Most of these studies don't analyze the content of the rest of cannabinoids. In the case of Spain there is no publication that analyzes the concentration of cannabinoids in cannabis samples, specifically of the relation between the concentration of THC and CBD.

Objectives

The aim of the present study is to describe the presence of THC and CBD in the samples of cannabis delivered for analysis to the harm reduction NGO Energy Control from January to December of 2015 in Spain.

Methods

From January to December of 2015 468 samples of cannabis were analyzed. Analysis was done by Gas Chromatography – Mass Spectrometry. It has been identified different types of cannabinoids: THC, CBD, cannabinol, cannabigerol, cannabichromene and tetrahidrocannabarina. Only THC, CBD and CBN have been quantified.

Results

From these 468 samples of cannabis, the 56 % were marijuana, 14% hashish, 12% extracts, 10% cannabis leaves, 7% extractions for oral consumption and 1% for topical use. From the 262 samples of marijuana, 261 exhibited THC, 101 CBD and 100 both compounds. Only one sample showed no detectable amounts of THC. The mean THC concentration was 7.5% (range 0.4 to 26 %). Only 6 % of the total (n=15) had a greater than 15% concentration. CBD was detected only 39% of the samples (n = 101). The mean concentration was 5.4 % (range 0.8 to 11 %). In only 4 samples concentrations higher than 10% were found. In 64% of the samples on the concentration of CBD exceeds the THC. The 28 % of the samples had similar concentrations of THC and CBD. Only 8 samples showed more THC than CBD (8%).

Figure 1: Presentation of cannabis samples

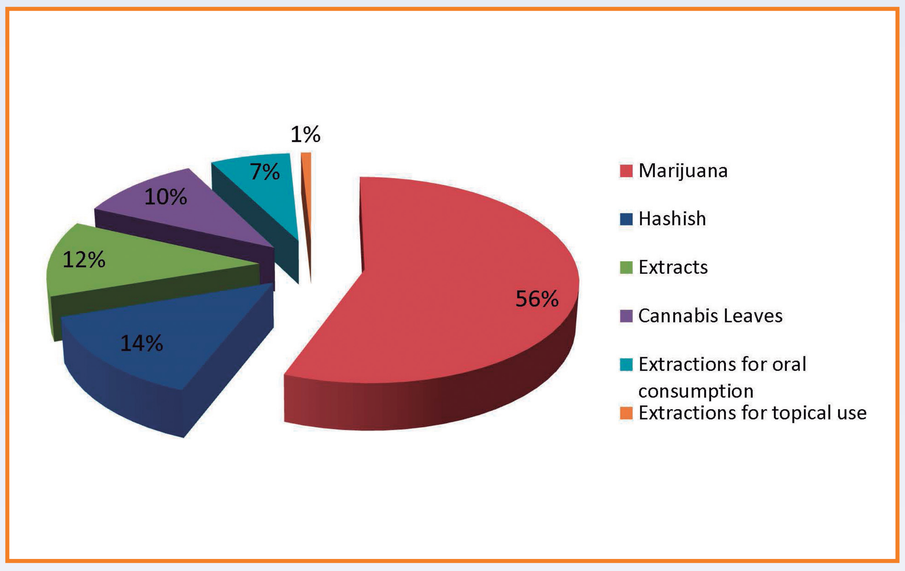

Figure 2: Range distribution of % THC concentration in marijuana samples (n:262)

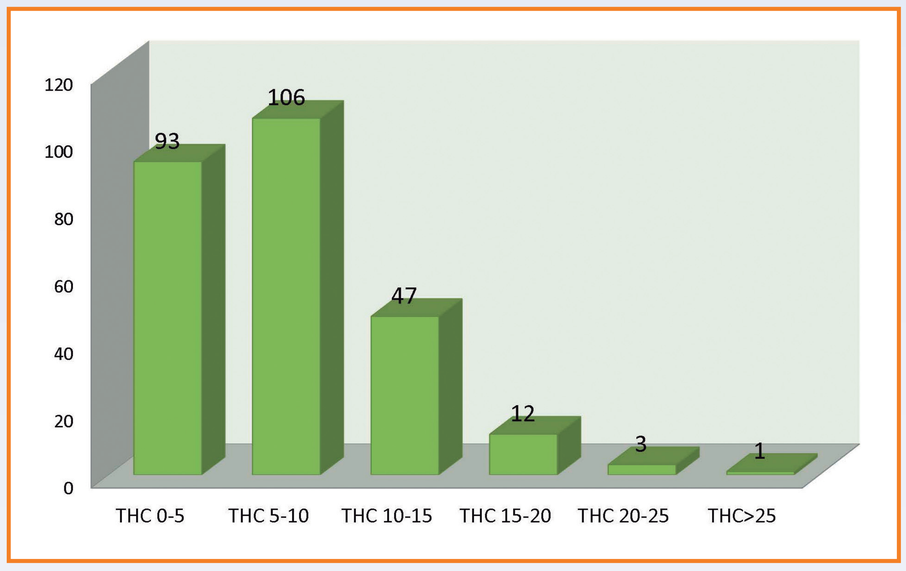

Figure 3: Range distribution of % CBD concentration in marijuana samples (n:101)

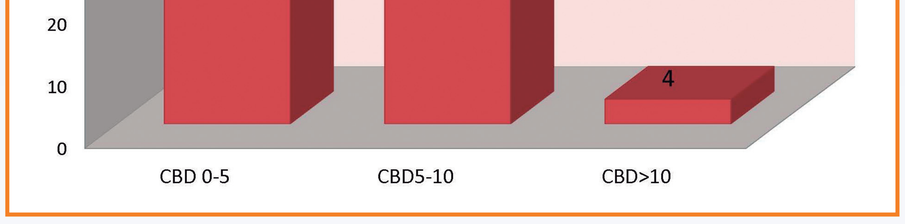

Figure 4: Distribution of ratio THC/CBD concentration in marijuana samples (n:105)

Conclusions

A considerable increase in marijuana with CBD compared to other years is detected. It seems that the market is demanding more genetic presence of CBD.
Most marijuana samples analyzed do not exceed the 15 % of THC, an amount that could be considered high.

References

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