Journal of Chromatography, 87 (1973) 298–299

CHROM. 6966

Note

A rapid thermomicro/thin-layer chromatography procedure for the identification of cannabinoids in marihuana

EUGENIO PEDRO CHIESA, RUBÉN VICTOR DANIEL RONDINA and JORGE DANIEL COUSSIO

Departamento de Bioquímica Vegetal, Facultad de Farmacia y Bioquímica, Universidad de Buenos Aires, Junín 956, Buenos Aires (Argentina)

(First received June 19th, 1973; revised manuscript received July 27th, 1973)

Several thin-layer chromatography techniques have been applied in examining the composition of cannabis of various origins[1–7]. The development of a thermomicro-separation, transfer and application method[8] provides a powerful technique for rapid and highly efficient extraction of volatile products from plants[9]. Little has been reported on its practical application to the extraction of cannabinoids from *Cannabis sativa* L.

Because of this and the forensic importance of marihuana an attempt was made to find the ideal conditions for extracting and separating some of the main cannabinoids: cannabidiol (CBD), cannabinol (CBN) and Δ^1-tetrahydrocannabinol (Δ^1-THC), through the combination of this technique with thin-layer chromatography (TLC). We have therefore worked out the conditions for extracting and separating the cannabinoids from marihuana samples. The best procedure was as follows.

EXPERIMENTAL AND RESULTS

A sample (*ca.* 2 mg) of the material to be investigated was placed in a glass cartridge. This was closed by means of a sealing disc and inserted into a Desaga TAS oven, which had been pre-heated to 250°, for 2 min. The volatile substances were transferred by this means, without propellent, on to a 5×20 cm silica gel G plate (250 μm thick), placed at the opening of the capillary. A Δ^1-THC standard solution was also applied to the starting line.

The chromatogram was developed in benzene up to 10 cm from the starting line (run time was *ca.* 20 min). The dried sheet was sprayed with a freshly prepared 0.1% aqueous fast blue B solution and after that was exposed to ammonia.

The cannabinoids gave spots as detailed in Table I.

The principal advantages of this method are as follows.

a) Only a small quantity of sample is necessary for the analysis (1–2 mg) when used in routine forensic determinations.

b) Direct application of the sample, without the preparation of a previous extract or macerate, is possible.

c) The method requires less than 25 min to carry out.

TABLE I

R_F VALUES AND COLOURS OF THE CANNABINOIDS SPRAYED WITH FAST BLUE B

Compound	$R_F \times 100$	*Colour of spot*
CBD	83	orange
Δ^1-THC	75	pink
CBN	63	purple

d) Under the conditions described the acidic cannabinoids decarboxylate in the glass cartridge, which is an advantage because of the greater similarity to marihuana smoking conditions.

ACKNOWLEDGEMENTS

This work was supported in part by Research Grant No. 1056/72 from the Universidad de Buenos Aires.

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