

Report of CBD Determination in Serum

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Re: CBD Bio-Availability Report

Review of the laboratory data and the Excel CBD Graph of 12 subjects and find the following average parameters:

A single 50mg tablet was administered sublingually to five healthy male and seven healthy female subjects and blood samples were taken at 0, 0.5, 4, 8, and 12 hours post oral administration.

| Average | | <u>ng/ml</u> |
|---------|----|--------------|
| 0 | 12 | 0.06475 |
| 30 | 12 | 18.45 |
| 4hrs | 12 | 28.44 |
| 8hrs | 12 | 33.06 |
| 12hrs | 12 | 8.07 |

Below pharmacokinetic data is Mean of 12 subjects tested for Cannabidiol (CBD) in serum or plasma.

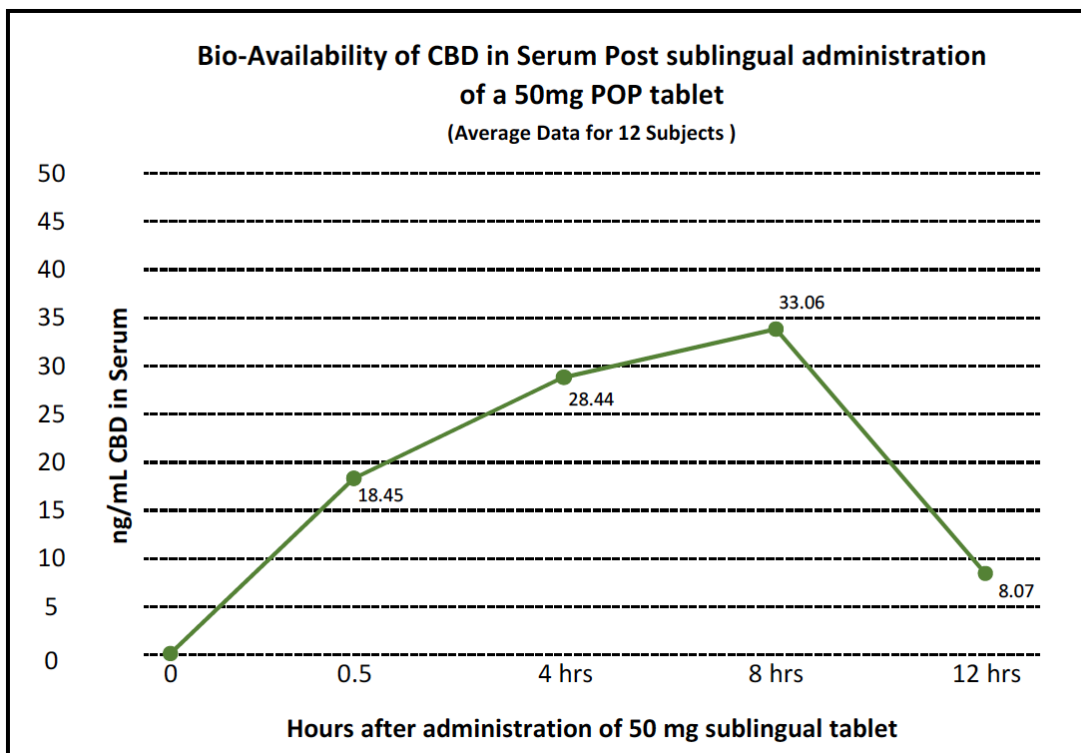
Absorption rate 0 to 28.44 ng/ml in 4 hours = 7.11 ng/ml per hour

Peak in 8 hours to 33.06 ng/ml (Dose not given)

Elimination rate 33.06 to 8.07 ng/ml in 4 hours = 6.25 ng/ml per hour

Elimination half-life about 1 day

FIGURE 1



Results and Conclusions:

Administration of a 50mg CBD(POP) tablet resulted in a significant level of CBD in serum of all samples tested. Detectable concentrations of CBD were observed as early as at 30 min after the tablet administration and the concentrations levels continually increased peaking at 8 hours. Although CBD in serum decreased at 12 hours it was still detectable.

Results include data from 12 subjects, which is substantial for good statistical evaluation. These results are consistent with the general pharmacokinetics and bio-availability of CBD found in the literature involving other CBD investigations.

Related references:

Repeated oral administration of daily doses of 700 mg of CBD to 14 Huntington's disease patients in a 6-week trial, plasma levels of the drug remained in a relatively constant but low range of 5.9–11.2 ng/mL throughout the trial, averaged 1.5 ng/mL 1 week after CBD administration was discontinued and virtually undetectable by gas chromatography coupled with mass spectrometry (GC-MS) thereafter; the elimination half-life of CBD ranged from 2 to 5 days ^{1,2}.

1 Consroe P, Kennedy K, Schram K. Assay of plasma cannabidiol (CBD) by capillary gas chromatography/ion trap mass spectroscopy following high-dose repeated daily oral administration in humans. *Pharmacol Biochem Behav.* 1991; 40:517–522 [[PubMed](#)]

2 Consroe P, Laguna J, Allender J, et al. Controlled clinical trial of cannabidiol (CBD) in Huntington's disease. *Pharmacol Biochem Behav.* 1991;40:701–708 [[PubMed](#)]

Respectfully submitted,



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