



Independent Clinical Study

Human Cannabinoid Pharmacokinetics

Product: UltraCell®

Manufacturer: Zilis®, LLC

FINAL REPORT SUBMITTED TO: Zilis, LLC

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Introduction

Cannabidiol (CBD) is a non-psychoactive component of the industrial hemp plant. Cannabidiol is pleiotropic in that it produces many effects through multiple molecular pathways.

The hemp plant has been consumed by humans for thousands of years and revered for its health benefits. The plant is composed of a chemical mixture that includes phytocannabinoids, terpenes, flavanoids, steroids, and enzymes. Pharmacokinetics refers to what happens to a substance from the time it enters into the body until the exit of all traces. The absorption of a substance is also called its bioavailability. The purpose of this study is to identify and define cannabidiol (CBD) bioavailability when infused with UltraCell absorption technology. Understanding the pharmacokinetics of a supplement is essential to understanding the onset, magnitude, and duration of its pharmacodynamic effects, maximizing therapeutic benefits and minimizing negative side effects.

This study will evaluate the blood levels of this product over a twelve—hour period.

HPLC Testing

High-performance liquid chromatography (HPLC; formerly referred to as high-pressure liquid chromatography), is a technique in analytical chemistry used to separate, identify, and quantify each component in a mixture. Each component in the sample interacts slightly differently with the adsorbent material, causing different flow rates for the different components and leading to the separation of the components. Each time set had three vials of blood drawn. Each sample was tested using HPLC. The report indicates the average of the three blood vials drawn and tested from each subject at each time point.

Study

This is a study with twenty subjects participating for a period of twelve hours. At the onset of this study each subject had blood drawn to set the Baseline of CBD in their bodies, each had a Baseline of 0.0mg of CBD at Baseline. Then, each subject was given an oral dose of the Zilis supplement UltraCell CBD.

Each subject was given 4.12cc amounting to 10.9 mg of Zilis UltraCell CBD. Blood tests were drawn every hour for a total of 12 hours.

Subject's average at 45 minutes: 6.4 mg

Subject's average at 1 hour 45 minutes: 9.0 mg

Subject's average at 2 hours 45 minutes: 9.2mg

Subject's average at 3 hours 45 minutes: 9.3mg

Subject's average at 4 hours 45 minutes: 9.2mg

Subject's average at 5 hours 45 minutes: 9.2mg

Subject's average at 6 hours 45 minutes: 9.3mg

Subject's average at 7 hours 45 minutes: 9.3mg

Subject's average at 8 hours 45 minutes: 9.1mg

Subject's average at 9 hours 45 minutes: 8.2mg

Subject's average at 10 hours 45 minutes: 8.7mg

Subject's average at 11 hours 45minutes: 9.0mg

Subject's average at 12 hours 45minutes: 9.0mg

Conclusion

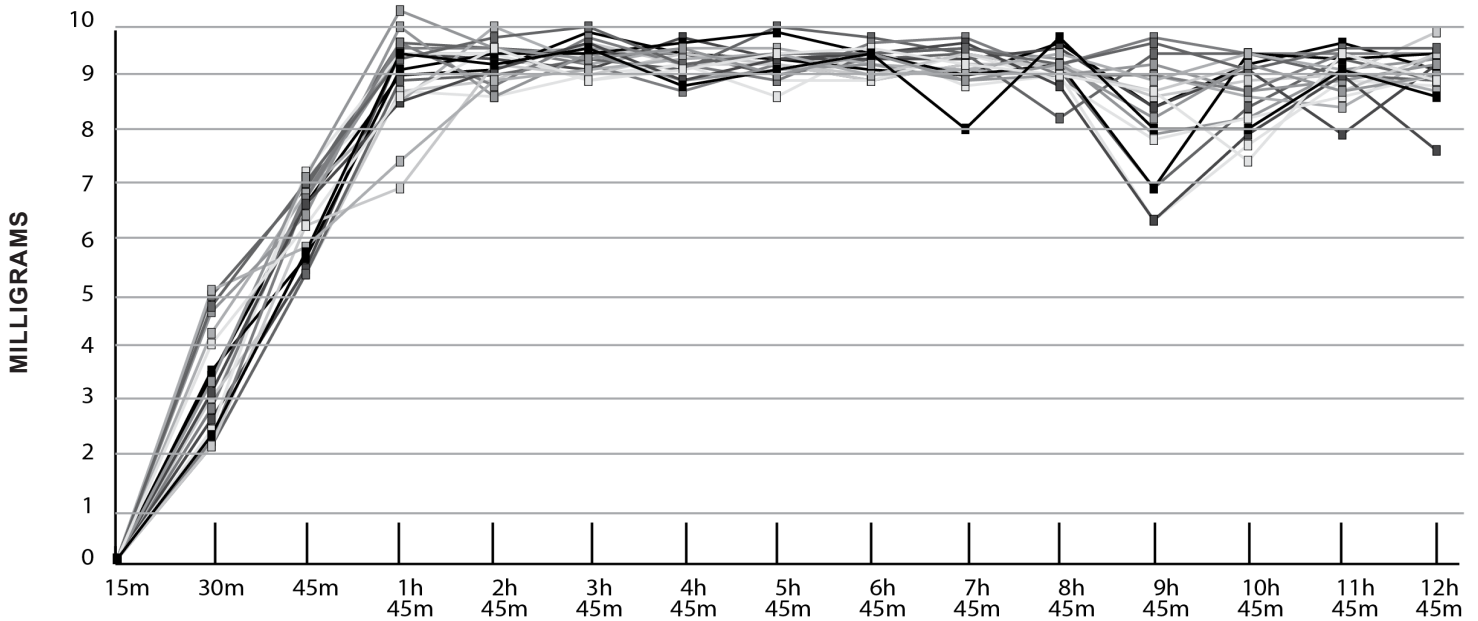
The proprietary UltraCell absorption enhancer adds significant bioavailability to CBD. In this study, the average absorption after one hour was measured at 83%, with a maximum absorption up to 94%. Onset is quick and it has a lasting duration of product availability.



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Mg of CBD absorbed in the body vs time



SUBJECT	45m	1h 45m	2h 45m	3h 45m	4h 45m	5h 45m	6h 45m	7h 45m	8h 45m	9h 45m	10h 45m	11h 45m	12h 45m
1	5.7	9.4	9.2	9.5	8.8	9.1	9.4	8	9.7	6.8	8	9.1	8.6
2	6.2	8.6	9.5	8.9	9.1	9.4	9.5	9.2	9	8.7	7.4	9.4	8.9
3	7.1	10.2	9.5	9.3	9.5	9	9.4	8.9	9.2	8.2	9.2	8.7	9
4	7	9.3	9.7	9.9	9.2	9.4	9.4	9.5	9.2	9.6	9.1	9.5	9.5
5	5.8	7.4	8.9	9.1	9.3	9.4	9	9.1	9.4	8.9	9.4	9.1	8.7
6	6.6	8.5	9.1	9.6	8.9	9.3	9.4	9.6	8.8	6.3	7.9	9	7.6
7	6.2	6.9	9.2	9	9.4	9.2	9	9.4	9.1	8.7	9.2	8.7	9.4
8	6.7	9.6	8.8	9.7	9.2	8.9	9.6	9.7	9	9	8.7	9.4	8.9
9	5.6	9.1	9.4	9.4	9.6	9.8	9.4	9	9.2	6.9	9.4	9.3	9.4
10	7.2	9.4	9.4	8.9	9.2	8.9	8.9	9.4	8.9	7.8	8.2	8.6	9
11	6.4	9.9	8.6	9.4	8.9	9.1	9.2	8.9	9	9.2	8.7	8.9	9.2
12	5.3	8.9	9	9.3	9.1	9.9	9.7	9.4	8.2	9.4	9.4	9	8.9
13	6.8	8.5	9.9	9.2	9.5	9.5	9.2	9.1	9	9	8.6	8.4	9.4
14	5.4	9.4	9.3	9.1	9.7	9.3	9.3	9.3	9.5	8.4	9.1	7.9	9.2
15	5.3	8.7	8.9	9.6	9.2	9.2	8.9	9.2	9.2	8.6	8.9	9	9.8
16	6.8	9.5	9.5	9.2	8.7	9.2	8.9	9.2	9.2	9.7	9.4	9.4	9.4
17	6.6	9	9.1	9.8	9.4	9.3	9.1	9	9.6	8.4	9.2	9.6	9.1
18	7.1	8.7	8.6	9	9.2	8.6	9.5	8.8	9	6.3	7.7	8.9	8.8
19	6.7	9.4	9.4	9.5	9.4	9.3	9.4	9.5	9.3	7.9	8.2	9.1	9.3
20	6.9	9.6	9.5	9.4	9.4	9	9.3	9.4	9.1	6.9	8.4	9.3	8.9
AVERAGE	6.4 mg	9.0 mg	9.2mg	9.3mg	9.2mg	9.2mg	9.3mg	9.3mg	9.1mg	8.2mg	8.7mg	9.0mg	9.0mg

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