



...working to legalize responsible adult use...

National Organization for the Reform of Marijuana Laws

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Sep 6, 2017

Food and Drug Administration
5630 Fishers Ln, Rm 1061
Rockville MD 20582

Re: Docket # FDA-2017-N-4514
International Drug Scheduling; Convention on Psychotropic Substances; Single Convention on Narcotic Drugs; etc.
CBD - Cannabidiol

To whom it may concern:

We hereby submit evidence that cannabidiol (CBD) is a medically useful substance with *negative* abuse potential and should therefore not be scheduled as a controlled substance either internationally or in the U.S. Our organization has represented cannabis consumers for over 45 years, in the course of which we have heard countless personal use accounts of experiences with cannabis, medical and otherwise. Their accounts of personal experiences with CBD are fully consistent with the scientific evidence from clinical studies and research discussed below.

Abuse Potential: CBD lacks the consciousness-altering properties and abuse potential of the major psychoactive ingredient in cannabis, delta-9-THC [Grotenhermen 3, Scuderi 20]. This is because CBD, unlike THC, doesn't activate the CB1 or CB2 receptors. As a result, CBD produces no hedonic "high" or euphoria, no subjective intoxication, and no craving, reinforcement, compulsive use or dependency. Similarly, CBD doesn't generate typical adverse effects of THC such as anxiety, dysphoria, psychotic symptoms, sedation, subjective intoxication, tachycardia, memory and psychomotor impairment [Martin-Santos 15]. This is not to say that CBD is entirely non-psychoactive, since it can have positive benefits for anxiety, schizophrenia, and addiction [Russo 4]. However, even at high doses CBD shows no toxicity and fails to produce THC-like effects in humans. [Grotenhermen 3, Scuderi 20]. Importantly, CBD lacks the addictive attraction of the THC "high" and shows no signs of producing dependency in users. [Babalonis 17]. Therefore, CBD cannot be scientifically classified as a habit-forming drug of abuse.

Remarkably, CBD has the ability to counteract the intoxicating and adverse effects of THC when the two are taken together [Russo 16]. Therefore, many medical cannabis patients use high-CBD cannabis to reduce unwanted, negative effects of THC. Clinical studies have shown that CBD counteracts: subjective intoxication, anxiety and depression [Morgan13], memory

impairment [Morgan 11, 13], tachycardia, and psychotic symptoms [Bhattacharyya 5]. Most importantly, CBD has been shown to counteract the appetency and addictive attraction of cannabis, thereby reducing its abuse potential [Morgan 1]. Users of recreational marijuana find high-CBD to be unattractive compared to pure THC varieties since it doesn't make them feel high. In contrast, medical users prefer high-CBD varieties so as to avoid or mitigate the negative adverse effects of THC. CBD has also been shown to reduce cigarette consumption in tobacco smokers [Morgan 2] and heroin-seeking behavior in addicts [Iffand 19]. It thus appears that CBD has *anti*-abuse properties. CBD may also help treat cannabis withdrawal syndrome [Crippa 6]. Because of its negative abuse liability, CBD fails to meet the qualifications for scheduling under the U.S. Controlled Substances Act, under which it is now wrongfully listed in Schedule One.

Actual Abuse: No cases of CBD addiction, dependency, hospitalization, or poisoning are known. CBD used to be more prevalent in domestic strains of cannabis, but was progressively bred out of the underground recreational market due to consumer preference for more intoxicating, high-THC varieties [Burgdorf 10]. High CBD strains began to be reintroduced in the medical cannabis market following the discovery of high-CBD cultivars by labs in California around 2009 [Gardner 12]. It has since become increasingly popular amongst medical cannabis users seeking to avoid the adverse effects of THC, in particular the elderly and pediatric patients. Use of this kind constitutes legitimate medical use, not drug abuse.

Medical Usefulness: Numerous medically beneficial properties of CBD have been reported in clinical studies, patient surveys, and anecdotal reports [Iffand 19]. In general, CBD has anticonvulsive, anxiolytic, anti-psychotic, anti-inflammatory, analgesic, anti-addictive, anti-oxidative and neuro-protective properties [Scuderi 20, Russo 7 & 16, Morgan 13]. CBD has been reported to be uniquely effective in certain cases of severely refractory childhood epilepsy (Dravet's syndrome, Doose syndrome, Lennox-Gastaut syndrome) [Porter 9]. This fact has led 17 states to legalize CBD-only cannabis medication. By itself, CBD has shown benefits for Parkinson's disease, Huntington's disease, ALS, MS [Russo 16], anxiety, psychosis and bipolar disorder [Morgan 13 Leweke 14]. Combined with THC, it is used in the treatment of chronic pain, sleep disorders, PTSD, inflammatory and movement disorders, etc. Compared with other drugs used to treat these conditions, CBD has a favorable side effect profile [Iffand 19]. Sativex®, a 50-50 CBD/THC extract manufactured by GW Pharmaceuticals, has been approved in Europe and Canada for treatment of multiple sclerosis pain and spasticity. Epidiolex®, a 100% CBD extract by the same manufacturer, is under FDA review for treatment of severe childhood epilepsy. Common indications for high-CBD cannabis include anxiety, insomnia, joint pain and inflammation, depression, muscle tension or strain, migraines, severe chronic pain, and nausea [HelloMD 18].

Trafficking: Traffic in CBD was non-existent prior to its re-introduction to the medical market in 2010. Since then, the supply and demand for high-CBD medical cultivars has grown rapidly in states where production is legal like California and Colorado. Medical cannabis growers now offer high-CBD strains with potencies up to 20% and CBD/THC ratios running the gamut from 1:4 to 20:1. All of these strains contain at least low levels of THC and are classified as illegal marijuana under federal, though not state, law. CBD can also be extracted from industrial hemp, which is legally grown in many countries with THC potencies restricted to trace

levels < 0.1- 0.3%. Pure CBD extracts from industrial hemp are available from various manufacturers where hemp growing is legal, including Canada, China, Eastern Europe, and U.S. states such as Colorado and Kentucky. A wide variety of high-CBD medical products are now on the market in the form of tinctures, oils, sprays, vapor pen cartridges, pills, edibles, patches and topicals in California, Colorado and other medical cannabis states. A survey of 2,400 patients by a California-based medical clinic found that 51% use CBD-dominant products regularly [HelloMD 18]. U.S. consumer sales of CBD products reached \$202 million in 2015, \$90 million from hemp-derived CBD, \$102 million from high-CBD marijuana [Cannatech News 21].

Impact of Scheduling Changes on Availability and Medical Use: The Schedule One status of CBD in the U.S. is an impediment to research and medical availability. Despite their lack of toxicity and addictive potential, research with existing CBD products requires a Schedule One license. High-CBD strains of cannabis cannot be approved through the normal FDA process because the DEA and DOJ have blocked licensing of manufacturers. Commerce and manufacture of CBD extracts from hemp is likewise subject to federal interdiction and criminal penalties. Removing CBD from the controlled substances list would make high-CBD strains more readily available for research and development purposes as well as facilitate its legal availability to patients.

For these same reasons, it would be inadvisable to schedule CBD internationally. To do so would needlessly impede the international trade, manufacture and availability of CBD products to researchers and medical users. The current unscheduled status of CBD under international treaty is unproblematic and entirely appropriate.

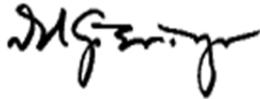
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Sincerely,



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