

Subject Line: SB263, HB2649, HB2182 -PROPONENT - Dr. Greg Smith, 03/14/2018 Oral

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Author of Cannabidiol (CBD): What you need to know (Kindle Press – 2017)

Testimony:

Define hemp and hemp oil for medical purposes in scientific terms –

Cannabis sativa species that contain less than 0.3% Tetrahydrocannabinol (THC) are considered to be 'hemp.' About 40% of the dried weight of hemp is hemp oil. This is the essential oil mostly from the flower of the female plant. It is not the seed oil.

Hemp oil contains over 400 different molecules, of which 60+ are cannabinoids, such as THC, cannabidiol (CBD) and tetrahydrocannabivarin (THCV.) There are over 200 terpene oils, another type of molecule. These have therapeutic benefits and work synergistically with the cannabinoids at the receptors in the body.

Hemp oil has been used for thousands of years for its therapeutic benefits. One hundred years ago hemp oil derivatives were the second most common medication sold in pharmacies in the US.

Hemp oil is amazingly safe there have been dozens of high quality studies of hemp oil derivatives in humans taking large doses up to a year. There are minimal side-effects which are limited to immune suppression in people with HIV or active TB.

The most useful and common cannabinoid oil is CBD. It can be up to 20% of the dry weight of the plant. The cannabinoid oils have their therapeutic effects by using the Endocannabinoid System (ECS) in the brain and immune system. The ECS was only discovered in the 1990's. The ECS is a system that puts the brakes on several other neurotransmitter systems, such as serotonin, dopamine, and GABA. The CBD mimics the naturally occurring endocannabinoids in our body. Giving someone a dose of CBD will turn down the immune response or in some cases neuroexcitability, such as seizure foci. CBD has been shown in many studies to have therapeutic benefits for nearly two dozen conditions. The reasonable cost, marked safety and simplicity of dosing has made over-the-counter use (nutraceutical) of CBD and other non-THC hemp oils commonplace over the past few years.

CBD does not cause the euphoria, or getting "high" associated with THC. This is because CBD stimulates a specific type of ECS receptor called CB2. This receptor is on our immune system cells. THC stimulates CB1 receptors in the brain. CBD blocks the effects of THC, it is given in the emergency room to patients who have taken too much illicit THC and are having psychosis or agitations.

Several large studies are coming out over the next two years that are expected to confirm that THCv can be used for weight loss, and to control blood fats and prevent pre-diabetes turning into diabetes.

Other cannabinoid oils in hemp oil are being evaluated for antibiotic effects for resistant MRSA infections.

Discuss health conditions that have scientific support for benefits from hemp oil

Intractable infantile seizures occur in 1/3 of pediatric patients who have tried up to a dozen FDA approved seizure medications. CBD can be very to moderately effective in reducing seizure frequency and severity in patients who have failed all FDA approved medications. A drug called Epidiolex[®] manufactured by a UK company, has successfully completed Phase III trials and is expected to be FDA approved and on pharmacy shelves this October. Epidiolex[®] is a 99% extract of CBD from hemp oil. It is expected to only be approved by the FDA for a small number of patients due to the 'orphan drug' status of the FDA approval system. Without health insurance coverage Epidiolex[®] is expected to cost \$1200-1800 a month.

High quality pure 99% extracts of CBD from hemp oil can be easily manufactured in the US and sold for about \$100-200 a month to treat conditions that respond to CBD.

CBD is an opioid-sparing medication. It reduces by about 30% the amount of opioid needs at the mu-opioid receptors in the brain for pain relief. In addition, CBD works with the immune system to reduce inflammation and swelling, thereby reducing pain.

In those states that have ready access to hemp oil derivatives have shown up to 34% reduction in opioid-related unintentional overdoses deaths, and 30% reduction in ER visits for unintentional opioid overdoses. In Kansas in 2016 there were 132 such deaths, a 34% reduction is 45 fewer deaths.

Medicare and Medicaid data show marked reduction in the number of prescriptions filled for opioids, anxiety and insomnia medications in those states with easy access to hemp oil derivatives.

The recent World Health Organization report has recommended removing CBD from the list of controlled substances.

Good Manufacturing Practices (GMP)

Experience with extracting hemp oil in other states has shown that good manufacturing practices need to be implemented to insure the safety, consistency, and potency of the product, and to confirm lack of THC and lack of contamination with pesticides, heavy metals, microbes and fungi.

Hemp Oil and Product Testing

The various extraction techniques can result in specific contamination and concentration effects. The hemp oil should be tested prior to the manufacturing process. The final products should also be tested for consistency, contaminants, and lack of THC which can accumulate in the extraction processes.

Much Needed Research

There is a dearth of research on the two dozen other conditions for which hemp oil derived medication may be helpful. Hemp oil derived medication can be used by academic institutions in Kansas to provide further much needed research on these conditions.