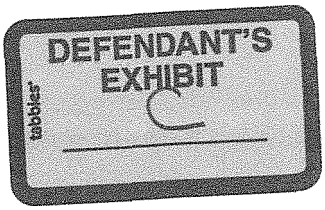


IRON LABORATORIES

November 10, 2017

Barton J. Morris
520 North Main Street
Royal Oak, MI 48067

Mr. Morris,

Iron Laboratories LLC is an ISO/IEC 17025:2005 accredited chemical, biological, and microbiological testing facility (accreditation #77802, PJLA certificate # L17-349), possessing a documented quality management system aimed at improving the ability to consistently produce valid results and deemed technically competent for testing and calibration services provided. We are Michigan's first ISO accredited Cannabis testing laboratory. Our purpose is to analyze Cannabis plant material intended for medicinal use under the Michigan Medical Marihuana Act for potency and, more importantly, for safety. Our testing scope includes: (1) chemical potency testing of *Cannabis* ("marijuana") plant materials, *Cannabis* infused products, and marijuana extracts; (2) biological qualitative testing of *Cannabis* plant materials; and (3) microbiological quantitative yeast and mold testing on *Cannabis*. Our laboratory examines and analyzes every flower for quality and contamination by first visually examining the flower for foreign contaminants and microorganisms such as pests and fungi. The qualitative, physiological examination of the plant is performed by biologists and pathologists who have been trained in the identification of such contaminants. If a flower fails qualitative inspection, meaning that pests or fungi have been identified, then the sample is flagged for quantitative enumeration of microorganisms which may be detrimental to the health of medical patients. Iron Laboratories is capable of performing quantitative tests for Yeast and Mold by utilizing the same materials and methods used in the food safety industry. Our laboratory employs an educated and compassionate staff and our belief is that medical Cannabis can be critically important to patients with acute, critical, and terminal conditions - so long as the medicine provided to those patients by licensed caregivers is free of contamination and safe for consumption so as not to further exacerbate or aggravate existing medical conditions.

On October 30, 2017, our laboratory team analyzed evidence brought to us by the Michigan State Police (herein referred to as MSP) Detective, Nate Grant. The evidence contained fourteen samples of different items of *Cannabis* materials seized by the MSP, that were taken by Jonathan Markey on June 16, 2017, under the supervision of Det. Grant, during the examination of the evidence at the Sherriff complex in West Olive, MI.

On June 16, 2017, two scales (MyWeigh iMD1; Pelouze 440, SN: 1291267) provided by the MSP were used to re-weigh evidence items. Each scale was checked with a calibration weight (Troemner calibration 50g weight, SN:1000094198; 200g calibration weight, SN: JM200) and both were within acceptable limits of error (±0.2g and ±0.1kg, respectively). Evidence items were observed and re-weighed; some differences were observed from the MSP reported

seized weights, mostly due to the presence of non-Cannabis materials, such as plastic zip bags, that were not removed prior to weighing seized evidence. During the evidence observation, a small representative sample of plant material was excised in order to be: (1) chemically analyzed for cannabinoid potency, (2) quantitatively enumerated for total yeast and mold, and (3) qualitatively observed for biological contaminants using microscopy. The composition of the items observed included: (a) untrimmed harvested plants containing large and small inflorescences ("buds") with stem structures and leaves intact, (b) trimmed leaf material, and (c) manicured inflorescences.

Cannabinoid potency was determined using an in-house high-performance liquid chromatography (HPLC) method with ultra-violet absorbance detection. This method is ISO/IEC 17025:2005 accredited to determine the concentrations (mg/g) of five different cannabinoids: (-)-trans-Δ^9-tetrahydrocannabinol (THC); tetrahydrocannabinolic acid (THCA); cannabidiol (CBD); cannabidiolic acid (CBDA); and cannabinol (CBN). The samples were analyzed on an Agilent 1100 series high-performance liquid chromatograph. Using the potency results and seized weights, corrected for non-*Cannabis* items such as plastic bags, we were able to create a mathematical model to estimate the potential yield of activated/decarboxylated *Cannabis* oil if all of the material were to be used during an extraction process. Based on our model, it is estimated that the potential yield of oil would range between 29.4-36.7 pounds.

Items #1-#7 were untrimmed harvested plants containing large and small inflorescences ("buds") with stem structures and leaves intact. It is worth noting that a sample of just the large stem structures tested at 0.0 mg/g total cannabinoids, therefore making the stem material medicinally unusable. Based on our professional experience, we estimate that large stems can account for approximately 25% of total plant weight. This estimate may even be conservative if considering wet plant weights, since most of the vasculature exists in the stem tissue.

Item 28 was additionally analyzed for the presence of terpene/terpenoids compounds and residual solvents using Gas Chromatography coupled with Mass Spectrometry (GC-MS). The samples were analyzed on a HP-5890 Series II Gas Chromatograph with 5972MSD series mass spectrometer, paired to an Agilent 7694 static headspace auto-sampling unit. It was determined that this sample did contain terpene/terpenoids that are common in cannabis. Therefore, it is the opinion of the analysts that this sample is not from a synthetic source, due to the measured presence of common cannabis terpenes and terpenoids.

Quantitative microbial counts were determined for the sample by using 3M ™ Rapid Yeast and Mold Count Petrifilm Plates, which are commonly used in food safety testing. The 3M™ products used are ISO9001 certified and the methods used are Association of Analytical Communities (AOAC) Performance Tested Methods℠ certified, meaning that they perform better than or equivalent to standard reference methods for enumerating yeasts and molds. The American Herbal Products Association (AHPA), the World Health Organization(WHO), and the United States Pharmacopeial Convention(USP) set microbial limits of total yeast and mold on botanical ingredients for a range between 10^3 -10^5 Colony Forming Units (CFU) per gram of material. A range of 7.5 X 10^3 to 2.0 X 10^5 CFU/gram of microbial contamination was detected on the samples analyzed for this case, which fails most widely accepted industry standards for medically safe *Cannabis* plant materials. Inhalation of fungal spores has shown

to increase the risk of exposure to aflatoxins and is associated with an increased risk of pulmonary and fatal asperillosis (Kagan, 1975; Latge, 1999; Szyper-Kravitz, 2001).

Qualitative and physiological analysis of the plant material was performed using a Nikon (SMZ-u) stereoscopic dissecting microscope. This method is ISO/IEC 17025:2005 accredited to determine the presence of *Cannabis* impurities. Photographs of impurities found on the sample were obtained via the AmScope 8 megapixel APTI-NA color camera attached to the microscope. *Cannabis* pests (spider mites or aphids) were observed on items 2, 4, and 23. Additionally, qualitative analysis of the plant material revealed the presence of "storage molds", including *Aspergillus*, *Penicillium*, and *Mucor* species. Storage molds are most frequently present on plant materials that have been bagged or jarred before they have completed the drying or curing process. Both bacteria and fungi (mold) need the appropriate conditions in order to replicate effectively. Much like plants, fungi need adequate nutrients, available water, and appropriate temperature ranges to be able to grow and proliferate effectively. Because temperature and water requirements are the most important factors in microbial growth, the most common steps to exclude and kill microorganisms are the drying and curing processes.

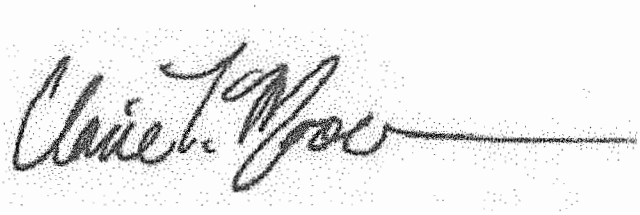
Many plants, while living, have very high moisture contents and are thereby able to support robust replication of pests and non-storage fungi. The potential for microbial growth is a direct function of water activity (Aw), which relates to moisture content itself. Water activity is defined as the measure of available water that can be utilized for microbial growth, and increases with increasing moisture content in a non-linear manner. Water activity ranges from 0-1, and below Aw of 0.6 (translated to a moisture content of 13%), no growth of microorganisms can occur. Many plant pathogens cannot grow below Aw 0.9 (25% moisture), though storage molds, which live off of dead plant material, can survive and grow very slowly at water activities as low as Aw 0.61 (moisture content of about 13.5%). Usable Cannabis is dried and cured to a final water activity level of Aw 0.30-0.60, which corresponds to a moisture content value between 2-13%. Humidity and temperature are carefully controlled by the agriculturalist during the drying/curing process in order to ensure that the moisture content of the plant material is lowered at a very steady rate that is designed to balance chlorophyll degradation with the need to steadily and effectively minimize the overall moisture of the plant material to ensure that no microbial contamination arises. If the curing/ drying process is done correctly over a period of time, the vast majority of microorganisms present on the plant material will be killed.

Based on the total microbial count identified from the vast majority of the samples, we would not recommend any portion of this evidence for medicinal use. Items #1and #8 both failed the USP limit of 10^3 CFU/g limit, however were under our laboratory's MCFU of 10^4 CFU/g. Given the quantitative plate enumeration results on the samples provided and the presence of various species of storage fungi, it is clear that the water activity level of at least some portion of the plant material provided was significantly greater than Aw 0.61 (or greater than 13-15% moisture content) at the time of bagging and had not completed the drying or curing process. Had the drying/curing process been complete, the amount of fungi quantified on the sample should have been significantly less and capable of passing the 10^3 -10^5 CFU/ gram guidelines governing the microbial contamination of medical botanical materials. Additionally, evidence photographs show whole plants hanging, a common technique utilized

when drying *Cannabis*. Also, evidence photographs show *Cannabis* material contained within drying racks, indicating that this material was in the drying/curing process. This implies that these specific pieces of evidence were still in the drying/curing stages, and not yet readily usable. Furthermore, we do not recommend the use of Cannabis infested with pests (spider mites or aphids) due to the fact that these insects can act as vectors for other bacterial or viral pathogens.

Sincerely,

Jonathan C. Markey, M.S. (Lead Scientist / Quality Manager)



Claire T. Moore, M.S (Plant Biologist / Pathologist)

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