

CBD in the Quantum Era – Polarization and its effects on anti-inflammatory abilities of cannabidiol (CBD)



Quantum biology refers to applications of quantum mechanics and theoretical chemistry to biological objects and problems. Many biological processes involve the conversion of energy into forms that are usable for chemical transformations, and are quantum mechanical in nature.

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ABSTRACT

Accelerated by broad legalization, the CBD market in the United States is exploding at an unprecedented rate. Quanta (headquartered in Los Angeles, California) originally entered the CBD product industry using first of a kind Mikaelian Resonance Technology or more commonly known in the CBD industry “Quanta’s patented polarization technology.” This technology is used to enhance the effectiveness and consistency of all Quanta products. For decades scientists have attempted to produce stable polarization of molecules and failed. This Polarization technology has achieved just that and is backed by multiple scientific tests confirming its efficacy. As such, Polarization is a historic technological breakthrough, which will revolutionize the way the world processes nutrients, medicines and active ingredients. Quanta possess an exclusive right to utilize the polarization in the preparation of its CBD (and other cannabinoid) products, offering it a unique competitive advantage in an emerging market.

CHALLENGES

Despite the modern Gold Rush that is the wildly expanding CBD market, many challenges do exist, though these challenges can also be seen as opportunities. The mainstream American CBD market is so new no definitive CBD brands have been established as far as the public is concerned. Many brands have been shown to have problems with product quality and have produced significantly inconsistent results for the user. The key challenge is how can an emerging brand gain user loyalty and define itself in the market as separate from the pack.

SOLUTIONS

Quanta has addressed this problem through its exclusive license of the polarization technology. This allows for a unique marketing strategy and a product that produces superior, consistent results in a manner, which provides a cost benefit to the company. These results are backed by scientific data, resulting in a new form evidence-based alternative solution.

THE AMERICAN CBD MARKET

CBD has absolutely exploded into mainstream America. The Brightfield Group (a marketing research group specializing in the CBD industry) has estimated that the American CBD market will reach a stunning \$22 BILLION a year by 2022. CBD products are already available in national chains such as Kroger, CVS, Walgreens and Neiman Marcus.

QUANTA INC.

Quanta (a Nevada corporation) is a Los Angeles, California producer of CBD-products. Founded in 2016 by Eric Rice. It currently produces a variety of CBD products such as muscle rubs and vapes but is currently in the process of branching out into other cannabinoid products including those consisting of CBN and CBG. Quanta has a unique competitive advantage in the CBD market as all its products are processed using a form of "polarization" via Mikaelian Resonance Technology. Quanta has exclusive rights to this technology for cannabinoid processing.

QUANTA'S SCIENTIFIC STUDY ON THE ANTI-INFLAMMATORY EFFECTS OF POLARIZED CBD

Background

Inflammation is a rapid immune system response to injury and has been documented as early as the 1st century. The World Health Organization recognizes chronic inflammatory diseases as the leading cause of death in the world.

Within the numerous inflammation pathways is a protein that has been the focus of many anti-inflammatory drugs since its discovery: Cyclooxygenase, isoform 2 (COX-2). COX-2, also known as Prostaglandin endoperoxide H synthase 2 (PGHS2). This makes the COX enzymes an attractive target for non-steroidal anti-inflammatory drugs (NSAIDs), though COX-2 may be a preferred target to avoid inhibiting COX-1's gastroprotective products.

Cannabidiol (CBD) has a multitude of potential medicinal uses as an anticonvulsant, sedative and antiemetic, but a topic of intense study has been (CBD) and (CBDA)'s role as an anti-inflammatory drug [5].

Materials and Methods

CBD was supplied in the form of an isolate powder. Purity was checked to be around 99.585% via UPLC-PDA by DB Labs (Las Vegas, USA). Recombinant COX-2 (human) enzyme was sourced from Cayman Chemical with their commercially available Fluorescent Inhibitor Screening Kit (Cayman Chemical Company, MI). CBD was prepared in ethanol prior to the assay. COX-2 activity was measured by the oxidation of 10-Acetyl-3,7-dihydroxyphenoxazine (ADHP) to resorufin as a byproduct of the reduction of PGG2 to PGH2. The assay was performed on a black 96 well plate in triplicate with fluorescence measured with emission/excitation at 485/535 nm.

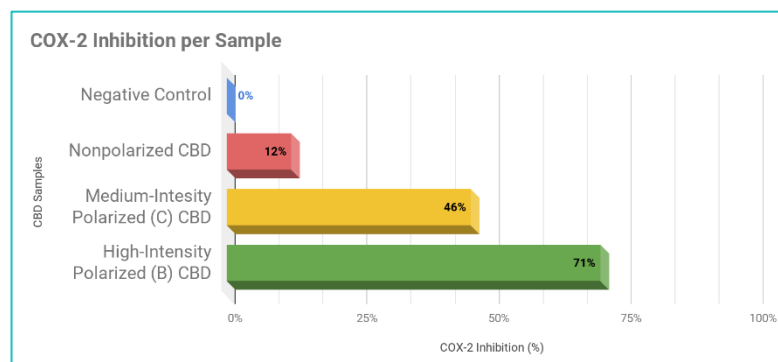


Figure 2. Bar graph showing the activity of COX-2 enzymes exposed to each sample. The negative control uses 100% ethanol to show uninhibited activity. Nonpolarized CBD showed a slight decrease in COX-2 activity, while High-Intensity Polarized (B) CBD and Medium-Intensity Polarized (C) CBD showed a marked reduction in anti-inflammatory activity.

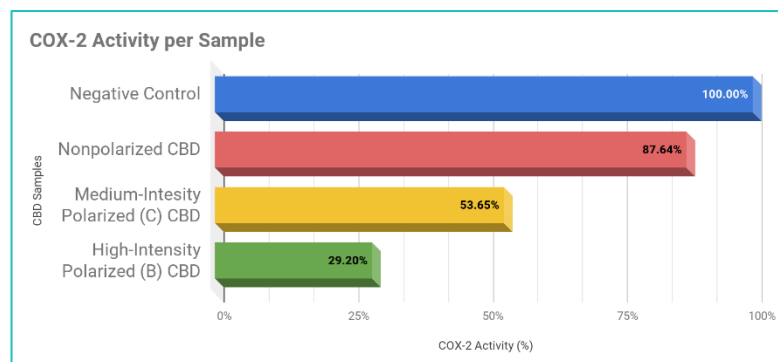


Figure 3. Bar graph showing the COX-2 inhibition effect of each sample in relation to the inhibition effect of the Negative Control sample (non-CBD). The negative control uses 100% Ethanol, which displayed NO inhibition in COX-2 activity. Nonpolarized CBD seemed to increase COX-2 inhibition, while High-Intensity Polarized (B) CBD showed drastic inhibition of COX-2 activity. Medium-Intensity Polarized (C) CBD showed a slight inhibition of COX-2

Annabelle Manalo, PhD

Dr. Annabelle Manalo is a CBD expert who has been repeatedly featured in Forbes Magazine and has spoken before Congress regarding the medical potential of CBD.

In a laboratory experiment, reviewed and endorsed by Dr. Manalo, polarized CBD utilizing Mikaelian Resonance Technology (MRT) was tested in comparison to non-polarized CBD and a negative control in their inhibition of the COX-2 enzyme—a standard marker for inflammation.

"COX 2 Inhibition is a key attraction to anti-inflammatory mechanisms today. The understanding of the role that cannabinoids play on COX 2 Inhibition, specifically CBD and its variations, is controversial. The data presented here lends promise to the importance of the stabilization of the CBD molecule whether by delivery or in this case, polarization. Furthermore, the possibility that CBD may cause an upregulation of COX2 while polarized CBD inhibits COX2 with such significance is a striking result and absolutely worth solidifying.

Does the polarization of the CBD molecule mimic the function of CBDA? More studies should follow in order to prove such a novel claim."

- Dr. Annabelle Manalo (May 2019)

Results

The negative control showed no inhibition of COX-2 activity; non-polarized CBD showed significant inhibition of COX-2. However, heavily polarized CBD processed with MRT was shown to be 572.81% MORE EFFECTIVE in inhibiting the activity of COX-2 than non-processed CBD.

In summary, though non-processed CBD showed effectiveness in inhibiting inflammation, CBD processed using MRT was remarkably more potent, greatly inhibiting the activity of COX-2.

In a brief exploratory study, polarized ibuprofen also shows promising results. The study is currently ongoing.

SUMMARY AND FUTURE OUTLOOK

Due to the exclusivity Quanta possesses to access Polarization for all cannabinoids, Quanta is exceedingly well-positioned to become a dominant brand due to its marketing and product quality advantages. In addition, MRT's cost benefit advantage should lead to enhanced profitability for the company.

For the future Quanta is looking to expand into other product lines such as nootropics, anti-aging, skin care and agriculture. It should be noted, the studies done on the effectiveness of Polarization were using the fifth generation of the invention. The inventor, Dr. Arthur Mikaelian, is presently finalizing the completion of the seventh generation of the technology which he has optimistically described as a "giant leap forward" in the efficiency of the innovation.

These are certainly historically exciting times for the CBD industry, Quanta, and the patented polarization technology.

EXTENDED INFORMATION: MIKAELIAN RESONANCE TECHNOLOGY

Mikaelian Resonance Technology (Polarization) applies non-invasive, quantum biotechnology that is capable of significantly increasing the potency of bioactive natural organic or synthetic products, in some cases from 200% to 500%, as well as increasing their absorption and bioavailability.

Dr. Arthur Mikaelian, the inventor of Polarization, received a full US Patent in 2012 for his polarization technology. It is a profound scientific breakthrough that excites the electron state of specific molecules so that they more readily engage in biochemical activity. Polarization does this by specifically altering the spin of the electron field and pushing these electrons into a higher, outer orbit. In doing so, these MRT-processed molecules have a greater zone in which they can "latch onto" other molecules making them more reactive, intensifying their biochemical activity manifold.

Scientists have experimented for years with the excited electron state, but have repeatedly failed in achieving any consistent stabilization of the excited electron state, sometimes with the results only lasting seconds. MRT is a game-changing breakthrough in that the fifth-generation technology has produced commercially viable stability. This will allow manufacturers to reliably warehouse

their product without fear of losing potency, so that they can nimbly respond to supply-chain needs.

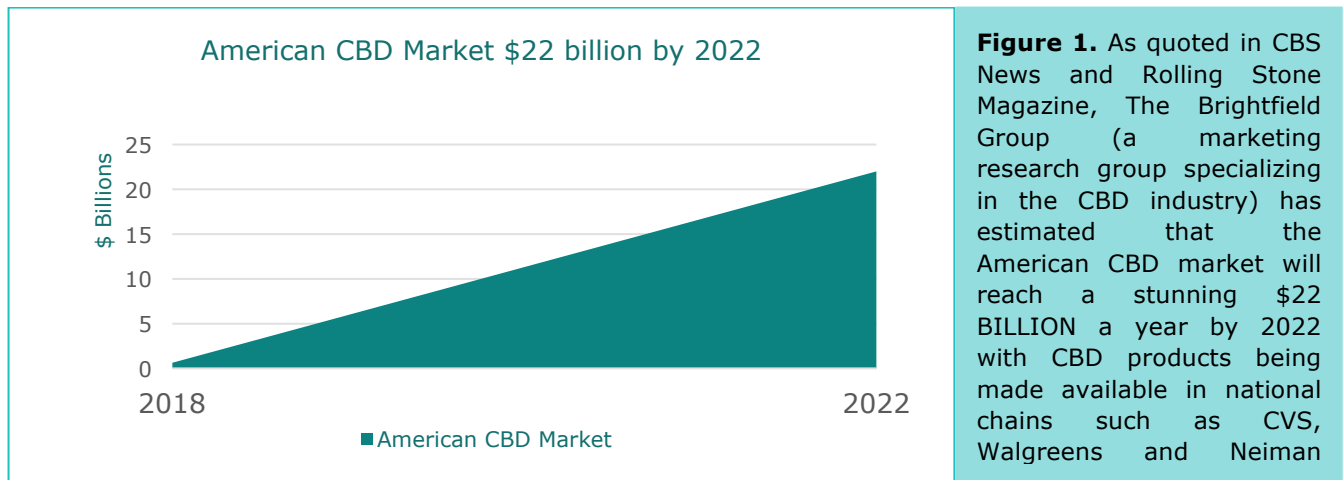
Polarization will revolutionize nutritional, supplemental, and pharmaceutical processing and manufacturing. Polarization is inexpensive to implement in the manufacturing process and allows Quanta to use smaller amounts of active ingredients, while having stronger results for the consumer. This is a significant cost benefit to the company, as well as allowing for unique promotional claims using evidence-based results.

Polarization is going to change the way we do things and the way that products are formulated. In any industry if a business has an exclusive license to utilize Polarization, they will have a unique competitive advantage within that industry. This is the future.

EXTENDED INFORMATION: THE AMERICAN CBD MARKET

CBD (*cannabidiol*) is a marijuana-derived substance which in contrast to THC (*tetrahydrocannabinol*) does not have intoxicating effects when consumed. CBD products have seen explosive growth in recent years with truly impressive growth predicted for at least the next five years.

In 2018 the American CBD market hit \$600 million, a 200% growth over the previous year. This was before the Farm Bill was passed on December 20th of that same year. The Farm Bill has legalized the production of hemp with a THC level of 0.3% or less, but placed no limitation upon its CBD content. As a result, we are expecting an explosion of legal CBD production in the United States, as farmers across the country have embraced the industry.



As quoted in *CBS News* and *Rolling Stone Magazine*, The Brightfield Group (a marketing research group specializing in the CBD industry) has estimated that the American CBD market will reach a stunning \$22 BILLION a year by 2022 with CBD products being made available in national chains such as CVS, Walgreens and Neiman Marcus.

EXTENDED INFORMATION: VARIOUS STUDIES SHOWING THE POLARIZATION TECHNOLOGY'S EFFECTIVENESS

Quanta Inc. does not want to limit its activity to cannabinoids only. It would like to expand its product lines into nootropics, anti-aging, skin care and agriculture markets.

Agriculture Study

The following research was aimed to establish effects of the Polarization Technology on Auxin plant growth hormone. This work investigated the exogenous effect of Mikaelian Resonance frequencies to Ryegrass seeds germination, where specific targeted Electromagnetic photon emission was directed to Ryegrass seeds prior to seeding.

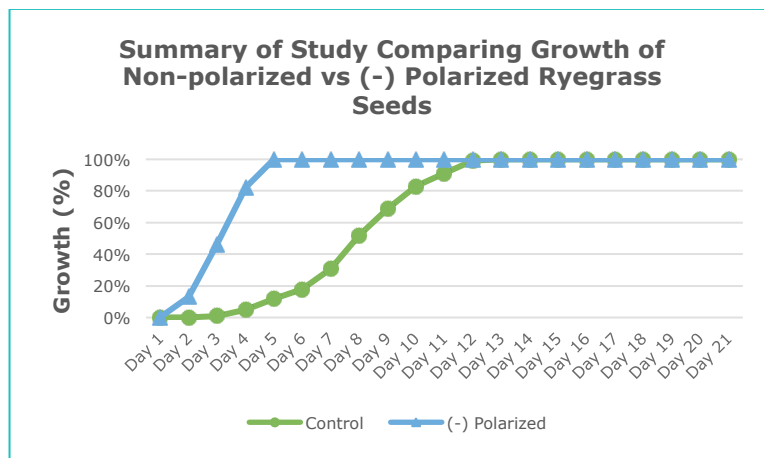


Figure 4. MRT was used to target auxin plant growth hormone with ryegrass seeds. The polarized seeds germinated 400% more quickly than non-polarized seeds and reached full maturity 260% faster than non-polarized seeds.

Stem Cell Study

The aim of the below study was to assess the migratory capability of mononucleated pluripotent stem cells (MNCs) to target human hepatic sinusoidal endothelial cells (HHSEC, Adult) by integration of DNA conjugated gold nanoparticles (AuNP).

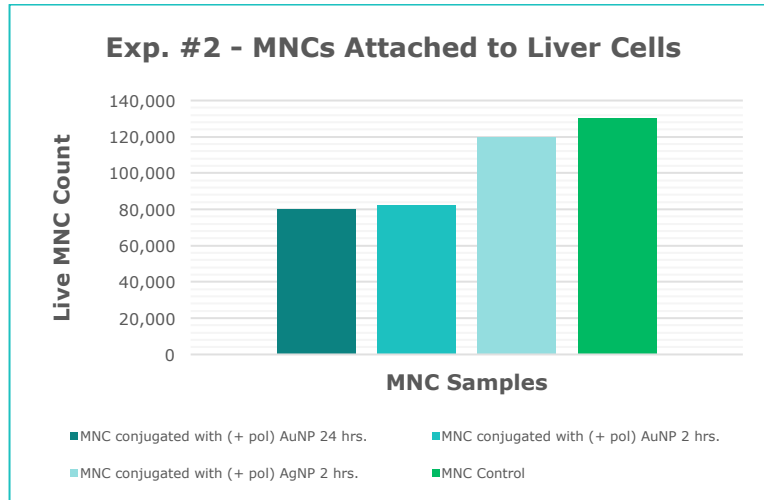


Figure 5. Stem cells conjugated with gold nanoparticles polarized with MRT bound with liver tissue 37% more efficiently than stem cells not conjugated with polarized gold nanoparticles.

Study of the Effects of Scorpion Venom on a Pancreatic Ductal Adenocarcinoma Cell Line

The study has validated an *in vitro* model, where in the various venom concentrations treated with polarization and conjugated with gold nanoparticles (AuNP), we observed a >95% apoptosis in the human pancreatic ductal adenocarcinoma (HPDAC) cell line.

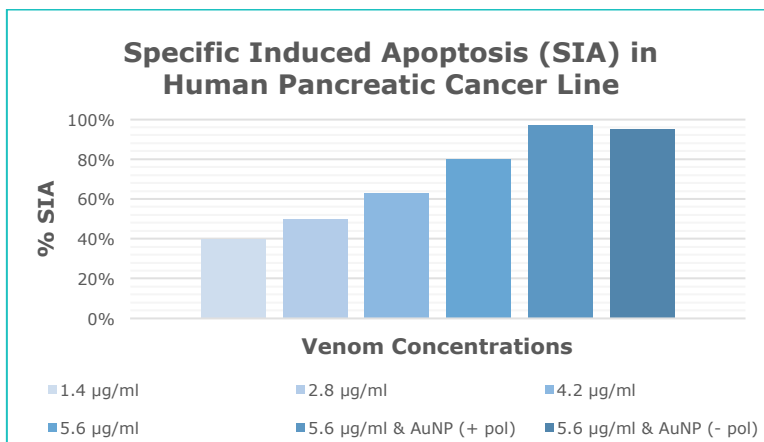


Figure 6. In one study a polarized solution of scorpion venom and gold nanoparticles killed **OVER 95%** of cultured pancreatic cancer cells without exhibiting any damage to healthy cells.