

CBDA

CBDA is the most predominant acidic cannabinoid in the hemp plant. CBDA serves as the precursor to CBD. This means when CBDA is decarboxylated, or exposed to heat, it converts to CBD. Like CBGA, CBDA has a low affinity to the CB1 and CB2 receptors. Instead, it has important off-target effects, such as inhibiting the COX-2 enzyme, to deliver its therapeutic effects. When compared to CBD, CBDA is superior in many ways and has demonstrated a greater affinity to a variety of receptors. CBDA produces a wide range of therapeutic benefits, including antibacterial, anti-inflammatory, and anti-depressant effects.

A study published in the 24th Annual Symposium of the International Cannabinoid Research Society found CBDA is 19x more bioavailable than CBD. This makes it a more powerful therapeutic for a variety of instances and allows for lower doses to feel therapeutic benefits.

Therapeutic Benefits of CBDA

Anti-Inflammatory

CBDA produces anti-inflammatory effects via its role as a COX-2 enzyme inhibitor. Unlike most COX-2 inhibitors that also inhibit COX-1, CBDA does not. Thus, it delivers anti-inflammatory effects without causing gastrointestinal upset.

<https://link.springer.com/article/10.1007/s00213-018-5034-1>

<https://pubmed.ncbi.nlm.nih.gov/21532172/>

<https://pubmed.ncbi.nlm.nih.gov/18556441/>

Anti-Hyperalgesia

CBDA has been found to reduce hyperalgesia in rodent models. Hyperalgesia occurs when there is damage to the nerves or chemical changes to the nerve pathways, increasing sensitivity to pain. This can occur from nerve and tissue injuries, as well as long term opioid use. When an equivalent amount of CBD and CBDA were administered, CBD was ineffective, suggesting CBDA is a more powerful therapeutic in this instance.

<https://link.springer.com/article/10.1007/s00213-018-5034-1>

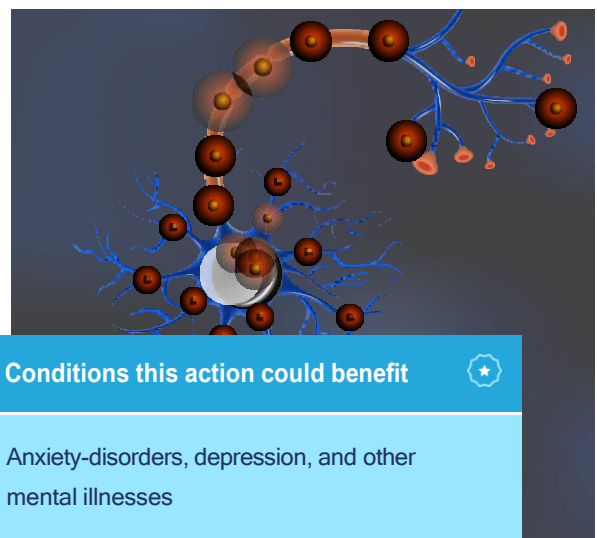
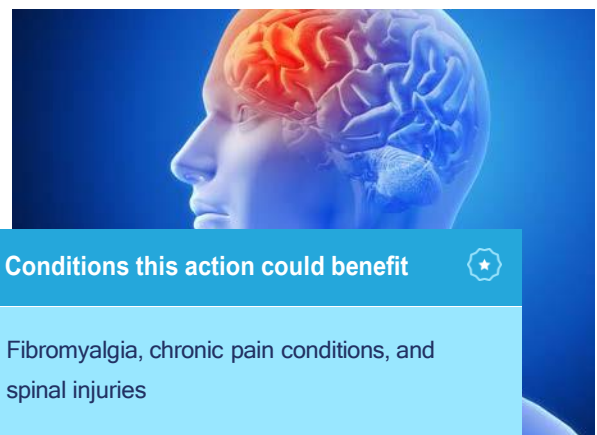
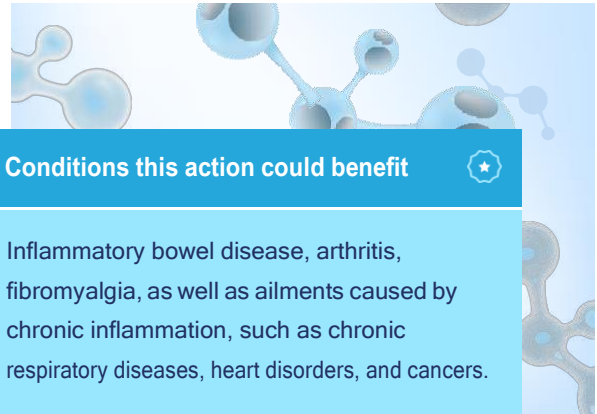
Anti-Anxiety and Anti-Depressant

CBDA produces its anti-anxiety and anti-depressant effects by activating the 5-HT1A receptor. Activation of the receptor is a crucial component in anti-anxiety, anti-depressant, and antipsychotic pharmaceuticals, making CBDA a promising plant-derived alternative. When compared to CBD, CBDA displayed a 100-fold greater affinity for 5-HT1A.

<https://pubmed.ncbi.nlm.nih.gov/23121618/>

<https://pubmed.ncbi.nlm.nih.gov/28424834/>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4604171/>



Anti-Nausea

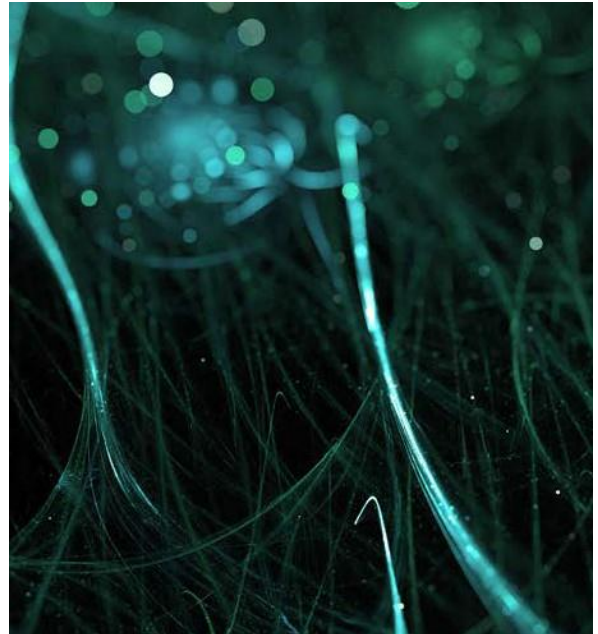
CBDA acts as an antiemetic by activating the 5-HT1A receptor. Data provided suggests CBDA could be a powerful plant derived adjunct treatment to anti-emetic drugs for nausea, including chemotherapy induced nausea. Additionally, it was found CBDA did not lose efficacy overtime when administered as an antiemetic.

Cannabidiolic acid methyl ester, a stable synthetic analogue of cannabidiolic acid, can produce 5-HT1A receptor-mediated suppression of nausea and anxiety in rats - Pertwee - 2018 - British Journal of Pharmacology - Wiley Online Library

<https://pubmed.ncbi.nlm.nih.gov/23121618/>

Suppression of lithium chloride-induced conditioned gaping (a model of nausea-induced behaviour) in rats (using the taste reactivity test) with metoclopramide is enhanced by cannabidiolic acid - PubMed (nih.gov)

Evaluation of repeated or acute treatment with cannabidiol (CBD), cannabidiolic acid (CBDA) or CBDA methyl ester (HU-580) on nausea and/or vomiting in rats and shrews - PubMed (nih.gov)



Conditions this action could benefit



Chemotherapy-induced nausea, motion sickness, foodborne illness, and medication induced nausea

Anti-Convulsant

Research has found CBDA acts as a powerful anti-convulsant, even more so than CBD. Due to CBDA's superior bioavailability, patients would need much less CBDA than CBD to reduce the frequency and duration of seizures.

Pharmacokinetics of Phytocannabinoid Acids and Anticonvulsant Effect of Cannabidiolic Acid in a Mouse Model of Dravet Syndrome - PubMed (nih.gov)

<https://pubmed.ncbi.nlm.nih.gov/33310415/>

<https://patents.google.com/patent/WO2017025712A1/en>



Conditions this action could benefit



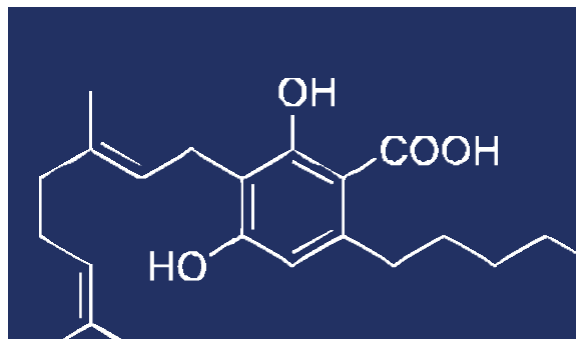
A wide range of seizure disorders, including epilepsy

Antioxidant

CBDA has greater antioxidant activity than Vitamin E and CBD. CBDA has the ability to scavenge free radicals, protect oxidation processes, and reduce metal ions. Research has found, acidic cannabinoids have a greater antioxidant effect than their neutral counterparts. This is because the introduction of the carboxyl group to the aromatic ring of the phenolic group causes charge delocalization and the reduction of electron density, thus facilitating the phenolic radical formation.

Terpenes and Cannabinoids in Supercritical CO2 Extracts of Industrial Hemp Inflorescences: Optimization of Extraction, Antiradical and Antibacterial Activity - PubMed (nih.gov)

Natural vs. artificial cannabinoid oils: the comparison of their antioxidant activities - PubMed (nih.gov)



Conditions this action could benefit



Central nervous system disease, cancer, skin damage and skin conditions, and chronic conditions caused by oxidative stress, such as cardiovascular conditions and diabetes

Antibacterial

CBDA has inhibitory effects against e. coli, s. aureus, p. aeruginosa, and b. subtilis. S. aureus is a bacterial infection that has demonstrated drug resistance to a wide range of antibiotics and is one of the 12 bacterial infections listed by the World Health Organization that poses a threat to global health. CBDA's ability to inhibit the bacteria suggests it may help with bacteria that has developed a resistance to standard antibiotics.

Terpenes and Cannabinoids in Supercritical CO2 Extracts of Industrial Hemp Inflorescences: Optimization of Extraction, Antiradical and Antibacterial Activity - PubMed (nih.gov)



Conditions this action could benefit

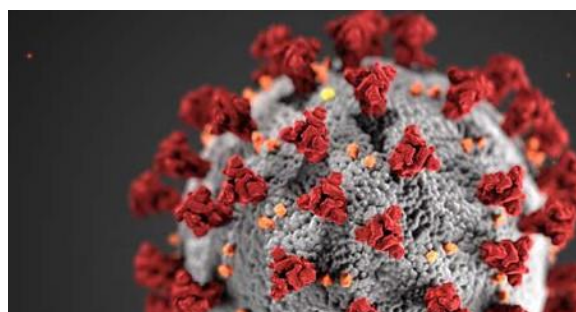


Diseases and bacteria that have developed antibiotic resistance

CBDA blocks cellular entry of SARS-COV-2

CBDA demonstrated the ability to prevent the virus that causes COVID-19 from entering human cells by binding to the spike protein in vitro, thus blocking the cellular entry of SARS-Cov-2. Research suggests CBDA could be used to prevent and treat COVID-19.

Cannabinoids Block Cellular Entry of SARS-CoV-2 and the Emerging Variants - PubMed (nih.gov)



Conditions this action could benefit



COVID-19, hepatitis, and HIV

Water-Extracted Cannabinoids

Water-as-solvent technology produces a safer, more sustainable, consistent, and affordable output of high-purity pharmaceutical grade cannabinoids. The proprietary process uses water to leach cannabinoids from the plant without the use of heat, harsh chemicals, or hydrocarbons. The process also removes contaminants, such as pesticides, heavy metals, microbial, and mycotoxins. The resulting extracts can be easily infused into cannabinoid-based applications.

CBDA Water Soluble

17% +/-2%

CBDA Broad Spectrum

98% +/-2%

