



QUICKSILVER
SCIENTIFIC®

BROAD SPECTRUM HEMP EXTRACT



Supplement Facts

Serv. Size: 2 mL (4 Pumps) Amount % Daily
Serv. Per Container: 25 Per Serving Value

Broad Spectrum Hemp Extract (aerial parts)	21mg	**
Cannabidiol	16mg	**

**Daily Value (DV) not established

Other Ingredients: Water, Glycerin, Ethanol, Vitamin E (as Tocopherol, and Natural Mixed Tocopherols), Phospholipids (from purified sunflower seed lecithin), Natural Citrus oils (flavoring)

Quicksilver Scientific brings you a THC-free, nanoemulsified, broad spectrum hemp oil extract, replete with a myriad of highly bioavailable, non-psychoactive, active phytocannabinoids and terpenoids. This potent blend features the sought after cannabidiol (CBD), as well as the suite of phytocannabinoids naturally present in hemp, including cannabigerol (CBG), cannabidiolic acid (CBDA), cannabinol (CBN), cannabichromene (CBC), and cannabidivarin (CBDV). These compounds support neuroendocrine and immune balance by modulating the activity of our two major cannabinoid receptors (CB1 and CB2). It also offers broad action on a host of molecular targets outside the endocannabinoid system, including opioid, GABA, glutamate, serotonin, and nuclear receptors, and ion channels.^{1,2}

To boost the unique entourage effect of a broad spectrum extract³ we have included additional beta-caryophyllene, the most common terpenoid encountered in Cannabis and present in numerous other spices and plants. Beta-caryophyllene is a selective full agonist binding to the CB2 receptor and is the only terpenoid demonstrated to directly activate the CB2 receptor.⁴

HOW CANNABIS HELPED US DISCOVER OUR ENDOCANNABINOID SYSTEM

Humans have turned to medicinal plants for over 60,000 years, according to archeological records⁵, and over 20,000 medicinal plants have been inventoried by the World Health Organization.⁶ Yet few offer such a cornucopia of healing molecules as the flowers, stems, seeds and leaves of the hemp plant, Cannabis. As a member of the Cannabis family, hemp has been called a medicinal plant of unparalleled versatility⁷, a global homeostatic regulator. Cannabis contains over a hundred unique, bioactive cannabinoids that are capable of modulating our neuroendocrine and immune system.^{8,9,10}

The isolation and discovery of psychoactive THC in 1964, at Hebrew University of Jerusalem¹¹, led to a decades-long race to discover the receptors it might act upon, and ultimately led to the discovery of our unique endocannabinoid system (ECS).¹² We now know that our ECS features two main receptors—CB1, found in 1990¹³, and CB2, found in 1993¹⁴, although other receptors likely also play a role.^{15,16,17} CB1 is widely distributed in the brain and central nervous system¹⁸ while CB2 is found abundantly in the immune system, in cells such as leukocytes and macrophages, as well as the spleen, tonsils, thymus, lung and testes.¹⁹ Together, these receptors populate the GI tract, reproductive tract, immune system, arteries, heart, lungs, endocrine glands and more.²⁰

Our body produces two unique endocannabinoid lipids to talk to these receptors: anandamide and 2-arachidonoylglycerol. Anandamide is associated with a joyful mood and was named after the Sanskrit word for bliss.²¹ Fatty acids and enzymes that help synthesize and break down endocannabinoids complete the system and its feedback loops.

Cannabinoids can be thought of as travelers back in time, because they act as retrograde signaling agents. They are produced and released from neurons in order to reduce the activity of a stimulated neuron.²² That stimulated neuron can be excitatory (think of glutamate) or inhibitory (think of GABA). Either way, cannabinoids act retrogradely to suppress neurotransmitter release and transmission, allowing tremendous balancing and homeostatic ability.²³

In recent years, an astonishingly broad influence of cannabinoids—both endogenous and plant-based—on multiple receptors and pathways has been documented. Cannabinoids may impact opioid, GABA, adenosine and serotonin receptors.^{24,25,26} Other significant molecular targets include glycine receptors and peroxisome proliferator-activated receptors (PPARs), which play an essential role in cellular differentiation, development, and metabolism.^{27,28}

Our built-in ECS is critical for bioregulation throughout the body, affecting appetite, pain, mood, memory, cognition, analgesia, immune function, sleep, motivation, emotions and more.²⁹ In essence, cannabinoids allow us to relax, eat, sleep, forget and protect.³⁰ When in harmony and balance, we experience optimal endocannabinoid tone.³¹ “Free radicals are the friction of life,” says biologist Robert Melamede of the University of Colorado, “Endocannabinoids are the oil of life.”³²

PHYTOCANNABINOIDS: A POTENT FAMILY OF MOLECULES ENSURING HOMEOSTASIS

The range of effects of the phytocannabinoids suggests broad applicability in their therapeutic action. THC, cannabidiol and numerous other phytocannabinoids have the remarkable ability to shift activity of more than 1000 human genes, increasing our cellular antioxidant defenses as well as downregulating many pro-inflammatory mediators.³³ Cannabidiol is thought to downregulate receptor activity. However, CBD powerfully supports anandamide by inhibiting the fatty acid that breaks down this “bliss molecule”. Together, a range of phytocannabinoids may offer an elegant entourage effect, potentiating benefits while modulating potential adverse effects.³⁴

Phytocannabinoids play a significant role in modulating inflammation, pain, appetite, sleep, mood, insulin sensitivity, fat and energy metabolism, and also impact neurologic and immune conditions.^{35,36,37} Phytocannabinoids may act as neuroprotective antioxidants, superior to alpha-tocopherol and ascorbate preventing glutamate toxicity.³⁸ CBD in particular has been shown to regulate cell proliferation and differentiation through DNA methylation.³⁹

TERPENOID, CANNABINOIDS AND BETA-CARYOPHYLLENE

Terpenoids, or terpenes, are aromatic compounds found in plants and essential oils⁴⁰ with unique therapeutic effects. Terpenoids typically found in Cannabis include limonene, myrcene, a-pinene, linalool, beta-caryophyllene, caryophyllene oxide, nerolidol and phytol. They may contribute to the entourage effect, serving as agonists to the CB2 receptor.⁴¹

Beta-caryophyllene is the terpene most commonly found in Cannabis and is present in other plants and herbs. It binds directly to the CB2 receptor, as a selective full agonist, and was described in 2008 as a “dietary cannabinoid.”⁴ Adding beta-caryophyllene to broad spectrum hemp oil extract extends the potency and action of the extract without the need for THC.

THE POWER OF RAPID-UP TAKE NANOEMULSION: FASTER AND MORE POTENT

Because rapid delivery of cannabinoids can offer nearly instant relief, Quicksilver Scientific developed nanoemulsified Broad Spectrum Hemp Extract. Quicksilver Delivery Systems’ nanoemulsion technology allows rapid delivery of the full range of cannabinoids while bypassing their much slower metabolism in the gut, quickly shifting mood, inflammation, pain and anxiety. This rapid and high absorption is critical to the success of the formula. Plasma levels are measurable within 20 minutes, and are five to seven times higher than the much slower-onset levels a non-liposomal oil finally reaches after 80 minutes.⁴²

To ensure maximum potency and quality, Quicksilver Scientific uses a supercritical, high pressure CO2 extraction process on a special, locally-grown, organically managed strain adapted to the high altitude growing season in Colorado. The resulting broad spectrum, cannabinoid-rich product is of the highest quality, lubricating the entire endocannabinoid system.

In addition to exceptional absorption rates, these tiny nanoemulsified particles increase diffusion across mucus membranes, enhance lymphatic circulation of nutrients and support cellular delivery. The phosphatidylcholine in our nanoemulsions offers a critical building block to lipid-rich brain cells and uniquely supports the mood enhancing effect of CBD.

APPLICATIONS OF PHYTOCANNABINOIDS

- Antidepressant – improves mood^{43,44}
- Improves sleep – may decrease time to fall asleep and improve sleep in chronic pain⁴⁵
- Metabolic syndrome⁴⁶
- Neuroprotective – helps neurodegenerative disorders^{47,48,49}
- Seizure disorders and epilepsy⁵⁰
- Multiple sclerosis – improves symptoms of ataxia, tremors, pain, sexual and bladder dysfunction and double vision⁵¹
- Anxiolytic – lessens anxiety^{52,53,54}
- PTSD (post-traumatic stress disorder)⁵⁵
- Analgesic – relieves pain, including rheumatoid arthritis, cancer, fibromyalgia, trigeminal neuralgia and neuropathic pain^{56,57,58,59}
- Anti-inflammatory – helpful in numerous autoimmune conditions^{60,61,62}
- Anti-asthmatic – improves lung function⁶³
- Anti-tumor and anti-cancer properties⁶⁴
- Migraines⁶⁵
- Behavioral issues in autism^{66,67}
- Inflammatory bowel disease, gastric ulcers, Crohn’s disease, irritable bowel syndrome^{68,69}
- Eye health – may help ocular hypertension in glaucoma as well as diabetic retinopathy^{70,71}
- Cardiovascular health – may be beneficial in heart failure, cardiac arrhythmias and ischemic injury^{72,73}

Note: For those in professions requiring drug testing, or for those who simply want to avoid any THC, our Broad Spectrum Hemp Extract is ideal.

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References available at quicksilverscientific.com/broadspectrumreferences



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