

NANOEMULSIFIED



FULL SPECTRUM HEMP EXTRACT

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Nanoemulsified, Full Spectrum Hemp Extract is a blend of non-psychoactive phytocannabinoids and terpenoids designed to offer broad support for the endocannabinoid, neuroendocrine, and immune systems.¹ This formula features 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), to support the "entourage effect."²

To enhance the unique entourage effect of a full spectrum extract, we retain a level of $\Delta 9$ tetrahydrocannabinol (THC) naturally present in hemp grown under the 2018 Farm Bill regulations.¹ While this amount of THC (<0.3%) is far below psychoactive levels, it is sufficient to support cannabinoid receptors.²



Supplement Facts

Serving Size: 2 mL (4 Pumps) Servings Per Container: 25	Amount Per Serving	% Daily Value
Calories	5	
Total Carbohydrate	0 g	0%
Total Sugars	0 g	**
Includes 0 g Added Sugars		0%
Full Spectrum Hemp Extract (aerial parts)	21mg	**
Cannabidiol	16mg	**

**Daily Value not established



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Other Ingredients: Water, glycerin, ethanol, tocopherol, phospholipids (from purified sunflower seed lecithin), natural citrus oils, DeltaGOLD[®] tocotrienols, natural flavoring

EDUCATION

CANNABIS AND THE ENDOCANNABINOID SYSTEM

Humans have turned to medicinal plants for over 60,000 years, according to archeological records,³ and over 20,000 medicinal plants have been inventoried by the World Health Organization.⁴ 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 versatility,⁵ a global homeostatic regulator. Cannabis contains over a hundred unique, bioactive cannabinoids that are capable of modulating our neuroendocrine and immune system.^{6,7,8}

The isolation and discovery of psychoactive THC in 1964, at Hebrew University of Jerusalem,⁹ 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).¹⁰ We now know that our ECS features two main receptors—CB1, found in 1990,¹¹ and CB2, found in 1993,¹² although other receptors likely also play a role.^{13,14,15} CB1 is widely distributed in the brain and central nervous system¹⁶ 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.¹⁷ Together, these receptors populate the GI tract, reproductive tract, immune system, arteries, heart, lungs, endocrine glands, and more.¹⁸

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.¹⁹ 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.²⁰ 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.²¹

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.^{22,23,24,25,26} 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 our cannabinoid signaling is in balance, we experience optimal endocannabinoid tone and whole-body health.³² “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 THC is an agonist—stimulating activity of both CB1 and CB2 receptors. Cannabidiol is thought to be an antagonist that downregulates receptor activity. However, CBD powerfully supports anandamide by inhibiting the enzyme that breaks down this “bliss molecule”. Together, a range of phytocannabinoids may offer an elegant entourage effect,³⁴ potentiating benefits while modulating potential adverse effects. For instance, CBD helps modulate some of the psychoactive impact of THC; conversely, a little THC to upregulate CB receptors is thought to render cannabidiol more effective.³⁵

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.^{36,37,38} Phytocannabinoids may act as neuroprotective antioxidants, superior to alpha-tocopherol and ascorbate in preventing glutamate toxicity.³⁹ CBD in particular has been shown to regulate cell proliferation and differentiation through DNA methylation.⁴⁰

TERPENOIDS, CANNABINOIDS, AND BETA-CARYOPHYLLENE

Terpenoids, or terpenes, are aromatic compounds found in plants and essential oils⁴¹ 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.⁴² 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

Quicksilver Delivery Systems® improve upon liposomal and emulsification technology with smaller, more stable particles made from the highest-grade ingredients available. In addition to exceptional absorption rates, these tiny liposomal and nanoemulsified particles increase diffusion across mucus membranes, enhance lymphatic circulation of nutrients and support cellular delivery.*

KEEP OUT OF REACH OF CHILDREN.

Product contains a total delta-9-tetrahydrocannabinol concentration that does not exceed 0.3 percent on a dry-weight basis.

TS210009

References available at quicksilverscientific.com/fullspectrumreferences

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