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Black Elderberry: A New Age of Science & Quality

With support from clinical findings and increased consumer demand, elderberry is a top ingredient in the dietary supplement and natural products industry.

By Melanie Bush
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Elderberry sales have soared in response to the COVID-19 pandemic as consumers look for scientifically backed ingredients to support

immune health. For centuries, Black Elderberry was hailed by European herbalists for having an impressive array of health benefits. Over the last 20 years, clinical trials with human subjects corroborated the anecdotal evidence around elderberry for reliable immune system support.

A particularly brutal influenza season in 2018 brought about a significant uptick in consumer awareness of Black Elderberry's power against cold and flu viruses, resulting in an influx of new product formulations and dietary supplements to keep pace with consumer demand. This new spike in Black Elderberry sales is merely

This article in a nutshell:

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- Bright Days Ahead for Black Elderberry

the latest chapter in its history as a widely used and respected natural remedy.

Key Scientific Studies on Black Elderberry

Favorable anecdotal evidence is one thing. Scientific research is quite another. Researchers have uncovered direct antimicrobial qualities and immune-modulating benefits that make elderberry effective against illnesses like viral infections. Compared to other berries, European Black Elderberry (*Sambucus nigra*) has one of the highest levels of flavonoid compounds called anthocyanins. These anthocyanin color pigments give elderberry its strong antioxidant capacity and are tied to the significant health benefits observed in studies.

In a preliminary *in vitro* study, an anthocyanin-standardized European Black Elderberry extract possessed antibacterial activity against Gram-positive *Streptococcus pyogenes*, group C and G *Streptococci*, and Gram-negative *Branhamella catarrhalis*. It also displayed a direct inhibitory effect on the propagation of human pathogenic influenza virus (A and B types) (Krawitz, 2011).

Mechanism of action studies point to the ability of Black Elderberry to block the hemagglutinin and neuraminidase glycoproteins on the surface of the influenza virus, preventing it from both entering into human cells, and being released from cells (Roschek, 2009; Swaminathan, 2013). This suggests elderberry could essentially keep an influenza infection from spreading as rapidly and worsening, helping the body's immune system to regain the upper hand more quickly. This improvement in recovery time is precisely what was observed in human clinical trials.

In two small placebo-controlled, double-blind human pilot studies, Black Elderberry treatment resulted in a significant improvement in influenza symptom severity and sped recovery by 4 days on average compared to the placebo group (Zakay-Rones, 1995; 2004). In 2016, a large-scale human clinical trial concluded

that treatment with a high-anthocyanin European Black Elderberry extract reduced the duration and severity of upper respiratory infections (such as common colds) in long-haul flight travelers (Tiralongo, 2016).

A recent meta-analysis of all existing clinical research concluded that "supplementation with a standardized elderberry extract is significantly effective at reducing the total duration and severity of upper respiratory symptoms, as compared to a placebo group," regardless of the underlying cause of the symptoms (Hawkins, 2019).

In addition to the direct inhibitory effects on viruses, Black Elderberry also appears to offer support by way of immunomodulatory activities. During early stage infection, the stimulation of certain cytokines helps to mount an immune response to fight back. In a preliminary study, Black Elderberry was shown to have an effect in promoting cytokine activity, both in pro- and anti-inflammatory cytokines, suggesting its ability to modulate key communication compounds within the immune system (Barak, 2002).

To be clear, there is no data indicating that elderberry causes an unregulated cascading cytokine response. An additional area of current and future immune support research involves the role of other key high-molecular-weight compounds aside from the polyphenols that exhibit immune and antiviral qualities.

Quality Control & Adulteration

Thanks to clinical research findings and significantly increased consumer demand, elderberry is a top ingredient in the dietary supplement and natural products industry. As a result, quality control is more important than ever.

It should be noted the Black Elderberry used in scientific studies is the European Black Elderberry, *Sambucus nigra*. Simply sourcing "elderberry" does not guarantee the same species, efficacious actives, or safety of the product. Also, identity confirmation testing is crucial because some ingredients currently being positioned as

Black Elderberry, *Sambucus nigra*, have been shown to be adulterated with lesser ingredients such as other berry species, black bean, black rice, etc. The adulteration of ingredients has become quite sophisticated and can require advanced techniques to detect the presence of adulterants, so working with reputable testing facilities is critical.

What should you keep in mind when sourcing European Black Elderberry? Look for ingredients used in clinical studies such as the Haschberg variety of European Black Elderberry, a premium cultivar that has been heavily tested in scientific research. Extracts standardized to consistent levels of active compounds like anthocyanins help ensure consistent potency from batch to batch. And, since unripe or improperly processed elderberries can raise food safety concerns, working with vetted, audited manufacturers with up-to-date certifications in place is the best way to ensure that berry ingredients are being processed safely and correctly in order to maintain actives while eliminating hazards.

To best source efficacious Black Elderberry ingredients in today's business environment, thorough vendor qualification and sound quality assurance programs are non-negotiable. Expertise in cultivation, origin of berries, and chain of custody matter. High-quality, verified manufacturing practices matter. Processing techniques, quality, and identity checks matter. In other words, everything matters.

Bright Days Ahead for Black Elderberry


Despite the apparent overnight rise to fame of Black Elderberry, it is not likely to reach a sales peak anytime soon. All-natural, immune-supportive Black Elderberry is finally getting the recognition it has long deserved, and all signs point to robust continued demand and significant staying power in the marketplace. And while the ongoing COVID-19 crisis is heightening awareness of the importance of a strong immune system, our collective

*“To maintain the highest quality and efficacy of elderberry in the marketplace, it is more important than ever for formulators to prioritize due diligence. Qualifying true, unadulterated, premium European Black Elderberry (*Sambucus nigra*) from reputable suppliers who maintain high quality standards is paramount. Formulating with effective dosages is vitally important. Sacrificing quality and quantity of Black Elderberry for economic reasons dilutes health benefits and violates consumer trust. Focusing instead on clinical research, responsible sourcing, and a continuing culture shift toward health and immunity will ensure a bright future for European Black Elderberry.”*

desire to stay healthy is in no way likely to subside once the worst of the pandemic is behind us.

The desire and drive to stay healthy is now top-of-mind with consumers. As a result, elderberry supplements have earned space in the medicine cabinet right alongside multi-vitamins. However, the appeal of (and need for) Black Elderberry is not limited to the supplement industry. The influx of crossover ingredients into the functional food space has paved the way for Black Elderberry to enhance and enrich the antioxidant and health-promoting potential of countless products, old and new.

To maintain the highest quality and efficacy of elderberry in the marketplace, it is more important than ever for formulators to prioritize due diligence. Qualifying true, unadulterated, premium European Black Elderberry (*Sambucus nigra*) from reputable suppliers who maintain high quality standards is paramount. Formulating with effective dosages is vitally important. Sacrificing quality and quantity of Black Elderberry for economic reasons dilutes health benefits and violates consumer trust. Focusing instead on clinical research, responsible sourcing, and a continuing culture shift toward health and immunity will ensure a bright future for European Black Elderberry.

About the author: Since 1995, Artemis International has been a leading supplier of dark berry nutraceutical ingredients. Within its Berryceuticals line, Artemis offers highly standardized extracts and powders. Melanie Bush, MS, is director of science at Artemis and specializes in science and research focused on berry phytonutrients. In addition to working with some of the top researchers in the field of berries and coordinating new research opportunities, Bush manages the Technical/Quality Department and enjoys communicating the ever-evolving science of berries. For more information: info@artemis-international.com; www.artemis-nutraceuticals.com. 

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