



# ELDERBERRY

**GREAT TASTE W/POTENTIAL HEALTH BENEFITS**

CHRISTOPHER J. PATTON MA, MBA

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# PRIMARY PROPERTIES

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- Most commonly known as antiviral herb, which was the subject of early clinical research on colds, flu, coughs and other respiratory issues
  - More recently, elderberry's anti-inflammatory potential has attracted more research grants.
  - Direct and indirect anti-inflammatory effects: joints, muscles, brain
  - Nutritionally dense, deep berry color with a sweet neutral flavor
  - Gland stimulation, digestion, pancreas - hypoglycemia, type 2 diabetes
  - Antibacterial qualities
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# NUTRIENTS

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- European *S. nigra* has 4 different antioxidants
  - North American *S. canadensis* has 7 identified antioxidants
    - Same 4 as *S. nigra* with 3 additional ones
    - *S. n.* and *S. c.* levels of antioxidants considered roughly equal
  - Anthocyanins, flavonoids, and other polyphenolics, amino acids
  - Anti-inflammatory flavonoids Quercetin & Rutin (glycoside version)
  - Relatively high in Vitamins A, C, & B6 - minerals K, Ca, P and Fe (USDA chart)
  - <http://nutritiondata.self.com/facts/fruits-and-fruit-juices/1883/2>
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# NATURE'S MEDICINE CHEST

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- Hippocrates wrote a book on elderberry's uses
  - Proceedings of the First International Symposium on Elderberry  
<http://www.actahort.org/books/1061/>
  - Held at the University of Missouri, Columbia in June 2013
    - About 53 papers from 17 nations
    - Elderberry cultivation and clinical health research
  - All parts of the plant, berries and flowers studied
  - All major researchers and producers present
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# OF INTEREST

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- Ukrainian research on using leaf extracts to repair DNA damaged from radiation like Chernobyl
  - Elderflower seems a little more potent in treating allergies
  - Anti-inflammatory research supported preventative practices, such as consuming a tablespoon of elderberry juice/day
  - Compromised immune systems helped - asthma, allergies, bronchitis, congestion, perhaps some cancers, chemo side-effects, skin problems
  - “Elderberry is a potent sedative and helps induce sleep. It helps relax your nerves and muscles and imparts a feeling of well-being.”  
(<http://www.home-remedies-for-you.com/articles/Elderberry-juice.html>)
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# ANTIVIRAL NOTES

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- Elderberry is best known to the public for fighting flu and colds
  - Seems to work on every virus due to its capacity to inhibit or prevent the reproduction of viruses.
  - Much of early antiviral research used and was funded by Sambucol
  - Jerusalem Zoo chimps & prevention against unknown infection
  - Israeli and Norwegian studies on those already ill
  - Potential use against exotic viruses, pets & animal husbandry
  - MEC website as a resource:  
(<http://minnesota-elderberry.coop/health--nutrition/index.html>)
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# HEALING REPAIR

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- How antiviral properties strengthen the immune system - the advantage of systemic energy in prevention
- Indirect & direct anti-inflammatory effects may imply similarly active benefits in other biological system balancing.
- High levels of antioxidants promote gum health, circulatory system health, quicker muscle recovery from exercise
- Used to reduce side effects experienced with various treatments
- Secondary health support to other prescribed medical treatments
- “In order to derive maximum elderberry benefits, the best thing is to drink fresh juice of the elderberry fruits.”

(<http://www.home-remedies-for-you.com/articles/Elderberry-juice.html>)

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# INGREDIENT POTENTIAL

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- Relative variability of elderberry nutrient, antioxidant, sweetness, acidity, fiber, color profiles by cultivar and location only partly known.
  - Large existing market for freeze dried powders, extracts and concentrates - Europe
  - Identification of desired ingredients
    - Food & beverage specific raw material: colorant, seed oil and/or antioxidant
    - Medical catalysts and active agents
  - Quality control of harvest: field and cultivar, documentation of harvest
    - Different quality grades and pricing linked to customer's purpose
    - Cultivar selection for defined/desired biochemical qualities
  - Elderberry processing by-product marketing: people and animals
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# NUTRACEUTICAL FOOD

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- Anti-inflammatory benefits key to growing year-round consumption
  - Elderberry juice is a tasty, colorful, sweet neutral, nutrient-dense flavor easily added to food and beverages: mix @ 2 oz/quart or 1 tbs/glass
  - Most US products use European CONCENTRATE (heated for 3 days) vs. cool processed juice (5 min @ 180°F) - taste, nutritional advantages
  - Flower & berry cordials, extracts, teas, infusions, jellies, jams & spreads
  - Wine, mead, brewed beer & vinegars, liquors, kombucha
  - Food/beverage coloring: tasty nutritious fun with a purplish passion!
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# DEVELOPMENT PARTNERSHIPS

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- A growers cooperative can better coordinate with multiple partners
  - Quality control and identification, ingredient spec development
  - Support & encourage continuing academic research
  - Harvest aggregation, sorting and volume commitments
  - Cooperation from field to customer to consumer
  - Better able to make and maintain long term supply agreements
  - Participate in / distribute to larger markets - national, global
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