Title:
Wolfberry: The World's Most Nutritious Food?

Word Count:
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Summary:
For a berry with such an intimidating name, the wolfberry certainly has a lot going for it. Wolfberry comes from the Mandarin name Gou qi zi ("goo-chee-zee"), a red berry from the Solanaceae nightshade family that includes tomato, eggplant, chili pepper, and potato.

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In popular English, gou qi zi (literally 'wolf'+ 'energy'+ 'berry') has become "goji." For at least 2000 years, the wolfberry has grown wild in China and been used in common recipes and traditional Chinese medicine. Eighteenth century Chinese farmers nicknamed gou qi zi "wolfberry" when they saw wolves feasting among the berry-laden vines during late summer at prime harvest time. Smart mammals!

The Chinese revere the wolfberry as a national treasure regarded as among the most nutrient-dense of the nation's plants. This premise has stimulated scientific investigation about its potential health benefits and systematic cultivation, commercialization, and now increasing export to first-world countries mainly in Europe and the US.

A significant source of macronutrients

The wolfberry contains significant amounts of our body's daily macronutrient

needs, including carbohydrates, proteins, fat and dietary fiber. The content of a wolfberry consists of 68% carbohydrates, 12% proteins, and 10% each of fiber and fat, giving a total caloric value of 370 per 100-gram serving.

Soybean, another ancient Chinese plant often touted as one of the world's most complete foods, is comparable across macronutrients. Although wolfberries and soybeans are similar in macronutrient content, wolfberries provide a significantly higher source of calories as energy from carbohydrates (soybeans = 173 calories). Blueberries, by contrast, do not have as much macronutrient or caloric value.

The wolfberry seeds are equally beneficial, and contain polyunsaturated fats like linoleic (omega-6) and linolenic (omega-3) acids.

The wolfberry's big story on micronutrients

Wolfberry's diverse and high concentration of micronutrients has earned it accolades as an exceptional health food. At least 11 essential minerals, 22 trace minerals, 7 vitamins and 18 amino acids define its extraordinary micronutrient richness, with examples below:

1.Calcium: The primary constituent of teeth and bones, calcium also has a diverse role in soft tissues where it is involved in cardiac, neuromuscular, enzymatic, hormonal, and transport mechanisms across cell membranes. Wolfberries and soybeans contain 112 mg and 102 mg of calcium per 100 grams serving, respectively, providing about 8-10% of our required daily intake.

2.Potassium: An essential electrolyte and enzyme cofactor, dietary potassium can lower high blood pressure. By giving us about 24% our daily needs, (1132 mg/100 grams), wolfberries are an excellent source of potassium, providing more than twice the amount than soybeans.

3.Iron: An oxygen carrier in hemoglobin, iron also is a cofactor for enzymes involved in numerous metabolic reactions. When intake is deficient, low iron levels cause iron deficiency anemia, a condition that affects millions of children worldwide. Wolfberry's exceptional iron content is twice that provided by soybeans, often regarded as the best plant source of iron.

4.Zinc: Essential for making proteins, DNA and the functions of more than 100 enzymes, zinc is involved in critical cell activities such as membrane transport, repair and growth, especially in infants. The zinc found in wolfberries (2 mg/100 grams) has a high content (double the amount of soybeans),

that meet 20% of our daily requirements.

5.Selenium: Sometimes called the “antioxidant mineral”, selenium is often included in supplements. Selenium has unusually high concentration in wolfberries (50 micrograms/100 grams), almost enough for our daily dietary intake, and much more than blueberries and soybeans, which contain 8 micrograms or less per 100 grams.

6.Riboflavin (vitamin B2): An essential vitamin supporting energy metabolism, riboflavin is needed for synthesizing other vitamins and enzymes. A daily wolfberry serving (1.3 micrograms) provides the complete daily requirement for our bodies, whereas soybeans and blueberries contain only trace levels of this important mineral.

7.Vitamin C: A universal antioxidant vitamin protecting other antioxidant molecules from free radical damage, the vitamin C content in wolfberries (20 mg/100 grams) is comparable to an equal weighting of fresh oranges, blueberries or soybeans.

Phytochemicals

Wolfberries contain dozens of phytochemicals whose health-enhancing properties are under scientific study. Three phytochemicals of particular interest include:

Beta-carotene: A carotenoid pigment in orange-red foods like wolfberries, pumpkins, carrots and salmon, beta-carotene is important for synthesis of vitamin A, a fat-soluble nutrient and antioxidant essential for normal growth, vision, cell structure, bones and teeth and healthy skin. Wolfberry’s beta-carotene content per unit weight (7 mg/100 grams) is among the highest for edible plants.

Zeaxanthin: Wolfberries are an extraordinary source for this carotenoid that plays an important role as a retinal pigment filter and antioxidant. Wolfberries contain 162 mg/100 grams.

Polysaccharides: Long-chain sugar molecules characteristic of many herbal medicines like mushrooms and roots, polysaccharides are a signature constituent of wolfberries, making up 31% of pulp weight in premium quality wolfberries. Polysaccharides are a primary source of fermentable fiber in our body’s intestinal system. During colonic metabolism, fermentable or “soluble fibers” yield short-chain fatty acids which are known to:

1.Improve the health of the colon epithelial lining
2.Enhance mineral uptake
3.Stabilize blood glucose levels
4.Lower pH and reduce colon cancer risk

5.Stimulate immune functions
Polysaccharides are also known to help in antioxidant activity and defending against threatening oxidants.

Functional Food and Beverage Applications

Wolfberries, which are prized for their color and nut-like taste, are cultivated for a variety of food and beverage applications within China. In addition, an increasingly amount is also used for export as dried berries, juice and powders of pulp. Not surprising, a major effort is underway in Ningxia, China to process wolfberries for “functional” wine.

Despite no “hard” evidence from clinical research, the myths of wolfberry’s traditional health benefits endure, including positive effects related to:
•Longevity
•Aphrodisia
•Analgesia
•Antiviral conditions
•Immune-stimulating properties
•Muscular strength
•Energy
•Vision health

In laboratory and preliminary human research to date, wolfberries have shown potential benefits against:
•Cardiovascular and inflammatory diseases
•Some forms of cancer
•Diabetes
•Premature aging
•Memory deficits
•Vision degeneration
•Lung disorders
•Other diseases of oxidative stress

Summary

Although not adequately demonstrated yet in published research, a synergy of antioxidant carotenoids (primarily beta-carotene and zeaxanthin) with polysaccharides suggest that wolfberries are an exceptionally rich antioxidant food source.

Micronutrient density, combined with key health phytochemicals like carotenoids and polysaccharides, give wolfberries their remarkable nutritional qualities.

All things considered, it’s no wonder this berry is vying for honors as the most nutritious plant food on Earth.

Expand your health horizons, try wolfberries!

Reading

Wolfberry data from independent contract laboratories, courtesy of Rich Nature Nutraceutical Labs, Seattle; blueberries and soybeans, World’s Healthiest Foods, http://www.whfoods.com

Gross PM, Zhang X, Zhang R. Wolfberry: Nature’s Bounty of Nutrition and Health, Booksurge Publishing, North Charleston, 2006, ISBN 1-4196-2048-7