

# Herb Profile: BILBERRY

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*Vaccinium myrtillus*

The various species of bilberries are in the *Ericaceae* family with edible berries like blueberries and cranberries. Bilberries contain organic acids, vitamins, and glycosides. They are one of the richest edible sources of anthocyanins (mainly cyanidin, delphinidin, and malvidin) and high in quercetin and phenolic compounds, all powerful antioxidants. Simply eating bilberry jam, juice, or wine is medicinal and considered safe due to bilberry's long history as food. Out of 11 fruit wines, bilberry had the most phenolic compounds and antioxidant activity, as well as the deepest color. The French and Italians flavor liqueur, sorbet and tarts with it. It is thought to deter oxidative damage by increasing vitamin C, glutathione, and liver enzymes (like heme oxygenase). Compounds in bilberry work synergistically to increase quercetin's action. In one study, 60 year-old men ate 100 grams of bilberries, along with black currants and lingonberries, every day for two months. The quercetin level in their blood rose 32-51% more than in the group not eating berries.

Bilberry's traditional use to protect against heart and circulatory diseases is backed by some research. It may stop an enzyme that helps convert angiotensin to lower blood pressure. Researchers at the Institute of Clinical Physiology in Pisa, Italy, have been studying how bilberry anthocyanosides enhance blood flow by helping arteries dilate and have a more rhythmic movement. Bilberry may also thin blood, to prevent clots, but could also increase bleeding if taken with anticoagulant drugs. The extract has been popular to treat chronic venous insufficiency, which causes painful swelling, varicose veins, itching, and skin ulcers on the legs. People with a high level of a cardiovascular disease risk factor, such as C-reactive protein or interleukin, saw it decline when they drank bilberry juice during a randomized, controlled trial. Bilberry also increased TNF (tumor nuclear factor-alpha)—targeted by inflammatory response. It may treat fibrocystic disease, menstrual pain, and chronic fatigue syndrome by countering oxidative stress and is recommended by Canada's CFS-Fibromyalgia Integrative Care Centre. A mouthwash with 10% bilberry infusion is used for inflammation.

The berries and anthocyanosides protect nerves in the eye's retina from damage and renew epithelial cells in the cornea in cultured human cells. At the University of Hong Kong, bilberry increased eye cell's viability and cycle, as well as hyaluronic acid and glycosaminoglycans. Long-term supplementation may prevent and slow down progression of macular degeneration and cataracts, conditions attributed to oxidative damage. In a trial with 50 elderly people, taking bilberry extract with vitamin E for four months stopped 97% of cataracts' opacity. It also seems to reduce intraocular eye pressure, so probably reduces the risk of developing glaucoma and may treat retinopathy in diabetics and people who have high blood pressure. However, the story that World War II Royal Air Force pilots ate bilberry jam to sharpen vision for night missions is not verified.

Anthocyanins may counter brain and aging-related degenerative nerve disorders related to oxidation, such as Parkinson's and Alzheimer's diseases and their destruction of neurotransmitters. They seem to increase levels of dopamine neurotransmitters in Parkinson's patients. They are an even stronger antioxidant than Vitamin C on nerve toxins, causing a 50% inhibition, a loss of integrity to their surfaces, and death. Bilberry extract destroyed breast cancer cells without affecting cycles or division of healthy cells. Anthocyanins concentrated in the blood and tumor growth decreased by 7% in primary tumors and those that had metastasized to the liver when 25 people with colon/rectal cancer in one study took bilberry for a week before undergoing surgery.

Bilberry inhibits the ulcer-producing *H. pylori* bacteria and seems to enhance effects of the ulcer drug, clarithromycin. A pressed bilberry extract and a commercial drink Bouvrage killed giardia (*Giardia duodenalis*), which can develop drug resistance, and *Cryptosporidium parvum*, common causes of diarrhea. Bilberry leaves may help treat diabetes by lowering blood sugar levels, and increasing insulin sensitivity.

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