

Bilberry

Overview



Bilberry, *vaccinium myrtillus* is a deciduous, leafy, freely branched, perennial shrub native to northern areas of Europe, Asia, the northern United States, and Canada. Its name, bilberry is derived from the Danish word bollebar, "dark berry" as these berries are purple-black and coarsely wrinkled.

Bilberry is known as one of the richest natural sources of anthocyanins⁴. This component is responsible for the pink, red, blue and purple colour of the plant¹. It has been used for a variety of ailments, including diarrhea, mouth inflammation, urinary problem and diabetes. During World War II, British pilots took bilberry jam as they believe it would improve their night vision.

In modern days, bilberry is introduced as a dietary supplement for night vision, cataracts, varicose veins, and atherosclerosis attributed to its benefits on reduction in vascular permeability and capillary fragility which is beyond simple antioxidant effects.

Key indications



Ocular health

Bilberry has long been used for eye disorders and in promoting vision mainly due to the direct benefits of anthocyanosides on eyes by alternating the local enzymatic reactions and improving the recovery of rhodopsin on retina^{11,12}. A double-blinded, placebo-controlled study shown dark adaptation at 1 hour and hours post-ingestion were faster in those taking bilberry anthocyanins (6.5 minutes) compared to placebo (9 minutes)¹³. Another study reported 97% success rate in preventing cataract progression with 4 months of bilberry anthocyanins supplementation (in combination with vitamin E) for those with mild senile cataract¹⁴.



Anti-inflammatory

Studies shown supplement with mixed berry-derived anthocyanidins isolates reduced levels of multiple proinflammatory chemokines (interleukin-8), regulated upon activation, normal T-cell expression and secretion, and interferon-alpha and cytokines (IL-4 and IL-13)³. Administration of bilberry singly or as part of dietary also shown to decrease serum levels of high-sensitivity C-reactive protein (hsCRP), IL-6, IL-12, IL-15, lipopolysaccharide, E-selectin, monokine induced by IFN-gamma^{8,7}. The possible mechanism of action on anti-inflammatory activities of bilberry could be explained by the inhibition activation of nuclear factor-kappa B^{6,8}.



Antioxidant

Anthocyanosides are the flavonoid derivatives of anthocyanins found in bilberry. This active component is a potent antioxidant in scavenging free radicals and chelating metal ions. Research shown that daily consumption of 160g of mixed berries (bilberries, black currents, chokeberries, and lingonberries) for 8 weeks promote the plasma levels of polyphenols such as quercetin, caffeic acid, p-coumaric acid, protocatechuic acid, homovanillic acid, vanillic acid, 3-hydroxyphenylacetic acid and 3-(3-hydroxyphenyl) propionic acid compared to placebo⁹.



Cardioprotective

Atherosclerosis, an inflammatory process associated with oxidative processes in and damage to the vascular tissue is the main underlying factor in cardiovascular disease¹⁵. A controlled human trial with 4-week supplementation of bilberry juice shown to reduce inflammatory biomarkers concentration. Most importantly, significant reduction was seen in plasma levels of hsCRP and IL-6⁶. Improvement in cardiovascular profile including platelet function, blood pressure, high-density lipoprotein-HDL-cholesterol was reported in another controlled human study with daily intake of 100g of whole bilberries¹⁶. Taking mixed anthocyanins from extracts of bilberry and blackcurrant (*Ribes nigrum*) (320mg daily) for 12 weeks shown significant improvement in low-density level cholesterol and high-density level cholesterol among middle-aged dyslipidemic Chinese subjects¹⁰.

Adverse effects²

Bilberry is generally well tolerated. In some cases, minor adverse effects include dark-coloured stools, flatulence, and gastrointestinal discomfort.

Dosage range²

Typical doses used in clinical trials is ranging from 160mg to 240mg daily for up to 6 months. It provides 120mg to 160mg of anthocyanins for daily used for 6 months.

Contraindications/cautions²

- Interaction may occur with these drugs and supplements:
 - **Anticoagulant/ antiplatelet drugs, herbs and supplements**
Bilberry fruit extract might induce antiplatelet effect which promote bleeding risk.
 - **Antidiabetic drugs, herbs and supplements**
Bilberry fruit or leaf extract might promote hypoglycaemia risk.
 - **Erlotinib (anti-cancer drug)**
Bilberry fruit extract might decrease efficacy of the drug.
- Safety data on pregnancy and lactation has not been established.

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