

# Junipers of Crete

## **Juniperus macrocarpa**



***Juniperus macrocarpa* -large-fruited juniper.** is a species of juniper, native across the northern Mediterranean region from southwestern Spain east to western Turkey and Cyprus, growing on coastal sand dunes from sea level up to 75 m altitude.

It is a spreading shrub 2–5 m tall, rarely a small tree up to 14 m tall. The leaves are broad lanceolate, produced in whorls of three, green, 12–20 mm long and 2–3 mm broad, with a double white stomatal band split by a green midrib on the inner surface. It is dioecious, with separate male and female plants. The seed cones are berry-like, green ripening in 18 months to orange-red with a variable pink waxy coating they are spherical, 12–18 mm diameter, and have six fused scales in two whorls, three of the scales with a single seed. The seeds are dispersed when birds eat the cones, digesting the fleshy scales and passing the hard seeds in their droppings. The pollen cones are yellow, 2–3 mm long, and fall soon after shedding their pollen in late winter.

Despite its distinct morphology with large cones and broad leaves more like those of *Juniperus drupacea*, it has often been treated as a subspecies of *Juniperus oxycedrus*, though recent genetic studies have shown its DNA is distinct from that of *J. oxycedrus*.

## **1. High in nutrients and powerful plant compounds**

Though nutrition information on juniper berries is limited, they're known to provide certain vitamins and an array of plant compounds.

Like most other berries, they're a good source of vitamin C, delivering 10% of the Daily Value (DV) of this water-soluble nutrient in a 1-ounce (28-gram) serving .

Vitamin C is essential for immune health, collagen synthesis, and blood vessel function. It also acts as a strong antioxidant, protecting your cells from damage caused by unstable molecules called free radicals .

The berries also pack many plant compounds, including flavonoid antioxidants, volatile oils, and coumarins, which are chemical compounds with various protective properties .

The volatile oils in juniper berries contain substances known as monoterpenes, including limonene, camphor, and beta-pinene. Monoterpenes have been shown to provide anti-inflammatory, anticancer, antioxidant, and antibacterial properties .

Coumarins and flavonoid antioxidants also offer an array of health-promoting effects. Consuming a diet rich in these compounds can promote health and may protect against chronic conditions, including heart and neurodegenerative diseases .

## **2. Provide anti-inflammatory and antioxidant effects**

Antioxidant-rich foods are important for health, as they help protect your cells against damage that may otherwise lead to illness.

Juniper berries are rich in essential oils and flavonoids that function as potent antioxidants and may help reduce inflammation.

One test-tube study detected over 70 compounds in juniper berry essential oil, with the monoterpenes alpha-pinene, beta-

**pinene, myrcene, limonene, and sabinene making up the majority. All of them add to the oil's strong antioxidant effects. The study found that the oil reduced cellular damage in yeast cells by increasing the activity of the enzymes catalase, glutathione peroxidase, and superoxide dismutase. The main role of these enzymes is to protect cells from free radical damage .**

**Another test-tube study showed that juniper berry essential oil significantly reduced inflammation in human skin cells, an effect that researchers attributed to the oil's high concentration of monoterpenes .**

**Juniper berries are also rich in the flavonoids rutin, luteolin, and apigenin, which test-tube, animal, and human studies have shown can act as powerful antioxidant and anti-inflammatory agents .**



### **3. May have antidiabetic properties**

Juniper berries were used in traditional medicine practices to treat diabetes, and recent studies confirm that they may have antidiabetic properties.

A study in rats with diabetes observed that supplementing with juniper berry extract significantly reduced blood sugar and increased heart-protective HDL (good) cholesterol

Similarly, another study on the antidiabetic effects of Chinese juniper berry extract found that it significantly reduced blood sugar, cholesterol, and triglyceride levels in rats with diabetes. Researchers believe that these antidiabetic effects are due to the berries' high concentration of antioxidants (14Trusted Source).

Though these findings are promising, research in humans is needed to confirm this potential health benefit.

### **4. Could promote heart health**

Juniper berries may promote heart health by improving HDL (good) cholesterol levels and reducing high triglyceride levels, as well as LDL (bad) and total cholesterol.

A study in rats with diabetes demonstrated that treatment with juniper berry extract reduced total cholesterol and triglyceride levels by 57% and 37%, respectively, compared with a control group.

Another rat study found that juniper berry extract increased HDL (good) cholesterol levels as well.

Though human studies are lacking, research shows that eating berries is an excellent way to reduce heart disease risk factors .

However, until more human research on the effects of juniper berries on heart health is available, it's unknown whether eating these berries can reduce heart disease risk.

### **5. Antibacterial and antifungal activity**

Test-tube and animal studies show that juniper berries have powerful antibacterial and antifungal properties. These are attributed to potent compounds in their oil, including sabinene, limonene, myrcene, and alpha- and beta-pinene .

**In one test-tube study, juniper berry essential oil demonstrated antibacterial and antifungal effects against 16 species of bacteria, yeasts, yeast-like fungi, and dermatophytes, a type of fungus that grows on your skin, causing diseases like ringworm.**

**The strongest fungus-killing activities occurred against dermatophytes, as well as *Candida* species, which cause fungal infections like mouth and yeast infections.**

**Another test-tube study found that juniper berry essential oil significantly inhibited the activity of three bacteria that can cause serious infections in humans — *M. gordonae*, *M. avium*, and *M. intracellulare* .**

**Extract from the berries also may have antibacterial effects against many bacteria, including *Campylobacter jejuni*, which commonly cause food poisoning, and *Staphylococcus aureus*, a bacteria that may cause skin, lung, and bone infections .**

**While it's clear that juniper berries have antibacterial and antifungal properties, human studies are needed to examine whether their extract can be used to treat fungal or bacterial infections in people.**

### **Juniper berry uses**

**Unlike other berries, juniper berries are typically used only in small amounts to flavor foods — not eaten in large portions.**

**They have an astringent, pine-like taste, which makes them a popular ingredient for seasoning recipes and infusing beverages.**

**For example, juniper berries are used to add flavor to marinades and spice rubs and give gin its distinctive taste.**

**They're commonly sold dried — either whole or crushed — but can be purchased fresh as well.**

**Keep in mind that there are many types of junipers, and not all are edible. Berries from the *Juniperus communis* are most frequently used in culinary applications.**

**Juniper berry essential oil is also used in aromatherapy and said to be calming. Keep in mind that essential oils should not be ingested.**

**Additionally, juniper berry tea can be purchased in tea bags or made at home using crushed juniper berries.**

### **Dosing and precautions**

**Juniper berry supplements and extracts can be purchased online and in certain health food stores.**

**Because human studies are lacking, it's unclear what dosage is most effective to reap their medicinal benefits.**

**Most juniper berry supplement labels recommend taking 1–6 grams per day, divided into multiple doses.**

**These supplements are not appropriate for children and should be avoided by women who are pregnant, as juniper berries are considered uterine stimulants and may cause miscarriage in high doses.**

**The supplements may also interact with certain medications, such as diuretics and psychiatric drugs.**

**Additionally, many online sources state that concentrated juniper berry supplements may harm your kidneys, though no evidence supports these claims.**

**Nonetheless, considering a lack of human research on which to base the safety and effectiveness of taking juniper berry supplements, it may be best to choose other, thoroughly researched natural treatment options.**

**In any case, always speak with your healthcare provider before trying a new supplement.**