Olive Leaf Extract

Multipurpose compound with antimicrobial properties and cardiometabolic effects*

designs for health®

By David M. Brady, ND, DC, CCN, DACBN, IFMCP, FACN & Amy Berger, MS, CNS

Designs for Health's Olive Leaf Extract offers 500 mg olive leaf (*Olea europaea*) extract per 1-capsule serving, standardized to contain 20% oleuropein, its primary bioactive phenolic constituent. The olive tree has been studied for centuries and a host of medicinal benefits have been attributed to its constituent parts. Olive oil, buds, leaves, and roots have all been used medicinally, but olive leaf extract is of exceptional interest. Numerous studies support a therapeutic role for olive leaf extract, oleuropein, and its precursors, tyrosol and hydroxytyrosol.[1-4]

Olive leaf extract (OLE) is best known as an antiviral, antibacterial, antifungal and antiparasitic agent with efficacy against a spectrum of infectious organisms, including both gram-positive and gram-negative bacteria, *Candida albicans, Campylobacter jejuni, H. pylori, E. coli, Klebsiella pneumoniae, Staphylococcus aureus* (including MRSA), HIV, and respiratory syncytial virus, a common cause of upper respiratory infections.[5-14] It may be especially effective against organisms that affect the intestinal or respiratory tracts*.[6]

Phenolic compounds in OLE show impressive absorption and bioavailability, although there is substantial individual variability.[15-17] A study assessing survivability in simulated gastric and intestinal fluids showed that phenolic compounds decreased by 60% and 90%, respectively, but despite this, "olive leaf extract showed an unusual combined antimicrobial action at low concentration, which suggested [sic] their great potential as nutraceuticals."[15]

Highlights*:

- Antiviral, antibacterial, antifungal and antiparastic properties
- Supports healthy blood pressure and platelet function
- Promotes normal insulin sensitivity and glycemic control
- Powerful antioxidant activity

Supplement Facts

Serving Size 1 capsule

Amount Per Serving		% Daily Value
Olive Leaf Extract (*Olea europaea*)(leaves) [standardized to contain 20% oleuropein]	500 mg	*

*Daily Value not established.

Other Ingredients: Cellulose (capsule), microcrystalline cellulose, vegetable stearate.

Cardiovascular Health

Olive oil is celebrated for its beneficial effects on cardiovascular function, which are typically attributed to its high concentration of monounsaturated fatty acids and also the high content of polyphenols and antioxidants. (Some of the polyphenols of interest are responsible for the sting or mild burning sensation at the back of the throat when consuming a strong, pure olive oil.) Olive leaves contain largely the same polyphenols, making them a viable source of concentrated extract. OLE exhibits antioxidant, antihypertensive, hypoglycemic and hypocholesterolemic activity.[18,19]

A randomized, double-blind crossover trial showed that among men with pre-hypertension, supplementation with OLE for six weeks led to significant reductions in daytime and 24-hour systolic and diastolic blood pressure (BP), as well as triglycerides and total and LDL-cholesterol.[20] Reductions were also seen in fasting glucose and insulin, HOMA-IR and fructosamine, but these did not reach significance. It is possible this trend was due to improved insulin sensitivity (discussed in the next section).

In a separate study, among patients with stage 1 hypertension, 8 weeks of supplementation with OLE was shown to be as effective as captopril for lowering systolic and diastolic BP, and OLE also significantly reduced triglycerides—an effect not seen with the pharmaceutical drug.[21] OLE may also benefit cardiovascular health by reducing platelet aggregation, as was shown *in vitro* in blood samples from healthy male subjects, with effects being dose-dependent.[22] Acute ingestion of OLE was shown to improve postprandial vascular function and reduce IL-8 production *in vivo* among healthy subjects in a double-blind crossover RCT.[23]

Metabolic Syndrome, Insulin Sensitivity and Glycemic Control

Cardiovascular disease is the most common cause of death among those with type 2 diabetes, and atherogenic dyslipidemia (low HDL, high triglycerides) is part of the diagnostic criteria for metabolic syndrome. With this in mind, it is not surprising that the beneficial effects of OLE on the cardiovascular system are mirrored with regard to insulin sensitivity and glycemic control in animals and humans.

In rats fed a high-carbohydrate, high-fat diet, compared to rats not given OLE, rats receiving OLE showed significant reductions in glucose, total cholesterol, triglyceride, uric acid, malondialdehyde, liver weight and fibrosis, and markers of liver function, suggesting that OLE is protective against some of the cardiometabolic damage induced by such a diet.[24] Rodent models have also shown that among both normal and diabetic rats, OLE supplementation led to significant reductions in glucose response to a starch tolerance test.[25] Researchers believe OLE may aid in cellular glucose uptake, but a stronger mechanism may be that OLE appears to reduce activity of carbohydrate-digesting enzymes (α-amylase and α-glucosidase), thereby decreasing postprandial

hyperglycemia.[25,26] One study's authors concluded that this enzyme inhibition makes OLE "a good source for the management of type-2 diabetes with minimum side effects" compared to commonly employed pharmaceutical drugs.[26] (It is noted, however, that this effect is much more robust in *in vitro* studies than it has been shown to be so far in humans.[27,28]) Long term positive outcomes may be downstream from improved insulin sensitivity: increased cellular glucose uptake resulting in a lower blood glucose level may lead to fewer diabetic complications, reduced AGE (advanced glycation end product) formation and oxidative stress, which could potentially cascade into improved blood vessel function and cardiovascular outcomes as well.[29]

Fortunately, we do not need to rely exclusively on animal models. A crossover RCT evaluating the effect of OLE on insulin sensitivity in middle-aged overweight men determined that OLE was effective for improving insulin sensitivity and beta-cell secretory capacity, and reducing area under the curve for glucose and insulin in response to an oral glucose tolerance test. (However, there were no effects on select secondary outcomes such as CRP, lipid profile, blood pressure, lifer function markers or body composition).[30] A different trial of OLE in adults with type-2 diabetes who were taking oral drugs and/or managing diabetes with diet (none were taking insulin) determined that compared to placebo, 14 weeks of OLE supplementation led to significant reductions in HbA1c and fasting insulin (but not postprandial insulin).[25] The multiple favorable effects induced by OLE with regard to insulin sensitivity, atherosclerosis, hypertension and hepatic steatosis led one review's authors to call oleuropein "a natural antioxidant molecule in the treatment of metabolic syndrome."[31]

Recommended Use:

- As a dietary supplement, take one capsule per day with a meal, or as directed by your health care practitioner.

For a list of references cited in this document, please visit:

https://www.designsforhealth.com/techsheet-references/oliveleafextract-references.pdf

Dosing recommendations are given for typical use based on an average 150 pound healthy adult. Health care practitioners are encouraged to use clinical judgement with case-specific dosing based on intended goals, subject body weight, medical history, and concomitant medication and supplement usage.

***These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.**

To contact Designs for Health, please call us at (860) 623-6314, or visit us on the web at www.designsforhealth.com.