Indications

Hyperlipidemia, hypertension, prevention and treatment of cardiovascular disease.

Mechanism of Action

Heart disease is associated with decreased mitochondrial function in cardiac muscle cells. *Ganoderma lucidum* has been shown to protect against mitochondrial dysfunction in animal models of cardiotoxicity. Some of its cardioprotective effects are thought to be attributable to antioxidant and anti-inflammatory activities. Heart cells are particularly vulnerable to oxidative stress and damage. Extracts of *G. lucidum* protect heart cells by supporting antioxidant enzyme systems including manganese-superoxide dismutase, glutathione peroxidase, glutathione S-transferase, catalase, and glutathione, which has the effect of reducing lipid peroxidation, advanced oxidation protein products, and reactive oxygen species in heart muscle and heart mitochondria. *Ganoderma lucidum* also supports mitochondrial energy production via Krebs cycle enzymes and electron transport, further protecting against oxidative damage.

Animal models of diabetes suggest that the *G. lucidum* polysaccharides confer antioxidant and vascular protective effects. Experimental studies show that the polysaccharides protect cardiac muscle cells by lowering blood glucose and activating anti-inflammatory enzymes. *Ganoderma lucidum* has been shown to protect the heart from reperfusion injuries and against irreversible cardiomyocyte injury in animal models of cardiac ischemia. Animal models of cardiotoxicity suggest it may also protect the heart from ethanol-induced oxidative damage. Lanosterol derivatives from *G. lucidum* may inhibit cholesterol synthesis. *Ganoderma lucidum* may also decrease both systolic and diastolic blood pressure by inhibiting sympathetic nervous system activity.

Evidence-Based Research

A randomized controlled trial compared *G. lucidum* to placebo on a range of biomarkers for antioxidant status, heart disease risk, DNA damage, immune status, and inflammation as well as for markers of liver and renal toxicity. The study found that plasma antioxidant markers increased after ingestion of *G. lucidum* and that 10 days of supplementation improved cardiovascular biomarker profiles. Another clinical trial found that plasma antioxidant capacity increased significantly compared with controls with supplementation of 0.72 g/day of *G. lucidum*. It has also been shown to be protective against cardiotoxicity and nephrotoxicity after ingestion of *Russula subnigricans*. 
Safety in Pregnancy and Breastfeeding

To date, no human studies have investigated the effects of *G. lucidum* in pregnancy or lactation.

General Safety

Human investigations have found no association of liver, renal, or DNA toxicity with the use of *G. lucidum*.\(^{10,11,13}\)

Injectable forms of *G. lucidum* developed in China are reported to be safe according to the parameters measured.\(^{14}\) A safety study dosed healthy volunteers with either 2 g of *G. lucidum* or placebo twice a day for 10 days. Subjective questionnaires, electrocardiograms, complete blood counts, blood chemistry analysis, and urinalysis showed no adverse effects.\(^{15}\)

A study of men more than 50 years old with lower urinary tract symptoms were administered *G. lucidum* at various doses, and it was reported that 6 g/day was most effective. The study reported no major adverse effects and found that *G. lucidum* was well tolerated even at this high a dose.\(^{16}\)

Dosage

Crude *G. lucidum* at 100 g is traditionally decocted with water. This is approximately equivalent to 500–600 mL/100 g of dried slices or powder. Studies have used 10, 25, 50, and 250 mg/kg. Up to 1.5 g/day of *G. lucidum*/mycelium powder is typical for traditional use.

Traditional Uses

*Ganoderma lucidum*, referred to as Lingzhi in China, is a woody mushroom highly regarded in traditional medicine. It is widely consumed in the belief that it promotes health and longevity, lowers the risk of cancer and heart disease, and boosts the immune system.

References


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