

RESVERATROL 150

High Potency Antioxidant for Healthy Cells*

A Daily Dose Equals The Resveratrol Content
In 60 Bottles of Red Wine**

ALCOHOL-FREE CONCENTRATE: MG PER 2 CAPSULES

Total Extract	350 mg
Japanese Knotweed (<i>Polygonum cuspidatum</i>)	350 mg
Delivering 150 mg <i>trans</i> -Resveratrol	

DOSAGE:

2 Liquid Phyto-Caps™ daily.

DURATION OF USE:

6-12 months

BEST TAKEN:

With an 8 ounce glass of water in the morning



HISTORY

Japanese Knotweed is a large, herbaceous perennial, which is native to eastern Asia, primarily in Japan, China and Korea. Commonly known as Hu Zhang in China, extracts of the root have been used as a traditional Chinese herbal treatment for centuries, if not longer. It does grow in the United States and Europe; however it is regarded more as an invasive plant species than touted for its medicinal benefits. There is some benefit to this plant in the United States as Japanese knotweed flowers are valued by beekeepers as an important source of nectar for honeybees. This is especially important because Japanese knotweed flowers bloom at a time of year when little else is flowering, late summer or autumn. As a result, this plant helps in part contribute to the survival of the honeybee, which has experienced abnormally high die-offs in recent years.

Resveratrol is a potent polyphenol that exhibits significant antioxidant activity. A polyphenol is a group of substances found in plants that show antioxidant activity. It is also considered a phytoalexin, which is produced naturally by several different plant species when it is under attack by pathogens such as bacteria or fungi, or placed under other stressful environmental circumstances. Phytoalexins that are produced in plants act as toxins to the attacking organism. They may puncture the cell wall, delay maturation, disrupt cellular metabolism or prevent reproduction of the pathogen in question. When a plant recognizes foreign particles from damaged cells or particles from the pathogen, the plant, in this case, Japanese knotweed, launches two stages of resistance; a short-term response and a delayed long-term specific response. During the short-term response, the plant releases free radicals such as superoxide and hydrogen peroxide that kills invading cells. Long term responses include more systemic changes within the plant, which in part can induce genes that help to protect the plant from further damage and pathogenic invasion. Resveratrol, in scientific studies, appears to exhibit similar short and long term responses with an antioxidant component and gene modulating capabilities.

Resveratrol, in recent years, has been extracted and sold as a nutritional supplement derived primarily from Japanese knotweed. Although Resveratrol is naturally found in other plants, such as grapes used to make red wine, mulberry and peanuts, Japanese knotweed is

the preferred source of Resveratrol and is more cost effective due to its natural concentration in the root and the great abundance of this plant in nature. Resveratrol in Knotweed is naturally concentrated to about 2-3% of the total root. Resveratrol in red wine, while it has received a good deal of media attention, is relatively low and has great variability based on the quality of the grape; between .24mg to 1.9mg per 5 oz glass. Resveratrol in red wine (grape skin) is naturally concentrated to about 0.3%.

MECHANISM OF ACTION AND CHEMICAL COMPOSITION

Research demonstrates that *Polygonum cuspidatum*, Japanese knotweed, is not only a great source for purified Resveratrol, but as a whole plant it demonstrates significant antioxidant activity. In fact whole root Japanese knotweed extract has demonstrated affects similar in metabolic pathways as Resveratrol alone. Examples from studies include its ability to block acute production of Nitric Oxide (NO) and inhibit expression of nitric oxide synthase as well as COX-2 genes. Resveratrol, from Japanese knotweed, in scientific studies, has also exhibited positive effects on cancer and post menopausal osteoporosis, particularly in the *trans*-Resveratrol form, which appears to be the most biologically active form of Resveratrol. Historical use of Japanese knotweed in Chinese medicine confirms that its phytochemical properties play a similar physiologic role to that observed in current *in vitro* and animal studies of purified Resveratrol.

There have been several studies done to date on Resveratrol that explore multiple mechanisms of action. The primary mechanisms of Resveratrol's action, while not fully understood, appear to mimic several of the biochemical effects of calorie restriction. Resveratrol appears to stimulate several intracellular pathways, in *in vitro* and animal studies, that are critical for anti-oxidant defense, including regulation of the cell cycle, mitochondrial energy production, improved vascular tone, oncogene suppression, and many others.

Two animal studies published in 2006, one by Sinclair's Harvard group published in the journal *Nature*, and the other by the Auwerx group in France published in *Cell*, demonstrate profound effects of Resveratrol's ability to protect cells from a high fat diet. Following administration of Resveratrol and consumption of a high fat diet, there appeared to be a dramatic shift in many physiologic parameters that were comparable

to a group of mice on a standard low fat diet with no Resveratrol. As a result, mice lived 30% longer, the same duration as mice on a healthier diet, despite being on a high fat diet.

Auwerx's group went on to demonstrate similar results and additionally reported that young mice given a high dose of Resveratrol could prevent diet induced obesity and enhance their aerobic capacity allowing them to exercise more readily. Both groups noted that Resveratrol treated mice had more insulin sensitivity, lowered plasma glucose, improved motor function and mitochondrial activity was significantly increased. These studies, that have since been repeated in other animals models, but not humans, have led many to believe that Resveratrol could play a significant role in creating a solid foundation for a long and healthy life.

As well, Resveratrol has been explored as a novel botanical agent that can support the health of cardiovascular cells by offering antioxidant support and a healthy release of nitric oxide in the body. Nitric oxide is an important cell signaling agent that contributes to blood vessel homeostasis by inhibiting vascular smooth muscle contraction and growth, platelet aggregation, and leukocyte adhesion to the endothelium. The endothelium (inner lining) of blood vessels uses nitric oxide to signal the surrounding smooth muscle to relax, which results in vasodilation and increased blood flow. Humans with atherosclerosis, diabetes and hypertension often show impaired nitric oxide pathways.

In vitro and animal studies have discovered that Resveratrol also has cancer chemopreventive activity in all three major stages of carcinogenesis: initiation, promotion and progression. Researchers at the University of Illinois at Chicago tested Resveratrol in cell cultures and lab animals. Resveratrol's antioxidant, antimutagen and phase-II enzyme-inducing actions inhibited tumor initiation. Resveratrol, in this study, went on to inhibit cyclooxygenase (COX). This is significant to tumor anti-promotion because of the known ability of COX to catalyze the development of pro-inflammatory substances such as prostaglandins, which can stimulate cell growth and alter the immune system to activate carcinogens. Resveratrol also induced differentiation in human leukemia cancer cell lines, causing them to revert to a non-cancerous state.

Despite there being no human cancer clinical trials to date that use Resveratrol, *in vitro* and animal studies show tremendous promise of the use of Resveratrol in modulating a healthy immune and inflammatory response.

ADVERSE EFFECTS

While the health effects of Resveratrol appear to be significant, including as a chemopreventive agent, one study has theorized that it may induce breast cancer. This was theorized in part because the chemical structure of Resveratrol is similar to that of a phytoestrogen. However, many studies demonstrate that Resveratrol may be of benefit for breast cancer. This information is inconclusive. In a dose escalation study in humans, Resveratrol did not cause any adverse reactions.

SAFETY EVALUATION

This product is not to be used during pregnancy or lactation. If you have a medical condition or are taking pharmaceutical drugs, please consult with your healthcare practitioner first. Resveratrol or Japanese knotweed have not been thoroughly studied to evaluate its interactions with other medications.

COMPLEMENTARY HERBS/FORMULAS

Hawthorn Solid Extract
Hawthorn Liquid Phyto-Caps™
Mental Alertness Liquid Phyto-Caps™
Anti-Oxidant Supreme Liquid Phyto-Caps™
Green Tea Liquid Phyto-Caps™
Turmeric Supreme Liquid Phyto-Caps™
Ginger Supreme Liquid Phyto-Caps™

** This number is based on the fact that the amount of Resveratrol in red wine is determined by the quality of the grapes going into the wine. Studies show that the amount of Resveratrol can vary between .24-1.89 mg per 5 ounce glass of red wine, delivering approximately 2.5mg per bottle of red wine.

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*THIS STATEMENT HAS NOT BEEN EVALUATED BY THE FOOD AND DRUG ADMINISTRATION.
THIS PRODUCT IS NOT INTENDED TO DIAGNOSE, TREAT, CURE OR PREVENT ANY DISEASE.