



## HEALTH PROMOTING EFFECTS OF TRANS-RESVERATROL

Resveratrol was first isolated from the roots of white hellebore plant (*Veratrum grandiflorum*) in 1940 and then from Japanese knotweed in the 1960s. No one paid much attention to these observations until trans-resveratrol was found in red wine (1992) and was associated with the “The French paradox”. Scientific interest in the health benefits of trans-resveratrol increased dramatically after the 1997 observation that it may prevent cancer in experimental animals.

To date, six major health promoting activities has been observed for trans-resveratrol. These effects need to be proven in humans; but, based on experiments in animal models and in vitro studies, the results look promising.

**Inhibition of carcinogenesis.** More than 15 animal experiments have shown reduced cancer development (various types) in rats and mice. Several human studies are currently under way. In in vitro studies, it has been shown that trans-resveratrol reduces cell division and induces apoptosis of various cell types.

**Improved insulin sensitivity.** Several mice studies have indicated that trans-resveratrol has a positive effect on obesity-induced type 2 diabetic markers. This may be related to enhanced mitochondrial activity.

**Improved cardiovascular function.** Animal studies indicate that trans-resveratrol exhibits cardio protective effects. This is based on the observations that trans-resveratrol modulates triglyceride blood levels, suppresses atherosclerosis, inhibits platelet aggregation and promotes vasorelaxation.

**Reduced Neurodegeneration.** In mouse models of Alzheimer's and Parkinson's disease resveratrol functions as a protective agent against degenerative neural diseases. Also, brain damage following ischemic stroke is partly prevented by trans-resveratrol. The mechanism is not clear but the activation of Sirt1 and the NF- $\kappa$ B pathway seems to play a central role.

**Extended lifespan.** One of the promising effects of trans-resveratrol is “life extension”. Trans-resveratrol mimics the effects of caloric restriction in mammals (linked to Sirt1 activation) and extended lifespan is observed in invertebrates, fish and yeast.

**Anti-inflammatory effects.** Chronic inflammation is found in several life-style diseases, and trans-resveratrol is observed to reduce inflammation. Here, modulation of the NF- $\kappa$ B pathway plays a central role.

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