Ingredients

Doctor's Best Fisetin featuring Novusetin™ provides the flavonol fisetin, a bioflavonoid produced in plants to protect them from oxidative damage.1 Although fisetin is found in fruits and vegetables such as apple, cucumber, grape, kiwi, onion, and persimmon, it is only abundantly found in strawberry.2 Novusetin™ is derived from the Japanese Wax Tree, a much richer source of fisetin that has been used for decades.

While results from various modes of research have been strong and convincing, clinical studies on fisetin have not yet been undertaken. Because of this, the dose of Doctor's Best Fisetin featuring Novusetin™ is based upon an FDA model converting the mice dose of fisetin (in research showing long-term memory benefits) to an optimal, safe, human equivalent.

Every batch of Novusetin™ undergoes NutriPrint®, which includes qualitative identity testing by Fourier Transform Near-Infrared Spectrometer (a method that produces extremely accurate measurements) and third-party certification of analysis by independent laboratories using validated methods of analysis for the active ingredient, microbes, heavy metals, and pesticide testing.

Benefits

Flavonol antioxidant support for healthy aging*

Fisetin can support the body's antioxidant pool both through direct radical scavenging activity and through enhancement of glutathione (GSH) levels. In vitro research suggests that fisetin can support the body's glutathione (a very active antioxidant found naturally in the human body) by supplying cystine—a building block of GSH—to cells, or by enhancing GSH synthesis. Fisetin may help to regulate production of many proteins involved in guarding cells from oxidative stress and in maintaining redox homeostasis (the balance between rates of free radical production and rates of removal by various antioxidants).3

In laboratory research on the effects of many flavonoids on neurons, only fisetin and quercetin were able to maintain glutathione levels in the face of oxidative stress.4 Researchers have also demonstrated the ability of fisetin to enhance or maintain mitochondrial ATP (energy) levels in nerve cells during conditions of oxidative stress induced by the toxin iodoacetic acid.5

Supports the aging brain*

Normal aging is characterized by a decline of brain motor and cognitive functions, affecting learning, memory, and coordination. Memory deficits associated with normal aging affect the quality of life. Originally valued chiefly for their antioxidant, radical-scavenging activities, flavonoids are now known to have a wide range of properties that support brain function with age. Scientists debate whether flavonoids can reach high enough levels in the brain to affect neuronal function. This is because the blood-brain barrier, which consists of specialized brain capillaries and astrocytes (cells that provide support for neurons), prevents the passage of many materials from the blood to the brain. Using an in vitro model (for practical reasons) to assess fisetin in its capacity to cross the blood-brain barrier, fisetin was found to have high brain uptake potential.3

In a combination study that used both in vivo and in vitro methods, results illustrated that fisetin can facilitate the development of long-term memory by activating signaling pathways in the rat hippocampus (a part of the mammalian brain's limbic system).6 The researchers tested the in vitro findings (biochemical effects seen in the rat hippocampus) by using mice in an object-recognition task very effective for measuring functions such as a critical step in the signaling cascade (the chain transmission of cellular signals) that leads to structural changes important for the development of...
The Morris water maze (MWM) is a rodent learning test that is correlated with synaptic plasticity, or brain cell connections, in the hippocampus. Before fisetin alone was researched for its nootropic (cognitive enhancement) potential, researchers found that strawberry extract enhanced the performance of rats in MWM tests (strawberries are the best food source of fisetin). Later, researchers began to use the MWM test with fisetin as the test compound; they found that it significantly improved the memory of older mice (compared to control mice not fed fisetin).

**Areas for further research**

In rat glial cells (cells providing support for neurons), the observed effects of fisetin suggested influence on the regulation of cellular concentrations of catecholamines and 5-HT (monoamine neurotransmitters) in the brain. The latest research suggests that fisetin can influence mood by altering these neurotransmitters. In a paper published in 2012, the authors reported fisetin-induced benefits to mood in mice observed in two classical models of despair tasks: pharmacological, biochemical, and neurochemical paradigms were used to confirm that monoamine neurotransmitters like 5-HT were indeed affected by fisetin. Increasingly in the 21st century, many scientists are also backing the theory of oxidative stress contributing to mood states, which further adds credence to fisetin holding potential to contribute to a healthy mood.

In a completely different line of new research, fisetin was found to be able to beneficially influence protein glycation in mice. Protein glycation can result in the formation of advanced glycation end-products (AGEs) by a complex series of reactions between reducing sugars and amino acids on proteins. While this reaction is best known for its effects in the culinary world, it also takes place within the body—and it accelerates as we age; while AGEs are considered favorable in the culinary world, they are considered unfavorable in the terms of health. Another compelling finding of the study was that fisetin reduced nervous tension among the mice in the study population. In yet another leading edge study, fisetin was found to support airway health in mice. These studies have provided the incentive for fisetin clinical trials to be designed and carried out, with the goal of determining to what degree human health may be enhanced by this powerful flavonol.

**Scientific References**


* 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.