Bioflavinoids--Plant Phytochemicals and Their Benefits

By Elaine Moore

Bioflavinoids are effective in reducing inflammation and pain. In autoimmune disease, pro-inflammatory cytokines cause painful symptoms and trigger disease flares. To the rescue, certain plant chemicals with bioflavinoid properties subdue these cytokines.

Cytokines are proteins such as interleukins, growth factors and interferon that are produced by white blood cells during the immune response. Specific cytokines have specific functions although all cytokines act to modulate the immune response, for instance by reducing or increasing inflammation, redness, or fever.

Bioflavinoids

A class of plant chemicals known as bioflavinoids (also known as flavinoids and flavonoids) has been found to dramatically reduce inflammation. Bioflavinoids known to be especially beneficial in autoimmune disease include catechins in tea and chocolate; anthocyanidins in tart cherries; quercetin in citrus pulp; the anti-inflammatory herb boswellia; turmeric and ginger, which has strong anti-inflammatory and analgesic properties.

Reduction in C-Reactive Protein (CRP)

C-Reactive Protein (CRP) is a naturally occurring protein molecule that rises in inflammation. The presence of CRP in the blood is a marker of inflammation. Blood tests for CRP are used to diagnose autoimmune diseases and confirm disease flares. A reduction in the CRP level is seen in patients who have a favorable response to medications or other therapies.

Researchers at Michigan State University found that diets higher in bioflavinoids were associated with lower CRP levels. They concluded that intake of flavinoid rich foods may reduce inflammation-mediated chronic diseases. They also noted that serum CRP concentrations were typically higher in women, older adults, blacks, smokers, persons with high body mass indexes, and a sedentary lifestyle.

Neuroprotection

Many autoimmune diseases such as multiple sclerosis (MS) are injurious to the nervous system. Chinese researchers have determine that citrus flavanones such as quercetin, hesperidin and hesperetin protect the nervous system from the effects of oxidative stress. Oxidative stress, with resulting glutamate accumulations, is considered one of the key pathological features in MS and other neurodegenerative disorders.
In several recent studies, the plant flavinoids, particularly luteolin, found in celery and green peppers have been found to reduce the inflammatory response in the brain. Luteolin has been found to taper the activity of the immune system cells of the nervous system known as microglia.

Microglial activation is responsible for initiating the inflammatory response in neurodegenerative diseases. Microglial activation is responsible for initiating the inflammatory response in neurodegenerative diseases.

Benefits of Plant Compounds

Current drug therapies used in autoimmune disease are generally immunosuppressive agents with the potential to worsen non-immunological mechanisms in the body. The resulting side effects include ischemia, kidney damage, hypertension, susceptibility to infection and elevated lipid levels. Used long-term these agents can also cause bone loss, fibrosis, and cardiac problems.

Bioflavinoids are free of these dangerous effects and have the potential to nurture and strengthen multiple bodily systems. For instance, luteolin in green peppers and celery has been shown to benefit the heart, kidney, skin, endocrine system and lungs. Plant bioflavinoids are also readily available and inexpensive. Currently, researchers are working with extracts of pine. Bioflavinoids found in pine have been found to act as powerful quenchers of free radicals, dramatically reducing oxidative stress and protecting against inflammation.

Resources:

OK Chun, SJ Chung, KJ Claycome, and WO Song, Serum C-reactive protein concentrations are inversely associated with dietary flavinoid intake in U.S. adults, Journal of Nutrition, April, 2008: 753-60.


Feb 2, 2010