



## HEALTH PROTECTIVE EFFECTS OF PHYTONUTRIENTS: **QUERCETIN**

Phytonutrients are natural components of plants with important functions, such as protecting plants from insects, diseases, draught, ultraviolet rays, and pollutants. Until recently, phytonutrients were not considered as important nutrients for humans; however, they are now thought to be necessary to sustain human life. It has been shown that several phytonutrients can reduce the incidence of chronic diseases, e.g., diabetes, hypertension, atherosclerosis, and cancer.

Quercetin is an important natural plant component obtained from fruits and vegetables such as onions, apples, berries, and citrus bioflavonoids. Quercetin has strong antioxidant and anti-inflammatory properties. It has been found to inhibit cellular histamine release leading to its potent anti-allergic actions. Quercetin is important for maintaining strong blood vessels and it can decrease the thickness of the blood, which could prevent blood clots. It can protect the liver and can counteract dangerous effects of artificial estrogen. Quercetin is also essential for proper absorption of vitamin C and prevents destruction of vitamin C in the body.

Our research and clinical evidence shows that quercetin can help in increasing the levels of available green tea phenols in the blood<sup>1,2</sup>. Green tea extract is a potent anticancer agent. Since active components in green tea are not adequately absorbed from the body's digestive system, adding quercetin can markedly enhance the anticancer activity of green tea extract.

Due to its anti-inflammatory properties, quercetin has been studied in a variety of diseases associated with inflammation, including atherosclerosis, rheumatoid arthritis, and cancer. It is most commonly used in inflammation of the bladder and prostate. We have demonstrated that a mixture containing quercetin, selected micronutrients and citrus bioflavonoids, was effective in a significant reduction of various markers of systemic inflammation. A comparative analysis with ibuprofen, an anti-inflammatory medicine, also proved that the quercetin supplemented micronutrient combination provided better protection against inflammation than ibuprofen and resulted in reduced expression of enzyme cyclooxygenase-2 (COX2) and other inflammatory parameters<sup>3</sup>. One of



the popular COX2 inhibitor drugs, Vioxx, was removed from the market in 2004 because of causing more than 60,000 deaths and 150,000 serious cases of heart disease. While the remaining COX2 inhibiting drugs on the market continue to carry a risk of life threatening side effects, micronutrients are not only safe and effective, but they also provide additional health benefits.

Our results proved that quercetin and green tea extract were the most effective inhibitors of angiotensin II induced smooth muscle cell contraction. Angiotensin II promotes vascular spasm and increased blood pressure and its pharmacological inhibitors are used to treat high blood pressure. Our results show that quercetin and green tea can inhibit this enzyme by 120% and 97%, respectively<sup>4</sup>.

Quercetin acts synergistically with vitamin C and green tea extract to strengthen the connective tissue. Strong connective tissue has an important function in preventing the formation and progression of atherosclerotic plaques<sup>5</sup>.

We have also proven the anticancer properties of quercetin in an in vivo study showing the synergistic action of quercetin with other micronutrients can inhibit growth of already developed breast cancer tumors in rats and can decrease malignancy<sup>6</sup>.

Hence, it is clear with so many health promoting qualities quercetin should be an important element in our daily regimen.

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3. V. Ivanov, et al., *Int J Mol Med.* 2008 Dec;22(6):731-41
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The ground-breaking nature of this research poses a threat to the multi-billion dollar pharmaceutical "business with disease". It is no surprise that over the years the drug lobby has attacked Dr. Rath and his research team in an attempt to silence this message. To no avail. During this battle, Dr. Rath has become an internationally renowned advocate for natural health. Says he: "Never in the history of medicine have researchers been so ferociously attacked for their discoveries. It reminds us that health is not given to us voluntarily, but we need to fight for it."

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