ADVANCED ORTHOMOLECULAR RESEARCH

AOR CODE: AOR04311
Premium

Quercetin

$56.95 CAD

Fights Allergies and Inflammation

- Helps regulate the histamine response, providing relief from allergies
- Reduces pain and inflammation
- Promotes cardiovascular health
- Pure, high dose quercetin

Gluten Free Vegan Non-GMO Immune Support

AOR Code	Variant	Price
AOR04311	100 VEGI-CAPS	$56.95
AOR04230	200 VEGI-CAPS	$88.75

Details
Quercetin belongs to the flavonoid class of antioxidants commonly found in apples, onions and citrus fruits. Its use has been widely established, particularly in Europe, for the treatment of a variety of ailments including allergy symptoms, diabetic complications and cardiovascular concerns, all thanks to its anti-inflammatory effects.

Although Quercetin's main application is for those with allergy symptoms (such as itchy eyes, itchy throat, sneezing and nasal congestion), quercetin also promotes cardiovascular health due to its antioxidant and anti-inflammatory effects. It reduces the oxidation of low density lipoproteins (LDL), promotes healthy blood pressure and blood clotting, enhances nitric oxide (NO) production, and reduces the risk of metabolic syndrome. Quercetin can provide relief from headaches and other types of pain, as it inhibits the production of inflammatory signaling molecules by a mechanism similar to that of aspirin. Quercetin also inhibits the release of histamine from certain immune cells, hence why it is widely used by those who suffer from constant allergies (such as dust) and seasonal allergies (such as hay fever).

Quercetin can add a boost for anyone at risk or suffering from a cardiovascular condition, battling allergies or plagued with headaches. AOR's Quercetin is also unique because it is citrus-free, unlike most quercetin products on the market.

Label Info

Discussion

Quercetin is the flavone aglycone (non-sugar-bound) form of the polyphenolic flavonoid rutin. Quercetin is the major bioflavonoid in the human diet and an antioxidant for the maintenance of good health.

Product Variation

Product Code	Size
AOR04311	100 VEGI-CAPS
AOR04230	200 VEGI-CAPS

Supplements Facts

Serving Size: 1 Capsule	Amount	% Daily
Quercetin	500 mg	

microcrystalline cellulose, sodium stearyl fumarate, rice syrup. Capsule: hypromellose.

Guarantees

AOR™ guarantees that all ingredients have been declared on the label. Contains no wheat, gluten, corn, nuts, peanuts, sesame seeds, sulphites, mustard, soy, dairy, eggs, fish, shellfish or any animal byproducts.

Adult Dosage

Take 1 capsule twice daily with food, or as directed by a qualified health care practitioner.

Cautions

Consult a health care practitioner prior to use if you are pregnant or breastfeeding or for use beyond 12 weeks.

Source

Dimorphandra mollis or Styphnolobium japonicum (citrus-free)

Main Application

Cardiovascular health

Circulation

Cellular growth & differentiation

Analgesic properties

Antioxidant

Blood sugar balance

Allergies

Disclaimer

The information and product descriptions appearing on this website are for information purposes only, and are not intended to provide or replace medical advice to individuals from a qualified health care professional. Consult with your physician if you have any health concerns, and before initiating any new diet, exercise, supplement, or other lifestyle changes.

Research

Background

An Antioxidant Flavonoid

Antioxidants stop oxidants (free radicals, which disrupt the integrity of other molecules by stripping their electrons) from attacking nearby molecules, such as mitochondria, membranes, and DNA. There are many classes of dietary antioxidants, and flavonoids are one of them. Flavonoids have many phenols linked to their antioxidants.

Common sources of flavonoids are vegetables, fruits, and beverages such as wine and teas. Of the many flavonoid powerhouses, Quercetin is a major player. Quercetin is the most widely consumed flavonoid in the diet. Quercetin has been widely used by Russians and Europeans for a variety of ailments, including allergy symptoms, complications associated with blood sugar imbalances and cardiovascular concerns, all thanks to its anti-inflammatory effects.

Pain and Inflammation

Quercetin decreases the production of the inflammatory mediators by inhibiting key enzymes called cyclooxygenases and lipoxygenase, which form proinflammatory eicosanoids (local microhormones) such as PGE2 and PGE2 alpha. The mechanism is similar to that of aspirin and indomethacin. Mediators such as histamine, bradykinin and PGE2 all potentiate pain through sensitization of afferent pain endings (the nerves that transmit impulses to the CNS and brain). Basically, these inflammatory mediators cause the body’s pain receptors to become more sensitive. Quercetin prevents the formation of those inflammatory mediators.

Allergies

Quercetin counters allergic reactions by inhibiting enzymes responsible for the production of inflammatory mediators. Also, Quercetin inhibits histamine release by stabilizing basophils and mast cells. Quercetin is widely used by those who suffer from constant allergies (such as dust) and seasonal allergies (such as hay fever).

Cardiovascular Health

Researchers in the Netherlands believe it is possible that quercetin and other flavonoids reduce risk of heart disease by lowering the formation of plaque-building substances, specifically oxidized low

density lipoprotein (LDL).

Complications of Unhealthy Blood Sugar Levels

Many of the complications associated with unhealthy blood sugar levels, such as eye problems and neuropathy, are caused by the sorbitol pathway, a process through which high levels of glucose are converted to sorbitol and fructose via the enzyme aldose reductase. In experimental animals, inhibitors of aldose reductase reduce the kidney and neurological symptoms that increase with unhealthy blood sugar levels. Quercetin is an established aldose reductase inhibitor.

Research

Longevity

Quercetin can also mimic the effects of a calorie-restricted diet which can extend the lifespan in animals and quite likely in humans. A research study carried out in Kentucky demonstrated that brain cells can be protected from beta-amyloid protein toxicity if the cells are pretreated with quercetin, thanks to its antioxidant activities.

Anti-Inflammatory and Anti-Allergy Effects

In 2007, Korean researchers were able to demonstrate how quercetin can reduce the production of inflammatory signaling processes in the body which were associated with chronic inflammatory conditions.

In a study investigating the effects of allergies and pretreatment with quercetin in either oral or inhaled forms of the antioxidant, the animals were protected from having fatal allergic reactions to allergens. Quercetin’s success at preventing food and chemically induced allergies in animals has implications for supporting respiratory disorders in humans. In one study, quercetin outperformed a traditionally used medication for alleviating the symptoms of allergies in guinea pigs. Quercetin was able to reduce airway resistance more that the drug albuterol, and had equal effects in terms of anti-inflammation as the drug cromolym and dexamethasone.

Immune-Modulating Effects

Quercetin is effective in reducing the ability of numerous viruses to replicate. In an Italian study, researchers demonstrated that they could use a quercetin rich extract to up-regulate the antiviral response of the immune system in response to infected cells.

Weight Management

Mice that were fed a high fat diet along with high dose quercetin supplementation gained less weight than the mice not receiving quercetin.

Cardiovascular Health

A British study showed that people who took quercetin supplements supported healthy blood clotting. Cardiologists in Greece were able to demonstrate that a quercetin-rich polyphenol extract was able to

improve endothelial health by increasing the flow mediated dilation of major arteries. Another study involving 19 patients with unhealthy blood pressure levels were supplemented with quercetin and had reduced systolic and diastolic blood pressures which corresponded to a lowered risk of vascular disease.

In a study that was released, a longitudinal investigation of risk factors for chronic diseases in elderly men revealed that high intakes of quercetin and other flavonoids predicted lower mortality rates and incidences of heart attack (myocardial infarction). Researchers in the Netherlands believe it is possible that quercetin and other flavonoids reduce risk of heart disease by lowering the formation of oxidized low density lipoprotein (LDL) cholesterol.

Metabolic Syndrome and Blood Sugar Balance

In a 2008 Spanish study involving overweight mice, it was found that quercetin may be protective against metabolic syndrome. When quercetin was given to the mice, the insulin resistant rats had reduced plasma lipids, systolic blood pressure and insulin levels. High doses of the quercetin were able to generate nitric oxide which supports healthy blood vessel function.

Market Trends

Consumers are interested in quercetin for many reasons; it offers numerous benefits including antioxidant functions, it acts as an antihistamine, it supports cardiovascular health in many ways and supports sugar metabolism pathways.

AOR Advantage

AOR’s Quercetin is derived from citrus-free sources. AOR offers two sizes of this formula in order to take full advantage of the health benefits offered by this flavonoid powerhouse.

References

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Abstract

The effects of quercetin supplementation on body composition, exercise performance and muscle damage indices in athletes.

Int J Prev Med. 2013 Jan;4(1):21-6.

Askari G, Ghiasvand R, Paknahad Z, Karimian J, Rabiee K, Sharifirad G, Feizi A.

BACKGROUND: Flavonoids comprise a large group of plant metabolites, 6,000 of which have been identified to date. Some studies have shown the increased aerobic performance and maximal oxygen consumption (VO2max) and therefore fitness following quercetin intake as a result of elevated number of intracellular mitochondria caused by the flavonoid.

METHODS: This double-blind clinical trial comprised 60 male students having an athletic history of at least 3 years. Body composition, exercise performance, and some blood biomarkers were analyzed. The individuals were selected by convenient sampling, and then were assigned into four groups of equal number by using permuted block randomization. The first to fourth groups received a 500 mg supplemental quercetin capsule plus a 250 mg vitamin C pill, a 500 mg supplemental quercetin capsule plus a 250 mg placebo vitamin C pill, a 500 mg placebo quercetin capsule plus a 250 mg vitamin C pill, and a 500 mg placebo quercetin capsule plus a 250 mg placebo vitamin C pill, respectively, daily for 8 weeks. The participants were asked to continue their routine diet and physical activity during the study and they were monitored through phone calls or text messages.

RESULTS: Lean body mass, total body water, basal metabolic rate, and total energy expenditure increased significantly in the quercetin group after intervention. On the other hand, VO(2max) increased in the “quercetin” and “quercetin vitamin C” groups following the intervention, non-significantly.

CONCLUSION: Our findings suggest that supplementation with quercetin in athletes may improve some indices of performance.

Quercetin inhibits expression of inflammatory cytokines through attenuation of NF-kappaB and p38 MAPK in HMC-1 human mast cell line.

Inflamm Res. 2007 May;56(5):210-5.

Min YD, Choi CH, Bark H, Son HY, Park HH, Lee S, Park JW, Park EK, Shin HI, Kim SH.

OBJECTIVE AND DESIGN: Mast cell-mediated allergic inflammation is involved in many diseases such as asthma, sinusitis, and rheumatoid arthritis. Mast cells induce production of pro-inflammatory cytokines with immune regulatory properties. We investigated the effect of quercetin on the expression of pro-inflammatory cytokines in human mast cell line, HMC-1.

METHODS: HMC-1 cells were stimulated with phorbol 12-myristate 13-acetate (PMA) and calcium ionophore A23187 (PMACI).

RESULTS: Quercetin decreased the gene expression and production of tumor necrosis factor (TNF)-alpha, interleukin (IL)-1beta, IL-6, and IL-8 in PMACI-stimulated HMC-1 cells. Quercetin attenuated PMACI-induced activation of NF-kappaB and p38 mitogen-activated protein kinase.

CONCLUSION: Our study provides evidence that quercetin may suitable for the treatment of mast cell-derived allergic inflammatory diseases.

Quercetin, a flavonoid antioxidant, modulates endothelium-derived nitric oxide bioavailability in diabetic rat aortas. Nitric Oxide. 2007 Jun;16(4):442-7.

Machha A, Achike FI, Mustafa AM, Mustafa MR.

The present work examined the effect of chronic oral administration of quercetin, a flavonoid antioxidant, on blood glucose, vascular function and oxidative stress in STZ-induced diabetic rats. Male Wistar-Kyoto (WKY) rats were randomized into euglycemic, untreated diabetic, vehicle (1% w/v methylcellulose)-treated diabetic, which served as control, or quercetin (10mgkg(-1) body weight)-treated diabetic groups and treated orally for 6 weeks. Quercetin treatment reduced blood glucose level in diabetic rats. Impaired relaxations to endothelium-dependent vasodilator acetylcholine (ACh) and enhanced vasoconstriction responses to alpha(1)-adrenoceptor agonist phenylephrine (PE) in diabetic rat aortic rings were restored to euglycemic levels by quercetin treatment. Pretreatment with N(omega)-nitro-l-arginine methyl ester (l-NAME, 10muM) or methylene blue (10muM) completely blocked but indomethacin (10muM) did not affect relaxations to ACh in aortic rings from vehicle- or quercetin-treated diabetic rats. PE-induced vasoconstriction with an essentially similar magnitude in vehicle- or quercetin-treated diabetic rat aortic rings pretreated with l-NAME (10muM) plus indomethacin (10muM). Quercetin treatment reduced plasma malonaldehyde (MDA) plus 4-hydroxyalkenals (4-HNE) content as well as increased superoxide dismutase activity and total antioxidant capacity in diabetic rats. From the present study, it can be concluded that quercetin administration to diabetic rats restores vascular function, probably through enhancement in the bioavailability of endothelium-derived nitric oxide coupled to reduced blood glucose level and oxidative stress.

Quercetin inhibits TNF-induced NF-kappaB transcription factor recruitment to proinflammatory gene promoters in murine intestinal epithelial cells.

J Nutr. 2007 May;137(5):1208-15.

Ruiz PA, Braune A, Hölzlwimmer G, Quintanilla-Fend L, Haller D.

Flavonoids may play an important role for adjunct nutritional therapy of chronic intestinal inflammation. In this study, we characterized the molecular mechanisms by which quercetin and its enteric bacterial metabolites, taxifolin, alphitonin, and 3, 4-dihydroxy-phenylacetic acid, inhibit tumor necrosis factor alpha (TNF)-induced proinflammatory gene expression in the murine small intestinal epithelial cell (IEC) line Mode-K as well as in heterozygous TNFDeltaARE/WT mice, a murine model of experimental ileitis. Quercetin inhibited TNF-induced interferon-gamma-inducible protein 10 (IP-10) and macrophage inflammatory protein 2 (MIP-2) gene expression in Mode-K cells with effective inhibitory concentration of 40 and 44 micromol/L, respectively. Interestingly, taxifolin, alphitonin, and 3,4-dihydroxy-phenylacetic acid did not inhibit TNF responses in IEC, suggesting that microbial transformation of quercetin completely abolished its anti-inflammatory effect. At the molecular level, quercetin inhibited Akt phosphorylation but did not inhibit TNF-induced RelA/I-kappaB phosphorylation and IkappaB degradation or TNF-alpha-induced nuclear factor-kappaB transcriptional activity. Most important for understanding the mechanism involved, chromatin immunoprecipitation analysis revealed inhibitory effects of quercetin on phospho-RelA recruitment to the IP-10 and MIP-2 gene promoters. In addition, and consistent with the lack of cAMP response element binding protein (CBP)/p300 recruitment and phosphorylation/acetylation of histone 3 at the promoter binding site, quercetin inhibited histone acetyl transferase activity. The oral application of quercetin to heterozygous TNFDeltaARE/WT mice [10 mg/(d x kg body wt)] significantly inhibited IP-10 and MIP-2 gene expression in primary ileal epithelial cells but did not affect tissue pathology.

These studies support an anti-inflammatory effect of quercetin in epithelial cells through mechanisms that inhibit cofactor recruitment at the chromatin of proinflammatory genes.

Effect of quercetin and Albizzia saponins on rat mast cell.

Indian J Physiol Pharmacol. 1985 Jan-Mar;29(1):43-6.

Johri RK, Zutshi U, Kameshwaran L, Atal CK.

In the present work the effect of quercetin obtained from (Allium cepa). Albizzia lebbek (crude extract of seeds) and a pure saponin fraction of Albizzia has been studied on the mast cells in the mesentery and peritoneal fluid of rats subjected to anaphylaxis. The results show a mast cell membrane stabilizing effect of these test drugs.

Mucosal mast cells. III. Effect of quercetin and other flavonoids on antigen-induced histamine secretion from rat intestinal mast cells.

J Allergy Clin Immunol. 1984 Jun;73(6):819-23.

Pearce FL, Befus AD, Bienenstock J.

Quercetin, a naturally occurring flavonol structurally related to the antiallergic drug disodium cromoglycate inhibits anaphylactic histamine release from MMC isolated from the small bowel LP of the rat previously infected with the nematode Nippostrongylus brasiliensis. This contrasts with our previous observation that cromoglycate is inactive in this system. The present effect is immediate and does not decrease on preincubation with the drug. The flavonoids acacetin , apigenin , chrysin , and phloretin also demonstrate significant activity but are less potent than quercetin. Catechin, flavone, morin, and taxifolin are inactive. These results resemble those previously reported for the human basophil. In contrast, all compounds with the possible exception of taxifolin demonstrate significant activity against rat PMC. Acacetin and chrysin are the most effective inhibitors and are more active than quercetin. Rutin (the glycane of quercetin) and phlorezin (the glycane of phloretin) are inactive in both systems. These results are discussed in terms of the functional heterogeneity of mast cells from different sources and identify a group of compounds other than doxantrazole (reported previously), which inhibit histamine secretion by MMC.