



Preventing and Treating Long-Haul COVID-19 and Other Types of Inflammation

All active ingredients being included are considered GRAS in the US. **Generally recognized as safe (GRAS)** is a United States Food and Drug Administration (FDA) designation that a chemical or substance added to food is considered safe by experts.

Quercetin

Anti-inflammatory potential of Quercetin in COVID-19 treatment:

SARS-CoV-2 is a betacoronavirus causing severe inflammatory pneumonia, so excessive inflammation is considered a risk factor for the disease. According to reports, cytokine storms are strongly responsible for death in such patients. Some of the consequences of severe inflammation and cytokine storms include acute respiratory distress syndrome, acute lung injury, and multiple organ dysfunction syndromes. Phylogenetic findings show more similarity of the SARS-CoV-2 virus with bat coronaviruses, and less with SARS-CoV. Quercetin is a carbohydrate-free flavonoid that is the most abundant flavonoid in vegetables and fruits and has been the most studied to determine the biological effects of flavonoids. Inflammasomes are cytosolic multi-protein complexes assembling in response to cytosolic PAMP and DAMPs, whose function is to generate active forms of cytokines IL-1 β and IL-18. Activation or inhibition of the NLRP3 inflammasome is affected by regulators such as TXNIP, SIRT1 and NRF2. Quercetin suppresses the NLRP3 inflammasome by affecting these regulators. Quercetin, as an anti-inflammatory, antioxidant, analgesic and inflammatory compound, is probably a potential treatment for severe inflammation and one of the main life-threatening conditions in patients with COVID-19.

<https://journal-inflammation.biomedcentral.com/articles/10.1186/s12950-021-00268-6>

Quercetin: New Hype for COVID-19?

Quercetin has long been evaluated for its [potential protective effects](#) against cancers, heart disease, and cells that release histamines.



The agent promotes SIRT2, which then inhibits the NLRP3 inflammasome assembly involved with COVID 19 infection, said Samuel F. Yanuck, DC, of the Program on Integrative Medicine at the University of North Carolina Chapel Hill School of Medicine, who co-authored a [review of emerging research](#) on the subject. It also plays a role in facilitating zinc transportation across lipid membranes, Yanuck said.

<https://www.medpagetoday.com/infectiousdisease/covid19/87373>

Quercetin as a potential treatment for COVID-19-induced acute kidney injury: Based on network pharmacology and molecular docking study

Kidneys are one of the targets for SARS-CoV-2, it is reported that up to 36% of patients with SARS-CoV-2 infection would develop into acute kidney injury (AKI). AKI is associated with high mortality in the clinical setting and contributes to the transition of AKI to chronic kidney disease (CKD). Up to date, the underlying mechanisms are obscure and there is no effective and specific treatment for COVID-19-induced AKI. In the present study, we investigated the mechanisms and interactions between Quercetin and SARS-CoV-2 targets proteins by using network pharmacology and molecular docking. The renal protective effects of Quercetin on COVID-19-induced AKI may be associated with the blockade of the activation of inflammatory, cell apoptosis-related signaling pathways. Quercetin may also serve as SARS CoV-2 inhibitor by binding with the active sites of SARS-CoV-2 main protease 3CL and ACE2, therefore suppressing the functions of the proteins to cut the viral life cycle. In conclusion, Quercetin may be a novel therapeutic agent for COVID-19-induced AKI. Inhibition of inflammatory, cell apoptosis-related signaling pathways may be the critical mechanisms by which Quercetin protects kidney from SARS-CoV 2 injury.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0245209>

Quercetin: Antiviral Significance and Possible COVID-19 Integrative Considerations:

Quercetin, a naturally occurring dietary flavonoid, is well known to ameliorate chronic diseases and aging processes in humans, and its antiviral properties have been investigated in numerous studies. In silico and in vitro studies demonstrated that quercetin can interfere with various stages of the coronavirus entry and replication cycle such as PLpro, 3CLpro, and NTPase/helicase. Due to its pleiotropic activities and lack of systemic toxicity, quercetin and its derivatives may represent target compounds to be tested in future clinical trials to enrich the drug arsenal against coronavirus infections. There is evidence that quercetin in combination with, for example, vitamins C and D, may exert a synergistic antiviral action that may provide either an alternative or additional therapeutic/preventive



option due to overlapping antiviral and immunomodulatory properties. This review summarizes the antiviral significance of quercetin and proposes a possible strategy for the effective utilization of natural polyphenols in our daily diet for the prevention of viral infection.

<https://journals.sagepub.com/doi/full/10.1177/1934578X20976293>

Quercetin, Inflammation and Immunity:

In vitro and some animal models have shown that quercetin, a polyphenol derived from plants, has a wide range of biological actions including anti-carcinogenic, anti-inflammatory and antiviral activities; as well as attenuating lipid peroxidation, platelet aggregation and capillary permeability. This review focuses on the physicochemical properties, dietary sources, absorption, bioavailability and metabolism of quercetin, especially main effects of quercetin on inflammation and immune function. According to the results obtained both in vitro and in vivo, good perspectives have been opened for quercetin.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4808895/>

For further details and the list of all ingredients please click on the link or visit our website www.rheumcare.com/research-ingredient-nutraceutical

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