

## Editorial

# Extra Preventive Measures against the Covid-19 Virus

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## Editorial

The CDC reported that 80% of the CoV- 19 infected cases were presented with mild symptoms. A strong immune system is an important contributing factor to the ability of our body to defend itself against the Covid-19 infection.

The production and accumulation of reactive oxygen species (ROS) can cause oxidative stress and weaken our biological system to detoxify these reactive products. Fat soluble pollutants are a source of ROS that could weaken our immune system and subsequently affect the severity of symptoms of a Covid-19 infection. In January 2019 in *Frontiers in bioscience* I published the mechanism of action of lipiburn on fat metabolism. We demonstrated that this natural plant flavonoid breaks down fat thereby getting rid of the pollutant's storage. This serves as a true deep tissue detoxifying agent that eliminates a source of stress to our immune system. Additionally, PF, the active ingredient in lipiburn, was found to have an antiviral property and that it inhibits corona virus replication.

An additional line of defense against the Covid- 19 viral infection is to stop its entry into our cells.

Quercetin is a natural plant extract with antiviral and antibacterial properties. Wenjiao Wu and coauthors published a comprehensive study in *Viruses*. In Jan 2016 that is worth sharing. In their study, they tested the effect of Quercetin on all known Corona virus strains, including SARS, Mers, H1N1 and the like. When Quercetin was added to the virus prior to incubation with human cells in culture, the virus failed to enter the cells. Mechanism studies identified that quercetin showed interaction with the viral envelope HA2 subunit. Indicating that Quercetin inhibits viral attachment to the human cells. In another group, the Quercetin and the virus were added at the same time to the incubated human cells and again the virus failed to enter the cells. Indicating that Quercetin inhibits the entry of the virus. Moreover, quercetin could inhibit the entry of the H5N1 virus using the pseudovirus-based drug screening system. However, when the cells were first infected with the virus and then the Quercetin was added, there was no effect. Indicating a preventive role rather than a curative one. What is important here is to understand that Quercetin inhibited stages 1 & 2 of viral infection being inhibition of attachment

and entry but not stage 3 & 4 being replication and release. A few years earlier, 2008, the DARPA, the defense advanced research agency of the US army funded research that dealt with a direct viral challenge in animals using highly pathogenic H1N1. They reported significantly lower morbidity in the Quercetin treated group when compared to the untreated. The DARPA researchers carried out a randomized placebo-controlled clinical study with the Quercetin. After 3 days of strenuous exercise, 50% of the soldiers in the control group became ill with colds and the flu. Only 5% of the Quercetin treated group became ill. This clearly points to a prophylactic role of the Quercetin against the corona virus infection. It is worth mentioning that the Quercetin has a broad spectrum antibacterial property. In 2010 my team published data in *Phytotherapy* demonstrating that Quercetin has an inhibitory effect on oral pathogens that cause periodontal disease. Zu P and coauthors in a recent study published in 2020 in *nature*, reported that the Spike (S) protein of SARS-CoV-2 and SARS-CoV 19 enter human alveolar epithelial cells through ACE2 receptor. I would imagine that a compromised gingival epithelium would be more vulnerable to viral entry than a healthy oral tissue.

In the current situation with the Covid- 19 pandemic, we need our immune system to be as strong as possible to fight the Corona virus. By inhibiting bacterial growth in the mouth, we leave our immune system focusing on fighting the Corona virus and not fighting on two fronts at the same time. The Quercetin is USFDA approved as GRASE, generally recognized as safe and efficient. The PF is UK pharmacopeia approved as safe and efficient. The data presented above warrant a closer look at these natural plant extracts by the readers of this journal. It is our collective efforts that will put an end to the current pandemic.

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