

COVID-19: A Global Challenge and Its Remedy through Natural Foods

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COVID-19 is indeed the crisis of the century. Previously unidentified coronavirus, (SARS-Severe acute respiratory syndrome) in 2002-2003 and in the form of (MERS- CoV-2 Middle East Respiratory Syndrome coronavirus-2) in 2011¹ now named as COVID-19 emerged from Wuhan, China in late December 2019.¹ This COVID-19 is exponentially expanded worldwide in 25 countries by (Feb-6-2020) and in 195 countries by (April-18-2020).² Globally, there are 2162408 cases: 543312 recovered, 144683 deaths and 56986 critically ill patients according to international statistics by (April-18-2020).² By January 30-2020, the WHO declared the Public Health Emergency of International concern.¹ On Feb-11-2020, this disease was named as Coronavirus Disease 2019 (COVID-19) by WHO and is single stranded RNA virus.³ COVID-19 is named as fifth category of communicable disease by Center of disease control, Taiwan and disease with severe pneumonia on January 15, 2020.¹

In Pakistan, the first case of COVID-19 was reported in February 26-2020 from Karachi; there are 7,638 confirmed cases, 1832 (24%) recovered, 144(1.9%) deaths as by 18-april-2020.²

The confirmed cases of COVID-19 has similar clinical symptoms as of SARS and MERS such as fatigue, fever, dry cough, arthralgia, myalgia, respiratory symptoms, elevated C reactive protein, prolonged prothrombin time and elevated lactate dehydrogenase.⁴ Majority of infected persons are asymptomatic or having mild symptoms, the infection can lead to pneumonia or death. The transmission in human to human during incubation period from asymptomatic individuals is troublesome which make it difficult to limit the spread of disease.⁵ The average case fatality rate is 2.3% and it is increased as 8% between 70-79 years and 14.8% among aged 80 years and over which is of major concern.⁶ In china, currently the case incidence rates are decreased due to the measure steps taken by them

but case fatality rates are exponentially increased all over the world.⁷ Worldwide, there are various measures underway to limit the transmission of disease such as closure of educational institutes, cancellation of large gatherings and conferences, travel curtailment etc. It will remain a formidable challenge to develop an anti COVID-treatment or vaccine. The precautionary measures includes washing hands for 20 seconds, wearing mask, social distancing, coughing and sneezing etiquettes are being practiced worldwide. In addition lock down is also observed in various countries of the world to inhibit the local transmission of COVID-19.

The extent of the adverse impacts of COVID-19 on economical, social, cultural, educational, scientific, health, commercial and various aspects, along with the burden on healthcare, anticipated rates of fatalities and predicted spread of the disease worldwide, it is significantly important to explore the preventive strategies to fight against COVID-19. Currently, there is no treatment or vaccine available for COVID-19 and only symptomatic treatment is provided to the patients.

There is an increased incidence of pneumonia among elders due to weakened immune response⁸ and inflammatory process leads to case fatality among pneumonic patients.⁹

Therefore enhance the immune response is an effective way to reduce the pneumonia and inflammation and ultimately reduce the case fatality and incidence rate of COVID-19. Indeed there are various interventions to boost immunity such as exercise/physical activity, cold shower, dance, forest bathing trips, sauna, sunlight exposure, meditation, acupuncture, intermittent fasting, living at a high elevation, yoga, tai chi, smoking cessation, avoid excessive alcohol, laughter, rhythmic breathing, calorie restriction, reduce red meat, yogurt, consumption of natural fruit-vegetable, probiotic foods, vitamin D supplementation, whole grains, statins, deuterium-depleted water consumption, aspirin, statins, adequate sleep, massage, reducing light at night, exclusive breast feeding, psychological counseling, reducing circadian disruption, pleasurable experiences, exposure to short term radio frequency radiation, ozone therapy, ultraviolet blood irradiation, radon spa therapy, hyperbaric oxygen therapy, whole body vibration exercise, hyperthermia, low level radiation exposure, influenza and other vaccinations etc.¹⁰

Now it is time to learn the lesson from past. Here we would like to shade on light towards enhancing the immune system by using nutritional based foods in order to decrease the chances of infecting with COVID-19. It is well said that you are what you eat. To fight against COVID-19, it is a time to go back to nature and use natural foods to boost immune system. It is strongly urged by the International

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Society for Orthomolecular Medicine that the best method to prevent the antiviral infection is to take nutrient based diet.¹¹ It is evident from literature that strong immune response acted as first line of defence as observed in SARS and MERS-CoV-2.⁵ The strong immune system is highly associated in pathological process against COVID-19.⁵ Dysfunction immune system was reported in 452 confirmed cases of COVID-19 at Tongji hospital in China.¹¹

To enhance the innate antiviral immune system refers to boost the immune response towards an antigen and keep the body more resistant towards viral infection or clean the body from infections. Antimicrobial peptides in plants can boost human innate immunity and have no side effects. It can keep the human disease free. There are many traditional medicinal plant reported having strong antiviral activity. Viral enzymes have a vital role to trigger disease. Viral replication is halted if viral enzymes are neutralized. The antiviral activity includes inhibit the formation or replication of viral RNA or DNA.¹² The natural plant products has proved as an antiviral agents such as flavonoids, allicin, betacarotene, oleuropein and are anti RNA anti-oxidants.¹³⁻¹⁵ An antioxidant is a material that quench a free radical and are widely found in fruits and vegetables such as carrot, raddish, spinach, citrus pulp, ginkgo biloba, olive leaf extract, garlic, tomato pomace, grape pomace, selenium, etc in dried form.^{13,14} The freshly crushed garlic (allicin) is a plant medicine. It has strong antimicrobial effect because of the chemical reaction of allicin with thiol groups of various enzymes, e.g. alcohol dehydrogenase, thioredoxin reductase, and RNA polymerase.¹³ They have various antioxidants effects against arteriosclerosis, cancer, and Alzheimer's disease. Flavonoids have anti viral activity.¹⁵ Against SARS-CoV, flavonoids showed antiviral activity.⁴

In 1970, Canadian researchers reported antiviral activity against polio type 1, herpes simplex virus (HSV), echovirus 7 and coxsackievirus B5 from straw berry, apple, carrot, grape fruit juices.¹²

It is recommended that instead of dying with fear and stress of COVID-19. It is the time to follow precautionary measures against COVID-19 and take food in natural form to strengthen the immune system and fight against COVID-19.

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