

Role of Alternative Medicine in the Wake of COVID-19 Pandemic: Opinion

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World Health Organisation (WHO) declared the Corona virus disease-19 (COVID-19) outbreak as a pandemic on 13th March 2020. This happened due to a sudden increase in the number of cases outside its epicentre in the Chinese city of Wuhan [1]. WHO has further clarified that since we don't have any effective medication or vaccine for this disease yet, in such situation public health and social measures like self-isolation, social distancing and quarantine should be employed effectively. It was thought initially that this disease is the enemy of the old and, people with comorbidities only. But over a period of months during the evolution of this disease it has been seen that it is affecting and killing the young people too. WHO has said that no pharmaceutical product has yet been shown to be safe and effective for the treatment of COVID-19. The suggested potential medicines and investigational therapies will be studied in different trials including the SOLIDARITY trial being co-sponsored by WHO and the participating countries [2]. The various treatments being offered in some countries have not been tested effectively and their efficacy and safety profile for the treatment of COVID-19 has not been proven in the clinical trials [3]. What to do in this situation then? For centuries we have been using forms of alternative medicine i.e. the plant products and other gifts of nature having medicinal properties, for fighting similar diseases and epidemics. They may or may not affect the virus directly but through different mechanism they enhance disease fighting capability of our bodies. Could such alternative medicines be effective in COVID-19 pandemic? They have been the part of our cuisine for thousands of years but their scientific importance has been proven only recently. Turmeric is the "Golden spice of India" which has been used for centuries in every kitchen of the Indian households. Apart from other bio-active compounds Curcumin is the main compound giving it the yellow colour and bioactivity against a variety of viruses including Influenza A (IAV), Respiratory syncytial virus (RSV), Herpes viruses (HSV 1&2), Zika virus, Chikungunya and human immunodeficiency viruses (HIV). It inhibits the virus uptake, replication and formation of particles during the *in vitro* studies. It modulates the features of lipid bilayer thus inhibiting the binding of viral glycoprotein Hemagglutinin (HA) to its cellular receptors. Apart from its antiviral effects, it possesses anti-bacterial, antifungal, anti-inflammatory, anti-carcinogenic and anti-bacterial activities [4]. Garlic is a commonly used household herb. It stimulates the cell mediated immunity of the body which prevents against the viruses. It has got antiviral activity against Influenza A and B viruses, Rhinoviruses causing common cold, viral pneumonias, HSV 1 and Human Papilloma Viruses (HPV) [5]. Another root, Ginger is an important part of Chinese and Indian cuisines for centuries [6]. Ginger has been found to be effective against the RSV by the researchers from College of medicine at Kaohsiung Medical University. Similarly, it is found to be effective against H1N1. It has been found to be effective in inhibiting the Rhinoviruses which causes common cold. Zingerone and Gingerols inhibit viral replication and prevent their penetration into the host cells [6]. Cinnamon saved the workers of cinnamon factories from the "Spanish Flu" of 1918 [7]. A study from Pakistan compared the effects of cinnamon and its silver impregnated nanoparticles on the H7N3 Influenza virus and showed that cinnamon- reduced silver nanoparticles exhibited an enhanced antiviral activity as compared to the cinnamon bark aqueous extract in both pre-penetration and post-penetration exposures [8]. At the same time they found that the cinnamon and its nanoparticles were safe and nontoxic against Vero cells. They further concluded that plant based silver nanoparticles have a hope in situations where there is no treatment for the highly mutating viruses. Cinnamon derived procyanidin polymer can turn HIV infected people into HIV controllers

as suggested by a study from India. This survey of Indian plants for HIV, found two varieties of Cinnamon *Cinnamomum cassia* and *Cardiospermum halicacabum*, have compounds that are effective against HIV-1 and HIV-2 [7]. Honey has been used as a food and a medicine for thousands of years across the civilisations. Apart from its antibacterial, antifungal, anti-inflammatory and anti-cancer effects, it has been found to be very effective against viruses. Its use has been found to be safe and effective in treating Chicken Pox, Herpes Simplex and Herpes Genitalis. Methylglyoxal, a compound found in the honey is responsible for inhibition of RSV, which is otherwise a common cause of respiratory infections across all ages of human beings. Influenza virus is more infective and fatal as compared to RSV. It's inhibition by Manuka honey definitely proves its medicinal value [9]. Green tea is becoming a commonly used beverage throughout the world for it has got anti-carcinogenic, anti-inflammatory, antioxidant and antimicrobial activity. Catechins are the bio active compounds present in the green tea which impart it the anti-microbial properties. The main antiviral effects of catechins include inhibiting the virus from binding to and entering the host cells: inhibiting viral RNA and DNA synthesis and viral gene transcription and destroying and functionally altering various viral molecules. It has been shown that green tea supplements prevented infection of health care workers with Influenza viruses. They showed fewer influenza symptoms and a reduced incidence of laboratory confirmed influenza cases as compared to control group [10]. Consumption of green tea with ginger, turmeric, cinnamon and honey can boost our immune system. Although the governments across the globe are doing everything in their powers to fight this virus, and when there is no proven drug therapy or vaccine available yet, it's our duty too to maintain the social distancing and keep our body fit to fight the disease. Further, in an effort to ward off this virus, alternative medicine can play an important role.

Conflict of Interest

Authors declare no conflict of interests.

Author's Contributions

Rajesh Chaudhary and Ragini Bhatia: Contributed substantially to the Conception and design, Critical revision of the article and final approval of the version to be published.

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None.

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