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Can Phytochemicals Hinder the Spread of Covid-19 that Created International Health Disaster?

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Figure 1: Covid treatment using herbal medicine assisted deep learning

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Covid-19 is not just a respiratory disease, but a cascade of immune failure. Machine learning is a branch of artificial intelligence related to data analysis based on automated analytical model building. Combination of latent knowledge, molecular interactions, and chemical property aspects of biomolecules with large and diverse drug data can assist in identifying the medical uses of natural chemicals. Factors such as mutation,

population characteristics, environmental and geographical variation influence the Covid-19 caused fatalities [1]. Hence, there is a need for multi-tasking medicine that is applied for inhibition of viral infection, inhibition of the cytokine storm causing inflammatory chain reaction, and protecting the organ failure in systemic damage. The failure of modern medicine and vaccine provoked the Food and Drug Administration (FDA) to authorize hydroxychloroquine and chloroquine for treatment in the disease in question. During trials, some vaccines showed decreased hemoglobin, increased bilirubin, altered serum glutamic oxaloacetic transaminase, and serum glutamic pyruvic transaminase [2]. Herbal therapies, on the other hand, have been shown in insilico, in-vitro, and in-vivo trials to be beneficial against Covid-19[3].

These studies proved the efficacy of phytopharmaceutical drugs to treat the disease under study. As a result, we appeal the global scientific community to consider the ability of these drugs to combat viral pandemic health emergencies. To continue, herbs and spices native to India are rich in bioactive secondary metabolites such as curcumin, embelin, piperine, quercetin [4,5,6] which can be applied for the treatment of Covid-19. These phytocompounds such as curcumin, hinokiflavove, amentoflavone and naringin have not only shown antiviral properties but also antiinflammatory activities, which are useful to lower the progression of the disease [7].

Machine learning-assisted personalized medicine can help us tackle randomly evolving Covid 19 pathogen by developing and exploring appropriate phytochemicals against viral proteins and inflammatory cytokine storm [7, 8]. In addition, a deep learning model has been created to predict the inhibitory activity of 3CLpro, Mpro, Spike protein in Covid which can also be extended to human proteins involved in post covid symptoms [9]. Besides, it can be applied to block pro-inflammatory cytokines to stop the progression of the disease. The phytomolecules work in synergistic relation for providing enhanced anti-Covid 19 effects (Figure 1).

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