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Letter to the Editor

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Menthol: Is it a Natural Enemy of COVID-19?

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Dear Editor,

Today we hear that the WHO has characterized the COVID-19 outbreak as a pandemic [1]. Updates on this respiratory illness that has infected thousands of people and killed several hundreds. COVID-19 is a highly contagious respiratory disease caused by the novel coronavirus, first identified in Wuhan, China. It can trigger the inflammation of the tiny sacs in the lungs that are filled up with fluid. COVID-19 may go with breathing difficulties since it can cause hypoxia in the body. The McLellan's group in Texas has identified another feature that could explain why the new coronavirus infects human cells so successfully. Their experiments have shown that the spike protein can be found on the surface of the virus binds to the angiotensin-converting enzyme 2 (ACE2) receptor on human cells. COVID-19 at least ten times more tightly than does the spike protein in the SARS virus [2]. It appears logical that agents which could have potential anti-COVID-19 effects, and we conduct molecular docking to predict their capacity for binding ACE2, which may subsequently prevent the coronavirus infection. I propose that these selected compounds worth further investigation for preventing COVID-19. Menthol is an organic compound obtained from the oils, peppermint, or other mints. It is a crystalline substance, which is solid at room temperature and melts slightly above. Menthol has local anesthetic and it is widely used to relieve minor throat irritation. Menthol reacts in many ways like a normal alcohol. Various in vitro and in vivo studies have documented that menthol had analgesic, antibacterial, antifungal, anaesthetic and penetration-enhancing effects. It can demonstrate chemo preventive and immu-

nomodulation actions [3] which are also well known. M. piperita oil containing menthol (42.8%), methane (14.6%) and isomenthone (5.9%) as the major constituents, was evaluated in vitro on RC-37 cells against herpes simplex virus type 1 [4]. Peppermint contains menthol, which is a soothing property known to promote free breathing and also relax the muscles of the respiratory tract. Being mostly non-irritant and non-toxic to the skin, they are commonly used to enhance the transdermal permeation of drugs such as 5-fluorouracil propranolol hydrochloride, lipophilic indomethacin and ketoprofen as well as estradiol. Zidovudine (AZT) is widely used in the treatment of AIDS and AIDS-related complex, either singularly or in combination with other antiviral agents [3]. Menthol as a vehicle for transdermal drug delivery: The evidence suggests that menthol is one of the most useful monoterpenes to achieve skin penetration enhancement [3]. Taking into account the low toxicity of this compound, it has been a popular topic for research. It would be remarkably interesting if we were able to administer transdermal into the body for prevention or therapy [2].

References

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