COVID-19 Research at National Institute of Technology Silchar

Research broad area: Sanitization

Project Title: Disinfection of inanimate objects from Covid-19 contagion by irradiating with UV light

Expected Outcome: Design and development of movable Covid-19 disinfection chamber based on UV irradiation

Expected Timeline: The desired disinfecting chamber can be produced within two weeks upon arrival of the raw materials/components

Remarks: At the current trying time, the COVID-19 pandemic is the global threat which transcends territorial, political, religious, cultural, and definitely academic boundaries. Healthcare workers and biologists are at the frontline, working for mitigating the outbreak of the disease. Although the current challenge apparently seems far from the physical scientists and engineers who generally deal with inanimate objects, there is a scope for them to contribute to this global crisis. To address this challenge, herein, we plan to set up a movable Covid-19 disinfection chamber operated by UV-C light (wavelength of 200-280 nm in the electromagnetic spectrum) that has been known for long to disinfect a variety of substances including food and water. It works by its germicidal effects, destroying microorganisms such as virus, bacteria by cleaving their DNA structures upon absorption of UV. The intensity of UV-C light and exposure time will be adjusted depending on the dimension of the chamber and the amount of substances to be cleaned. The designed chamber is made of plywood and comprising of wheels that make the system movable and the dimension of the chamber is restricted to 6′×6′×8′. The current approach is powerful and more convenient in terms of its low cost and non-invasive nature, in comparison to existing wet-chemical methods. This chamber can be used to disinfect a variety of daily used items including groceries, vegetables, wallet, currency, spectacles, luggage, books, pen, mobile phones, wristwatches, leather shoes, specifically the items which are susceptible to be damaged by detergent washing or other wet chemical methods. However, the present approach can only be applicable to disinfect the non-living objects.

URL: http://www.nits.ac.in/departments/chem/chem.php

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