

DISINFECTANTS AND CORONAVIRUS DISEASE 2019 (COVID-19): A MINI REVIEW

DEVAGI KANAKARAJU*¹, BEVERLEY D. GLASS² AND MICKY VINCENT¹

¹Faculty of Resource Science and Technology, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak. ²Pharmacy, College of Medicine and Dentistry, James Cook University, Townsville, Qld 4811, Australia.

*Corresponding author: kdevagi@unimas.my

Submitted final draft: 2 August 2020

Accepted: 19 September 2020

<http://doi.org/10.46754/jssm.2021.01.009>

Abstract: The 2019 novel corona virus (2019-nCoV), now known as coronavirus disease (COVID-19), is a major public health threat, impacting both health of populations and economies worldwide, since its emergence in a city called Wuhan, China in December 2019. Known to be highly infectious via human-to-human transmission, the virus can cause severe respiratory infections, resulting in mortality. Because of the current lack of effective drugs to treat or a vaccine to prevent COVID-19 or the SARS-CoV-2, which causes it, disinfectant use is encouraged at a personal level and especially in healthcare and residential settings to control the spread of the virus. The current knowledge of available disinfectants commonly used, their active ingredients and effectiveness in combating COVID-19 will be discussed in this mini review.

Keywords: Disinfection, active ingredients, virus, COVID-19.

Introduction

The 2019 novel corona virus (2019-nCoV), which is caused by the SARS-CoV-2 virus made its first presence in Wuhan, China in December 2019, causing severe acute respiratory tract infections (Lai *et al.*, 2020; Spagnuolo *et al.*, 2020). Since its emergence, it has spread to other parts of China and also other countries around the world, with an estimation of more than 213 countries, areas or territories and more than 692,694 deaths (as of 3rd August; WHO, 2020). It has led to the declaration of a pandemic by the World Health Organization, WHO (Liu *et al.*, 2020; Lai *et al.*, 2020). The WHO coined a new name for the pandemic disease as coronavirus disease (COVID-19). The SARS-CoV-2 virus, reported to attack the lower respiratory system causing viral pneumonia, is also capable of leading to multiple organ (i.e., liver, kidney, heart and the central nervous system) failures (Liu *et al.*, 2020). More importantly, COVID-19 has impacted the global population economically, emotionally, socially and physically (health). Currently, there are no effective treatments, with considerable efforts been devoted globally to understand its epidemiology and viral properties in order to deliver drugs to treat and a vaccine to combat this virus. Due to lack of a vaccine,

precautionary measures are being stressed to prevent transmissions and infections from human-to-human.

Human-to-human transmission occurs via droplets, contaminated surfaces and also hands (Chakraborty & Maity, 2020; Kampf *et al.*, 2020). Therefore, one of the precautions advocated to control the spread in the general public and also health care facilities is the application of disinfectants and hand sanitizers with frequent hand washing with soap and water. Hand sanitizers or also known as alcohol-based handrubs which contain only ethanol or isopropanol as active ingredients are able to inactivate or kill wide spectrum of microorganisms present on change to hands (WHO 2009; Berardi *et al.*, 2020; Celina *et al.*, 2020). On the other hand, surface disinfectants which typically consist of both active ingredients and low amounts of additional active constituents play a critical role in controlling and eliminating the spread of COVID-19 from animate and inanimate surfaces (Celina *et al.*, 2020; Pradhan *et al.*, 2020). Surface disinfection has been widely accepted as a common practice to decontaminate surfaces and to slow down the spread owing to its practical implementation and reliability in terms of performance (Song *et al.*,