General

Environmentally friendly Diaclean Pera Sterilant disinfectant

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Diaclean Pera Sterilant, a vinegar-based disinfectant (food grade acetic acid) produced by Universiti Malaysia Pahang (UMP) researchers, can kill 99.9% microorganisms such as bacteria, viruses, fungi and protozoa.

This innovative organic disinfectant is environmentally friendly, user friendly (non-irritant), odourless, cheaper and classified as high-level disinfectants (HDL), and it does not leave any adverse effects on surfaces and users.

According to the researcher from the Faculty of Civil Engineering Technology, Professor Dato' Ts. Dr. Zularisam Ab, Wahid, this product can be used in the work of disinfection as it is categorised as HDL that is free from aldehyde and alcohol.

"This general sanitiser can effectively kill all coronaviruses that naturally are enzootic, non-lipid and only need an intermediate- or mid-level disinfectant (MLD).

"This product is not only suitable as a surface disinfectant for housing areas, housing spaces, schools, offices and hospitals but also satisfactory for the livestock industry, food processing, packaging, medical devices sterilisation, potable water and wastewater treatment," he said.

This product has been tested for its effectiveness as an antimicrobial agent through in vitro test in Makmal Bioserasi & Klinikal Healthmedic Research Sdn. Bhd. And in vivo biocompatibility test in Makmal Bioserasi, Centre for Research and Instrumentation Management (CRIM), Universiti Kebangsaan Malaysia (UKM).

In addition, this Malaysian-made product contains peracetic acid as the active ingredient that kills coronavirus that causes Covid-19. It complies with the standards of the World Health Organization (WHO) and the United States Environmental Protection Agency (USEPA).

According to Professor Dato' Ts. Dr. Zularisam, Diaclean is initially used to clean and sterilise synthetic kidney filter and hemodialysis machines in dialysis centres that help patients to get dialysis service in 50 dialysis centres across the country.

"The application of Diaclean has been extended as a disinfectant spray for general disinfection of factories, universities and housing.

"Currently, many chlorine-based disinfectants are used containing sodium hypochlorite, sodium chlorite, chlorine and sodium dichloroisocyanurate, which can damage due to rusting, irritating and contaminating the environment.

"The active chlorine that reacts with organic materials in the environment can create carcinogenic byproducts such as trihalomethane and haloacetic acids (HAAs).

“The use of chemicals such as benzalkonium chloride, chloroxylenol and chlorhexidine, which are classified as low-level disinfectant level (LLD), is not as effective to kill most microorganisms, especially coronavirus,” he said.

He added that apart from being inorganic, these disinfectants remain in the environment as residuals that are difficult to be degraded or stabilised naturally.

“With low effectiveness and high cost, these inorganic disinfectants are believed to create not environmentally friendly byproducts that are irritating and cause harm to operators and users.

“There are also highly effective high-level disinfectants (HDL) such as hydrogen peroxide and aldehydes, but the active ingredients are corrosive, smelly, costly and carcinogenic, as well as affect the respiratory system,” he said.

Diaclean product has JAKIM halal status. It is registered under the Medical Device Authority (MDA), meets the requirement in the third schedule of Medical Device Regulation 2012 by TUV SUD Malaysia and complies with the ISO13485 (International Quality Management System for Medical Device) standard.

This disinfectant is produced by UMP Renal Care Sdn. Bhd., a UMP spin-off company, in 2008, and it is commercially marketed since 2014.

In the meantime, several Covid-19 infected areas had been disinfected following the procedures established by the Ministry of Health (MOH).

UMP also carried out disinfection operations in several locations within the campus to ensure the campus areas are free from the spread of the outbreak.

The disinfection operations were performed within the campus areas by a subsidiary of UMP Holdings Sdn. Bhd., UMP Services that used Diaclean Pera Sterilant.

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