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Verification of inhibitory effect of hydroxyl radicals contained in water (nano-sized electrostatic atomized water particle) on novel coronavirus (SARS-CoV-2)

Osaka, Japan – Panasonic Corporation today announced that, in collaboration with Mayo Yasugi, Associate Professor, Department of Veterinary Science, Graduate School of Life and Environmental Sciences, Osaka Prefecture University, it has verified the inhibitory effect of the hydroxyl radicals contained in water (nano-sized electrostatic atomized water particle) on the novel coronavirus (SARS-CoV-2).

Hydroxyl radicals contained in water are particulate ions containing hydroxyl radicals that are generated by applying a high voltage to moisture in the air. They are characterized by being strongly oxidative and highly reactive. Panasonic has been conducting research on this technology over the past 20 years since 1997, and has verified its effectiveness in a variety of areas, including inhibiting pathogenic microorganism (bacteria, fungi, and viruses) and allergens, breaking down PM 2.5 components that have adverse effects on the human body*1.

In 2012, Panasonic conducted a virus clearance test with a third-party organization and confirmed the effectiveness of each of the 4 categories in terms of biological characteristics. Based on this result, Panasonic announced that "hydroxyl radicals contained in water" technology could be expected to have an inhibitory effect on new viruses*2.

The novel coronavirus (SARS-CoV-2) of the current global pandemic is one such new type of virus, and testing with Osaka Prefecture University has now confirmed that the hydroxyl radicals contained in water does have an inhibitory effect on this virus. This testing was carried out in a closed laboratory environment, and was not designed to assess its efficacy in uncontrolled living spaces.

Panasonic will continue to pursue the potential of "hydroxyl radicals contained in water" technology to address possible risks associated with air pollution such as new pathogenic microorganisms, with the aim of creating healthy environments for people around the world.

For reference :

Testing of inhibitory effect of hydroxyl radicals contained in water (nano-sized electrostatic atomized water particle) on the novel coronavirus (SARS-CoV-2)

•Overview

A comparative verification was conducted in a 45L test space containing the novel coronavirus (SARS-CoV-2) with and without exposure to hydroxyl radicals contained in water.

•Results

Over 99% of novel coronavirus (SARS-CoV-2) activity was inhibited within 3 hours.

Note: This verification was designed to generate basic research data on the effects of hydroxyl radicals contained in water on the novel coronavirus in laboratory conditions different from those found in living spaces. It was not designed to evaluate product performance.

•Methodology and data

Organization:Osaka Prefecture University

Period:July, 2020

Subject:Novel coronavirus (SARS-CoV-2)

Device:"Hydroxyl radicals contained in water" generator

Method:

- "Hydroxyl radicals contained in water" generator is installed at 15cm from the floor in the 45L test space.
- A piece of gauze inoculated with the virus solution was placed in a petri dish and exposed to "hydroxyl radicals contained in water" for a predetermined time.
- The virus infectious titer was measured and used to calculate the inhibition rate.
- The same test was performed 3 times to confirm reproducibility.

•Results data

Test subject		Hours	Inhibition rate*
SARS-CoV-2	First time	3 hours	99.7%
	Second time	3 hours	99.9%
	Third time	3 hours	99.9%

*Panasonic's calculation

Notes:

*1: Main releases on verification cases

- May 12, 2009:Positive effects of charged water particles on viruses, bacteria, and agricultural chemicals have been verified.
- October 20, 2009: The new influenza virus inhibition effect of charged water particles has been verified.
- February 20, 2012:Supression effect of charged water particles on pet-related allergens, bacteria, fungi, and viruses have been verified.
- January 16, 2014:Nano-sized electrostatic atomized water particles effectively breaks down PM2.5 components and inhibits growth of fungi attached to Yellow Sand.

*2: January 26, 2012: Virus suppression effect of charged water particles has been verified by the virus clearance test. Co-verified with Charles River Biopharmaceutical Services GmbH, a German testing organization.

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About Panasonic

Panasonic Corporation is a worldwide leader in the development of diverse electronics technologies and solutions for customers in the consumer electronics, housing, automotive, and B2B businesses. The company, which celebrated its 100th anniversary in 2018, has expanded globally and now operates 528 subsidiaries and 72 associated companies worldwide, recording consolidated net sales of 7.49 trillion yen for the year ended March 31, 2020. Committed to pursuing new value through innovation across divisional lines, the company uses its technologies to create a better life and a better world for its customers. To learn more about Panasonic:<https://www.panasonic.com/global>.

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