

# AVIVE™ Water Productivity Programs

## Antibacterial Properties and Mechanism of Activity of a Novel Silver Stabilized Hydrogen Peroxide

Conducted by Martin, Bass and Liss

### THE STUDY

Conducted at Queen's University in Kingston, Ontario in 2015, the Study's experiments looked at the ability of Huwa-San® Peroxide (HSP) to kill bacteria in water. The experimental results gave insight into the utility of HSP in primary water disinfection. HSP was compared to standard hydrogen peroxide and sodium hypochlorite (NaOCl).

The full Study is available through PLoS One at [doi:10.1371/journal.pone.0131345](https://doi.org/10.1371/journal.pone.0131345).

### HUWA-SAN® PEROXIDE

HSP is a new generation of hydrogen peroxide stabilized with ionic silver. Hydrogen peroxide is a naturally occurring molecule that breaks down into oxygen and water.

- HSP is organic and food safety certified (EcoCert and NSF Standard 60)
- HSP is biodegradable and environmentally friendly



### THE STUDY FOUND THAT HSP HAD PROVEN VALUE AND EFFECTIVENESS IN...

#### KILLING BACTERIA

To determine the bacteria-killing effectiveness of the three solutions, E. coli samples were dosed with 20 ppm (active) of HSP, standard hydrogen peroxide, and NaOCl at pH values of 7 and 8.5. Contact/kill time results show HSP is as effective as NaOCl at pH 7, and more effective at pH 8.5. HSP was more effective than HP in all cases.

#### INHIBITING OVERNIGHT BACTERIA GROWTH

The minimum inhibitory concentration (MIC) is the minimum concentration of disinfectant required to inhibit the overnight growth of bacteria. The experiment showed HSP to be equally or more effective than standard hydrogen peroxide and more effective than NaOCl at inhibiting bacterial growth. Far lower concentrations of HSP were required to inhibit bacterial growth versus NaOCl, suggesting that HSP may be better suited than NaOCl at maintaining low bacteria counts.

#### REFERENCE

N. L. Martin, P. Bass and S. N. Liss, "Antibacterial Properties and Mechanism of Activity of a Novel Silver-Stabilized Hydrogen Peroxide," PLoS ONE, vol. 10, no. 7, 2015.



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The Company is known for innovation in natural and sustainable technologies.

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