

Summarized By:
Beining Ouyang, South China University of Technology, 23 April 2020
University publication summary

Paper Title	Microorganism	Substrate	Max. Log Reduction	Link
Effect of pulsed xenon ultraviolet disinfection on methicillin-resistant <i>Staphylococcus aureus</i> contamination of high-touch surfaces in a Japanese hospital	<i>Staphylococcus aureus</i>	High-touch surfaces in a Japanese hospital	Decreased MRSA abundance by 72.1% compared with manual cleaning	Click here
The effect of Pulsed Light and starch films with antimicrobials on <i>Listeria innocua</i> and the quality of sliced cheddar cheese during refrigerated storage	<i>Listeria innocua</i>	Cheddar cheese surface	4.5 log CFU reduction	Click here
Efficacy of pulsed-ultraviolet light for inactivation of <i>Salmonella</i> spp on black peppercorns	<i>Salmonella</i> spp	Black peppercorns	80 pulses on each side was able to reduce <i>Salmonella</i> by 1.9 log CFU/g;	Click here
Inactivation of <i>Escherichia coli</i> K-12 in Liquid Egg White By a Flow-through Pulsed UV Light Treatment System	<i>Escherichia coli</i> K-12	Liquid egg	1.57 log CFU/mL at 40 mL/min flow rate and a 5-cm distance	Click here
Inactivation of <i>Staphylococcus aureus</i> and <i>Escherichia coli</i> O157:H7 on fresh kashar cheese with pulsed ultraviolet light	<i>Staphylococcus aureus</i> <i>Escherichia coli</i> O157:H7	Fresh kashar cheese	After 45 s–13 cm treatment (~44 J/cm ²) yielded about 1.62 and 3.02 log ₁₀ reductions (cfu/cm ²) for <i>S. aureus</i> and <i>E. coli</i> O157:H7	Click here
Comparison of pulsed light inactivation kinetics and modeling of <i>Escherichia coli</i> (ATCC-29055), <i>Clostridium sporogenes</i> (ATCC-7955) and <i>Geobacillus stearothermophilus</i> (ATCC-10149)	<i>Escherichia coli</i> ; <i>Clostridium sporogenes</i> ; <i>Geobacillus stearothermophilus</i>	Liquid media	12-15 pulses achieved a minimum 4 log reductions in the populations of all three microorganisms on the top tray at doses still below 12 J/cm ² , the FDA-approved limit.	Click here
Intense Pulsed Light Decontamination of Dairy Powders: Effects on <i>Bacillus cereus</i> and <i>Bacillus licheniformis</i> Spores, and Dairy Powder Functionality	<i>Bacillus cereus</i> ; <i>Bacillus licheniformis</i> spores	Milk powders	For 30, 60 and 120 s treatment, log reduction vary from 0.01-0.80 log reduction	Click here
High-Intensity Light Pulses To Inactivate <i>Salmonella</i> Typhimurium on Mexican Chia <i>Salvia hispanica</i> L.) Seeds	<i>Salmonella</i> Typhimurium	Seeds	8 s of treatment (10.32 J/cm ²) resulted in a 9-log reduction during in vitro tests, and 15 s of treatment (19.35 J/cm ²) resulted in a 4-log reduction on the inoculated chia seeds.	Click here
Inactivation of <i>Salmonella</i> Enteritidis on Almonds by Pulsed Light Treatment	<i>Salmonella</i> Enteritidis	Almonds	Almonds treated with 3800V at 14.1 cm distance for 60 s resulted in a reduction by 4.14 log CFU/almond	Click here

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Light based technologies for microbial inactivation of liquids, bead surfaces and powdered infant formula	<i>B. subtilis</i> spores	Powdered infant formula	>99%	Click here
Assessing pulsed light treatment on the reduction of aflatoxins in peanuts with and without skin	aflatoxins	Peanuts	Results of with-skin and without-skin peanuts showed 82% and 91% aflatoxin(s) reduction, respectively.	Click here
Effects of intense pulsed light on <i>Cronobacter sakazakii</i> inoculated in non-fat dry milk	<i>Cronobacter sakazakii</i>	Non-fat dry milk	A synergistic effect of pulsed light and temperature of $\sim 57.5 \pm 0.7$ °C exhibited maximum inactivation of 3.18 log₁₀ CFU/g for <i>C. sakazakii</i> with 28s treatment time	Click here
Comparison of UV-C and Pulsed UV Light Treatments for Reduction of <i>Salmonella</i> , <i>Listeria monocytogenes</i> , and <i>Enterohemorrhagic Escherichia coli</i> on Eggs	<i>Salmonella</i> , <i>Listeria monocytogenes</i> , and <i>Enterohemorrhagic Escherichia coli</i>	Egg shell	When <i>Salmonella</i> was stacked on a small area or shielded in feces, the pulsed UV light seemed to have a higher penetration capacity and gave higher bacterial reductions.	Click here

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- Hospitals
- Laser Robotics
- Food Processing
- Food Enhancement
- Airports
- Solar
- Optical Disc
- And Growing

Pulsed UV Light is FDA and EPA approved in the US