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Intelligence

# Could blue light eradicate this common pathogen that plagues food processing facilities?

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By Responsible Seafood Advocate

## Research suggests that blue light could effectively destroy *Listeria monocytogenes*, a common contaminant plaguing food processing plants

Blue light kills both dried cells and biofilms of the pathogen *Listeria monocytogenes*, a frequent contaminant of food processing facilities, according to new research.

The study, which was published in *Applied and Environmental Microbiology*, (<https://doi.org/10.1128/aem.01147-23>) found that the demise of *L. monocytogenes* occurred quickest when cells or biofilms were placed on polystyrene, a widely used, transparent form of plastic.

“These results contribute to advancing our understanding of the potential of blue light to treat inert surfaces contaminated with *L. monocytogenes*,” said Dr. Francisco Diez-Gonzalez, corresponding author and director and professor at the Center for Food Safety at the University of Georgia.

Although biofilms of pathogens are generally powerfully resistant to being exterminated, the results



The research team studying antimicrobial blue light effectiveness, led by UGA Center for Food Safety Director Francisco Diez-Gonzalez, aims to deliver a new, low-cost and environmentally friendly means of enhancing food safety. Photo courtesy of the University of Georgia.

suggest that blue light could effectively destroy *L. monocytogenes*. The research team deposited liquid suspensions of mixtures of 5 strains of *L. monocytogenes* on small, sterile rectangular plates made of 6 different materials, including polystyrene, stainless steel and silicone rubber, which were then allowed to dry. The researchers also used similar plates to grow biofilms, which they also allowed to dry.



(<https://aceaquatec.com/aquaculture-products/grow/a-biomass>).

Then, they shined blue light onto the biofilms and onto the dried suspensions of cells on the plates to determine the most effective combinations of doses and wavelengths, as well as the most effective surfaces on which to extirpate the pathogens.

“The application of blue light for controlling microbial contamination has the potential to offer an additional technology that could complement existing methods for disinfecting surfaces in contact with foods,” said Diez-Gonzalez, noting that blue light has been used for disinfection in hospitals. As compared to ultraviolet light, blue light offers reduced risk for the user, he said.

**[Read the full study here \(https://doi.org/10.1128/aem.01147-23\)](https://doi.org/10.1128/aem.01147-23)**.

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