
BEAM Technologies and Tokyo University of Marine Science and Technology Expand Joint Research on Far-UVC Applications in Aquaculture ~ Safety and Efficacy Testing on Whiteleg Shrimp, and Joint Patent Application Filed ~

BEAM Technologies Inc. (Head Office: Tokyo, CEOs: Kazuki Iimura and Yuuri Itokazu, hereinafter referred to as “BEAM”) and the National University Corporation Tokyo University of Marine Science and Technology (Headquarters: Minato-ku, Tokyo, President: Toshio Iseki, hereinafter referred to as “TUMSAT”) are pleased to announce the expansion of their joint research on the application of Far-UVC (deep ultraviolet light with a wavelength of 200–230nm) in aquaculture, which began last year (2024). This year, both parties have started safety and efficacy testing on *Litopenaeus vannamei* (whiteleg shrimp).

Since 2024, both parties have been conducting research focusing on the microbial inactivation capabilities of Far-UVC, examining its effects on pathogen control in aquaculture environments and on aquatic organisms. As a result of this collaboration, BEAM and TUMSAT have jointly filed a patent related to the application of Far-UVC in aquaculture, accelerating the path to practical implementation.

*Joint research projects: 2024 "Growth study on light irradiation test of Vannamei shrimp", 2025 "Growth study on Far-UVC irradiation test of Bannamei shrimp"

Background of the joint research

In recent years, with increasing awareness of the Sustainable Development Goals (SDGs) and from the perspective of food security, the importance of aquaculture has grown. However, disease outbreaks in aquaculture farms remain a significant challenge, leading to reduced productivity and economic losses. There is a demand for disease countermeasures that are less reliant on traditional pharmaceuticals and have a lower environmental impact. Far-UVC technology, with its high safety and powerful sterilizing capabilities, is drawing attention as a new solution.

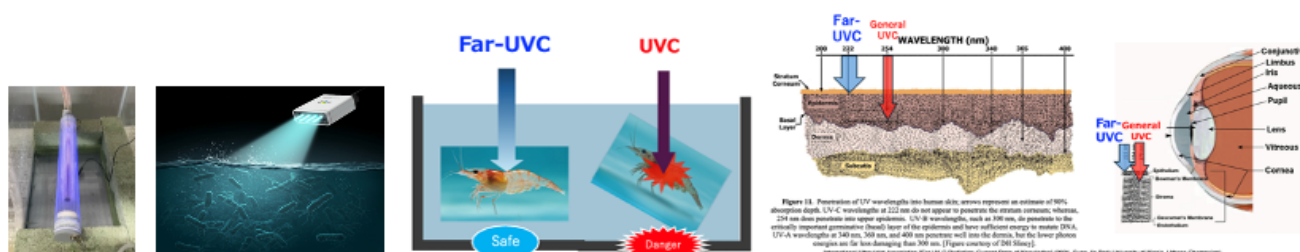
Unlike conventional UV-C (254 nm wavelength), Far-UVC has the characteristic of not easily penetrating deep into human or animal skin, making it highly safe for living organisms. Leveraging this characteristic, it is expected to directly sterilize water and equipment in aquaculture environments, thereby suppressing the proliferation of pathogens and contributing to the health maintenance of aquatic organisms.

Details of the Joint Research

This year's joint research will target white leg shrimp, which are widely farmed domestically and internationally. The study will conduct detailed verifications of the effects of Far-UVC irradiation on the

physiological functions, growth, immune functions, and disease resistance of white leg shrimp. Specifically, the following items will be emphasized:

1. Safety Evaluation of Far-UVC: Detailed observations will be made on the survival rate, behavior, and histological changes of whiteleg shrimp to evaluate the safety of long-term irradiation.
2. Verification of Disease Prevention Effects: Far-UVC will be irradiated in environments where specific pathogens (e.g., EMS-related bacteria, White Spot Syndrome Virus) have been introduced to verify its effectiveness in suppressing disease incidence.
3. Verification of Growth Promotion and Feed Efficiency Improvement Effects: The effects of Far-UVC irradiation on the growth rate and feed conversion ratio of whiteleg shrimp will be evaluated.
4. Verification of Water Purification Effects: The effect of Far-UVC on reducing bacterial counts and suppressing algae in aquaculture water will be evaluated to verify its contribution to improving the aquaculture environment.



About the Joint Patent Application

BEAM and Tokyo University of Marine Science and Technology (TUMSAT), focusing on the potential of Far-UVC technology in the aquaculture sector, jointly filed a patent application for its application in 2025. This patent establishes the technological foundation for safely and effectively introducing Far-UVC into aquaculture environments, and the results of this research will further substantiate its effectiveness.

Future Outlook

Through this collaborative research, BEAM and Tokyo University of Marine Science and Technology (TUMSAT) aim to explore the full potential of Far-UVC technology in contributing to the development of sustainable aquaculture. The knowledge and technologies gained from this research are expected to be applicable not only to whiteleg shrimp but also to other fish and shellfish species.

By leveraging their jointly filed patent, both parties will continue promoting the development and practical implementation of innovative aquaculture systems using Far-UVC, supporting a stable supply of marine resources and enhancing food safety and security.

Inquiries from < media personnel >

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