Application of probiotics mitigates acute hepatopancreatic necrosis disease in shrimp

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Video Byte

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Abstract

Acute hepatopancreatic necrosis disease (AHPND) is an important bacterial disease of shrimp caused by some *Vibrio* species and has severe negative impacts on shrimp aquaculture globally. Antibiotics are commonly used prophylactically against such diseases but can cause bacterial antibiotic resistance and microbiome impairment. Given the risk of antibiotics to human and environmental health, the application of probiotics is a promising approach, but whether these probiotics affect the shrimp gut microbiome remains unknown. Recently, researchers examined how the shrimp gastrointestinal microbiota responded to the ILI strain, a *Vibrio* strain that also serves as an effective shrimp probiotic. The ILI strain was effective not only in preventing AHPND and promoting shrimp survival but also in maintaining a healthy gut microbiome. In addition, although the ILI strain probiotic could receive virulence genes from the AHPND-inducing *Vibrio* species, no resulting pathogenicity was observed, indicating that other pathogenicity-causing genetic components are lacking in the ILI strain. The results indicate that the ILI strain probiotic can control pathogenic bacterial populations in the host gut, promoting shrimp survival, and have important implications for the effective use of probiotics in the sustainable development of shrimp aquaculture.