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Health & Welfare

Single genetic test can now identify all strains of fish virus ISKNV

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By Responsible Seafood Advocate

Infectious spleen and kidney necrosis virus threatens fisheries and aquaculture but one test can now identify all three ISKNV variants

Scientists at the University of Sydney (Australia) and the University of Florida (USA) have developed a new genetic test for the infectious spleen and kidney necrosis virus (ISKNV) that is deadly in fish, affecting aquaculture and ornamental fish varieties worldwide.

ISKNV has three known variants but validated tests to identify the virus only pick up two of these variants. The study, published in ***PLOS One (https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0281292)***, demonstrates a single test for all three genomic variants of the virus, which can kill 50 to 100 percent of fish infected.

The third variant – known as TRBIV – is an emerging pathogen and causing fish deaths in barramundi farms in Southeast Asia. While the disease caused by the virus is reportable to the World Organisation for Animal Health (WOAH), TRBIV is not included in the WOAH testing requirements.

“The emerging TRBIV variant is a risk to the Australian barramundi industry,” said Joy Becker,

The ISKN virus has been detected in farmed barramundi in Southeast Asia. Stringent testing is needed to keep it from spreading to other areas, such as Australia. Credit: Shutterstock.

corresponding author of the paper and an associate professor at the School of Life and Environmental Sciences at the University of Sydney. “Our new diagnostic test is the most advanced in addressing WOAH requirements for test validation. It can detect all three variants of the virus with very high sensitivity and specificity. Once validated, we expect this diagnostic test will help keep this exotic virus out of Australia.”

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While ISKNV has not been detected in wild fish stocks in Australia, it is regularly detected in ornamental fish in quarantine at the international border and in retail pet shops, according to the Australian Department of Agriculture.

“Exotic disease incursions are one of the biggest risks for our wild and farmed fish,” said Becker. “The ISKN virus, which now includes the TRBIV variant, is a risk to Australian species, including barramundi and Murray cod. Our diagnostic test is designed to detect all three variants and provides the stringency we need to uphold Australia’s world-class biosecurity.”

Read the full study here (https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0281292).

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