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No proof garlic treats KHV in fish'

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Larry Ralon

KOTA KINABALU: Claims that garlic can treat Koi Herpesvirus (KHV) infection in pelian fish are not supported by scientific evidence, according to experts from the Borneo Marine Institute (BMI), Universiti Malaysia Sabah (UMS).

Associate Professor Dr Mohammad Tamrin Mohamad Lal stressed that, to date, no studies have shown that the natural substance can cure viral infections in fish, particularly in natural habitats such as rivers.

"Currently, there is no scientific evidence showing that garlic can treat or cure KHV infection in fish. Although natural substances like garlic have been studied for improving fish health or resistance in aquaculture, they cannot be regarded as a treatment for this virus, especially in natural environments such as rivers," he said.

The view was supported by Senior Lecturer Dr Rafidah Othman, who emphasised the importance of relying on evidence-based approaches in addressing fish disease outbreaks.

They were responding to the use of garlic as a traditional remedy by the Kampung Luanti Baru Tagal community in Ranau to treat pelian fish affected by a KHV outbreak, which the community claimed had shown some improvement.

Approximately 1,000 kilogrammes of pelian in the tagal were reported to have died as a result of the outbreak.

Commenting on the situation, the experts said the spread of KHV in several rivers in Sabah is considered a significant localised outbreak, as it has caused large-scale fish deaths, including the local species pelian (*Tor spp.*).

However, they said the outbreak remains confined to certain areas and there is no evidence of widespread transmission across the entire river system or to other regions.

"At present, it is still contained within specific areas and has not shown evidence of widespread transmission across the entire aquatic system or to other regions, and it is being closely monitored by the authorities.

"Nevertheless, the situation requires continuous monitoring and strengthened biosecurity measures without causing undue public alarm," they said.

From a scientific perspective, they explained that KHV does infect species within the Cyprinidae family, including pelian, but there is no strong evidence indicating that pelian are inherently more susceptible than other species in the same group.

They noted that the high mortality observed is likely influenced by environmental factors such as stress, water temperature and levels of viral exposure, rather than species susceptibility alone.

"What is important now is that further studies are needed to determine whether pelian are indeed more susceptible, or whether environmental factors are the main cause, so that premature conclusions are avoided," they said.

On the persistence of the virus, they explained that KHV can survive in river environments despite continuous water flow because it can attach to infected fish as well as materials such as mucus or organic matter in the water.

This allows the virus to be carried and infect other fish, particularly when water conditions are favourable, such as higher temperatures.

They said changes in water temperature and dry seasons play a crucial role in activating the virus.

"Temperature and drought are not merely contributing factors, but can act as primary triggers for increased KHV infections.

"The virus spreads more easily in warmer temperatures, while low water levels and environmental stress during dry periods can weaken fish immunity," they said, adding that the virus is active within a temperature range of 18 to 28 degrees Celsius.

Meanwhile, they did not rule out the possibility that koi fish released into rivers, including during floods, could contribute to the spread of the virus, as koi are a primary host of KHV. However, they said this cannot be confirmed as the main cause without clear scientific evidence, as transmission typically involves a combination of factors.

"The spread of KHV usually involves a combination of factors such as fish movement,



Dr Md Tamrin



Dr Rafidah

human activities and environmental conditions. What is important is to prevent the release of non-native fish into rivers and to strengthen biosecurity controls," they said.

For early detection, they recommended molecular monitoring methods such as PCR testing of water samples, combined with periodic sampling of wild fish showing early signs of disease, as this enables detection before mass mortality occurs.

On control and treatment, they emphasised that there is currently no specific treatment proven effective in controlling KHV directly in natural habitats such as rivers.

Instead, the main approach is prevention through biosecurity management, early monitoring and reducing environmental stress factors, while vaccines are generally developed for aquaculture use and are not practical in open waters.

In terms of recovery, they said pelian fish populations may take several years to recover depending on the severity of the outbreak and habitat conditions, as the species has a relatively slow growth rate.

"Even if the outbreak is controlled, recovery will not be immediate and requires stable river conditions and continuous management. Recovery may be accelerated if habitats are protected and pressures on fish populations are reduced," they said.

They also stressed the need for ongoing monitoring to screen for the presence of KHV in river fish populations over time, warning that if not effectively contained, the outbreak could have long-term impacts on biodiversity, including reduced populations of local species and disruption of river ecosystems.

They proposed a comprehensive approach involving clear policies, consistent enforcement and public education, including controlling the movement and release of non-native fish, enhancing field monitoring and educating communities on disease risks.