Scientists trying to rear cockles free of Hepatitis A

The shellfish will be cultivated alongside fish vaccinated against virus

By Feng Zengkun

A new project could put cockles that are free of the hepatitis virus on the plate.

Scientists are exploring ways to make the popular shellfish - used in dishes like char kway teow - free from the hepatitis A virus, which attacks the liver and causes nausea, vomiting and fatigue.

"The key to this? Fish.

Researchers at the Tropical Marine Science Institute at the National University of Singapore (NUS) believe that cockles should be cultivated alongside fish such as seabass. Their theory is that fish infected with a vaccine against the hepatitis virus will create antibodies which secrete into the water.

"The cockles may then absorb the antibodies, giving them protection against the virus.

Professor Lam Toong Jin, an NUS emeritus professor in the biological science department who is leading the project, noted that many people love cockles.

"The trouble is, we love to eat them half-cooked so they are more juicy," he said. This increases the risk of catching the virus.

His team's eventual goal is to build a land-based pilot farm to rear these virus-free cockles. This would avoid potentially polluted natural waters.

The research, which started late last year, will take three years to complete. This is because the researchers have to find out the correct vaccine dosage to use, the right ratio of fish to cockles, how long the fish will keep producing antibodies to determine when booster vaccine shots should be given, and whether they can keep the cockles virus-free.

"If the project is successful, it could be expanded to other shellfish such as oysters which may also carry the virus, said Prof Lam.

Hepatitis A is painful to the sufferer but rarely fatal, and most people recover within six months. In Singapore, fewer than one in 100,000 people suffered from it in 2010, but there were spikes in the number of cases in 1992 and 2002.

The majority of the infections here are caused by people eating raw or partially cooked cockles with the virus.

Prof Lam said the rate of infection here could be lower than before due to younger generations staying away from the shellfish for health reasons.

He said the cockles cannot be injected with the vaccine directly because they do not produce antibodies themselves.

"Even if the cockles are not protected by the antibodies from the fish, they would be more healthy if they were reared in the controlled environment of a farm, he said.

He added that the team would approach aquaculture companies and investors if the research is successful. The $1 million research project is financed by the Singapore Millennium Foundation, which is funded by the Temasek Trust, the philanthropic arm of Temasek Holdings.

Some diners go for the raw deal

Singaporeans are not called foodies for nothing - they will readily eat cockles, even though the shellfish has earned a bad name for being a hepatitis A carrier.

Hawkers who sell laksa and char kway teow - which typically come with cockles - say the popularity of the shellfish has not diminished over the years, despite health concerns.

"Only about 10 per cent of my customers will say 'mai ham' (no cockles), while most will eat it anyway. Some 25 per cent of them will even ask for raw cockles," said Mr Yousuf Pang, 63.

He has been operating Lucky Char Kway Teow for the past six years, with his current stall at Old Airport Road Food Centre.

"Diners say they are aware of the risk, but do not think much of it as they do not eat cockles every day.

"I eat it only three times a year, if I'm feeling in moderation, the chance of contracting hepatitis A is low," said Mr Harley Tay, 48, an operations supervisor.

"I said another diner, Mr Edmund Tan, 33, a logistics officer: "I believe that the Agri-Food & Veterinary Authority will conduct checks to make sure cockles are safe to eat.

"328 Katong Laksa's manager Roy Lim, 40, said his restaurant serves only cooked cockles. "As long as they are cooked, there's no problem," he said.

"Still, there are some who crave for cockles for fear of the health risks involved. I said 21-year-old student Leonard Ong: "I like seafood, especially cockles. I'm still young. I'll probably watch what I eat five to 10 years from now."

Amelia Tan Hui Fang, Chow Jia Ying

Why cockles tend to carry virus

COCKLES belong to a family of shellfish called bivalves, so-called because they have two shells hinged together. Other bivalves include oysters and mussels.

They are popular among Singaporeans, but they can also carry the hepatitis A virus, which attacks the liver but is rarely fatal.

Bivalves have a higher risk of being infected with the hepatitis A virus because they feed on particles absorbed from water. This includes fecal matter which may carry the virus.

After the shellfish absorb the particles, any virus is concentrated in their tissues, which makes them especially effective carriers of the disease.

Cockles are more vulnerable to the virus because they are traditionally harvested from the wild, where there may be more fecal matter. Farmers usually do not rear cockles because they are considered too low-value, unlike other shellfish such as oysters.

Singapore imports most of its cockles from Malaysia, with a small portion coming from other countries such as France and Japan.

In the past three years, the Republic has imported about 3,000 tonnes of the shellfish each year, said the Agri-Food and Veterinary Authority.

These are usually eaten raw or half-cooked in dishes such as laksa and char kway teow.

Methods of removing the virus from the shellfish include placing them in clean waters. Their digestive system will eventually purge the virus.

Cooking the shellfish thoroughly also kills the virus.