Growing seafood in a lab

SUSTAINABILITY

LAB-GROWN MEAT promises many benefits for the health-conscious and ethically minded. It doesn't imply the slaughter of animals, doesn't use as many resources and fossil fuels as traditional agriculture, doesn't cause pollution from animal waste and doesn't come with doses of hormones or unwanted additives or pollutants. Many producers even claim additional benefits like freshness, higher nutritional value and affordability.

Now firms want to add lab-grown seafood to the menu. It's easy to see why. According to The State of World Fisheries and Aquaculture 2018 report published by the Food and Agriculture Organisation (FAO) of the United Nations last July, global fish production peaked in 2016, with aquaculture representing 47% of the total. Between 1961 and 2016, the average annual percentage increase in global food fish consumption was higher than that of meat.

This increase has resulted in the depletion and overexploitation of the world's fisheries and the rapid decline of commercial fish populations, not to mention the pollution caused by fishing fleets and damage done to populations of dolphins, sharks and corals from inefficient and/or illegal fishing practices. Health-wise, the average consumer has already been made wary of the rising mercury levels found in seafood, and in Asia, we've long been battling food labelling issues and traceability.

Cellular seafood companies aim to solve all these problems. US-based startup Finless Foods is growing high-quality fish cells to replace the meat from endangered bluefin tuna. At the time of writing, they are close to having their product available for public consumption but are awaiting all-important regulatory approval.

In Asia, Avant Meats is a Hong Kong-based startup growing fish maw from the swim bladder cells of other species to replace that currently taken from endangered totoaba, and Shiok Meats from Singapore is currently developing crustaceous meat by isolating stem cells and growing them into animal parts like connective tissue, muscle and fat.

Sandhya Sriram, CEO & Co-founder of Shiok Meats, says, "We targeted to make clean crustacean meat that is animal-, health-, and environment-friendly. Currently, we are working with a minced shrimp product that can be incorporated into dishes like dumplings."

Both companies face similar challenges to their US counterparts: bringing down the cost to make it affordable, and working with regulators in this very new field of food production. Sriram says Shiok is "about three years away from [achieving] an actual shrimp in form and texture." According to Carrie Chan, CEO and Co-founder of Avant Meats, they will have tasting prototypes ready in months, after which they are allocating two years to R&D and then early-stage commercialisation for another one-two. "Product launch is currently targeted for 2023/2024," she says.

While Sriram claims that cell-based meats have the same taste and smell, "engineering is required to get the texture right and clean meats companies like us are all working towards that." Chan admits, "As a totally novel product, there may be a psychological barrier for some consumers to switch to the cell-based version." Apart from lowering costs, she wants to further motivate consumers, with "tasty, better value-for-money products that are cleaner, safer and are produced in a more sustainable way. We want to make the switch a no-brainer." – *Mavis Au-Yeung*