

S'pore culinary school serves gourmet meals made from food waste

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SINGAPORE - When Dr Kwan Lui, founder and director of home-grown culinary school At-Sunrice GlobalChef Academy, announced plans to organise paid dinners whipped up with upcycled ingredients early last year, many were sceptical.

Food upcycling - a hot trend which surfaced last year and which involves repurposing food waste into edibles - is cost-effective and earth-friendly, but who would shell out money to feast on food scraps?

But one year on, Dr Kwan's dinner event, named WellSpent Evening, has become a monthly affair and she has since hosted 10 of them. Each instalment, which has a different theme, also features a produce market, workshops and high tea.

Prices range from \$78 to \$128 a person for a six-course meal. On a good night, the event can attract up to 150 paying guests.

When The Straits Times attended the most recent edition last Sunday (March 13), there were 55 diners - half of whom were invited guests.

A six-course British-themed dinner, priced at \$78 a head, was served. Dishes resembling elevated British pub grub - such as scotch egg, fish and chips and lamb saddle - were made from, but not limited to, crustacean shells, eggshells, fruits and vegetable peels as well as by-products of the brewing process like spent coffee and tea leaves.

When the dishes were whisked to their tables by first-year culinary students, diners were drawn into a game of "guess the upcycled ingredient".

For instance, the scotch egg - traditionally swaddled in meat and bread crumbs - was coated in spent coffee grounds, imparting subtle and smoky flavours. The lamb saddle was roasted with moromi, the waste from soya sauce production that is lower in sodium content. Swimming inside the brown sauce of dark ale and moromi, the mound of meat was an umami bomb.

Do not call Dr Kwan, 70, a mad genius. The savvy Burma-born Chinese entrepreneur, who moved to Singapore in 1973 and started food businesses, is driven by a higher purpose.

"I thought it would be a very impactful mission for our students. They buy, cook, serve and waste. By advocating upcycling, I could connect the other half of the circle, making it a circular economy," the Singapore permanent resident said in an interview with news website Rice Media last year.

The idea was planted in her head in 2017, after she attended the Worldchefs Congress in Thessaloniki, Greece.

There, she met Professor Herve This, considered the father of molecular gastronomy, and learnt about the French physical chemist's radical approach to cooking using science.

The process, called Note-to-Note, involves stripping each ingredient to its basic flavour and colour compound before reconstituting it to form a new dish. It has been touted as the future of food because it can feed more people, prevent food spoilage and save energy.

But it was not until she came upon an article on food upcycling that Dr Kwan, who founded At-Sunrice in 2001 after selling her food businesses, decided to use the knowledge gained from Prof This' teachings and philosophies to repurpose food waste at the academy a year ago.

At least 50kg of raw spent produce is upcycled at each WellSpent event.

Dr Kwan notes that the experience has been eye-opening for everyone involved.

"Our guests come from all walks of life. They're often surprised that dishes created by our team of R&D chefs using upcycled ingredients are not only tasty, but also good for the gut and great for the earth," she says.

"They're also astounded by how much waste food factories produce and our WellSpent events drive them to find ways to upcycle at home."

Upcycle food for hunger relief

World hunger is a growing problem, affecting about 10 per cent of people globally, yet 931 million tonnes of food waste was generated in 2019, said a 2021 report by the United Nations.

According to figures from the Ministry of Sustainability and the Environment, Singapore generates about 744 million kg of food waste annually in 2019 - equivalent to two bowls of rice a person a day. The amount of food waste generated has also grown by around 20 per

cent over the last 10 years.

Food industry players and non-profit organisations globally are turning to upcycling to tackle the problem.

In Singapore, there are several commercial start-ups dedicated to doing so - including home-grown beverage companies Crust (which produces artisanal beers made from surplus bread and peels) and Imperfect Drinks (which turns "ugly" fruits and vegetables into juices).

At-Sunrice, it took months of trial and error before the team - which included two of the school's most experienced chefs, head of research and development Kelly Lee, and food technologist Tais Berenstein - was able to transform the waste into food that was not just safe to eat but also delicious.

The inaugural WellSpent Evening was held in March last year.

The star ingredient then was okara, soya bean pulp that is discarded during the production of tofu and soya milk. It was turned into noodles and even a French pastry.

WellSpent Evening sessions are part of At-Sunrice's Sunday Luxe Series, which also hosts events dedicated to sustainable seafood and ethnic cuisines.

The school also partnered the Asian Microbiome Library recently to gain a deeper understanding on the nutritional value of the spent ingredients.

Dr Kwan says: "For instance, one gram of an eggshell contains 367 times more calcium than one gram of fresh milk. Yet, we are tossing it out.

"Coffee grinds also help to grow anti-obesity bacteria in our gut. Brewers' spent barley has three times more protein than raw barley - it is good for gut health and perfectly suitable for upcycling."

Some challenges, like sourcing for ingredients, remain.

"Food factories in Singapore are used to discarding their side streams into the incinerator or sending them to Malaysia as livestock feed," says Dr Kwan.

"There are also many manufacturers who have already invested in food digesters to break down the waste and discard it into the water system. Such automation will deter them from collecting the food waste to upcycle within their premises or to partner us."

Meanwhile, she will continue to dish out her upcycled dinners.

The event last Sunday was attended by the likes of Professor Peter John, vice-chancellor and chief executive of the University of West London (UWL), and British High Commissioner Kara Owen.

Impressed by Dr Kwan's vision, UWL is collaborating with At-Sunrice on upcycling initiatives in Singapore and Britain.

The latter generates 15 times more food waste than Singapore, and under this partnership, UWL students will learn about the commercial processes of upcycling from At-Sunrice.

When dessert - a berry-crowned meringue made partially with eggshells - was served, the guests raved over the tantalising combination of sweet and sour.

Dr Kwan beamed with pride as another dinner was done and dusted.

• **The next WellSpent Evening, which has an Easter theme, is on April 10. For more information, go to the [At-Sunrice Global Academy website](#).**

Waste not, want not

According to At-Sunrice GlobalChef Academy, here are some common types of food waste that can be turned into edibles.

Eggs

About 2.21 billion eggs were consumed in Singapore in 2020. The eggshells are usually tossed out, but one gram of an eggshell contains 367 times more calcium than one gram of fresh milk.

Fruit and vegetable peels

Peels are minimally processed and are rich in fibre, vitamins, minerals, antioxidants as well as essential oils. Up to 68 per cent of fruits and vegetables are discarded based on "best before" dates.

Spent tea

One bubble tea outlet discards up to two tonnes of spent tea each year, but this waste - a by-product of the tea-brewing process - is high in fibre, antioxidants and polyphenols, or naturally- occurring micronutrients.

Okara

This is the residue produced by tofu and soya milk factories. One tofu factory in Singapore can produce up to 300 tonnes of waste a month. Okara is gluten-free, vegan and a great source of pre-biotic fibre after fermentation.

Moromi

One factory in Singapore generates about 90 tonnes of moromi each month. This by-product of soya sauce production is vegan and contains a lower sodium content than soya sauce.

