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Tofu production waste turned into healthy probiotic drink by NUS food scientists

Doctoral student Vong Weng Chan (left) and Associate Professor Liu Shao Quan from the National University of Singapore are behind a healthy gut-friendly probiotic drink made from okara - the waste of soy milk and tofu production. ST PHOTO: JOSE HONG

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Jose Hong

SINGAPORE - The residue from making soy milk and tofu, known as okara, is usually thrown away. However, food scientists here have found a way to turn it into a gut-healthy probiotic beverage.

The drink, which in its plain form has a slightly sweet and sour taste similar to sour plum, can be stored at room temperature and has a shelf life of six weeks, National University of Singapore (NUS) researchers said on Monday (Aug 27).

Project supervisor Associate Professor Liu Shao Quan said: "If refrigerated, we expect our drink to last at least three months, although we haven't yet done rigorous testing under refrigerated conditions."

Commercially available probiotic drinks, on the other hand, are mainly dairy-based and unsuitable for lactose intolerant people.

They also need to be refrigerated to keep their health benefits, and have a shelf life of around four weeks.

Probiotics are friendly micro-organisms that, when eaten in adequate amounts, give health benefits such as helping digestion and boosting immunity. They are already found in products like yogurts.

"Okara has an unpleasant smell and taste - it smells fishy, tastes bland, and has a gritty mouthfeel," said Prof Liu. "Our breakthrough lies in our unique combination of enzymes, probiotics and yeast that work together to make okara less gritty, and give it a fruity aroma while keeping the probiotics alive."

Prof Liu, who hails from the NUS science faculty's food science and technology programme, said Singapore produces around 10,000 tonnes of okara a year, of which at least 80 per cent is thrown away.

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The fermentation recipe involves adding yeast, enzymes and probiotics to the okara, and it takes around 1.5 days to produce the drink.

The creation process was patented in March, and Prof Liu and doctorate student Vong Weng Chan - who came up with the idea - are now looking for industry partners to take their beverage to the market.

He said: "We expect it to be cheaper than other commercially available products because okara is easily available... And if we find partners, we hope to see our drinks in the stores within 12 to 18 months."

Ms Vong said: "Fermented soy products, such as soybean paste and miso, are common in Asian food culture.

"During my undergraduate studies at NUS, I worked on a project to examine how soy milk can be

infused into different food items, and I realised that a huge amount of okara was being discarded. It occurred to me that fermentation can be one good way to convert unwanted okara into something that is nutritious and tastes good."

Professor William Chen, the director of Nanyang Technological University's food science and technology programme, has previously made products from okara.

He was not involved in the research but said: "This development by NUS scientists adds value to food waste management using simple fermentation technology, which can make nutrient-rich products.

"I hope that more new innovations will emerge from Singapore to reach this common goal."

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