

**Publication: Vulcan Post Online**

**Date: 31 August 2020**

**Headline: From Waste To Taste: This S'porean "Upcycles" Unwanted Soy Whey By Turning It Into Alcohol**

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One of the most common methods of producing tofu is by curdling freshly boiled soya milk, cooling it, and pressing it into a solid block.

During the pressing process to remove excess water, tofu whey is generated and is often discarded.

It has been said that one man's trash is another man's treasure, and Singapore-based SinFooTech might be the perfect example of that.

Started in 2018, SinFooTech brews unwanted soy (tofu) whey, the byproduct generated from tofu production, into alcohol.

Touted as a first in the world, the drink is said to taste like Japanese sake with a fruity and floral profile, though it is lighter at 7 per cent alcohol by volume.

In Singapore, apart from making healthier or cleaner food, some startups here such as SinFooTech have also set their sights on tackling the problem of food wastage.

### **From Waste To Taste**

In 2016, Chua Jian Yong set out to conduct research into soy whey, as part of his PhD studies at the National University of Singapore's Food Science and Technology programme.

When untreated tofu whey is discarded, it creates environmental pollution as the protein and soluble sugars in the whey could contribute to oxygen depletion in the waterways.

Given that soy whey contains high levels of calcium and soya nutrients, Jian Yong had thought it was a waste and began mulling over how the liquid can be "upcycled".

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Under the supervision of his mentor, Associate Professor Liu Shao Quan, Jian Yong and Professor Liu, who both have an interest in sustainable food production, conducted experiments into the fermentation of soy whey to determine if it could be upcycled.



He first made fresh soya milk from soybeans, and then used the soya milk to make tofu. In the course of making tofu, he collected the whey.

Sugar, acid and yeast were added to the tofu whey, and the concoction was fermented to produce the alcoholic beverage.

Jian Yong also designed a novel fermentation technique which utilises the tofu whey fully without generating any waste.

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The whole process of making the alcoholic beverage takes about three weeks.

After three months of research and trials, they perfected a technique for the bio-transformation of soy whey into a first-of-its-kind alcoholic beverage.

They subsequently gave the drink a name, Sachi, which is short for Soy Alcohol Indulgence.

He let his ex-schoolmate from junior college, Jonathan Ng, taste Sachi and the latter "was pleasantly surprised by how good it tasted".

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They often met up and shared about their interests. For Jian Yong, he has always been passionate about food sciences, especially in fermentation technologies and valorisation of food wastes.

On the other hand, Jonathan has always been into entrepreneurship, having dabbled in exotic pet sales, international trade and IT services when he was in the army.

"I would share my stories and problems about my businesses and ideas, while Jian Yong will share about new food related technologies and his samples for his project."

"I remember trying his Durian Wine samples years ago and it was so bad that I told him it's not going to work as a business," laughed Jonathan.

A few months later, Jian Yong and Jonathan co-founded SinFooTech in 2018, a Singapore-based company spun off NUS and focused on recycling waste byproducts in the food manufacturing industry.

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The name SinFooTech comes from the term Singapore Food Technology company.

Jian Yong and Jonathan had forked out close to S\$500,000 since its inception in March 2018.

They have also received grants amounting to S\$530,000 from Enterprise Singapore for their research.

### **No Newbie To The Entrepreneur Scene**

The 29-year-old Jonathan serves as the company's CEO and is in charge of the business' strategy and its day to day operations.

He graduated from the Singapore Management University with a degree in Business Management.

Prior to SinFooTech, he was a serial entrepreneur who has managed companies dealing with the sales of consumer products, website design and development, as well as the provision of Search Engine Optimisation services.

He also has experience managing a subsidiary company based in Taiwan that dealt with data analytics and augmented reality.

What was the turning point that made him decide to be an entrepreneur?

"It was in my first semester in university when I was given a bad grade for my favourite subject. The professor obviously did not like me when I did not agree with many things that were taught," said Jonathan.



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"I realised then that it does not matter how good you are at your work and how much you love it if your superiors negate your efforts or did not like you. The same would apply in any organisation."

With that, he realised the importance of a good boss or leader and decided to "take [his] fate into [his] own hands and started [his] first two businesses while [he] was in university".

He is also one of the Forbes 30 under 30 Asia recipients in 2020, alongside Jian Yong.

As of today, Jonathan continues serving as the CEO while Jian Yong, previously CTO, has left the company to focus on his PhD studies.

### **A Gluten-Free And Healthier Alternative To Beer**

Sinfootech is the only company to utilise 100 per cent of soy whey collected to convert it into a food product.

Prior research on soy whey mostly involves extraction of useful materials and still produces huge amounts of wastes.

Currently, the fermentation technology — which was patented in 2018 — can produce about 30 litres of alcohol in around one or two weeks.

In March this year, Sachi was launched. "[The name] also means the blossoming of wisdom, signifying the creation of a new beverage via technology and our hopes that we can bring positive change to our consumers," said Jonathan.

According to Jonathan, Sachi is a smooth and easy to drink beverage. It is suitable for casual drinkers who do not have an acquired taste for current offerings in the market.

Being gluten-free and hop-free, it is a good alternative to beer for anyone with allergies to gluten or hops or are looking to avoid them altogether.

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Sachi is also very high in antioxidants called isoflavones. Isoflavones have been shown in studies to improve skin and bone health and increase protection against age-related diseases such as cardiovascular disease or osteoporosis.

"In fact, through our fermentation process, isoflavones are unlocked from their bound-form to free-form isoflavones which are easier to be absorbed by our bodies," said Jonathan.

Apparently, soy whey does not have much lifespan and can spoil within three to four hours. SinFooTech had managed to find a way to extend its shelf life before it turns bad.



Altering the composition of tofu whey via biotransformation methods converts its strong beany odour into a fruity, sweet flavour, and extends the shelf life of tofu whey from less than one day to about four months.

Moving forward, the company has plans to conduct further research and development into variants of Sachi (for example, 0 percent alcohol content, fruit-flavoured versions, etc).

### **Receiving Support From The Government**

SinFooTech works with the Pro Enterprise Panel – PEP and Singapore Customs to overcome regulatory hurdles and lower their costs of about S\$90,000 over six months.

For instance, the firm's licensing fees, paid to Singapore Customs for the production of alcoholic beverages, are pro-rated at around S\$7,000 per quarter.

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This arrangement, as opposed to a S\$28,000 yearly contract, reduces the commitment period, and lowers cost of exit and failure.

It also does not need to pay excise duties on its research products if these are not sold commercially.

These steps have helped the company set up its research production facility, to test and innovate new products.

### Bringing Sachi To Shelves

Currently, Sachi is not commercialised yet. "We aim to put our products on shelves by the end of the year," said Jonathan.

"Our plans for Sinfootech in 2020 is to commercialise Sachi in Singapore by the end of 2020 and to license our technology to our collaboration partners in China by 2021," said Jonathan.

They are looking for strategic partners that can help them grow rather than investment because the alcohol industry is very cultural driven and distribution networks are established and expensive to secure.

"We hope to proliferate the technology to one country a year to allow more Sachi to be produced all over the world," he added.

It also has in its pipeline plans for the creation of other innovative food products made sustainably from food processing by-products.