

Turning food waste into food-grade medical products

Local medtech player N&E Innovations aims to create products that are both medically effective and environmentally sustainable says founder.

BY VENGA SUBRAMANIAM

WHAT if cashew nuts, durian husks and banana peels didn't have to end up in the trash bin, but could be made into medical-grade products? Local medtech player N&E Innovations has been doing just that for over two years now, turning everyday food waste into products such as masks and disinfectants.

"There is a lot of food waste in the world, especially those that are just incinerated or dumped into landfills. But actually a lot of this waste is valuable – we can upcycle them and make them into more useful products," said Didi Gan, the company's founder and a biomedical science graduate from the University of Melbourne.

Gan and her team started by converting cashew nut skins and husks into an active antimicrobial compound that they named Vikang99, which is able to kill 99.99 per cent of bacteria and viruses such as Sars-Cov-2, H1N1 and salmonella, based on laboratory tests.

The company aims to create products that are both medically effective and environmentally sustainable, said Gan, noting that an estimated 4.18 billion tons of cash-

ew nut waste is produced annually around the world.

A single gram of Vikang99 can produce one litre of disinfectant; the powder can also be used to remove biological and chemical waste in wastewater treatment. N&E Innovations has combined it with durian husk extracts to produce wet wipes and insect repellents, and formulated it into a solution called C2+ for use in consumer products like hand sanitisers,

soaps, disinfectants, and even aroma essence.

The disinfecting C2+ range can last on all surfaces for seven days. The products can also be sprayed on fruits and vegetables because they are edible, said Gan.

Ranging from S\$12.90 for hand sanitizers to S\$32.90 for disinfectants, the

products can be found at Cold Storage supermarkets and at Takashimaya department store. They are available online at NTUC Online, Shopee and Lazada too.

For business clients, N&E Innovations has created antimicrobial

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N&E Innovations founder Didi Gan (left) and scientific adviser Jaslyn Lee. Next year, the company plans to launch some 20 smart recycling vending machines where the public can deposit durian husks after they are done eating the fruit. PHOTO: YEN MENG JIIN, BT

coating C2+X, which is effective for 180 days. This is supplied to companies including Singapore Airlines, Jewel Changi and Wildlife Reserves Singapore.

International expansion

N&E Innovations hit a growth spurt after its medical grade Vi-Masks – its first consumer product, created in 2020 – sold well both locally and abroad, with the masks making their way to as far away as Germany.

"There was demand coming from Europe because of our sustainable production methods and the antiviral effectiveness of our masks," said Gan.

In its most recent financial year ended June 2022, the company hit more than S\$1 million in sales. As it

sets its sights on the international market, it now sells its C2+ disinfectant range in Malaysia, Hong Kong and Cambodia, and is looking to enter Indonesia, mainland China, Taiwan and Japan by 2023.

The company is also in the process of obtaining halal certification for its products and hopes to start selling in the Middle East by the second half of 2023, said Gan.

Innovating to stay green

In the Singapore Environment Council's Singapore Environmental Achievement Awards in August, N&E Innovations won the Green Innovations Award for the SME category, which spurred Gan's team to continue their sustainability drive.

Next year, the company plans to launch some 20 smart recycling

vending machines where the public can deposit durian husks after they are done eating the fruit. The 1.7 metre-tall machines will be able to hold about 28 kg of husks for a start, and will later be expanded for a greater weight capacity, Gan said.

"We intend to locate these machines primarily near durian sellers. We think there will be a strong incentive for sellers to use them because it simplifies their waste management process, especially during the peak durian harvest season," she added.

N&E Innovations is also experimenting with the use of banana peels to create a new grade of antimicrobial Vikang99 powder, turning 100 grams of banana peel into 2 grams of Vikang99.

Annually, 114.08 million metric

tons of banana waste are produced worldwide, leading to excessive emissions of greenhouse gases, said Jaslyn Lee, the scientific adviser for N&E Innovations. Fruit residue also pose challenges in urban food waste management. For bananas specifically, peels comprise some 40 per cent of the fruit but are commonly discarded, she added.

As for its liquid products, the company is rolling out powder refill sachets by November this year. A 10g sachet of powder can be added to plain water to produce 300g of disinfectant solution.

"This helps largely to reduce greenhouse emissions generated from logistics and transport," said Lee.

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