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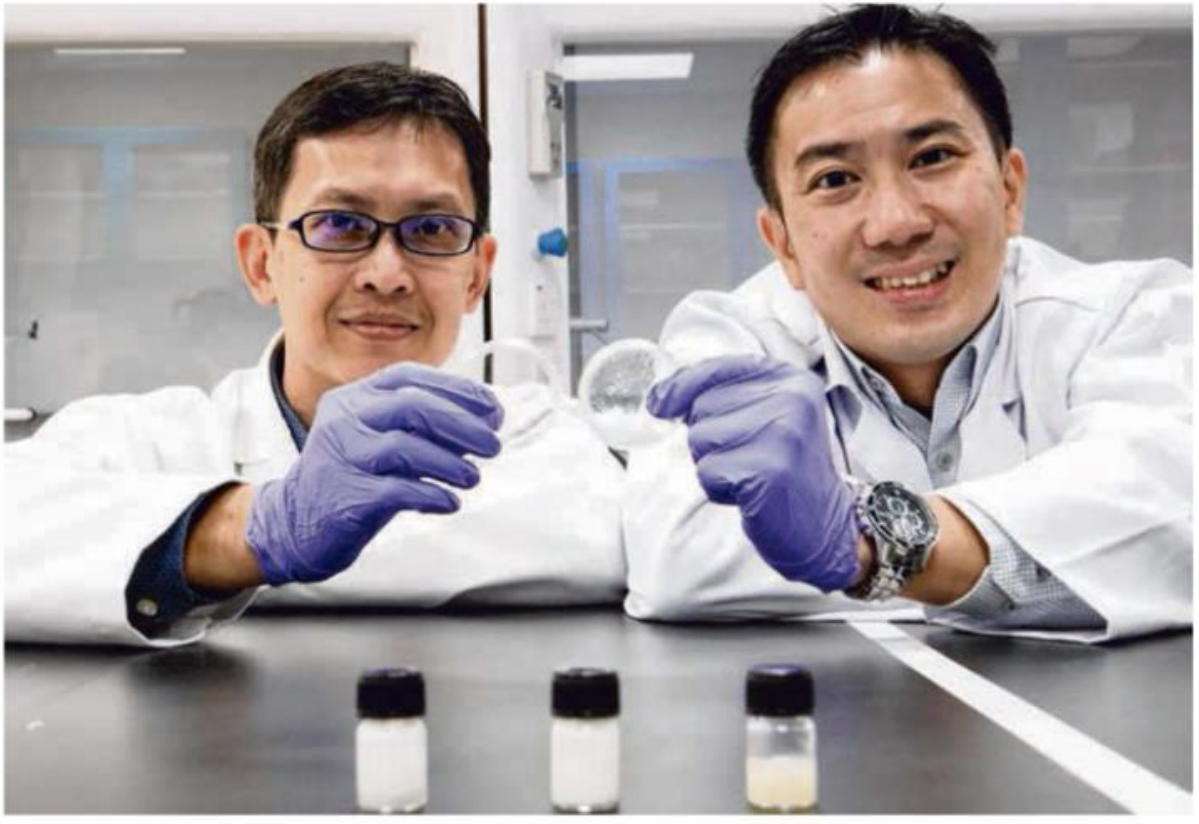

Associate Professor Ng Kee Woei (far left) and Associate Professor Joachim Loo with the nanocellulose fibres which were ground down from wood pulp. ST PHOTO: ZHANG XUAN

Nanofibres added to food could trap fat

Felicia Choo

Cellulose fibres 100 times smaller than the width of a human hair could one day be added to food to reduce fat absorption, if future experiments are successful.

Scientists from Nanyang Technological University (NTU) and Harvard University found that nanocellulose fibres could cut fat absorption by up to 48 per cent in a simulated gastrointestinal tract.

Cellulose is a naturally-occurring plant fibre that cannot be broken down by the human body. Instead, it binds to food in the digestive tract, aiding bowel movement.

The scientists started experimenting with the fibres early last year.

They were ground down from wood pulp by an ultra-fine cutting machine. In this size, the fibres have a much larger surface area and can bind and trap fat molecules called triglycerides, which are usually broken down into fatty acids by digestive enzymes in the gut.

This reduces the amount of fatty acids being absorbed by the small intestine and converted to fat by the human body.

When tested on rats, the scientists discovered that those fed heavy cream containing the fibres absorbed 36 per cent less fat than rats fed heavy cream alone.

The three types of nanocellulose tested trapped more fats than commercially available fat-reducing options, said NTU's Associate Professor Joachim Loo, a scientist doing research on nanomaterials. However, he highlighted that more studies are needed to determine why the trio had better performance.

The study was published in the scientific journal ACS Nano in June and this new method of using nanocellulose fibres as fat blockers has been granted a United States provisional patent, jointly filed by Harvard and NTU.

Associate Professor Ng Kee Woei, a biomedical engineer and materials scientist, said the finding reinforces the conventional wisdom that eating a high-fibre diet is good for health.

But he also noted that there is a danger that people could consume more fatty food, knowing there is an easy way out.

"People may think that because there is this product out there, they can eat all the fat they want," said Prof Ng, who is from NTU's School of Materials Science and Engineering.

"But ultimately, what we eat is our own responsibility."

feliciac@sph.com.sg