

NTU researchers make gel bandages out of durian husks

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In the near future, the protective gel bandages for a patient who has undergone surgery could be composed of fully organic materials. Currently, they are made from synthetic materials such as polymethacrylate, more commonly known as acrylic.

Most Singaporeans, no doubt, will be surprised by the base material for the new antibacterial gel bandages.

Researchers from Nanyang Technological University (NTU) have discovered a way to make them from durian husks – the part of the fruit that is usually discarded.

The husk makes up about 60 per cent of the weight of each durian.

The gel was developed by a team led by Professor William Chen, director of NTU's food science and technology programme.

The team found a way to extract cellulose from the husks and combine it with glycerol – another waste by-product from the biodiesel and soap industry – to create a soft gel which can



Professor William Chen, with a durian husk and a hydrogel patch, with PhD student Cui Xi, holding an antibacterial hydrogel bandage made from durian husks. PHOTO: NTU SINGAPORE

be cut into bandages.

They then added some compounds from baker's yeast, which is deadly to bacteria, for the gel to be antibacterial.

The new bandage is similar to conventional hydrogel patches, which are used to hydrate as well as protect wounds, and are most commonly used after surgery to

reduce scarring.

NTU said conventional hydrogel patches often contain metallic components such as silver or copper ions, making them more costly to produce compared with what Prof Chen's team has made.

"By using waste products which are currently discarded in large quantities – durian husks and glycerol – we could turn waste into a valuable biomedical resource that can enhance the speedy recovery of wounds to reduce the chances of infections," he said.

SCALE UP PRODUCTION

Researchers are now in talks with industry partners to scale up production.

Prof Chen said if all goes according to plan, the product could hit the market in about two years.

In 2017, Singapore imported 14,300 tonnes of durian, or about 10 million durians.

Incidentally, there is little chance of the new bandages raising a stink – they are odourless.

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