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Singapore develops antibacterial gel bandage using durian husk

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Known as the "King of Fruits" in Southeast Asia, the durian has a thick husk with spiky thorns which is discarded, while the sweet flesh surrounding the seeds on the inside is considered a delicacy.

By extracting high-quality cellulose from the durian husks and combining it with glycerol – a waste by-product from the biodiesel and soap industry – NTU scientists created a soft gel, similar to silicon sheets, which can be cut into bandages of various shapes and sizes.

They then added the organic molecules produced from bakerâ??s yeast known as natural yeast phenolics, making the bandage deadly to bacteria.

Being non-toxic and biodegradable, the organic gel bandage is also expected to have a smaller environmental footprint than conventional synthetic bandages.

The clinical advantage of the new hydrogel bandage is that the natural yeast phenolics embedded will help to prevent the growth of bacteria such as Gram-negative E. coli and Gram-positive S. aureus. and the subsequent formation of biofilms (a layer of slime that can lead to antimicrobial resistance within a bacteria colony).

The team of four NTU researchers took two years to research and publish their findings and is now looking for industry partners who may be keen to take their antibacterial gel bandage to market.