

## Sunscreen made from mushroom waste may help create sustainable industry, researchers say



[Nick Femia says the research could save the industry thousands.](#)

**Researchers in Adelaide are working on a way to turn mushroom waste into items like sunscreen, skincare products and outdoor furniture coating.**

For mushroom growers, that means taking something they normally have to pay to dispose of and making it valuable.

Mushrooms SA general manager Nick Femia said putting waste to work could save his business tens of thousands of dollars a year.

"The waste we have is the stalk of the mushroom," he said.

"We twist the mushroom out of their beds and we cut the stalk part, which is the waste part.

"We produce around three to four tonnes of waste every week — there's obviously around 150 to 200 tonnes a year, so it's quite costly."

Vincent Bulone from the University of Adelaide's Waite campus said scientists extracted molecules from the stalks and turned them into a transparent film.

"We have combined two main molecules, a polymer that we can extract from mushrooms, and then small molecules that block UV radiation," Dr Bulone said.

"We can also convert it into different physical forms — it can be a hydrogel used for skincare products.

"We can also use this material as a coating for outdoor furniture, for outdoor textiles; we can also make it water-repellent.

"People often ask me: 'Am I going to smell like a mushroom if I use that in my sunscreen?'

"Of course not, because we use molecules that we've extracted and purified.

**"The idea is to substitute artificial compounds that are currently used in sunscreens [with] natural compounds from mushrooms."**

## Mushroom-packaged mushrooms

Mr Femia said, if the idea took off, it could be a game-changer for the industry.

"We're hoping it can help reduce our costs," he said.

**"Not only do we have a waste that we get nothing for, but it's a cost to remove it.**

"So if you can remove the cost of the waste, and if you can get some form of income from the by-product, then it's a win-win situation and makes our industry more sustainable."

He was also keen to see if the translucent film could be used for another waste problem the industry faced — plastic wrap.

"We have not found a decomposable or compostable plastic that you can stretch-wrap over a 200-gram packet of mushrooms," Mr Femia said.

"If the film they can make from mushrooms can go over mushrooms, that would be one of the most exciting things for our industry in 50 years."