

# India: Scientists develop bacterial wrap that keeps vegetables extra fresh

Researchers at the Indian Institute of Technology in Hyderabad have kept tomatoes fresh and without any microbial spoilage for as long as 30 days. And this was not done by refrigeration, but by using a special, experimental cellulose wrap.

Dr Shivakalyani Adepu and Dr Mudrika Khandelwal from IIT–Hyderabad’s Department of Materials Science and Metallurgical Engineering managed to create a food packaging material made of bacterial cellulose, impregnated with silver nanoparticles. The results of this experiment were published in the Journal of Material Science.

Cellulose is nothing but an organic compound produced by bacteria. It is characterised by elastic strength, plasticity and the ability to hold water. Bacterial cellulose is also nanofibrous, which played to the advantage that we will see later on.

In order to keep vegetables fresh, there should be an appropriate exchange of gases and moisture. Bacterial cellulose with the correct water content helps in the exchange of those gases from the atmosphere.

The problem here is that this exchange also leads to the building up of microbial activity which contributes to the spoilage of the vegetables. Which is where the silver nanoparticles come in. These nanoparticles can promote antimicrobial activity.

According to thebetterindia.com, when tested, the bacteria and silver composite wrap showed tomatoes wrapped in the composite remained fresh without any wrinkles or microbial spoilage even at the end of 30 days, at room temperature.

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