

Australia uses mushrooms for developing sustainable solution to plastics

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Researchers from the University of Sydney, Australia have developed a biological growing process that uses mushrooms to turn organic waste into compostable products as a low-cost, sustainable solution to plastics.

Their work presents an approach for growing sustainable myco-materials – a mixture of mushroom spawn and waste matter such as sawdust and cardboard – into 3D forms of everyday products. By using an interactive software and biodesign process - that takes a complex design and turns it into a mould to grow - they essentially create a cast of the living material that can produce products.

The research looks at how designers can utilise the natural abilities of edible mushrooms in the design process. Some mushrooms, such as the Oyster variety, which can be found at the grocery store, or medicinal Reishi mushrooms, can be used to create new materials. These mushrooms will bind together raw, organic waste matter in their network of roots as they grow, creating structures known as mycelium networks. If the matter is dried before growing a mushroom, mycelium can be used to form a leather-like fabric, or a light, rigid material that can be moulded into various shapes.

The team are now exploring how they can 3D print with myco-materials directly, allowing them to work on a larger scale and use less material overall.